



Recommendations for Enhancing the Effectiveness of the Greenscapes Program



This project is funded by the
Massachusetts
Environmental Trust.

Prepared for the Greenscapes Coalition
Prepared by Aceti Associates, Brookline, MA
February 27, 2008

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Introduction

In 2007-2008, with funding from the Massachusetts Environmental Trust, The Ipswich River Watershed Association (IRWA), in collaboration with the multi-partner Greenscapes Coalition, undertook an effort to significantly expand the reach and effectiveness of the Greenscapes program.

Greenscapes is a public education program focused on protecting Massachusetts rivers, streams, and bays by reducing the use of water and chemicals on lawns and landscapes. The program aims to change household landscaping practices through a suite of educational materials and programming, including a 20-page “Greenscapes Reference Guide,” website, email newsletter, workshop series, targeted publicity, and discounts on environmentally friendly landscaping goods and services.

Greenscapes was originally created in the spring of 2003 on the South Shore by the North and South Rivers Watershed Association (NSRWA) and the Massachusetts Bays Program. IRWA has partnered with Salem Sound Coastwatch, Eight Towns and the Bay Committee, and the Massachusetts Bays Estuary Association to launch Greenscapes North Shore in 2007, with an initial target audience of approximately 60,000 households in 15 communities.

Project Goal

Through the “*Changing Behaviors Through Greenscapes: A Social Marketing Assessment and Implementation Project*,” the IRWA and the Greenscapes Coalition sought to evaluate and improve the effectiveness of the existing Greenscapes program at changing household landscaping practices. The project also strove to better target high-impact households whose landscaping and irrigation practices have a disproportionately large impact on water quality and quantity.

Key project tasks included:

1. Using survey research to determine the efficacy of the Greenscapes Reference Guide and other current educational programming;
2. Using focus group research to understand the barriers and motivations for behavior change experienced by the subpopulation of high-impact households with disproportionately large impacts on water quality and quantity; and
3. Developing recommendations for improving existing Greenscapes program materials, developing new targeted programming and measuring results.

Research Methods

Telephone Survey

In order to assess the efficacy of the Greenscapes Reference Guide and other current educational programming, a telephone survey was conducted among residents of twelve South Shore communities,¹ in which Greenscapes educational materials and programming have been delivered for three years. The Greenscapes Reference Guide, which is the centerpiece of the campaign, has been mailed to homeowners annually.

Key topics examined through the phone survey included:

- familiarity with the Greenscapes program;

¹ Cohasset, Duxbury, Hanover, Hingham, Hull, Kingston, Marshfield, Norwell, Pembroke, Plymouth, Scituate and Weymouth.

- changes in landscaping behaviors and links between behavior change and familiarity with Greenscapes; and
- preferred means of receiving Greenscapes information.

Focus Group

The focus group was comprised of eight residents of the Town of Hamilton, which is almost completely within the Ipswich River Watershed on the North Shore. Participants were selected based on a set of criteria likely to indicate that a household has a larger than average impact on water quality and quantity. All participants lived on properties larger than ½ acre in size, watered their lawn/gardens at least once per week and applied both pesticides and fertilizers to their property. An original selection criterion called for participants to have automatic, in-ground irrigation systems. However, recruitment of a sufficient number of irrigation system users proved difficult in the short period of time available. Ultimately, in-ground irrigation system users comprised half of the group. Of the remaining four participants, three used traditional sprinklers and one used a traditional sprinkler on some lawn areas and a hand held hose on other lawn areas.

The number of topics that were of interest to the Greenscapes Coalition exceeded the number that could be explored during the two-hour focus group session. A fair amount of prior research has been done on the topic of why it is important to high-impact homeowners to have a conventional lawn that requires so much water and chemicals. Therefore, the focus group research did not address this question. However, the focus group research did explore what might motivate high-impact homeowners to change their behavior.

In addition, the focus group session examined participants' attitudes towards several specific, high priority greenscaping practices. Research has shown that *specific* attitudes are more predictive of *specific* behaviors. For example, attitudes towards the general concept of "health and fitness" poorly predict specific exercise and dietary practices. Whether people jog is more likely to depend on their opinions about the costs and benefits of jogging.² Further, perceptions of specific greenscaping practices were investigated in order to ensure a thorough understanding of **all** of the barriers that people associate with a particular behavior. Even if people believe that there are good reasons to adopt a certain greenscaping practice, their decision to do so will be strongly influenced by whether they think they can carry out the new behavior within the constraints of their daily lives. If the barriers that people perceive to be associated with a behavior are not understood and addressed, even well-crafted communications about the benefits of taking action are likely to be fruitless. Therefore, gaining this understanding is important to developing strategies that will make the Greenscapes program more effective.

Topics examined through the focus group research included:

- Perceptions of the barriers and motivations associated with watering at dawn;
- Perceptions of the barriers and motivations associated with using organic fertilizer;
- Perceptions of different messages regarding the benefits of greenscaping; and

² Meyers, D.G. (2002). *Social Psychology*. McGraw-Hill: Boston, p134.

- Ideas for motivating people to care for their lawns and gardens with less water and fewer chemical fertilizers and pesticides.

Key Survey Results: The Efficacy of the Greenscapes Program

Familiarity with the Greenscapes Program

When asked if they were familiar with the Greenscapes program, 16% of telephone survey respondents said that they were. However, 20% of those who reported being familiar with the program did not know how to describe it when asked, or mistakenly described it as a lawn and garden care service. It can be expected in survey research that there will be a percentage of respondents who will claim they've heard of something even if they have not. The result obtained here is consistent with that finding, and indicates that the **actual** recognition rate for the Greenscapes program is less than 16%. Given the extent of the promotional effort among South Shore homeowners over a number of years, a recognition rate of less than 16% indicates that the Greenscapes outreach strategy could be significantly improved.

Outreach Avenues

Those telephone survey respondents who reported being familiar with the Greenscapes program were asked how they had heard about it. Thirty-six percent had heard of it through the Greenscapes Reference Guide, which is mailed to homeowners annually. Twenty percent had heard of it through the press, and 9% via word of mouth. Eleven percent did not know how they had heard about it. The sources for the remaining 25% of respondents were divided fairly evenly among television, Greenscapes workshops, the Greenscapes website, advertising and "Other."

Survey respondents who were not familiar with the Greenscapes program were asked to specify which of several distribution avenues would be the best way to get information about the program to them. Fifty-two percent said through the mail, 16% said through a website, 9% said through newspaper stories and 5% said through their garden center. Of the remaining 18%, 7% did not know. Small percentages of respondents chose radio, utility bill inserts, "through people I know" and email.

The mail emerged as the means by which the greatest percentage of respondents had heard about Greenscapes and the means preferred by the greatest percentage of those who had not heard about it. Since the program's primary outreach vehicle, the Greenscapes Reference Guide, *is* distributed through the mail, it seems incongruous that familiarity with the program is not greater. While the survey responses indicate that the mail is an important means of reaching the Greenscapes audience, the low recognition rate suggests that the program needs to utilize this distribution mechanism more effectively than in the past.

