



Market Research Results and Recommendations for Improving Recycling Efforts in the Tunxis Region

Prepared for the
Tunxis Recycling Operating Committee

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Research Goal

Aceti Associates (AA) and its subcontractor, Opinion Dynamics Corporation (ODC), conducted phone survey research among the population in the Tunxis Recycling Operating Committee's (TROC's) member communities in order to improve TROC's understanding of the factors that influence residents' participation in recycling.

Phone Survey Methodology

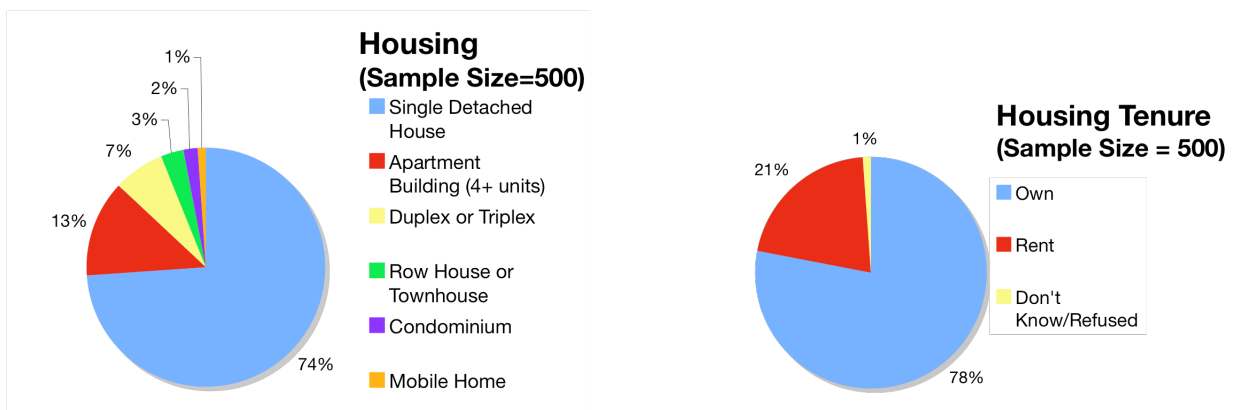
The target population of the study was adults 18 years of age or older residing in the thirteen Connecticut municipalities that are TROC members. The sampling frame for the study was designed in relative proportion to the population distribution for the thirteen-community region. The population distribution was determined by using the 2004 U.S. Census Estimate of Populations for each of the TROC municipalities. ODC purchased a list of randomly selected phone numbers based on the telephone exchanges within the region and age distribution within each community. Five hundred respondents completed the full survey.

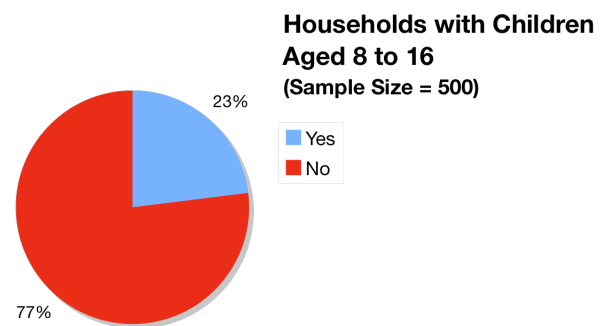
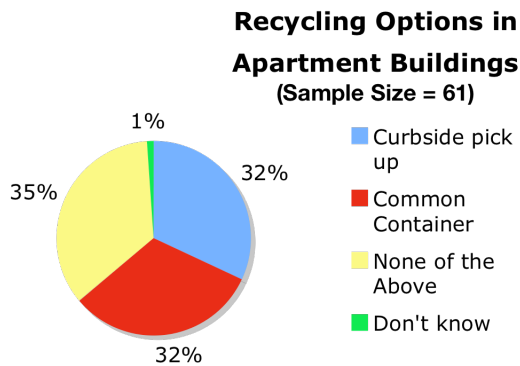
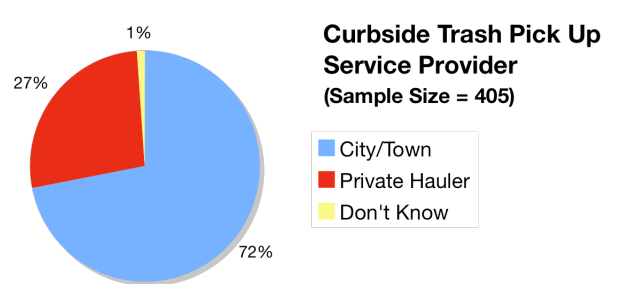
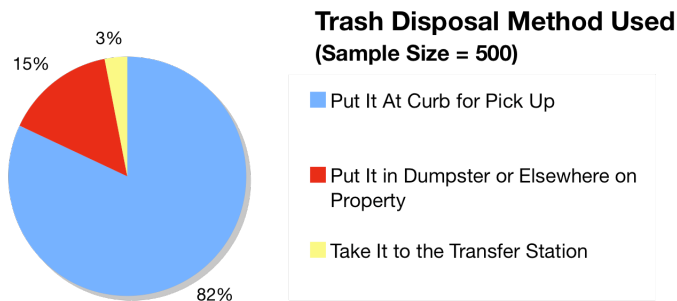
Care was taken to ensure that the sample of 500 respondents was representative of TROC's population by matching the age distribution of respondents as closely as possible to the average age distribution in the thirteen community region, based on 2000 US Census data. In order to monitor the possibility that the recycling attitudes or behavior of those who participated in the survey were different than those who refused to participate, telephone interviewers documented any stated reasons for not participating in the survey. The two primary reasons for non-participation included "no interest in participating in the survey" and the "person primarily responsible for rubbish or recycling is not available". No indications of refusal were given due to specific behaviors related to recycling.

The margin of error for the survey of 500 residents within the thirteen community region is +/- 4.4% at the 95% confidence level, and is higher for certain questions where the response was less than 500. A more detailed description of the survey methodology can be found in Appendix A.

General Sample Characteristics

The survey results indicate that the general characteristics of the survey sample are as follows:

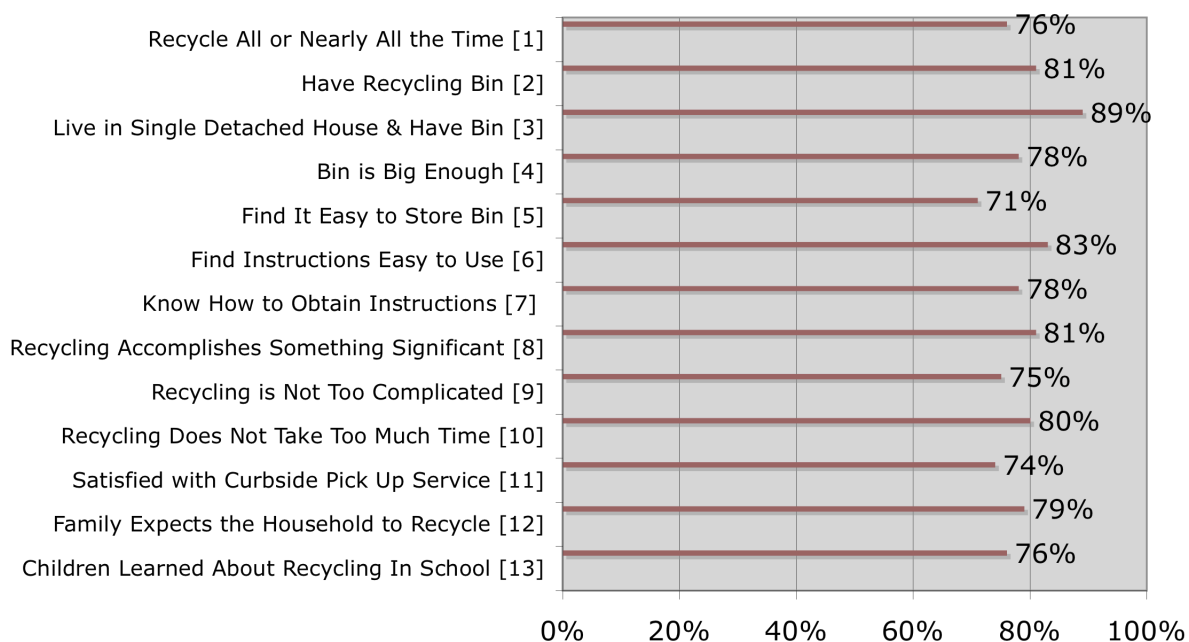




Positive Indicators

In many respects, the survey responses portray a positive picture of the recycling programs in TROC communities.

