

Model Bid Specification for Pilot Project Evaluation

A Community-Based Social Marketing Tool
for Increasing Participation in Recycling and
Waste Reduction

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The Context: Community-Based Social Marketing

The tools developed in this document are presented in the context of their use in community-based social marketing (CBSM). CBSM is an approach to fostering environmentally friendly behavior in which promoters identify the barriers and motivations associated with engaging in a particular activity. They then design a strategy to overcome the barriers and strengthen the motivations, using knowledge from the social sciences. The strategy is piloted to test its effectiveness and then implemented on a broader scale.¹ More information about CBSM can be found at <http://www.state.ma.us/dep/recycle/recycle.htm> Click on "Motivating People to Recycle."

[Note: this link is not active yet.]

Scarce funding and staff resources are a common reality for recycling and waste reduction program managers. A pilot-scale test will tell you whether a new strategy for promoting recycling or waste reduction actually makes a difference, and thus, whether community or organization-wide implementation is a worthwhile use of your time and resources.² Small scale testing will also:

- permit you to make adjustments to a strategy until it is effective, if an initial piloting does not show positive results;³
- allow you to test several strategies against each other so that you can determine which one is most cost-effective;⁴
- improve your understanding of the resources needed to carry out each strategy, enabling you to predict large-scale implementation costs with confidence;
- reveal pitfalls to be avoided and improvements to be adopted, saving you time and money during broad implementation and,
- demonstrate to decision makers the value of implementing a project on a larger scale.⁵

When evaluating whether a strategy makes a difference, community-based social marketers use tangible measures of behavior change whenever possible, rather than people's reports of their awareness or participation in an activity.⁶ A tangible measure

¹ McKenzie-Mohr, D. (2000). Fostering Sustainable Behavior Through Community-Based Social Marketing. *American Psychologist*, 55(5), 531-537.

² McKenzie-Mohr, D. (1999). *Fostering Sustainable Behavior: An Introduction to Community-Based Social Marketing*. Gabriola Island, British Columbia: New Society Publishers. p17.

³ McKenzie-Mohr, D. (1999) p17.

⁴ McKenzie-Mohr, D. (1999) p17.

⁵ McKenzie-Mohr, D. (1999) p17.

⁶ McKenzie-Mohr, D. (1999) p17.

might be an increase in recyclables tonnage on a truck route where a strategy is carried out, compared to a truck route where nothing is done. A decrease in the number of households setting grass clippings out for yard waste collection after a grasscycling promotion would be another example of a tangible measure.

Section

2

Contracting for Pilot Evaluation Services

Contracting with a consultant to evaluate your pilot project can be advantageous when data collection is time-intensive; when challenging problems must be resolved in order to develop a suitable evaluation methodology and/or when the evaluation requires statistical expertise that is not available in-house. Further, a consultant who has prior experience evaluating similar strategies may be able to avoid pitfalls that are hard to foresee when conducting an evaluation for the first time.

However, in some cases it may be quite feasible to carry out a pilot evaluation in-house. Financial constraints may also necessitate using in-house resources, perhaps supplemented with an in-kind contribution of statistical expertise provided by a local academic, graduate student or knowledgeable resident. Readers seeking further guidance on conducting pilot project evaluations are encouraged to refer to Chapter 9 of *Fostering Sustainable Behavior: An Introduction to Community-Based Social Marketing*. See footnote #2 for a full citation. The same information is available in an online guide to CBSM at www.cbsm.com.

Model Bid Specification

If you choose to contract for pilot evaluation services, you may wish to use the following bid specification, which has been developed as a model. The shaded text describes a variety of options to consider as you modify the specification to meet your own needs. Shaded text also outlines steps that you will want to take to ensure that the evaluation is carried out as effectively as possible.

Please note that the pilot project described in the model bid specification is a reasonably straightforward example that would also be amenable to in-house evaluation, perhaps with a contribution of statistical expertise. This project example is used here for ease of understanding. However, the categories of information provided to potential vendors in the model bid specification and the categories of tasks described in the scope of work would be applicable regardless of the complexity of the project.