As part of the effort to interpret the phone survey results, particularly the low level of familiarity with the Greenscapes program, two marketing experts reviewed the Greenscapes Reference Guide. Both described it as "overwhelming" in the amount of information that it was trying to convey, and lacking a simple message with which audiences could connect. For these reasons, it is likely that the Guide is not keeping people's attention.

In order to explore other potential outreach avenues, all survey respondents were asked where they get information on how to care for their lawn or gardens. Respondents utilize a diverse array of information sources on lawn and garden care, and no one source predominates. The six sources mentioned most often were lawn care or landscaping contractor (15%), internet (15%), magazines (14%), books (14%), nursery or garden center staff (12%) and friends (11%).

Changes in Landscaping Practices

All survey respondents, whether familiar with the Greenscapes program or not, were asked if they had adopted selected greenscaping practices. The adoption rates among all respondents were 74% for mowing with a sharp mower blade, 65% for mowing high, 62% for leaving grass clippings on the lawn, 43% for replacing lawn area with drought tolerant plantings, and 43% for reducing treatments with non-organic pesticides and fertilizers. Further, 38% of respondents said that they had made changes in their watering practices.

These rates of adoption are substantial, and may mean that while most residents don't recognize the Greenscapes name, they have absorbed the information disseminated by the Greenscapes program (and potentially other sources) and have acted upon it. It may also indicate that while these practices are becoming more mainstream, their adoption is not related to the Greenscapes program in particular. Finally, survey respondents may be portraying their activities in a favorable light in order to appear socially responsible.

In an attempt to assess the validity of the various interpretations listed above, the rates of adoption reported by those familiar with the Greenscapes program were compared to the rates reported by those not familiar with the program. The comparison indicated that in no case were respondents who reported being familiar with Greenscapes statistically more likely to have adopted the practice than those who were not familiar with the program. If more evidence existed that familiarity with the Greenscapes program was statistically linked to the likelihood of behavior change, it would be more reasonable to conclude that while many residents don't recognize the Greenscapes name, they have absorbed the information provided and have acted upon the recommendations. It may be that these practices have become more mainstream over the years, without the influence of the Greenscapes program itself having a particularly noticeable effect. However, it would also seem wise to take the absolute percentages of those reporting a behavior change with a grain of salt, due to potential social desirability bias.

Unfortunately, a clear interpretation of the survey results on behavior change was seriously hampered by a lack of baseline data about the prevalence of these practices *before* the Greenscapes program was implemented. Be that as it may, the phone survey results themselves do not provide evidence that the Greenscapes program has been effective in changing lawn/garden care behavior among homeowners on the South Shore.

Key Focus Group Research Results

Key focus group research results will be presented in conjunction with the recommendations to which they are relevant.

Conclusions Drawn from Research Done in other Locales

Why is it important to high-impact homeowners to have a conventional lawn that requires so much water and chemicals?

High Value Placed on Lawn Appearance

Focus group research conducted by the St. Johns River Water Management District in Palatka, FL, indicated that heavy water users care about the appearance of their lawn.³ Pesticide users in King County, WA were much more likely than non-users to agree that it is their responsibility to have a well-maintained yard.⁴ A survey of residents of Fredericton, New Brunswick indicated that respondents who heavily value an attractive lawn and believe their lawn reflects on them personally are more likely to use pesticides.⁵

Social Pressure to Maintain Lawns

Fredericton, New Brunswick survey respondents who perceived a high level of social pressure to maintain an attractive lawn were more likely to use pesticides.⁶ The working group at the 1994 EPA Integrated Pest Management conference felt that peer pressure (keeping up with the Joneses) influences homeowners to try to achieve perfection, and thus to be amendable to the use of chemical treatments. Numerous other studies and anecdotal information corroborate the notion that there is strong social pressure to maintain lawns.⁷

Perceived Need for Water and Lawn Chemicals

Heavy water users tend to respond with water at the first sign of trouble with their lawn and generally lack good information about sound irrigation practices.⁸ At least half of the heavy water users in a Concord, Massachusetts focus group didn't have accurate knowledge about how much water a lawn needs. Even if they did, they tended not to know how to determine if their lawn is getting that much or not.⁹

Numerous studies and anecdotal evidence indicate that pesticide users are more likely to believe that it takes too much time and effort to maintain a lawn without pesticides and that you cannot have the same quality lawn without pesticides.¹⁰ Fredericton, New Brunswick survey respondents who use pesticides had more negative attitudes toward

³ Ulrich Research Services, Inc. (November, 2004). Lawn Irrigation Focus Groups: Phase 2 – Storyboard Test. Completed for The Hoffman Agency and the St. Johns River Water Management District.

⁴ Aceti, J. (2002). Reducing Pesticide Use in Lawn Care: Barriers and Opportunities. Report prepared for the Massachusetts Department of Environmental Protection, Boston, MA.

⁵ McGrath, A. (2005). The Psychological Factors Behind Residential Pesticide Use. Thesis prepared for fulfillment of Masters degree at St. Thomas University, Fredericton, New Brunswick, Canada.

⁶ McGrath, A. (2005). The Psychological Factors Behind Residential Pesticide Use. Thesis prepared for fulfillment of Masters degree at St. Thomas University, Fredericton, New Brunswick, Canada.

⁷ Aceti, J. (2002). Reducing Pesticide Use in Lawn Care: Barriers and Opportunities. Report prepared for the Massachusetts Department of Environmental Protection, Boston, MA.

⁸ Ulrich Research Services, Inc. (November, 2004). Lawn Irrigation Focus Groups: Phase 2 – Storyboard Test. Completed for The Hoffman Agency and the St. Johns River Water Management District.

⁹ Aceti, J. (2005). Town of Concord Lawn Care Focus Group Findings. Report prepared for the Town of Concord Water and Sewer Department, Concord, MA.

¹⁰ Aceti, J. (2002). Reducing Pesticide Use in Lawn Care: Barriers and Opportunities. Report prepared for the Massachusetts Department of Environmental Protection, Boston, MA.

pesticide alternatives than nonusers. This was true for attitudes about convenience, effectiveness and affordability.¹¹

Perception of low environmental and public health risk from chemicals

Numerous studies have found that many people perceive the risks associated with proper usage of pesticides to be low.¹² Lower levels of perceived risk correlated with a greater likelihood of pesticide use in Fredericton, NB.¹³

Recommendations: Improving Greenscapes Program Materials

The Greenscapes program should seriously consider restructuring the information that it sends through the mail. Targeting a much smaller set of desired behavior changes in its annual mailings is likely to be a more effective approach. In place of the 20-page Greenscapes Reference Guide, a smaller booklet, perhaps the size of a large postcard and containing four to six pages, would more successfully capture and keep people's attention. In place of the low-grade newsprint currently used for printing stock, a higher grade paper may more effectively convey the message that the information is of value.¹⁴

Each page in the booklet would target a **single** behavior change, linked with a simple message or "hook" about something that matters to people. The goal of the content on each page would be to capture people's attention and motivate them to go to the Greenscapes website to get more information. In order to keep people's attention once they reach the Greenscapes website, the home page would feature prominent links to sections of the website focusing on the same behavior changes that the booklet promoted. For those seeking comprehensive information, the Reference Guide could continue to be available as a download from the website or mailed upon request.