Positive Indicators

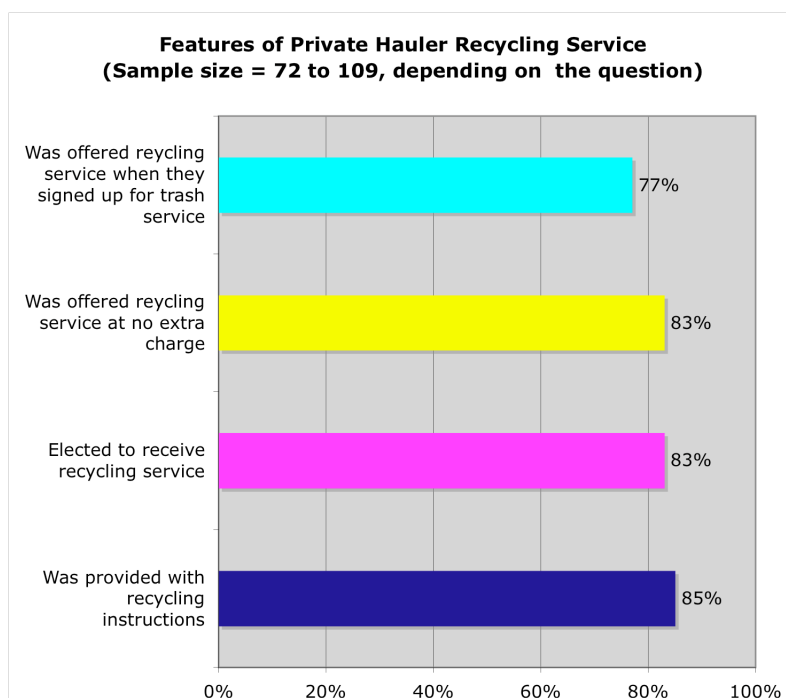


Notes to Chart:

- [1] 76% of survey sample of 500 responded 5/6 or 6/6 (6= “all the time”) to the question: “How much does your household participate in recycling?”
- [2] Sample size = 500
- [3] 89% of the 366 survey respondents who live in single detached homes have a bin.
- [4] 78% of the 403 respondents who have a bin say it is big enough.
- [5] 71% of the survey sample of 500 responded 5/6 or 6/6 (6 = “strongly agree”) to the statement, “It is easy to find a convenient location to store the recycling container.”
- [6] 83% of 217 survey respondents who have instructions responded 5/6 or 6/6 (6 is “very easy”) to the question, “When you refer to the instructions, how easy or hard is it to find what you’re looking for?”
- [7] 78% of the 268 survey respondents who don’t have instructions could answer the question, “If you wanted recycling instructions, how would you obtain them?” The remainder of the 268 respondents didn’t know how to obtain instructions or said they didn’t need them.
- [8] 81% of the survey sample of 500 responded 1/6 or 2/6 (1 is “strongly disagree”) to the statement, “Recycling doesn’t really accomplish anything significant.”
- [9] 75% of the survey sample of 500 responded 1/6 or 2/6 (1 is “strongly disagree”) to the statement, “The rules for recycling are too complicated.”
- [10] 80% of the survey sample of 500 responded 1/6 or 2/6 (1 is “strongly disagree”) to the statement, “Recycling takes too much time.”
- [11] 74% of the survey sample of 500 responded 5/6 or 6/6 (6 is “strongly agree”) to the statement, “I’m satisfied with the curbside service provided.”
- [12] 79% of the survey sample of 500 responded 5/6 or 6/6 (6 is “strongly agree”) to the statement, “My family expects our household to recycle.”
- [13] 113 survey respondents have children aged 8 to 16 at home. 76% of these respondents responded “yes” to the question, “Have your children learned about recycling at school?”

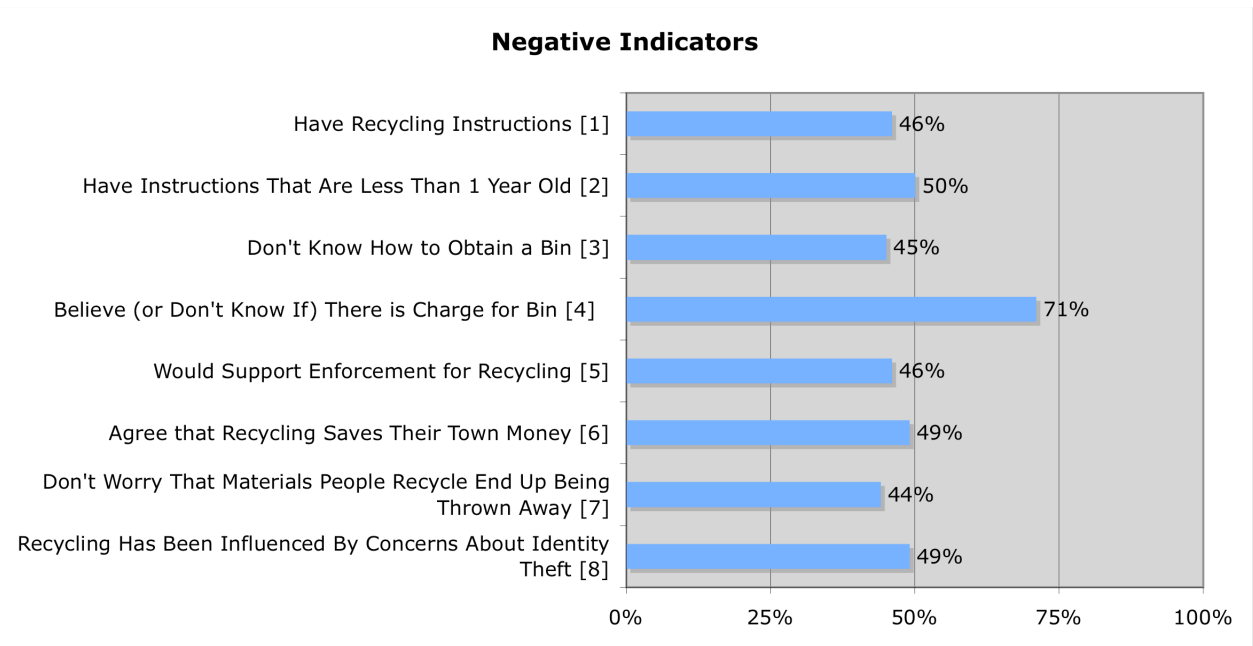
Overall, most respondents report recycling all or nearly all the time. A large majority have recycling bins, especially if they live in single detached homes, and most feel their bin is big enough and is easily stored. Those who have instructions typically find them easy to use, and those who don’t have instructions frequently indicate that they know how to obtain them. A high percentage agrees that recycling accomplishes something significant. Most respondents do not feel that recycling is too complicated or takes too much time, and express satisfaction with the curbside pick up service they receive. Family members commonly expect their household to recycle, and most respondents with children from 8 – 16 years of age at home are aware that their children have learned about recycling in school.