City of Waltham Department of Public Works

Request for Quotes for Pilot Evaluation

Background

A 1999 survey of Waltham residents indicated that residents strongly supported increasing the frequency of curbside collection from every other week to weekly collection, even though they were informed during the survey that it would cost taxpayers substantially more. Accordingly, in the fall of 2000 the City made this change, increasing its collection costs by \$250,000 in the process. A variety of information intensive initiatives were employed to publicize the change, including newspaper articles and paid ads, a city-wide postcard, and flyers distributed to school children, in utility bills and in recycling bins. Tonnage increased dramatically during the first few months of weekly curbside collection, but has since subsided to the same levels observed during every-other-week collection. Given the lack of success of these initiatives, the City's administration has conducted a literature review, focus groups and a phone survey in order to uncover the barriers and motivations associated with participation in the curbside program. Three strategies to increase participation have been developed using community-based social marketing (CBSM) techniques. The City is now preparing to implement the strategies on a pilot scale and is seeking the services of a consultant to evaluate their effectiveness.

Project Goal

The strategies are primarily designed to encourage current recyclers to recycle more material.

Stating your goal ensures that you have thought carefully about what you want to achieve, and communicates the target activity and audience clearly to potential vendors. Other examples of project goals might be:

- To motivate homeowners to "grasscycle," by leaving grass clippings on their lawn rather than bagging them for curbside yard waste collection.
- Promote the purchase of mercury-free thermometers at drug stores in the community.

Strategy Components

Each strategy utilizes one or more of the following approaches:

- Overcome lack of knowledge about what materials can be recycled by providing residents with a decal that will serve as a convenient, durable and engaging prompt. The decal is designed to be affixed to residents' recycling bins or other convenient location, such as the inside of a kitchen cupboard door. The decal uses colorful photographs to convey information about what is recyclable in a way that is visually interesting to residents, as well as accessible to children and adults who cannot read English.
- Strengthen the motivation to use the information on the decals by employing these techniques:

Public Commitment. Agreeing to carry out an action increases the likelihood that people will follow through, because consistency is a valued characteristic in our society.⁷ Therefore, residents will be asked to make a commitment to review the decal carefully when it arrives and refer to it when they have questions about what is recyclable. Because public commitments tend to be more effective than private ones,⁸ residents pledging to review the decal will be asked for permission to include their names in a newspaper advertisement publicizing their support for recycling.

Social Diffusion. Residents who commit to reviewing the decal will also be asked if they would be willing to talk with several neighbors about the decals. In this way, residents who could not be reached by the City will be contacted by a neighbor and urged to review the decals. Further, there is evidence that individuals who talk with others about engaging in an activity are more likely to carry it out themselves.⁹

- Strengthen the motivation to recycle by communicating to residents in a vivid and concrete way that recycling effectively removes material from the waste stream and saves the city money.

Strategy Descriptions

Each strategy will be implemented on one recycling truck route. The truck routes are demographically similar to each other and to the City as a whole. Truck-load weight slips will be used to evaluate the effectiveness of the strategies in increasing recyclables tonnage.

Strategy I. Using temporary laborers, the City will apply decals to all recycling bins that are at the curb over a two week period. The City will also send a decal via the mail to each household on Truck Route I, accompanied by a letter from the Mayor conveying information about the effectiveness of recycling.

Strategy II. Residents on Truck Route II will receive the same outreach materials as those on Truck Route I. In addition, the City will utilize a telemarketing firm to call residents on Truck Route II in order to seek public commitments from them to review the decal and refer to it later if they have questions.

Strategy III. Residents on Truck Route III will receive the same outreach as the residents on Truck Route II. In addition, residents on Truck Route III who commit to reviewing the decal will also be asked if they would be willing to talk with several neighbors about the decals.

How does one develop strategies to test? Several strategies for increasing curbside, drop-off and school recycling participation can be found at <http://www.state.ma.us/dep/recycle/recycle.htm>. Click on "Motivating People to Recycle." [Note: this link is not active yet.] Look for the section entitled "Strategies." These strategies have been tested and shown to be effective in other locales, but often, additional evaluation is needed. For example, less resource-intensive versions of some strategies need to be evaluated for effectiveness. Many of the strategies need to be evaluated over a longer time period to determine if improvements in recycling habits endure more than a month or so after the strategy is implemented. Each strategy fact sheet includes an outline of an evaluation methodology.