Measuring Progress Towards Increasing Familiarity with the Greenscapes Program

What might be an appropriate target to aim for in increasing the rate of familiarity with the Greenscapes program? The Coalition could identify a business or organization that meets three criteria: 1) It has measured its public awareness level; 2) It "means something" to people on the South Shore or North Shore (a garden center, a local bank, a non-profit organization, etc.); and 3) it is using a similar mix of outreach methods (mail, media, events, etc.) as the Greenscapes Coalition. If the business or organization has been promoting itself for at least three years, as the Greenscapes program has on the South Shore, and is willing to share its familiarity rating with the Greenscapes program, that rating provides a target for the program to shoot for. To assess its progress, the Greenscapes program would need to measure its own recognition level periodically as well, perhaps as part of a phone survey once every three years.

¹¹ Aceti, J. (2002). Reducing Pesticide Use in Lawn Care: Barriers and Opportunities. Report prepared for the Massachusetts Department of Environmental Protection, Boston, MA.

¹² Aceti, J. (2002). Reducing Pesticide Use in Lawn Care: Barriers and Opportunities. Report prepared for the Massachusetts Department of Environmental Protection, Boston, MA.

¹³ McGrath, A. (2005). The Psychological Factors Behind Residential Pesticide Use. Thesis prepared for fulfillment of Masters degree at St. Thomas University, Fredericton, New Brunswick, Canada.

¹⁴ Rooks, John. President, Dwell Creative. Greenscapes Coalition conference call, January 16, 2008.

Selecting Practices to Promote

From among the fifty or more Greenscaping practices that are currently covered in the Reference Guide, the Coalition would need to select three or four to promote in the booklet. The potential impact of a practice, if adopted, is one important selection criterion for the Coalition.

The likelihood of adoption is another important selection criterion. In deciding whether to change the way they care for their lawn, people will consider whether they believe that the new way has enough of an advantage over the old way to warrant whatever costs (e.g. in time, money, functionality, risk of failure or embarrassment, etc.) are involved in making and maintaining the change. Further, as mentioned earlier, they will be strongly influenced by whether they think they can carry out the new behavior within the constraints of their daily lives. Therefore, it is important for the Coalition to understand what costs people perceive to be associated with a new behavior. Once these are understood, the Coalition must decide if one or more of the following courses of action makes sense: 1) change people's perceptions, if they perceive a behavior to be much more onerous than it actually is; 2) find a way to make the behavior more convenient for people; 3) communicate about and/or deliver benefits that people find compelling enough to shoulder the costs of undertaking the new behavior, or 4) promote a different behavior, one that is easier for people to undertake.

The Coalition has identified the following 10 greenscaping practices as having the greatest impact:

1. Mow high (3" +)
2. Leave grass clippings on the lawn
3. Check for sharp blade before every mowing
4. Test soil before adding fertilizers
5. Fertilize in the fall if at all
6. Use the "walk test" to determine when to water the lawn
7. Water your lawn at dawn (if at all)
8. Water to a depth of 6" (if at all)
9. Use organic fertilizers/pesticides/weed controls (such as corn gluten)
10. Overseed with fescue grasses

Coalition members can begin the selection process by speculating about the barriers and benefits that the target audience is likely to associate with each of these behaviors. Those that have fewer functional and cost barriers and more perceived benefits should be explored further through audience research. Where budget constraints are an issue, this research can be less formal than the focus group research conducted for this project. The Coalition can convene several temporary volunteer citizen advisory committees that meet for just two 2-hour sessions. It is preferable to recruit committee members who are not especially knowledgeable or passionate about sustainable landscaping. These individuals will be more representative of the audience that the Greenscapes Coalition is trying to reach. Committee members can be recruited based on a criterion other than knowledge of or interest in sustainable landscaping. For example, people who are active in their community through organizations such as PTO, Rotary Club etc. are fairly easy to identify and are often willing to participate. Explore with the Advisory Committee the barriers and benefits that they perceive to be associated with a particular behavior, and their beliefs about the likelihood that a particular behavior will be adopted. The focus group discussion guide prepared for this

project can be used as a template for facilitating the meetings.

If organizing a volunteer advisory committee is too time consuming for Coalition members, another possibility would be to do some one-on-one interviews with individuals who are representative of the audience that the Coalition is trying to reach. Once again, the focus group discussion guide can serve as a basis for developing interview questions.

Based on the results of the committee meetings or interviews, the Coalition can further narrow its selection of behaviors to promote. The Coalition will want to pay special attention to whether it has the resources to overcome the barriers that audience members perceive to be associated with a particular behavior.

The focus group research done for this project explored people's perceptions of two Greenscaping practices: using organic fertilizer in place of synthetic fertilizer and watering at dawn. The focus group findings provide insight that can guide the selection of behaviors to promote.

Perceptions: Using Organic Fertilizer

Six of the eight focus group participants use synthetic fertilizers exclusively. When asked what they saw or imagined to be the disadvantages of using organic fertilizer, almost all of the participants perceived it to be more costly, which, in fact, it is. When shown a list of commonly understood pros and cons of using synthetic fertilizer and pros and cons of using organic fertilizer, only a few of the participants indicated that they were inclined to reconsider the idea of using organic fertilizers in place of synthetic ones. In other words, most of the focus group members concluded that the advantages of using organic fertilizer (including the environmental benefits) were not worth the costs in terms of added expenditure and inconvenience.

This is consistent with research showing that although some consumers will pay more for products with positive social or environmental attributes, they will invariably do so only when the functional attributes of those products meet their needs.¹⁵ Organic fertilizers have poorer functional attributes than synthetic fertilizers in several respects: they are harder to handle and apply and are often perceived as smellier and messier. In addition, several focus group members said that it is more convenient to use a (synthetic) product that combines fertilizer and pesticides.

It is important to be realistic about the rate of adoption that can be expected for organic fertilizer, given that it costs more and is less convenient to use than synthetic fertilizer. Easier-to-use products may be developed in the future, improving the chances that organic fertilizer use will be adopted. In the meantime, the Greenscapes Coalition may wish to consider selecting another behavior change to promote instead – a behavior change that may have less impact if adopted, but which has fewer functional and cost barriers.

Perceptions: Watering at Dawn

Six of the eight focus group members thought that at least some people would take the necessary steps to begin watering at dawn, although almost all felt that certain

¹⁵ Devinney, T., Auger, P., Eckhardt, G., Birtchhnel, T. (Fall, 2006). The Other CSR. Stanford Social Innovation Review.

conditions would have to be met for this to happen. Four participants mentioned the need for advertising or education. Three participants thought that a daytime watering ban would motivate people to adopt the practice of watering at dawn. Two or three people thought that caring about the environment would be at least one of the reasons why people would take the necessary steps to begin watering at dawn.

The combination of higher cost and less convenience, which is likely to limit the adoption of organic fertilizer use, does not apply to watering at dawn. Watering at dawn will be less convenient for some segments of the Greenscapes audience, but watering at dawn makes it possible to reduce water use, which will lower rather than raise costs for those who adopt this practice. Based on the information at hand, promoting watering at dawn could be a good choice.