Responses from a subset of the sample that hire a private hauler to pick up their trash indicate that using a private hauler does not typically present barriers to recycling. Further, most people take advantage of the recycling service provided by their hauler. Cross tabulated survey results indicate that private hauler customers are just as likely to have a recycling bin as municipal customers. In addition, there is no difference in satisfaction with municipally or hauler-provided curbside recycling service.



Negative Indicators

The survey results did reveal a number of potentially negative indicators for recycling program success in the Tunxis region.



Notes to Chart:

[1] Sample size = 500

[2] Of the 232 survey respondents who have instructions, 50% of them estimate that the instructions are less than one year old.

[3] Of the 97 survey respondents who do not have a bin, 45% of them don't know how to obtain one.

[4] Of the 97 survey respondents who do not have a bin, 71% of them believe (or don't know if) there is a charge to obtain a bin.

[5] 46% of the survey sample of 500 responded 5/6 or 6/6 (6 is "strongly agree") to the statement, "I would support enforcement of recycling, with a fine for those who don't participate."

[6] 49% of the survey sample of 500 responded 5/6 or 6/6 (6 is "strongly agree") to the statement, "Recycling saves my town money."

[7] 44% of the survey sample of 500 responded 1/6 or 2/6 (1 is "strongly disagree") to the statement, "I worry that the materials people recycle end up being thrown away."

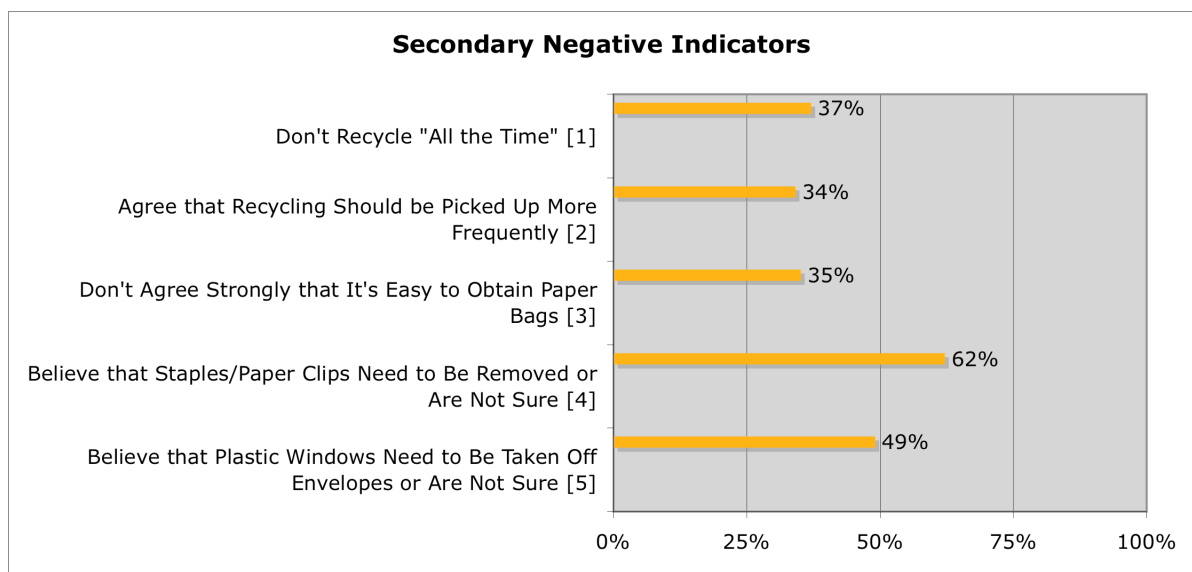
[8] 49% of the survey sample of 500 responded 5/6 or 6/6 (6 is "strongly agree") to the statement, "Concerns about identity theft have influenced the types of paper I've recycled in the past."

Fewer than half of the survey respondents have recycling instructions, and among those who do, only half estimate that the instructions are less than a year old. Almost half of the respondents who do not have a bin do not know how to obtain one. Close to three quarters of those without a bin believe (or don't know if) there is a charge to obtain a bin. Only 46% of the survey sample would strongly support enforcement of recycling, with a fine for those who don't participate. Support for a measure of this type would generally be expected to weaken further, rather than strengthen, once people are given more details about how an enforcement program would be carried out. Therefore, in the absence of such details, the fact that the concept has the strong support of less than 50% of the sample is not a firm foundation for moving forward with an enforcement incentive. Less

than half of the sample agreed strongly or quite strongly that recycling saves their community money. Only 44% of the sample disagreed strongly or quite strongly with the statement, “I worry that the materials people recycle end up being thrown away.” In fact, only 33% of respondents disagreed with this statement in the strongest terms. Apartment dwellers agreed more strongly with this statement than those living in other types of housing. Finally, about half the respondents agreed strongly or quite strongly that concerns about identity theft have influenced the types of paper they’ve recycled in the past.

Secondary Negative Indicators

A number of other indicators were less strongly negative than the items displayed above, but are worth noting.



Notes to Chart:

[1] 37% of the entire survey sample of 500 responded 1/6, 2/6, 3/6, 4/6 or 5/6 (1 is “not at all” and 6 is “all the time”) to the question: “How much does your household participate in recycling?”

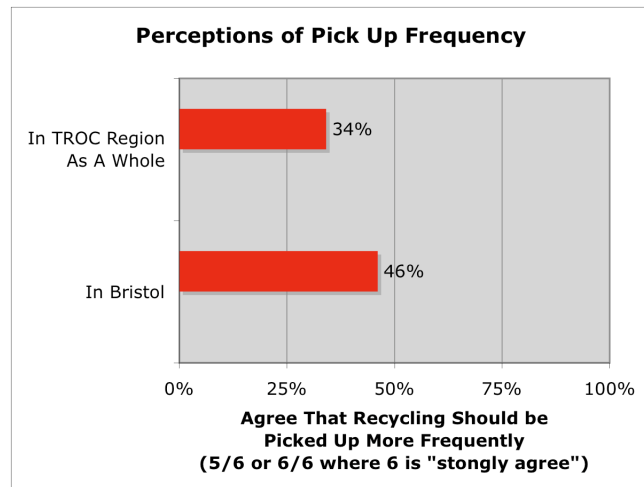
[2] 34% of the survey sample of 500 responded 5/6 or 6/6 (6 is “strongly agree”) to the statement, “I think the recycling should be picked up more frequently.”

[3] 35% of the survey sample of 500 responded 1/6, 2/6, 3/6 or 4/6 (“1” is “strongly disagree and “6” is strongly agree) to the statement, “It’s easy to obtain paper bags in which to store paper for recycling.”

[4] 62% of the survey sample of 500 responded “Yes” or “Not sure” when asked if removing staples and paper clips from paper before recycling was a requirement in their town.

[5] 49% of the survey sample of 500 responded “Yes” or “Not sure” when asked if taking plastic windows off envelopes before recycling was a requirement in their town.