⁷ McKenzie-Mohr, D. (1999) p48.

⁸ McKenzie-Mohr, D. (1999) p54.

⁹ McKenzie-Mohr, D. (1999) p56.

The “Motivating People to Recycle” web page also provides tools for developing strategies to promote other waste reduction activities. Inventories of barriers and motivations associated with a variety of recycling and waste reduction activities have been compiled based on research carried out in other locales. CBSM resources for learning about strategy design can also be found at this web site. Depending on the activity you are trying to promote, you may choose to hire a consultant to carry out the entire CBSM process, including investigating barriers and motivations, designing and piloting a strategy and then piloting and evaluating it. This specification, however, assumes that you have one or more strategies in mind that you would like to test and that you have the staff resources to implement them on a small scale. Consultant services are limited to refining the evaluation methodology, collecting and analyzing data and reporting on the results (see scope of work below).

Control Group

A fourth truck route, demographically similar to the three test routes, will serve as a control group.

CONTROL GROUPS

When you conduct your pilot, you want to make sure that any changes you observe are due to your strategy, not to other factors. To accomplish this, include a control group to which nothing is done. By comparing the behavior of the “strategy” group(s) (made up of individuals who are exposed to your strategy (ies)) to that of the control group, you can be much more confident that your strategy was responsible for any changes you observe.¹⁰

You may also choose to use an “information-only” control group instead of a control group to which nothing is done. Since providing information is a standard outreach mechanism for most communities, it is often considered desirable to compare other strategies to this traditional approach. In most communities, an “information only” control group would receive the standard brochure that is mailed to all households once per year.

Scope of Work

The City wishes to contract with a consultant to complete the following scope of work:

- 1) Methodology.** Work with the City to refine the methodology for collecting the data and evaluating the pilot. This process will include a review of the strategies and the procedures that will be used to implement them on a pilot scale.

If it is possible, it will be to your advantage to procure the services of a consultant before beginning preparations to implement the strategies. By giving the consultant a chance to review the strategies and your plans to implement them, you will ensure that timely changes can be made if they are necessary to improve the validity of the evaluation.

¹⁰ McKenzie-Mohr, D. (1999) p131.

2) *Data Collection.*

- Compile truck load weights for the three test routes and the control route for the following intervals:

Baseline Interval – Five weeks immediately preceding implementation of the strategies

Follow-up Interval 1 – Five weeks immediately following implementation of the strategies

It is anticipated that changes in behavior would follow the implementation of strategies such as the ones described in this model bid specification. However, some strategies may be delivered on an ongoing basis. For example, assume that you are testing the effect of providing feedback to residents on the quantity they recycle each week. You would want to determine if residents' recycling habits change while the feedback is being provided, and for how long, as well as whether any changes endure after the feedback is discontinued. If increases in recycling tonnage were dramatic and durable while feedback was provided, but ended when the feedback ended, it might be worth providing feedback on an ongoing basis. In testing this type of strategy, you would specify that data be collected for one or more intervals during implementation of the feedback as well as following it.

Follow-up Interval 2* – Five weeks 3 months after implementation

Follow up-Interval 3* – Five weeks 6 months after implementation

Follow-up Interval 4* – Five weeks 1 year after the implementation

*Pilot evaluation for these intervals will only be undertaken for the strategies that result in increased recyclables tonnage in Follow-up Interval 1. Test routes for which the tonnage increase fully dissipates during a subsequent interval will not be subject to further evaluation.

The number of follow-up intervals will determine, in part, the cost of evaluating the pilot. Conducting four follow-up measurements will provide you with substantial information about how long the effects of the strategies endure. However, you may wish to request prices based on the number of follow up measurements that will be conducted. You can then request fewer follow-up measurements if budget constraints require it.