Selecting Behaviors to Promote After Year One

If the Coalition chooses to adopt the recommendations in this report, it will need to invest resources in developing messages and information to promote a small set of greenscaping practices. Should the Coalition promote the same set of practices each year? Will people stop paying attention if they receive the same mailer year after year? Or, do they need numerous opportunities to get on board? Regardless, will the Coalition have sufficient resources to develop messages and website pages for a new set of behaviors each year? A good compromise may be to promote the same practices over a 3-year period, especially if a phone survey is used for evaluation once every three years. However, on an annual basis, the Coalition could consider changing the message/images on the cover of the small booklet that is distributed through the mail and using new “hooks” on individual pages to get people’s attention and motivate them to visit the Greenscapes website.

Fostering Behavior Change

Social Marketing Principles

Whichever behaviors the Coalition chooses to promote, utilizing the following principles of social marketing can help them do so more effectively.

Address the Audience’s Beliefs

It is important to explicitly address common beliefs about the behavior being promoted. Doing so communicates that you understand the audience and their circumstances. Research done in other locales on what motivates high impact households to use a lot of water and lawn chemicals reinforces the importance of addressing the audience’s beliefs. High impact households are more likely to place a high value on an attractive lawn, feel strong social pressure to maintain a good looking lawn and believe that you can’t have the same quality lawn without chemicals. It seems particularly unlikely that high impact households will adopt greenscaping practices if concerns that they may have about the consequences for their lawn are not explicitly addressed. It is recommended that the Coalition incorporate Frequently Asked Questions (FAQs) into the specific sections of its website that deal with each particular behavior.

Use a Credible Messenger

Four focus group members expressed skepticism about the accuracy of the pros and cons of organic and synthetic fertilizers that were presented to them, and/or wanted to know the source for the information. The list of pros and cons was not presented to

focus group members in the context of the Greenscapes Guide or website. Had it been, it is possible that there would not have been as much skepticism. However, their concerns are a reminder that the perceived credibility of the person or organization that presents a message can have a dramatic impact on how it is received.¹⁶

When the St. Johns River Water Management District in Florida tested concepts for ads advocating reductions in lawn watering, reactions were generally most favorable to scripts in which a noted “Expert” talked about the benefits of watering no more than twice per week. The St. Johns River focus group participants emphasized their desire for credible facts to convince them that they could have a healthy lawn with less water. It would be important that the “expert” have credentials, but he would not necessarily need to be a celebrity. Most participants agreed that a spokesman associated with the University of Florida would be credible to them.¹⁷ Similarly, focus group participants in the Town of Concord, MA indicated that if they had the opportunity to take advantage of sources of lawn and garden care information other than the ones they were already using, they would most value the advice of an independent expert, such as a university extension agent.¹⁸ The Greenscapes Coalition should consider the possibility of including relevant commentary from UMass Extension Agents in sections of the Greenscapes website that pertain to particular greenscaping practices.

Capture Attention by Using Vivid, Concrete, Personally Relevant Information

In general, the advantages of adopting a particular greenscaping practice will be more likely to capture people’s attention if they are expressed in terms that are vivid, concrete and personally relevant. Information that conjures a striking image in people’s minds is a good example of vivid communication. For example, depicting the amount of trash produced annually by Californians as “enough to fill a two-lane highway, ten feet deep from Oregon to the Mexican border,” is much more vivid than simply saying that Californians each produce 1,300 pounds of waste annually.¹⁹

Concrete information is more effective than abstract information. For example, research found that vague messages about the importance of energy conservation (such as “Don’t Be Fuelish”) are much less effective than specific recommendations about how to modify current behaviors or than indices that enable consumers to compare the energy use of different cars or appliances.²⁰ Finally, make information personally relevant if possible. Using a business’s own utility bills to show the potential savings from doing an energy retrofit is more likely to capture attention than generic statistics.²¹

¹⁶ McKenzie-Mohr, D. (1999). *Fostering Sustainable Behavior: An Introduction to Community-Based Social Marketing*. New Society Publishers: Gabriola Island: British Columbia.

¹⁷ Ulrich Research Services, Inc. (November, 2004). *Lawn Irrigation Focus Groups: Phase 2 – Storyboard Test*. Completed for The Hoffman Agency and the St. Johns River Water Management District.

¹⁸ Aceti, J. (2005). *Town of Concord Lawn Care Focus Group Findings*. Prepared for the Town of Concord Water and Sewer Department, Concord, MA.

¹⁹ McKenzie-Mohr, D. (1999). *Fostering Sustainable Behavior: An Introduction to Community-Based Social Marketing*. New Society Publishers: Gabriola Island: British Columbia. p84.

²⁰ Frahm, A., Galvin, D., Gensler, G., Savina, G & Moser, A. (December 1995). *Changing Behavior: Insights and Applications*. Behavior Change Project Final Report. Local Hazardous Waste Management Program in King County, Seattle, WA. p13.

²¹ Frahm, A., Galvin, D., Gensler, G., Savina, G & Moser, A. (December 1995). *Changing Behavior: Insights and Applications*. Behavior Change Project Final Report. Local Hazardous Waste Management Program in King County, Seattle, WA. p13.

Use Humor to Capture Attention

The Coalition should also consider using humor in its communications. The St. Johns River Water Management District found that respondents in every one of a series of focus groups said that they preferred humorous ads that grab their attention and give them a laugh while informing them.²²

Overcome Perceptions of Inconvenience

Inconvenience is to some extent a matter of perception. Once people gain experience doing something, they often come to see that activity as being more convenient than when they first began.²³ The TravelSmart program, which promotes the use of alternative transportation in cities around the world, in some cases provides a one-month free transit pass to people who are interested in using public transportation, but who are not familiar with their public transit system. A risk-free trial that allows people to experience an activity can decrease perceptions of inconvenience.

Model the Behavior

Another strategy for overcoming perceptions of inconvenience is to allow people to gain vicarious experience by watching someone with whom they identify demonstrate how to carry out a particular practice. Humans learn by imitation. For example, studies have documented significant reductions in energy use in response to a broadcast that demonstrated simple conservation methods and mentioned the financial benefits to be gained from carrying them out.²⁴ Watching someone demonstrate a particular practice shows people the solutions for overcoming the barriers they may feel to engaging in the behavior.

Communicate Supportive Norms

People consider the behavior of others when deciding what is appropriate behavior for themselves. That is, they are influenced by what the “norm” seems to be. Norms can have a significant impact upon the adoption of sustainable behavior. We are influenced by what we perceive **many** other people to be doing. We also follow the lead of others whom we perceive to be **similar** to ourselves. Communicating a positive norm about a behavior is also important because some research shows that if we feel that together with others we can make a difference, we are likely to act. If we feel little common purpose, we are likely to perceive that on our own, we can’t have a meaningful impact on the problem.²⁵

Foster Social Diffusion

The adoption of new behaviors frequently occurs as a result of friends, family members or colleagues introducing us to them. This process is referred to as social diffusion.²⁶ But, not all people have equal influence in social diffusion. Some people have much

²² Ulrich Research Services, Inc. (November, 2004). Lawn Irrigation Focus Groups: Phase 2 – Storyboard Test. Completed for the Hoffman Agency and the St. Johns River Water Management District, Palatka, FL.