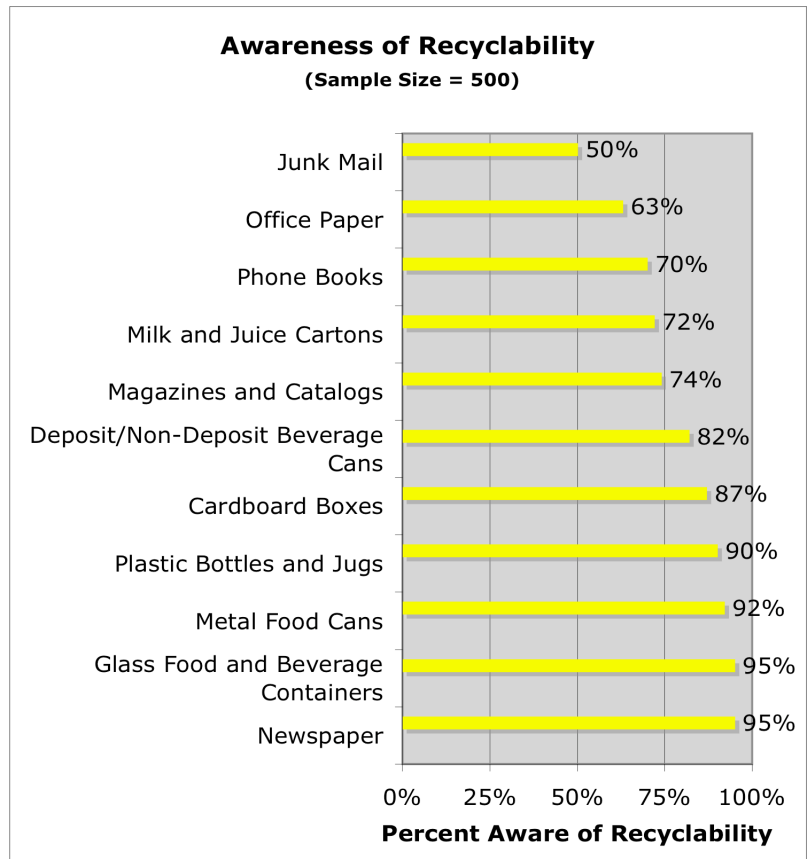
Almost 40% of the respondents report recycling less than “all the time.” While 63% of the sample recycles all of the time, there is room for growth among the ranks of those who are most conscientious about recycling. About a third of the sample believe strongly or quite strongly that recycling should be picked up more frequently. As the chart to the right shows, the percentage feeling this way is significantly higher in Bristol than in the TROC region as a whole. Bristol is the one community that has made a conscious decision to continue distributing the 7 gallon pails used in the earlier days of TROC’s recycling programs. Other communities distribute 18 gallon recycling bins. It seems likely that the smaller size of the recycling containers in Bristol contributes to negative perceptions about the adequacy of collection frequency. However, it is interesting that there was no significant difference in the percent of “No” responses to the question, “Is your bin big enough?” among Bristol, Meriden, New Britain, Southington and “Other Communities.”



Awareness of Material Recyclability and Average Percent Recycled

The survey also assessed the percentage of respondents who are aware that certain materials can be recycled.

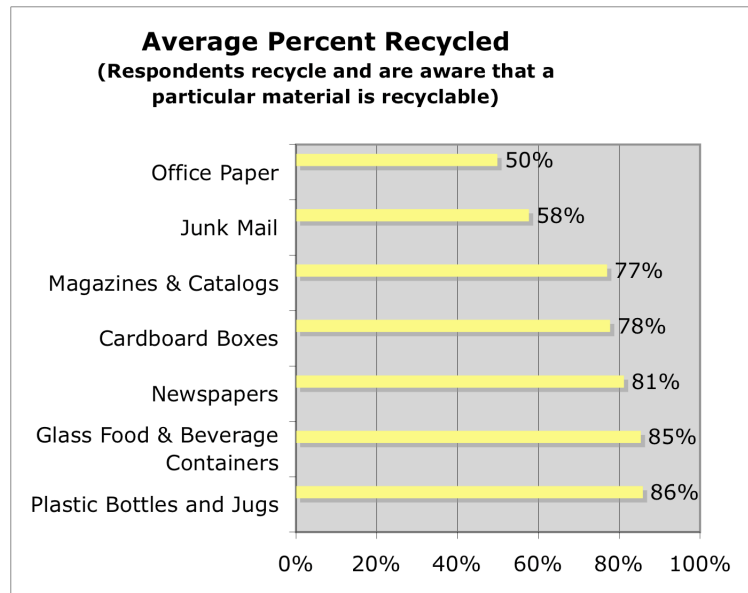
Among the region’s population, awareness of the recyclability of junk mail and office paper are the lowest of all the materials. This is not surprising, considering that TROC added mixed paper to the list of materials accepted in programs only in July of 2005. However, it does point to the need for more publicity around these new recycling opportunities. Awareness of the recyclability of more traditional items is very high.



For those who participate in recycling and are aware that a material can be recycled, the survey asked what percentage of that material their household recycles.

Respondents recycle the smallest fractions of the office paper and junk mail that they generate. The need to limit the length of the survey did not allow us to query respondents about their diversion of all of the materials accepted in TROC's programs. However, it appears that residents divert a higher percentage of the more traditional items from the waste stream.

It is assumed that those who are not aware that a material is recyclable are recycling 0% of the material generated in their household. A weighted average of the percentage recycled by those who are aware and the zero percentage recycled by those who aren't aware reveals the percentage of each material being recovered from the waste stream by TROC's population as a whole.



| Material | % Recovered from Waste Stream |
|-------------------------------------|-------------------------------|
| Junk mail | 26.37 |
| Office paper | 29.36 |
| Magazines and Catalogs | 53.40 |
| Cardboard boxes | 63.46 |
| Newspapers | 71.97 |
| Plastic bottles and jugs | 72.40 |
| Glass, food and beverage containers | 76.05 |

Recovery rates of 70% or above can be considered high recovery rates.¹ This would indicate that there is still substantial room for growth in recovery of a variety of paper materials. Of course, because households generate much more of some materials than others, increasing the recovery of some materials offers greater potential for reducing the waste stream. The survey gauged household generation of two materials, newspaper and magazines/catalogs. A calculation based on generation rates, awareness of recyclability and percent recycled indicates that overall, TROC households are still throwing away an

¹ DSM Environmental Services, Inc. (2004, April). City of Cambridge Analysis of Curbside and Drop-off Recycling Programs. Prepared for the Department of Public Works, Cambridge, MA.

average of 94 pounds of newspaper per household per year, and 50 pounds of magazines and catalogs. Although the recovery rate for magazines and catalogs recorded in the table above is much lower than that for newspapers, the sheer weight generated from receipt of daily and Sunday newspapers overwhelms that of magazines and catalogs. About two-thirds of survey respondents receive at least one daily newspaper and at least one Sunday newspaper. It is possible that the average daily newspaper and Sunday newspaper weights² used in the calculation are higher than the typical weights of the newspapers received by households in the TROC region. However, it is safe to assume that TROC households are still throwing away as much or more newspaper than magazines and catalogs.

It was not possible to query survey respondents about the quantity that they generate of each recyclable material accepted in local programs. Therefore, we are not able to conclude from these survey results which recyclable materials currently represent the greatest opportunity for reducing the waste stream in the Tunxis region. However, waste composition studies conducted in various locations in the US frequently find that the four commonly recycled materials that tend to be present in the waste stream in the highest percentages by weight are mixed paper, cardboard, newspaper and glass. The order in which the four are ranked does differ from place to place. These findings, along with the survey results showing that newspaper is still being thrown away in the Tunxis region in quantities equal to or greater than magazines and catalogs, suggests an outreach strategy that promotes the recycling of a wide variety of paper types.