- On each day on which a test or control route is collected, the consultant shall direct specific inquiries to the hauler's supervisory staff in order to determine if collection practices were altered in any way that could affect the integrity of the data. These alterations might include:
 - trucks from other routes collecting some of the material on a test or control route;
 - a test or control route truck assisting another truck by picking up some material on another route.

If collection practices were altered in such a way as to affect the integrity of the data, that week's data will not be used in the pilot evaluation for any route. This quality

control process will be repeated as needed until five weeks of valid data have been compiled for each interval. The five weeks in each interval need not be contiguous. However, the measurement weeks used must be the same ones across all four routes.

Collecting Data through Observations

Collecting data through direct observation will be appropriate for some pilots. For example, examining the contents of yard waste bags may be necessary to determine if people have stopped placing grass clippings at the curb after a campaign promoting grasscycling. The challenge here is to determine how many households to observe in order to discern behavior changes within the margin of error and confidence level that you desire. Bidders will base their price, in part, on the number of observations that they will need to do. Paying a small amount for advice on this topic from someone with statistical expertise (or perhaps seeking an in-kind donation of expertise from an academic) will be helpful as you prepare your specification for pilot evaluation. Information on margin of error and confidence level is provided in Appendix A.

When data are collected via observations, you will want to specify that households be randomly assigned to the strategy group or the control group if possible. This process ensures that the group exposed to the strategy is as nearly identical as possible to the group that serves as the control.¹¹ Random assignment works best when you are able to control whether or not individuals are exposed to your strategy. Outreach mechanisms such as personal visits, phone calls or direct mail lend themselves to this type of control. Efforts such as media campaigns make random assignment more difficult.¹²

Observation requires a systematic approach to ensure valid research results. Make sure that the consultant creates a protocol for observers to follow that tells them when and where to observe, what to look for, and how to categorize their observations. People behave differently when they know they are being watched, so observations should be carried out as unobtrusively as possible.¹³

Since some households do not set recyclables at the curb until shortly before the collection vehicle typically arrives, observations of the number of set outs will be most accurate if timed to occur just before pick up. However, pick up schedules do vary from day to day, and may be substantially revised over a year's time. It will be important for project staff to remain in close communication with the hauler to ensure that pick up schedules are well understood.

Determining which households are participating and which are not can be quite challenging in communities with substantial numbers of duplexes, triple deckers and larger residential buildings. If your community's housing stock fits this description, securing the services of a consultant who has done participation rate studies in this type of environment will be helpful.

- 3) Data Analysis.** For each follow-up interval, determine if there are statistically significant tonnage increases on the strategy routes compared to the control. Determine if there is a correlation between the strategy employed and the amount of increase (if any) observed. Indicate the confidence level for all statistical measures. Provide statistical results and methodology in writing to the City within two weeks of the completion of each interval.

¹¹ McKenzie-Mohr, D. (1999) p132.

¹² Weinreich, N.K. (1999). *Hands-on social marketing: A step-by step guide*. Thousand Oaks, CA: Sage. p213.

¹³ Weinreich, N.K. (1999) p220.

- 4) Evaluation Report.** The evaluation report should indicate which strategies resulted in statistically significant changes in recyclables tonnage relative to the control group and to each other. It should include a discussion of the durability of any changes over the time period encompassed by the follow-up intervals. Using information provided by the City on strategy costs, calculate the cost per ton diverted for each effective strategy. Based on Waltham's historical recyclables tonnage and recycling rate records, calculate the impact of community-wide implementation of each effective strategy on the City's recycling rate. Be available to answer questions about methodology and statistics. Provide feedback on the City's written report of the pilot project.

Time Line and Client Process

The evaluation report must be delivered to the City of Waltham in electronic and paper form by [date]. Paper reports must be printed double-sided on 30% post-consumer recycled paper. Two weeks will be required for the City to review and comment on the evaluation report before it is finalized.

Quote Submission

Prior to quote submission, requests for clarification regarding this specification should be addressed to _____, Recycling Coordinator.

1. Questions regarding the specification must be submitted to by [date].
2. Responses to all questions will be provided to all potential vendors by [date].