²³ McKenzie-Mohr, D. (1999). *Fostering Sustainable Behavior: An Introduction to Community-Based Social Marketing*. New Society Publishers: Gabriola Island: British Columbia. p119.

²⁴ McKenzie-Mohr, D. (1999). *Fostering Sustainable Behavior: An Introduction to Community-Based Social Marketing*. New Society Publishers: Gabriola Island: British Columbia. p96

²⁵ McKenzie-Mohr, D. (1999). *Fostering Sustainable Behavior: An Introduction to Community-Based Social Marketing*. New Society Publishers: Gabriola Island: British Columbia. p92.

²⁶ McKenzie-Mohr, D. (1999). *Fostering Sustainable Behavior: An Introduction to Community-Based Social Marketing*. New Society Publishers: Gabriola Island: British Columbia. p92.

larger social networks than others. For example, researchers studying social networks among women in a Camaroonian village found that nearly one-half of the women in the sample were named by only two or fewer other women as being a conversation partner of theirs. However, four percent of the women were named by 10 or more other women. All of us are familiar with people who seem to “know everyone.” Individuals with large social networks are often opinion leaders. The Greenscapes Coalition should consider seeking out a number of individuals in each Greenscapes community who have a reputation for “knowing everyone in town,” and help them to adopt a particular greenscaping practice. If they become convinced of the need to change their behavior, and are satisfied with the outcome, they will speed the diffusion of this practice because of their influence and because of the size of their social networks.

Innovation Diffusion Theory

Innovation Diffusion Theory also provides insights that are useful for developing behavior change strategies. The study of the diffusion of innovations looks at how new ideas, products and behaviors spread in society. Some innovations spread rapidly, some more slowly, some not at all. Research on the diffusion of innovations has revealed that the characteristics of innovations, as perceived by individuals, help to explain their different rates of adoption.²⁷

1. **Relative Advantage** is the degree to which an innovation is perceived as better than the idea it replaces. The degree of relative advantage may be measured in terms of money gained or saved, but social prestige factors, convenience, and satisfaction are also important factors.
2. **Compatibility** is the degree to which an innovation is perceived as being consistent with the values, past experiences and needs of potential adopters. An idea that is incompatible with the values, norms and prior practices of a social system will not be adopted as rapidly as an innovation that is compatible.
3. **Complexity** is the degree to which an innovation is perceived as difficult to understand and use. New ideas that are simpler to understand and use are adopted more rapidly than innovations that require the adopter to develop new skills and understandings.
4. **Trialability** is the degree to which an innovation may be experimented with on a limited scale. Innovations that can be tried on a small or partial scale will generally be adopted more quickly than innovations that must be adopted on an all or nothing basis.
5. **Observability** is the degree to which the results of an innovation are visible to others. The easier it is for individuals to see the outcome of an innovation, the more likely they are to adopt it. Such visibility stimulates discussion of a new idea, as the friends and neighbors of an adopter often request information about it.

Pre-test Messages, Outreach Materials and Strategies

Whenever possible, the Greenscapes Coalition should pre-test messages, informational pieces and strategies with a small group of target audience members as part of the program planning process. Pre-testing of this sort provides an opportunity to learn how target audience members perceive communications and program elements in terms of characteristics such as:

- ◆ likeability;
- ◆ believability;

²⁷Rogers, E.M. (2003). *Diffusion of Innovations*. Fifth Edition. Free Press, New York. p15.

- ◆ potential for capturing attention;
- ◆ understandability;
- ◆ information value;
- ◆ practicality; and
- ◆ potential for meeting their needs.

It is also important to determine whether individuals are more motivated to act if messages are framed in terms of what the individual is losing by not acting or in terms of what he/she is saving by acting. The feedback gained from pre-testing can then be used to make communications and other program elements more effective before they are launched.

Recommendations: Promoting Organic Fertilizer and Watering at Dawn

Based on the focus group research results, watering at dawn may hold more promise for adoption than using organic fertilizer. However, recommendations for promoting both organic fertilizer use and watering at dawn are presented here as case studies to illustrate how social marketing principles and Innovation Diffusion Theory apply.

Using Organic Fertilizer²⁸

Choosing the Audience

Eighty-two percent of South Shore phone survey respondents apply fertilizer, pre-emergents, pesticides or weed and feed on their properties. The prevalence of fertilizer application alone is not known. However, 72% of those who apply lawn chemicals do so themselves rather than hiring a contractor to do so. It is possible that contractors apply more fertilizer to any given lawn than do-it-yourselfers, but given the larger numbers of do-it-yourselfers, the total fertilizer load applied by them may be greater. Based on the data at hand, targeting do-it-yourselfers as the primary audience for switching to organic fertilizer would be a reasonable choice.

Address the Audience's Beliefs

A list of Frequently Asked Questions on the Greenscapes website should address beliefs and concerns raised by focus group members regarding organic fertilizer:

- ◆ Is organic fertilizer more costly than synthetic fertilizer?
- ◆ Does organic fertilizer take more effort to use than synthetic fertilizer?
- ◆ Is organic fertilizer readily available?
- ◆ Is organic fertilizer as effective as synthetic fertilizer?
- ◆ Are synthetic fertilizers used up faster than organic fertilizers because they are more water soluble?
- ◆ When you say that organic fertilizers have longer lasting benefits than synthetic fertilizers because they release nutrients gradually, what benefits are you referring to?
- ◆ Does organic fertilizer need to be used more regularly than synthetic fertilizer?

²⁸ In addition to the recommendations presented below, the Coalition is advised to consider recommendations in the “Fostering Behavior Change” section, including Using a Credible Messenger, Using Humor to Capture Attention, Fostering Social Diffusion and Pre-testing Messages, Outreach Materials and Strategies.

- ◆ Is it true that if you begin to use organic fertilizer, it will take 2 to 3 years before you will have a nice lawn?
- ◆ Can fertilizer chemicals persist in water even after it is treated for drinking?

Capture Attention by Using Vivid, Concrete, Personally Relevant Information

How can the Coalition make the environmental benefits of using organic fertilizer more vivid, concrete and personally relevant?

- ◆ In the mailer, include a photograph of a specific lake or pond choked with algae on the page devoted to using organic fertilizer (vivid). Include the pond's name and location (concrete). On the section of the website devoted to using organic fertilizer, allow people to type in the name of their town in order to see photos of identified lakes, ponds or streams nearby that have been affected by algae growth (concrete, personally relevant).
- ◆ Include quotes from local residents who enjoy fishing, boating or swimming regarding the effect of algae-choked water on their recreational experiences (vivid, concrete).

It is always important to pair messages about the problem with messages that engender a feeling of common purpose and efficacy in dealing with the problem.²⁹ Focus group participants rated the message, "Greenscaping will help protect our rivers, streams and ponds," as highly likeable and believable. Some variation on this statement could be used to help make the transition between the problem of algae-choked water bodies and the use of organic fertilizer as part of the solution.