Not only is it important to ask, “What materials are still in the waste stream in the greatest quantities?” but also, “Who is throwing them away in the greatest quantities?” The survey results show that although those who receive more newspapers, magazines and catalogs also recycle more of them, households who recycle less still throw away more of these materials than others.

| Participation Level (1 = not at all; 6 = all the time) | Percent at Each Participation Level | Lbs of Newspaper Thrown Away Per Household Per Year | Lbs of Magazines & Catalogs Thrown Away Per Household Per Year |
|--|---|---|--|
| 1-3/6 | 16% | 185 | 100 |
| 4-5/6 | 20% | 116 | 63 |
| 6/6 | 63% | 65 | 34 |

However, the information above does not fully reveal with which group lies the greatest potential for reducing the waste stream. While those who recycle less or not at all (1-3/6) throw away the most, they are also the smallest of the three groups and they may be the least able or willing to change their recycling behavior. Those who participate in recycling at a medium to high level (4-5/6) may be more easily motivated to increase their recycling than the 1-3s, but they are already recycling more than the 1-3s and

² The average weight for a daily newspaper used in the calculation was the average of the Boston Globe and the New York Times (minus inserted advertising) on one day in April, 2006. The weight for a Sunday newspaper was one issue of the Boston Sunday Globe.

therefore have less room for growth. Also, they, like the 1-3s, are a small fraction of the total population compared to those who recycle all the time (6/6). Although those who recycle all the time (6/6) have little room to increase their recycling, there are lot of them, and they are clearly highly motivated when it comes to recycling. Taking into account each group's current recovery of newspaper, magazine and catalogs, its potential for change and its size, the greatest potential for reducing the waste stream by recycling more newspaper and magazines/catalogs does, in fact, lie with those recycling less or not at all. Medium to high recyclers follow, and those who recycle all the time bring up the rear. The figures below assume an overall hypothetical "population" of 500 households. See Appendix C for a description of how the figures in the table below were calculated.

| Participation Level (1 = not at all; 6 = all the time) | Potential for Increased Newspaper Recycling (Lbs/Year) | Potential for Increased Magazine/Catalog Recycling (Lbs/Year) | Total Potential for Increased Newspaper and Magazine/Catalog Recycling (Lbs/Yr) |
|--|---|--|---|
| 1-3/6 | 9,970 | 5,916 | 15,886 |
| 4-5/6 | 8,212 | 5,250 | 13,462 |
| 6/6 | 5,965 | 7,003 | 12,968 |

However, while there are differences in the potential for increased newspaper and magazine/catalog recycling among the three participation groups, those differences are relatively small. All the groups have the potential to make a significant contribution to increased paper recycling in the TROC region.

How might TROC help each of these participation groups achieve its potential for increased paper recycling? In order to answer this question, it is important to understand how those who participate differently differ from each other.

Factors that Correlate with Level of Recycling Participation

The positive and negative indicators, awareness levels and recovery rates described above provide a snapshot of recycling programs in the TROC region. However, what do the survey results reveal about the factors that appear to be related to people's level of recycling participation? Statistical significance tests indicate which factors vary with participation level and which ones remain relatively unchanged even when people report more or less participation in recycling. With a few exceptions, recommendations for increasing the recycling rate in the TROC region will focus on the factors that are correlated with participation level.

People who participate more in recycling³ are more likely to:

- 1) live in a single detached home
- 2) own their home

³ Level of recycling participation is determined by people's response to the question, "On a scale where 1 is "not at all" and 6 is "all the time," how much does your household participate in recycling?"

- 3) have recycling instructions
- 4) have a recycling bin
- 5) agree more strongly that it is easy to find a place to store the container
- 6) disagree more strongly with the idea that recycling takes too much time
- 7) agree more strongly that their family expects the household to recycle
- 8) be older (although the difference is not significant across all age groups)
- 9) recycle a higher percentage of the following materials
 - a) junk mail
 - b) newspaper
 - c) magazines and catalogs
 - d) cardboard boxes
 - e) glass containers

Whether people participate more in recycling is unrelated to:

- 1) whether their trash is picked up curbside by municipal service or by a private hauler
- 2) how old their instructions are
- 3) how strongly they agree that the instructions are easy to use, among those who have them
- 4) whether a language other than English is spoken at home
- 5) whether or not they say their bin is big enough
- 6) how worried they are that the materials people recycle end up being thrown away
- 7) concerns about identify theft
- 8) whether they have 8 -16 year old children at home
- 9) household size (with the exception that 2-person households participate more than single person households)
- 10) education level
- 11) income level (there is a marginal difference in participation of those in the highest income categories compared to those in the lowest income categories)
- 12) the community they live in (cross tabulations were available for Bristol, Meriden, New Britain, Southington and "Other Communities")

Further, awareness that the following materials are recyclable does not differ significantly across recycling participation levels:

- 1) junk mail
- 2) newspapers
- 3) phone books
- 4) office paper
- 5) beverage cans
- 6) plastic bottles and jugs

The survey results also allow us to develop profiles of respondents who report different levels of recycling participation. These profiles, which can be found in Appendix B, help us understand the ways in which respondents who recycle all the time (6/6) are more likely to be different from others. Respondents who report recycling less or not at all (1-3/6) are also more likely to have certain characteristics. Respondents with medium to high participation appear to have more in common with people who recycle all the time

than with people who report recycling less or not at all. However, respondents with medium to high participation are likely to be different from each of the other groups in more ways than they are similar to them.

Targets for Improvement

In summary, analysis of the phone survey results suggest the following targets for improving the success of TROC's recycling efforts:

Materials

- All types of paper

Groups

- All participation groups:
 - Households that participate less or not at all (1-3/6)
 - Households that participate at medium to high levels (4-5/6)
 - Households that participate all the time (6/6)

Households that participate less in recycling are more likely to be made up of:

- younger adults
- residents of multifamily housing

The table below shows that the percentage of multifamily housing residents among those who recycle less or not at all is sizeable. The percentage of multifamily housing residents among those who participate at medium to high levels is also significant.

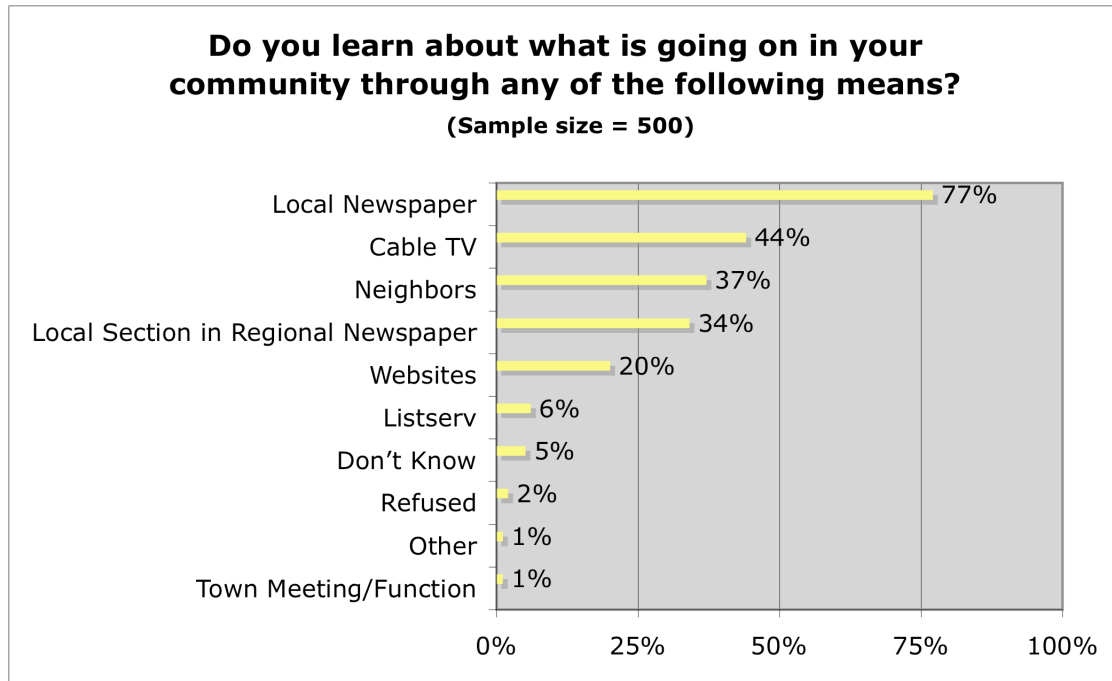
| Participation Level (1 = not at all; 6 = all the time) | Percent in Multifamily Housing |
|--|--------------------------------------|
| 1-3/6 | 55% |
| 4-5/6 | 35% |
| 6/6 | 16% |

Actions

- Region-Wide
 - Increase paper recycling
 - Increase the percentage of households with recycling instructions
 - Increase the percentage of households with bins
- Community-Specific
 - Make larger bins an option in Bristol

Media Use Habits

Recommendations for increasing recycling participation in the Tunxis region need to take into account the media that people use to gain information. Survey respondents provided multiple responses to the question below:



People who report recycling all the time are significantly more likely than others to learn about what is going on in their community through the local paper. However, the local newspaper is used for this purpose by at least 60% of households at all participation levels.

| Participation Level (1 = not at all; 6 = all the time) | 1-3/6 | 4-5/6 | 6/6 |
|---|-------|-------|-----|
| Percent that Use Local Newspaper | 61% | 70% | 83% |

Other than the local newspaper, survey respondents use the above means of learning what is going on in their community at similar rates, regardless of their level of participation in recycling. It would be interesting to know how people use cable TV to find out what is going on in their communities. If people use it primarily as a reference to check on school closures, event cancellations, etc., it may not be very useful for bringing new information about recycling to people's attention.

