Community-Based Social Marketing at the Neighborhood Scale:
Sustainable Behavior or Neighborhood Sustainability?

By

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Abstract

Social marketing has long been used in the field of public health, but its application in the environmental world is only a decade old. Although McKenzie-Mohr and Smith's (1999) guide to "community-based social marketing" (CBSM) has gained increasing support, there have been few attempts to delineate when CBSM can (and should) be used. In this thesis, I explore the use of CBSM at the neighborhood scale: first, to encourage the uptake of rain barrels and rain gardens; and second, to advance long-term sustainability as defined in the sustainable communities literature. My research focuses on the potential opportunities and limitations of CBSM in three very different neighborhoods in the Greater Toronto Area.

Interviews with homeowners in the three neighborhoods revealed surprisingly high levels of rain barrel interest and ownership among people who do not self-identify as "environmentalists". I suggest that different CBSM strategies may be useful for promoting rain barrels among individuals who self-identify in different ways. In contrast, rain gardens received limited support from non-environmentalists and appeared challenging to promote. I suggest that CBSM programs to encourage rain gardens will be more effective if clearly tied to local issues. I outline strategies for increasing the local relevance of CBSM and highlight the benefits of including diverse residents at all stages of program design.

Finally, I argue that practitioners should assess opportunities for CBSM to contribute to long-term neighborhood sustainability. In all three neighborhoods, CBSM holds little potential to directly address residents' sustainability priorities, since these issues require neighborhood-level efforts. However, modified versions of CBSM may be able to indirectly contribute to long-term sustainability by fostering social capital, attachment to place and awareness of links between environmental, economic and social issues.

Thesis Supervisor: Professor Lawrence Susskind
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Preface

At MIT, I have spent the better part of two years studying collaborative planning and stakeholder engagement. Since community-based social marketing (CBSM) is in many ways an opposite approach, my initial exposure to CBSM triggered a strong knee-jerk reaction. I asked myself with indignation: How could they call targeted focus groups and surveys "public consultation"? How could they think that experts are equipped to diagnose a community's problems, let alone solutions to those problems? How could they recommend marketing as the key to sustainability?

Over time, I realized that there is definitely a place for CBSM in the sustainability toolkit. I also realized that CBSM's tools and methods were not, in fact, the main cause of my disdain. Rather, it was the lack of critical reflection. McKenzie-Mohr and Smith's (1999) book *Fostering Sustainable Behaviour* is user-friendly. It includes cute, personal anecdotes as well as simple prescriptions. (The authors were clearly skilled in the field of marketing). However, it makes no mention of when and where CBSM is appropriate. It does not place CBSM in any historical context, nor does it situate CBSM as one of many possible approaches to sustainability. Finally, parts of CBSM's "theory of change" are scattered across the book, while others are nowhere to be found. Perhaps what bothered me most was the broad, unquestioning acceptance of CBSM. My indignant question was: "Where are the thoughtful critiques of this method?

As I finally diagnosed "the real problem with CBSM", I was reminded of the importance of subjecting my own beliefs to regular reflection. When, where and why do we need all relevant stakeholders at the table? Do residents of all communities really want to work together to develop sustainability indicators and plans? Undoubtedly, collaborative, long-term planning is not always the right way to make progress on sustainability.

CBSM could benefit from a closer connection to planning theory and practice. However, planners can also benefit from learning how to use social marketing. Perhaps the main takeaway from my thesis is that all practitioners should look beyond their own discipline and theory of change to see what else is out there.

Introduction and Research Questions

Community-based social marketing (CBSM) is an emerging discipline being used to promote sustainable behaviors from the neighborhood level up to the regional scale. Drawing on findings from environmental psychology, it provides practitioners with a variety to tools to increase the uptake of environmental practices. It is unique in its focus on overcoming existing barriers to specific practices. It is also unique in its focus on creating new social norms and fostering diffusion of behaviors through social networks. Finally, it provides practitioners with four simple steps, and emphasizes methodological rigor in program design and evaluation.

Since McKenzie-Mohr's (2000) release of *Fostering Sustainable Behavior,* community-based social marketing has been gaining increasing support in diverse fields. Agyeman and Angus (2003) reference its potential to increase the respect that people feel towards their communities; Lorenzoni et al. (2007) describe its potential to create awareness, acceptance and norms around climate change action; and Cowling et al. (2008) discuss its potential to help mainstreaming ecosystem service safeguarding into land-use planning practices. However, despite McKenzie-Mohr and Smith's (1999) over 500 citations, there has been little critical analysis of CBSM. There have also been few attempts to delineate when and where CBSM can – and should – be used. Nor has it been fully connected to the "sustainable communities" literature that focuses on long-term neighborhood sustainability.

This thesis explores the relevance of CBSM at the neighborhood scale. It does so at two "levels": first, in the context of specific environmental behaviors (rain barrels and rain gardens) that practitioners seek to promote; and second, in the context of broader "sustainability planning" efforts. I tackle the following questions, based on interviews with homeowners in three diverse neighborhoods in the Greater Toronto Area:

> How and to what extent might CBSM strategies drive uptake of specific actions (rain barrels and rain gardens) at the neighborhood scale?
>
> How and to what extent might CBSM promote long-term sustainability at the neighborhood scale?

In order to address these questions, I investigate the factors that shape residents' support for rain barrels and rain gardens in the different neighborhoods. I highlight trends in homeowners' priorities for long-term sustainability. I also explore approaches to CBSM that might better promote sustainability in neighborhoods.