Overcome Perceptions of Inconvenience (Promote Trials of the Behavior)

It is not clear that the inconvenience of using organic fertilizer is a barrier that can be overcome without changes in product features. However, providing people with an incentive to gain some experience using organic fertilizer may help them come to see it as more convenient than they previously thought.

Just as the Greenscapes Coalition has partnered with nurseries and garden centers to offer discounts on drought-tolerant plants, the Coalition should consider similar partnerships in which first-time organic fertilizer users are offered a discount on their purchase. Of course, there is no completely reliable way to limit use of a coupon or discount just to first time users. It may make sense to offer the same discount to current users as well, as a sign of appreciation for their action. Seeing that current users are also offered a discount communicates two things to first time users as well. The first is that others **are** currently using organic fertilizer. This is a very important message, because people consider others' behavior when deciding what is appropriate behavior for themselves.³⁰ A discount for current users, offered in appreciation for taking action to protect our rivers, streams and ponds, also communicates to first time users that society looks favorably upon those who take this action. When deciding on appropriate behavior for themselves, people not only observe what others do (descriptive norms), they also note what others communicate to them about what is acceptable or approved behavior (injunctive norms).

²⁹ McKenzie-Mohr, D. (1999). *Fostering Sustainable Behavior: An Introduction to Community-Based Social Marketing*. New Society Publishers: Gabriola Island: British Columbia. p92

³⁰ McKenzie-Mohr, D. (1999). *Fostering Sustainable Behavior: An Introduction to Community-Based Social Marketing*. New Society Publishers: Gabriola Island: British Columbia. p72.

The discount offer for those currently using organic fertilizer should prominently feature intrinsic reasons for the action (“Thank you for taking the lead.” Or “Thank you for making a difference for our rivers, streams and ponds.”) and/or the benefits that organic fertilizers have for lawns (“Good for you for feeding your soil as well as your grass”). Otherwise, the discount may replace the intrinsic reasons for taking the action. When the discount is no longer available, people may feel less inclined to repeat the action.

Another possible strategy for encouraging people to gain some experience using organic fertilizer would be for the nurseries to give away a small quantity of organic fertilizer that individuals can try on a portion of their lawn. This would provide individuals with some experience in using the product. It would allow people to assess the effectiveness of it without committing to using it on their entire lawn while they are still unsure of the consequences. This approach is consistent with a principle from Diffusion of Innovations Theory, which holds that innovations that can be experimented with on a limited scale (trialability) will generally be adopted more quickly than innovations that must be adopted on an all or nothing basis.

Model the Behavior

The Coalition should consider placing a video on the website showing a homeowner demonstrating the steps involved in using organic fertilizer.

Communicate Supportive Norms

If the Coalition has evidence to indicate that many people use organic fertilizer, it would be important to communicate that to its audience. In the absence of such data, however, the Coalition should present anecdotal evidence that communicates the fact that other people, preferably similar others, use organic fertilizer. Here are some suggestions for doing so.

- ◆ In the annual mailer, include a photo of a man who uses organic fertilizer, along with a quote explaining why he uses it. The quote might also include something about his experience of applying the fertilizer and the results. Research indicates that it is most often the male of the household who is responsible for lawn care.³¹ Therefore, it would be important to feature a man in the promotional item.
- ◆ On the section of the website devoted to using organic fertilizer, allow people to type in the name of their town in order to see photos and quotes from real people in their town who use organic fertilizer.
- ◆ Use local newspapers and other local media to profile people who use organic fertilizer.
- ◆ Communicate that there are more and more organic fertilizers coming into the market place (if it is true) because usage of these products is growing. A similarly influential message might be that mainstream lawn care product companies are selling organic fertilizer now, because usage is growing (e.g. Scotts now has its Scotts Organic Choice fertilizer).
- ◆ Ask people to add their name to a list of people who use organic fertilizer. The list could be placed on the section of the website pertaining to organic fertilizer. A list of local users could also be published in a local newspaper. Of course, people’s permission would be required to do either. If the Coalition asks advisory committee members how they would feel about having their name posted on the Greenscapes website or published in the newspaper, they may cite privacy concerns. That was

³¹ Aceti, J. (2002). Reducing Pesticide Use in Lawn Care: Barriers and Opportunities. Report prepared for the Massachusetts Department of Environmental Protection, Boston, MA.

the reaction of focus group members in the Town of Waltham to such a request in the context of a campaign to increase recycling. However, when 20 Waltham households were called in order to test the outreach strategy, 77% gave permission for their names to be published in the newspaper. It would be wise to refrain from posting a list on the website or publishing it in the newspaper until the list is substantial – perhaps 100 people on the South Shore or 100 people on the North Shore. A very short list would communicate to people that very few people are using organic fertilizer – opposite to the desired impression. Names for the list could be solicited via the email newsletter or at events and workshops.

- ◆ Publish on the website the number of hits that the organic fertilizer section of the website has received. (e.g. “xxx thousand people have visited our website since _____ to learn about using organic fertilizers.”)
- ◆ Placing a video on the website demonstrating how to apply organic fertilizer not only provides step by step guidance but also communicates that others engage in this practice.

Highlight Relative Advantage Where Possible

When the focus group participants assessed the list of pros and cons of organic fertilizer compared to synthetic fertilizer, most concluded that the relative advantage of organic fertilizer was not sufficient to consider using it. However, one focus group member who was inclined to re-examine the idea of using organic fertilizer was intrigued by the thought that synthetic fertilizers are used up faster than organic. He said that the statements that triggered this reaction were the following: “Synthetic fertilizers tend to be more water soluble than organic fertilizers, leaching out of the soil faster and potentially polluting water resources,” and “Organic fertilizers have longer lasting benefits than synthetic fertilizers because they release nutrients gradually.” Can the Coalition illustrate concretely that organic fertilizers are more cost-effective or better for lawns because they last longer?

Synthetic fertilizers are derived from petroleum. Prior to the focus group, a Greenscapes Coalition member mentioned the prospect that using organic fertilizer could reduce petroleum use. It was not possible to verify this before the focus group took place, so this potential advantage was not included in the list of pros and cons presented to focus group participants. However, if it is the case that using organic fertilizer reduces petroleum use, this fact could bolster the relative advantage of organic fertilizer compared to synthetic. Further, one focus group member expressed some concern about the future cost of fertilizer, as a function of increasing petroleum prices. A switch to organic fertilizer could be framed as a wise move to avoid probable increases in the cost of synthetic fertilizer, if this is indeed a realistic concern.

Emphasize Compatibility

The Coalition is advised to point out the ways in which applying organic fertilizer is similar to (compatible with) the ways that people have used synthetic fertilizers in the past.