Because pilot evaluation can be complex, it is important to provide a mechanism for potential vendors to clarify their understanding of the strategies to be tested, the proposed evaluation methodology and the scope of work.

3. Quotes must be submitted by 5pm on [date] to _____ at the address or fax number above.
4. A contract will be awarded by [date].
5. Potential vendors must provide:
 - a description (up to two pages) of the qualifications of the staff that will be conducting the pilot evaluation and their experience on similar projects;
 - three references for pilot evaluation work that the consultant has conducted, with contact names and phone numbers.

PRICE SUMMARY FORM

All costs associated with the services set forth in the scope of work must be included in the total price. Prices are requested based on the number of follow up intervals to be evaluated. The City may reduce the number of follow up intervals if budget constraints require it. Prices must remain firm throughout the entire period during which work is being done.

Number of Follow-Up Intervals	Total Price
1	\$
2	\$
3	\$
4	\$

Name of company representative

Signature of company representative

Phone Number of company representative

Email Address of company representative

Name of company

Address of Company

Fax Number

Identifying Potential Contractors

Pilot evaluation services can be procured from consultants on state contract. Here are two contracts that list pre-qualified firms. Some firms have specific competencies, and pricing can differ quite a bit. Soliciting quotes, references and information on background and experience is recommended.

- **Department of Environmental Protection contract RFR FY98-B** (Recycling and Solid Waste Consulting Services). Contract end date is 10/20/03.
 1. Go to www.comm-pass.com
 2. Scroll to very bottom of page and click on "Search" in the next to last box on the right.
 3. Type RFR FY98-B in the Contract Reference No. box
 4. Click on Recycling and Solid Waste Consulting Services
 5. Scroll down and click on Contract Award Notice
- **Operational Services Division's Master Service Agreement for Management Consultants, Program Coordinators and Planners.** Bid Reference No. ST2H191. This bid is not expected to be awarded until early 2003. Once it has been awarded, the Bid Reference Number will become the Contract Reference Number.

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Questions about this model bid specification may be directed to Brooke Nash, Massachusetts Department of Environmental Protection, Municipal Recycling Branch, at 617-292-5984.

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APPENDIX A

Understanding Margin of Error and Confidence Level

Suppose that the consultant who conducts the observations of grasscycling behavior reports that households in Strategy A Area increased their grasscycling by 10% compared to the Control Area. Because the consultant observed only a sample of households and not the entire community, it is not expected that the results obtained from the sample are going to exactly match the results that would have been obtained if they had been able to observe the entire population.¹⁴ The amount by which the sample's behavior might be different than the community's behavior is known as the margin of error, or sampling error. If the margin of error is $\pm 4.5\%$, the households in the community might actually be able to increase their grasscycling by anywhere from 9.55% to 10.45%, on average.

What margin of error should you specify? A margin of error of 3% or of 4.5% is common. The smaller the margin of error, the larger the sample size will need to be (and hence the higher the cost of conducting the observations).¹⁵

Suppose that the consultant's report also says that the difference between the amount of grasscycling carried out by the households in Strategy Area A and the households in the Control Area is statistically significant. What is meant by the term statistically significant? The term indicates that the result is different than what would be expected due to chance.¹⁶ That is, if you observed any two random groups of households, you would not expect to see this result. In other words, it is probable that the difference in grasscycling behavior is due to Strategy A. But, how confident is the consultant that the result didn't happen by chance? A statistically significant result reported at the 95% confidence level means that the consultant is 95% sure that the result isn't just a chance occurrence. It is common to specify a 95% confidence level in research of this type.¹⁷

¹⁴ Gravetter, F.J. & Wallnau, L.B. (1999). *Essentials of Statistics for the Behavioral Sciences*. (3rd ed.). Pacific Grove, CA. Brooks/Cole Publishing Co. p160.

¹⁵ McKenzie-Mohr, D. (2002, October 11). McKenzie-Mohr Associates. Telephone Interview.

¹⁶ Gravetter, F.J. & Wallnau, L.B. p201.

¹⁷ McKenzie-Mohr, D. (2002, October 11). McKenzie-Mohr Associates. Telephone Interview.