What else is known about media use habits and trends? Nationwide, current consumption of traditional mass media stands as follows:⁴

| | Television Viewing | Prime-time Television Viewing | Cable Television Viewing | Radio Listening | Newspaper Reading |
|---|-----------------------|-------------------------------------|--------------------------------|--------------------|----------------------|
| % of US population aged 18 years and older | 94.3% | 83.3% | 76.6% | 84.2% | 79.8% |

The biggest change in media use since 2000 has been in use of the internet. Internet use has jumped by 30% increase in that time period, with 72% of adults going online in 2005.⁵ The share of Americans online is highest among teens and younger adults.

| Age | 12-17 | 18-28 | 29-40 | 41-50 | 51-59 | 60-69 | 70+ |
|-----------|-------|-------|-------|-------|-------|-------|-----|
| Go Online | 87% | 84 | 87 | 79 | 75 | 54 | 21 |

Changing media use habits are illustrated by how Americans get their news. According to the Pew Research Center for People and the Press, “The age gap in newspaper readership continues to widen. Six-in-ten Americans age 65 and older say they read a newspaper on a particular day, compared with just 23% of those under age 30.” Conversely, the percentage of Americans who get news online three or more days per week increased from 2% in 1995 to 29% in 2004. “Internet news, once largely the province of young, white males, now attracts a growing number of minorities. The percentage of African Americans who regularly go online for news has grown by about half from 2000 to 2004. “More generally, the Internet population has broadened to include more older Americans. Nearly two-thirds of Americans in their 50’ and early 60s (64%) say they go online, up from 45% in 2000.”⁶

For all audiences, the world wide web is increasingly the place to learn and connect to an issue. A number of prominent public health campaigns promoting anti-tobacco messages, obesity reduction and exercise use funny, cryptic and light ads to draw the audience to a website. The website conveys the real information.⁷ For example, the

⁴ Viswanath, K. (2005, October). The communications revolution and cancer control. *Nature Reviews Cancer*, 26, 828-834.

⁵ Richard Greif, (April 10, 2006). Personal Communication; Fox, S. & Madden, M. (2005, December). Generations online. Data Memo prepared for the Pew Internet & American Life Project.

⁶ Pew Research Center for the People and the Press. (2004, June 8). News Audiences Increasingly Politicized; Online News Audience Larger, More Diverse. <http://people-press.org/reports/display.php3?ReportID=215>, p3.

⁷ Healy, M. (2006, January 2). A new media blitz – plus the powers of the federal government, business and advocates – just might get Americans moving. *Los Angeles Times*.

Small Step Campaign is a national multimedia initiative designed to promote healthier lifestyles among Americans at risk of obesity and long term chronic disease. The message is to take small steps each day to increase physical activity and improve eating habits. “Television, radio, newspaper, online, out-of-home and magazine ads direct audiences to a user-friendly, interactive website with comprehensive information, interactive tools and an electronic newsletter.”⁸ An ongoing campaign called “Fight Mannequism” seeks to motivate 18-24 year olds to actively participate in civic and political life. A multimedia advertising campaign directs traffic to a website where young people can share stories about how they became involved in an issue that matters to them, link to sites to volunteer for a particular cause, submit digital mini-films to illustrate their involvement or sign up for mobile alerts on their cell phones.⁹

Media Recommendations

Aceti Associates recommends that TROC pursue a multi-pronged media strategy to increase the number of people participating in recycling and the amount of material recyclers are diverting from the waste stream.

1. Because use of local newspapers is high, improve and expand their use to convey information.
2. Over time, create a more user-friendly and interactive website.
3. Use a variety of media to drive traffic to the website.
4. Use direct mail to deliver recycling instructions and information on getting a recycling bin to Tunxis households.

Each component of the proposed media strategy is discussed in more detail below.

1. Convey Information through Local Newspapers

In order to improve and expand the use of local newspapers to convey recycling information, Aceti Associates recommends that TROC pursue the following:

- Use engaging media hooks to get press coverage:
 - What happens to the materials that people recycle?
 - Recycling saves tax dollars in my community.
 - Recycling is the norm, but it’s surprising how much more can be done.
- Use the media hooks to draw attention to paper recycling messages:
 - Specifically, junk mail, office paper, phone books, catalogs, magazines are recyclable – in fact, they’re as recyclable as newspaper!
 - Generally, recycling more of all types of paper is our goal.
 - Here’s a simple slogan to help you recycle as much paper as possible: “Is It Paper? Is It Printed? Recycle It! (The slogan can be thought of as a

⁸ The Henry J. Kaiser Family Foundation. (2006, March). Re-Powering the Public Interest: New Media and the Future of Public Service Advertising. <http://kff.org/entmedia/entmedia032206pkg.cfm>

⁹ The Henry J. Kaiser Family Foundation. (2006, March). Re-Powering the Public Interest: New Media and the Future of Public Service Advertising. <http://kff.org/entmedia/entmedia032206pkg.cfm>

paper recycling campaign “brand” or “theme” that helps people make the connection that a wide variety of paper is recyclable and that we’re trying to recycle as much paper as we can. The theme should be focus group tested for appeal and understandability.)

- Paper recycling takes less time than you think:
 - Plastic windows, staples and paper clips don’t have to be removed before recycling.
 - Here, shown visually, are the simple steps involved in paper recycling.
- Incorporate some familiar messages into communications that attempt to influence recycling behavior. Communicating only concepts that people don’t yet understand increases the possibility that they will tune out.

Each recommendation for expanding and improving the use of newspapers to convey information is discussed in more detail below.

Use Engaging Media Hooks

The survey results suggest several themes that can be used as hooks for obtaining press coverage. One is the question of what happens to the materials that people recycle and whether they end up being thrown away. Survey respondents’ degree of concern about this question did not appear to be related to their level of participation in recycling. However, a number of other studies have found links between participation and people’s perception of the effectiveness of recycling.¹⁰

This question may present an attractive angle for press coverage because most people know little or nothing about what happens to their recyclables after they are picked up. Further, it does not appear that TROC press releases or newsletters have addressed this issue in the last several years. How might TROC gain memorable press coverage on this topic? A reporter may value the human interest angle inherent in accompanying a group of parents and children on a tour to the BRRFOC/TROC recycling facility or a local manufacturing plant that uses recyclables as a feedstock. Quotes from tour members add vividness and human interest to these stories. Quotes from mill representatives stressing their need for more waste paper, for example, communicate that recyclables have real value to industry. Photos featuring bales of paper or containers at the recycling facility convey the idea that recyclables are carefully sorted and prepared for market rather than being thrown away. It may be possible to extend the reach of the story by working with local newspapers to place a video clip of recycling facility or mill operations on their websites.

Local property taxes are often a lightning rod for media attention, and savings in taxpayer dollars through recycling may be another effective media hook. While survey respondents’ level of agreement with the statement, “Recycling saves my town money,” did not correlate consistently with participation level, people who recycle all the time

¹⁰ Aceti, J. (2002). Recycling: Why people participate; Why They Don’t. Report prepared for the Massachusetts Department of Environmental Protection.

agreed more strongly with this statement than those who recycle less or not at all. Anecdotal evidence collected by recycling professionals indicates that tax dollar savings through recycling is a important measure of the effectiveness of recycling for people than environmental benefits. Further, fifty-five percent of survey respondents who recycle less or not at all (1-3/6) are homeowners and therefore pay property taxes. Seventy-three percent of those recycling at a medium to high (4-5/6) level are homeowners. Eighty-six percent of those who report participating in recycling all the time are homeowners.