Measuring Progress

How might the Coalition measure the results of its efforts to promote the use of organic fertilizer? Hits on the appropriate sections of the Greenscapes website would be a good measure of the effectiveness of the mailing in catching people’s attention and driving traffic to the website. If the Coalition collaborates with one or more nurseries to offer discounts or free samples of organic fertilizer, there may be an opportunity to collaborate

on assessing the results of those promotions as well. The Coalition could ask one or more of the cooperating nurseries if they would share data on sales quantities of organic fertilizer on an ongoing basis. The request could be framed as a collaborative effort to determine whether the joint promotional efforts of the Coalition and the nurseries are working. Further, if the results are positive, the Coalition could publish feedback in a mailing or on its website about the increased sales (“Sales of organic fertilizer are up an average of ___% at these garden nurseries!”) Feedback of this type communicates that use of organic fertilizer is becoming increasingly common. As such communications bolster the perception that using organic fertilizer is increasingly the norm, usage may increase even further.

The nurseries may have concerns about sharing sales figures if such information might become accessible to competitors. It would be important to fully explore with the nurseries their need for confidentiality, and to discuss how sales quantities could be shared and increases publicized, without jeopardizing any competitive advantage that their sales data provides them.

Another option for measuring progress would be to conduct a phone survey every three years. A sample of do-it-yourselfers would be asked if they use fertilizer and if so, what kind. The periodic survey results would allow the Coalition to track changes in organic fertilizer use over time. However, it would be very important to conduct an initial survey before new initiatives are launched, in order to gather baseline data on the current prevalence of organic fertilizer use in the Greenscapes regions. Clearly, funds would need to be raised in order to conduct periodic surveys. Conducting the surveys at three-year intervals may allow grant funding to be raised. Alternatively, perhaps modest annual increases in municipal funding would be possible to cover this essential ongoing evaluation function.

Watering at Dawn³²

Choosing an Audience

The focus group research results highlighted the fact that there are a number of audience segments to which the practice of watering at dawn could be promoted:

Group 1: Irrigation system users who program their system to go on automatically at a set time of day a number of times each week.

Group 2: Irrigation system users who turn their system on manually when they feel their lawn needs to be watered.

Group 3: Traditional sprinkler users.

Does it make sense to try to reach out to all of these groups using the simplified mailer described earlier? Answers to a number of questions may influence the answer. The questions are: What specific actions are each of these groups being asked to take? How easy or difficult are those actions expected to be? Are there likely to be particularly effective ways of reaching one or more of the groups, as revealed by the phone survey

³²In addition to the recommendations presented below, the Coalition is advised to consider recommendations in the “Fostering Behavior Change” section, including Addressing the Audience’s Beliefs, Using a Credible Messenger, Using Humor to Capture Attention, Fostering Social Diffusion and Pre-testing Messages, Outreach Materials and Strategies.

or focus group research? With which group lies the greatest potential for saving water? Each question is examined in turn.

What specific actions are each of these groups being asked to take?

Group 1: Irrigation system users who program their system to go on automatically at a set time of day a number of times each week.

Members of this group could be asked to make just two changes:

- ◆ Reprogramming the system clock to go on at 5am, if it does not currently go on at that time. (Of course, a caveat would be included, instructing members of this group not to water if there is a water ban.)
- ◆ Reducing the length of time that they water, since only one-tenth of the amount of water is required when watering at dawn as when watering at noon. It would seem that anyone who begins watering at dawn would need some sort of guidance on how much to reduce the length of time they water, especially if they previously watered in the early morning (but not at dawn) or in the evening.

Members of this group could also be asked to adopt another greenscaping practice at the same time they begin watering at dawn, which is to turn their system on manually the night before when their lawn needs watering, and turning it off the next day.

Group 2: Irrigation system users who turn their system on manually when they feel their lawn needs water.

The two focus group members who fit in this category go out to water their lawns either before 7am or in the evening, but not at dawn. Turning the irrigation system on manually when the lawn needs water is a recommended greenscaping practice. The Coalition will likely want to encourage those engaged in this practice to continue to do so. In that case, the behavior changes this group is asked to make are:

- ◆ Reprogramming the system clock to go on at 5am, if it does not currently go on at that time. (Of course, a caveat would be included, instructing members of this group not to water if there is a water ban.)
- ◆ Deciding the night before if the lawn needs water, turning the system on the night before and remembering to turn it off the following day.
- ◆ Reducing the length of time that they water, based on the time of day that they previously watered.

Group 3: Traditional sprinkler users.

None of the four traditional sprinkler users in the focus group watered at 5am. Similar to Group 2, they water when their schedules permit. As with those who turn their irrigation system on manually, the Coalition will likely want to encourage traditional sprinkler users to continue to turn their watering equipment on manually, even if they purchase a timer.

The behavior changes this group is asked to make are:

- ◆ Purchasing and installing a sprinkler timer. Programming the timer to water at dawn. (Of course, a caveat would be included, instructing members of this group not to water if there is a water ban.)
- ◆ Deciding the night before if the lawn needs water, turning the system on the night before and remembering to turn it off the following day.
- ◆ Watering different parts of the lawn on different days (otherwise they will need to go out at 5am to move the sprinkler around the yard).

- ◆ Reducing the length of time that they water, based on the time of day that they previously watered.

How easy or difficult are those actions expected to be?

If Group 1 is not asked to turn their irrigation systems on manually, they are being asked to make the easiest series of behavior changes. If they are asked to begin turning their system on manually, then Group 2 is being asked to make the easiest behavior change, relative to what they do currently. It would seem that Group 3 is being asked to make the most difficult series of behavior changes.

Are there likely to be particularly effective ways of reaching one or more of the groups, as revealed by the phone survey or focus group research?

In regards to using sprinkler timers in particular, four of the eight participants mentioned the discounted cost of the sprinkler timer as likely to be influential in people's decision about whether to buy one.

With which group lies the greatest potential for saving water?

Eighty-five percent of South Shore phone survey respondents reported that watering is done on their property. Fifty percent of those who water utilize traditional sprinklers, while only 17% use in-ground irrigation systems. It is possible that on average, the irrigation system users apply more water to lawns than traditional sprinkler users and, therefore, have more potential for reducing water use. Traditional sprinkler users may have less room for improvement. However, given the much larger numbers of traditional sprinkler users, at least on the South Shore, aggregate potential for savings may be greater. It is not possible to know the answer to this question for sure, given the data in hand.

It would be desirable to bring Groups 2 and 3 on board without undermining the practice of turning watering devices on manually and only when needed. This means motivating people to adopt the practice of deciding the night before whether their lawn needs water, turning their system on the night before and remembering to turn it off the next day. How inconvenient is this step likely to seem to people? Behaviors that are perceived as seriously inconvenient are unlikely to be adopted by large numbers of people, no matter how well-crafted the messages used to communicate with them. It would be worth exploring this behavior change with some members of the target audience. How likely do they think it is that people will be willing to adopt this practice? What do they think can be done to make it easier for people? Input from audience members on this issue should be considered in deciding whether watering at dawn is really a promising greenscaping practice to promote, given the resources that the Coalition has.

The answers to the four questions do not lead to a clear cut conclusion about whether the mailer should target all lawn waterers, or target just one or two of the groups identified above. Using the mailer to target traditional sprinkler users by dangling the discounted timer "hook" may be effective. However, focus group participants also rated the following statements as highly likeable and believable: "People are more important than lawns – we need enough water for people to drink and for fire protection," and "Greenscaping will help ensure that there is enough water for people to drink and for fire protection." Further, one participant identified the above statements as ones that she thought would catch people's attention because she felt that most people don't connect watering their lawns with depleting the water source for putting out fires. One person's views are not a lot to go on. Some additional message testing with audience

members may be warranted to gain a broader perspective on the potential of various statements to capture attention. However, given the information in hand, a statement linking watering at dawn with ensuring adequate water supplies for fire protection may function well as the simple “hook” that engages all lawn waterers, not just traditional sprinkler users. The following recommendations are based on the premise that the mailer will target all lawn waterers.

Capture Attention by Using Vivid, Concrete, Personally Relevant Information

During the focus group, a participant who is a Hamilton Fire Department trainer related an anecdote about the impact of lawn watering on fire drills. It may be worth considering the inclusion of a quote from a credible spokesperson on fire protection the Greenscapes mailer. Such a quote would make the link between lawn watering and fire protection more vivid and concrete. A comment from a local fire department official would also enhance the believability of the link between lawn watering and fire protection capability. Along the same lines, photos of low reservoir levels may make the impacts of lawn watering personally relevant to people in a way that pictures of a dry Ipswich River do not.

Communicate Supportive Norms

Many of the recommendations for communicating supportive norms about organic fertilizer use can also be used to communicate that a growing number of people engage in the practice of watering at dawn.

Highlight Relative Advantage

The following recommendations may help the Coalition highlight the relative advantage of watering at dawn.

- ◆ The Greenscapes Reference Guide currently contains the following statement: Watering at daybreak is about 10 times more effective and conserves water.” A more vivid and concrete variation on this statement may be more effective: “Watering at daybreak is about 10 times more effective than watering during the heat of the day, because less water is lost to evaporation at daybreak. So, for example, watering your lawn for 20 minutes at dawn will deliver about the same amount of water to the roots of the grass as watering for 120 minutes at noon.”
- ◆ Point out that watering at dawn is better for a lawn than watering in the evening, which has the disadvantage of potentially setting up conditions for fungal infections.
- ◆ Let people know that watering at dawn is superior to watering at 6 or 7am because watering at 6 or 7am increases peak loads on water supply equipment. If high loads impact fire protection capacity, this fact should be communicated in a credible manner as well.
- ◆ Sell convenience. Convenience is an important quality of life issue. One focus group member felt that some people would buy a sprinkler timer because it would make it more convenient for them to water early in the morning. Watering at dawn could also be framed as one less thing to worry about during evening hours that can be better spent enjoying time with family, friends, etc.

Emphasize Compatibility

In outlining the steps involved in watering at dawn, the website text should emphasize the ways in which the steps are compatible with how Groups 1, 2 and 3 have done things in the past. For example, traditional sprinkler users have always turned their watering equipment on and off manually when they water their lawn. Turning the system

on manually the night before and off the morning after is compatible, at least in part, with that prior behavior.

Reduce Complexity (Overcome Barriers to Adoption)

Once people get to the section of the Greenscapes website pertaining to watering at dawn, it would be helpful if links could direct Groups 1, 2 and 3 to different subsections. Each group's subsection would address barriers that that group faces. Messages that describe actions to be taken in clear, straightforward steps are more likely to be understood and followed.³³ Each subsection is an ideal opportunity to walk people through the steps they need to take. For example, the subsection for traditional sprinkler users would describe the steps for buying a timer from the Coalition, prominently featuring the discount for a sprinkler timer. One focus group member expressed concern about people's ability to program the timer. To overcome this barrier, the subsection for traditional sprinkler users could also feature a video leading people through the steps of programming the timer (**Modeling the Behavior**). If there is any complexity to installing the timer, a video demonstrating how to install it would be likely to allay concerns as well.

Some prior research has indicated that people are also intimidated by the idea of reprogramming their irrigation system clock, which could be a barrier for Groups 1 and 2. Videos showing how to program popular brands of irrigation system clocks may be helpful. Alternatively, the Greenscapes website could provide web links and/or phone numbers that people could use to access irrigation clock manuals for popular brands. The Southern Nevada Water Authority's website provides this information to customers at http://www.snwa.com/html/land_irrig_clockmanuals.html.

Quotes or videos demonstrating how people overcame the barriers to manual operation of their system would be useful to all of the groups. The Greenscapes Reference Guide notes that residents will need to find a way to remind themselves to turn their irrigation system or sprinkler off after their lawn has been watered at dawn. The Coalition may wish to consider supplying, upon request, an appealing "prompt" to homeowners who indicate a willingness to turn their system on the night before and turn it off again the next day. A prompt could be a well designed sign, magnet, door hanger or other item that homeowners can place in a strategic location to remind them to turn the system off in the morning. Incorporating a clever, humorous and/or affirming message and pleasing aesthetics into the prompt are likely to make it more appealing to use. Ideas for prompts should be tested with audience members who are responsible for lawn watering³⁴ to determine, first of all, if a prompt would be helpful, and, if so, what might make a prompt appealing to use.

Measuring Progress

How might the Coalition measure the results of its efforts to promote watering at dawn? Hits to the section of the website devoted to watering at dawn will provide an indication

³³ McKenzie-Mohr, D. (1999). *Fostering Sustainable Behavior: An Introduction to Community-Based Social Marketing*. New Society Publishers: Gabriola Island: British Columbia. p92

³⁴ "Previous research demonstrates that males are much more likely than females to be responsible for lawn irrigation in the household." -- Ulrich Research Services, Inc. (November, 2004). *Lawn Irrigation Focus Groups: Phase 2 – Storyboard Test*. Completed for The Hoffman Agency and the St. Johns River Water Management District, Palatka, FL.

of the mailer's effectiveness in capturing attention and creating interest in this particular practice. Sales of sprinkler timers from year to year will provide a measure of progress being made in reaching Group 3. Requests for prompts could indicate how many members of Groups 1 and 2 are attempting to implement this practice.

Similar to the promotion of organic fertilizer use, a periodic phone survey could be used to gauge adoption of this practice among the Greenscapes population. However, as with organic fertilizer use, it would be important to determine the baseline percentage of people who currently water at dawn, before implementing new outreach initiatives.

Summary: General Best Practices/Techniques

As the Coalition develops initiatives to foster the adoption of various greenscaping practices, the following steps will help to shape the focus, messages and other programmatic elements for each behavior change.

- ◆ Choose the audience
- ◆ Address the audience's beliefs
- ◆ Use a credible messenger
- ◆ Capture attention using vivid, concrete, personally relevant information
- ◆ Use humor to capture attention
- ◆ Overcome perceptions of inconvenience by promoting trials of the behavior
- ◆ Model the behavior
- ◆ Communicate supportive norms
- ◆ Foster Social diffusion
- ◆ Highlight relative advantage where possible
- ◆ Emphasize compatibility
- ◆ Reduce Complexity/Overcome barriers to adoption
- ◆ Pre-test messages, outreach materials and strategies
- ◆ Measure progress

It is acknowledged that many of the recommendations outlined above will require funding above and beyond what is currently available to the Coalition. Hopefully, these concrete recommendations can form the basis for compelling funding proposals that will allow the Coalition to bring the Greenscapes program to a new level of effectiveness.