Some effort should be devoted to determining the most effective way to “frame” tax dollar savings through recycling. It could be presented positively (“Berlin could save an additional \$50,000 this year if every household recycled one more bag of paper each collection day”) or negatively (“We estimate that Berlin residents are literally throwing away \$50,000 in tax dollars each year by disposing of junk mail and other types of paper instead of recycling them”). Most organizations gravitate toward presenting positive rather than negative motivations to engage in an activity. However, messages that emphasize losses that occur as a result of inaction *can* be more persuasive than messages that emphasize savings as a result of taking action.¹¹ It is difficult to tell in advance whether a positively or negatively framed message will be more effective in changing behavior.¹² A negatively framed message may be a more effective media hook, but less effective in changing behavior. It is suggested that positively and negatively framed messages be tested with focus groups to determine which is more compelling.

Communities may be able to use the tax dollar savings media hook numerous times by comparing money saved in consecutive years, or by setting a goal to save tax dollars through recycling and getting press coverage on progress towards the goal.

A third effective media hook may be the juxtaposition of messages about positive recycling norms with surprising messages about what is still being thrown away. For example, “76% of respondents to a recent survey about recycling recycle all or nearly all the time. However, only 50% of respondents were aware that junk mail has recently been added to the materials they can recycle at the curb.” Communication of positive norms about a sustainable activity, such as recycling, is frequently an important component of behavior change strategies. It would be important to craft these messages so that the positive norm (76% recycle all or nearly all the time) was the primary message rather than the negative norm (only 50% were aware).

Use Media Hooks to Draw Attention to Paper Recycling

Aceti Associates recommends that TROC use the media hooks described above to draw attention to various aspects of paper recycling. As noted earlier, awareness of recyclability and percent recycled are lowest for a variety of paper items. And, although

¹¹ McKenzie-Mohr, D. & Smith, W. (1999). *Fostering Sustainable Behavior: An Introduction to Community-Based Social Marketing*. Gabriola Island, British Columbia: New Society Publishers. P90.

¹² Morin, R. (2005, November 6). Warning: Some Health Ads May Be Dangerous to Your Health. <http://www.washingtonpost.com>

the recovery rate for newspaper is high overall, the sheer amount of it in the waste stream makes it an important target, especially among those who don't recycle all the time. Finally, across a variety of locales and income levels, newspaper, mixed paper and cardboard consistently rank among the biggest fractions by weight of the recyclables stream.

Messages regarding paper should promote the recyclability of junk mail, office paper, phone books, magazines and catalogs. It should be noted that overall awareness of the recyclability of magazines and catalogs is high, at 74%. However, those who recycle all the time are significantly more likely than others to be aware that magazines and catalogs are recyclable. Among those who don't recycle all the time, awareness levels approach those of junk mail and office paper.

| Participation Level (1 = not at all; 6 = all the time) | 1-3/6 | 4-5/6 | 6/6 |
|---|-------|-------|-----|
| Percent Aware of the Recyclability of Magazines and Catalogs | 56% | 63% | 83% |

Further, as the table on page 10 illustrates, there appears to be significant potential for increasing magazine and catalog recycling among those who report recycling all the time. Increasing awareness of the recyclability of magazines and catalogs in this highly committed group to the level of newspaper (97% awareness) would be worthwhile.

It is also recommended that TROC introduce a memorable slogan – a “brand” -- into its communications about paper recycling. The brand will help people make the connection that a wide variety of paper is recyclable. For example, “Is it Paper? Is it Printed? Recycle It!” The slogan would need to fit TROC's criteria for the types of paper accepted in its programs, and should be focus group tested to gauge its appeal and understandability.

The extent to which survey respondents agreed that recycling takes too much time was inversely correlated with their recycling participation. On average, those who recycle less or not at all felt twice as strongly that recycling takes too much time as those who recycle all the time. In working to improve this perception among those who recycle less or not at all, it is recommended that TROC focus on messages that are relevant to paper recycling. These could include messages that plastic windows, staples and paper clips don't have to be removed before recycling. Visuals showing a person demonstrating the simple steps involved in paper recycling may also be helpful. Humans learn through imitation, and messages that describe actions to be taken in clear, straightforward steps are more likely to be followed.¹³

¹³ McKenzie-Mohr, D. & Smith, W. (1999). *Fostering Sustainable Behavior: An Introduction to Community-Based Social Marketing*. Gabriola Island, British Columbia: New Society Publishers. P93.

Incorporate Some Familiar Messages

Finally, it may also be helpful to incorporate some familiar messages into communications that attempt to influence recycling behavior. Communicating only concepts that people don't yet understand increases the possibility that they will tune out.¹⁴ For example, the recyclability of newspaper is widely recognized regardless of how much people recycle. Therefore, a message that junk mail is as recyclable as newspaper includes an idea that almost everyone already understands and accepts.

2. Create a User-Friendly, Interactive Website

If current trends continue, the internet will become increasingly dominant in the media mix that people use to gain information. TROC will want to position itself to communicate as effectively as possible with people in that medium. Further, the survey results show that those who participate less in recycling tend to be younger – the same audience that uses the internet in greatest numbers. Aceti Associates recommends that TROC devote substantial effort to creating an engaging web presence that can educate and inform people about recycling in a wide variety of ways.

A web address that reflects the advertising theme would be likely to help customer recall (e.g. www.smallstep.gov; www.FightMannequanism.org). A review of campaigns featuring websites of the type proposed here suggest possible interactive elements that would allow visitors to:

1. watch:
 - a video tour of the recycling facility operations
 - videos on how products are made from recyclables
 - videos that demonstrate how to recycle
2. sign up for a periodic e-newsletter
3. take a recycling quiz and win prizes (prizes would need to be considered carefully so that people are not just being rewarded with more “stuff” that they will then throw away)
4. request a bin (if bin delivery is an option)
5. download recycling instructions
6. sign up to receive recycling-related text messages via cell phone (reminder the week of HHW day in their town; reminder to recycle phone books when delivered; updates on amount of money their town has saved due to recycling, fun facts, etc.)
7. play games with a recycling theme
8. use a “Calculator” that allows visitors to estimate how much more money their community would save under different recycling scenarios (e.g. if everyone recycled one more bag of paper each pick up day)

3. Use Media to Drive Traffic to the Website

An advertising campaign to drive traffic to the website should be fashioned, and designed to appeal to younger adults.

¹⁴ Greif, Richard. (2006). Personal Communication on April 13, 2006.

An advertising campaign might include: free press coverage, newspaper ads, SuperCoups coupon packages, TROC’s traveling billboard, community websites (municipal, Chamber of Commerce, public library, school sites, etc.), and/or ads on commercial websites such as ctcentral.com, ctnow.com, bristolpress.com, etc.

Finally, the possibility of integrating the website and ad campaign with the *Power of One* curricula should be explored.

4. Use Direct Mail to Increase the Number of Households That Have Recycling Instructions and Bins

The survey results indicated that those who say they participate more in recycling are more likely to have recycling instructions. Further, less than half of the survey respondents have recycling instructions.

Overall, the percentage of households in the TROC region that have recycling bins is quite high, at 81%. Not surprisingly, people who participate more in recycling are more likely to have a bin.

| Participation Level (1 = not at all; 6 = all the time) | 1-3/6 | 4-5/6 | 6/6 |
|--|-------|-------|-----|
| Percent That Have a Bin | 37% | 82% | 91% |

The likelihood of having a bin also differs significantly depending on the type of housing people live in.

| Housing Type | Single Detached House | Other Housing ¹⁵ | Apartment Buildings ¹⁶ |
|---|--------------------------|-----------------------------|--------------------------------------|
| Percent That Have a Bin | 89% | 70% | 40% |
| Number of Households in 500 Household Sample that Need Bin | 41 | 20 | 23 |

While a very high percentage of those in single family homes have bins, the single family housing stock composes a much larger fraction (74%) of all housing in the TROC region than “other housing,” (13%) or apartment building units (13%). For this reason, the number of single detached homes needing bins in a hypothetical 500 household “population” is about the same as the number needed in “other housing” and apartment buildings combined. This is also true because about one third of the survey respondents who live in apartment buildings report that residents in their building don’t have

¹⁵ Other housing includes duplexes, triplexes, row and town houses and mobile homes.

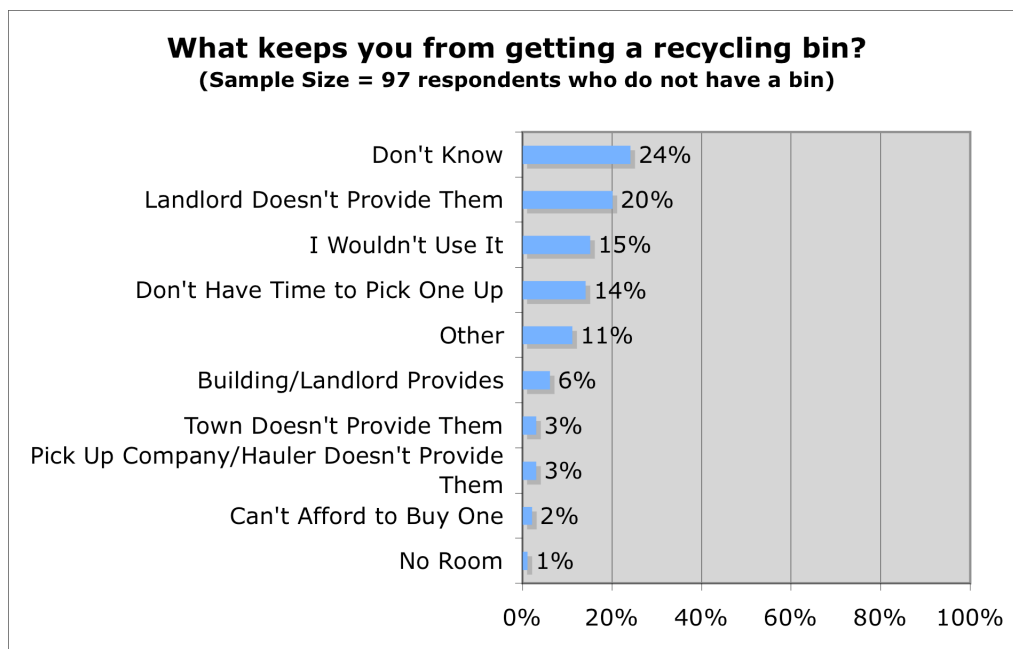
¹⁶ Apartment buildings have four or more units.

recycling options, other than taking materials to a transfer station. Another one-third of apartment dwellers report that residents in their building have the option of putting their recycling in a common container located somewhere in the building or on the grounds. Residents in buildings with this type of program are not typically provided with individual recycling bins. These factors decrease the number of households in apartment buildings that would be eligible to receive a recycling bin. Therefore, efforts to distribute bins to households in single detached homes appear to be equally worthwhile as efforts focused on multifamily housing. In fact, because occupants of single detached homes are less likely to be renters, they are less transient. The positive effects of getting bins to homeowners are likely to be longer lasting.

Mailing instructions and information on how to get a bin to each household in TROC's communities is likely to be the most effective way to increase the percentage of residents who have instructions and bins. If this approach is too costly, TROC might consider mailing instructions and bin information to perhaps one third of households each year. An even less expensive alternative may be to have the instructions and bin information printed as a sizeable, paid advertisement in local newspapers, preferably on the same day that a story about recycling is running. Having recycling instructions and bin information included as an advertising insert in local newspapers is likely to be less expensive yet, but probably less likely to be noticed than an ad in the newspaper itself.

Mailing instructions and information on how to get a bin directly to each household in TROC's communities means that the mailing will reach some households that do not have curbside recycling service. It would be important to include caveats to this effect in any outreach items. Even with caveats, it is likely that some instances of confusion will result. It seems that this would be an acceptable trade-off in order to reach the widest group of households possible. However, TROC will have to consider this question carefully.

Since 71% of survey respondents without a bin believe (or don't know if) there is a charge to obtain a bin, it would be important that direct mail and other publicity pieces emphasize that bins are available for free. It may be worthwhile to offer free bin delivery if the bin is requested during a limited time period. A small but significant fraction of survey respondents without a bin indicated that lack of time to pick a bin up keeps them from obtaining one.



Use a Variety of Media to Reach New Residents

TROC communities may also want to consider several initiatives that will help new homeowners obtain instructions and bins. It is likely that in Connecticut there is an equivalent publication to Banker & Tradesman, which publishes a record of real estate transactions in Massachusetts communities. The City of Cambridge, MA, for example sends a letter to residential addresses that have changed hands in the last month, welcoming the new homeowner and providing information on how to obtain a bin. Recycling instructions are enclosed with the letter. Because Cambridge has a high percentage of rental housing, it employs other means of reaching new residents as well. A brief note is included in new voter registration confirmation letters, directing new residents to request recycling instructions and a bin. Cambridge also provides a “Guide to Moving and Renovating in Cambridge” to real estate agencies and moving companies for distribution to new residents. The Guide includes recycling instructions and information on getting a bin.

The Town of Arlington, MA sends a letter to new homeowners when their water meter is read for the first time. Enclosed in the letter is a coupon that can be exchanged at Town Hall for a free recycling bin.

Community-Specific Recommendations

Make larger bins available in Bristol

Concern about the adequacy of collection frequency in Bristol suggests that it would be helpful for that community to make 18-gallon bins available to residents. However, it is also true that the ease with which people can find room to store their recycling bin is correlated with how much they say they participate in recycling. According to the 2000

US Census, only 52% of Bristol's housing stock is single family, owner occupied housing. Because multifamily housing units are generally smaller than single detached homes, this suggests that it would make sense to continue to make the 7-gallon recycling pails available as an option to Bristol residents living in multifamily housing.

Tracking TROC's Progress Over Time

How might TROC measure the results of its efforts to increase the number of people participating in recycling and the amount of material recyclers are diverting from the waste stream? Conducting a periodic follow-up phone survey will allow TROC to compare the magnitude of key positive and negative indicators to the baseline provided by the current survey. Periodic follow-up surveys could be shorter, focusing on key questions. Using the same sample size and methodology employed in the current survey will allow for valid comparisons over time. It would be appropriate to conduct a follow up survey after one or more outreach initiatives has been carried out and sufficient time has passed to expect that behavior change may have occurred as a result.

It is also recommended that a refusal survey be incorporated into periodic follow up surveys. In administering a refusal survey, those who do not wish to participate in the full survey are asked several demographic questions and one or two direct questions about beliefs and behavior. The recycling beliefs and behavior of full survey respondents and non-respondents can therefore be explicitly compared. If full survey respondents and non-respondents do not differ demographically or in terms of recycling beliefs and behavior, the survey results can be generalized to the population with greater confidence.

Finally, it is suggested that TROC explore the possibility of incorporating regression analysis into the follow up surveys. While the current survey analysis revealed factors that were statistically linked, it could not identify which factors were causes and which were effects. For example, do people choose not to recycle because they think it takes too much time, or do they think recycling takes too much time because they choose not to do it, and therefore haven't had the opportunity to become experienced at it? Regression analysis will allow TROC to identify more precisely the key leverage points for change.