Chapter 1 provides an overview of the theory and methodology of community-based social marketing and outlines the factors that may affect its relevance at the neighborhood scale. It also defines the components of long-term neighborhood sustainability and highlights the relationship between social capital and sustainability. Chapter 2 describes the research and data analysis methods, research areas, and sample characteristics. Chapter 3 explores and seeks to explain the benefits, barriers, and overall levels of support for rain barrels and rain gardens in the three neighborhoods. Chapter 4 identifies homeowners' priorities for long-

term sustainability in the three neighborhoods and highlights trends in these priorities. It also draws from residents' comments to characterize social capital in each neighborhood. Chapter 5 draws conclusions about the relevance of CBSM to promote specific actions and to advance long-term sustainability at the neighborhood scale. It suggests modifications of the CBSM approach to better promote neighborhood sustainability and presents a series of questions to guide practitioners.

Chapter 1: Community-Based Social Marketing and Neighborhood Sustainability

This chapter begins with an overview of the theory and practice of community-based social marketing. Section 2 contrasts CBSM with traditional social marketing approaches, and presents several challenges to CBSM. Section 3 discusses the theoretical factors that may determine the relevance of CBSM at the neighborhood scale. Section 4 draws on the "sustainable communities" literature to define the characteristics of long-term neighborhood sustainability. Section 5 contrasts CBSM with the sustainable communities approach and explores how CBSM could be relevant to long-term neighborhood sustainability.

I highlight the following ideas within this literature review:

- CBSM will primarily be able to promote actions that do not require "sacrifice".
- CBSM tools will primarily be able to create social norms if actions are already widespread, or if the "injunctive norms" that underlie them are well understood.
- CBSM's ability to stimulate social norms and diffusion within a particular neighborhood will depend on the strength of social ties and collective norms among residents.
- There are three primary goals of long-term neighborhood sustainability: economic vitality, environmental integrity, and sociocultural wellbeing.
- Progress toward these primary sustainability goals will be enabled by factors that include: understanding of links between social, economic and environmental issues; a shared sense of neighborhood identity; active and representative neighborhood institutions; and linkages with an external support network.
- These secondary components are closely connected to other elements of neighborhood social capital: social ties, collective norms, reciprocity, and collective efficacy.
- CBSM will only be relevant to the primary goals of long-term sustainability if neighborhood priorities depend on individual actions. Modified versions of CBSM tools may be able to lay the foundations for progress towards long-term sustainability.

Section 1: The Theory and Practice of Community-Based Social Marketing

Introduction to CBSM

Community-based social marketing (CBSM) provides an alternative to traditional environmental campaigns. It rejects the assumption that increasing public knowledge about an issue will change individual behavior; it also rejects campaign logic that assumes individuals will systematically evaluate choices and act on the basis of a rational calculation of economic self-interest. Instead, CBSM provides practitioners with tools grounded in psychological theory to increase support for specific environmental practices. Tabanico and Schultz (2007) state that "CBSM is unique in that it packages basic principles of psychology with applied research methods in a way that provides a usable framework for practitioners working to promote behavior change across a variety of settings".

CBSM begins by acknowledging that barriers to various "sustainable behaviors" will vary for different individuals. Thus, it stresses that an organization can only begin to develop a social marketing strategy after it has identified the barriers to a particular activity. CBSM emphasizes the use of place-based marketing research to identify both "internal" barriers (e.g. absence of skills) and "external" barriers (e.g. inadequate infrastructure) to the behavior in question (McKenzie-Mohr 2000). CBSM strategies incorporate multiple "tools" in order to overcome all identified barriers.

CBSM also emphasizes the use of normative influences at the "community" level to increase the uptake of behaviors. It builds on published findings that suggests that people are much more likely to adopt behaviors if they know that others have adopted them (descriptive norms). It also seeks to create the sense that people view a behavior as the right thing to do (injunctive norms). Finally, CBSM tools often incorporate personal contact to promote social diffusion of behaviors. McKenzie-Mohr and Smith (1999) explain, "These techniques are carried out at the community level and frequently involve direct contact. Personal contact is emphasized because social science research indicates that we are most likely to change our behavior in response to direct appeals from others". In Section 2, I expand on the CBSM "tools" and the theory of change that underlies them.

The Five-Step Approach

McKenzie-Mohr and Smith (1999) outline five distinct steps that make up the CBSM approach: identifying barriers to a sustainable behavior, designing a strategy using specific "behavior change tools", piloting the strategy with a small segment of a community, implementing the program, and evaluating the impact of the program once it has been deployed across a community. These steps are outlined in detail below, in addition to the un-numbered step of selecting a behavior described by Tabanico and Schultz (2007).

Selecting a behavior: Tabanico and Schultz (2007) describe selecting a target behavior as the most important step. They emphasize the importance of selecting a behavior that is linked with the desired outcome, and determining the relative effectiveness of the different possible options. They also emphasize that it is helpful to focus on a single behavior as opposed to a "laundry list." McKenzie-Mohr (2000) suggests that after identifying barriers (the next step), program designers should review the behavior they have selected to ensure that the barriers can be overcome.

Identifying barriers: The process of identifying barriers begins with a review of the literature, articles and reports on the behavior in question. Next, researchers hold focus groups to explore relevant attitudes and current behaviors of community residents. Using information from focus group, social marketers design a phone survey and carry it out with a random sample of residents. The purpose of the phone survey is to provide additional information on barriers, e.g. by distinguishing people who already perform the activity from those who don't. McKenzie-Mohr and Smith (1999) describe a successful phone survey that revealed several "internal" barriers to composting; residents perceived composting to be unpleasant, inconvenient and overly time consuming.

Designing strategies: After barriers have been identified, social marketers are advised to prioritize barriers using multivariate statistical analysis of survey data (McKenzie-Mohr and Smith 1999). Social marketers then seek to develop strategies to "remove as many of these barriers as possible." Different "tools" are selected to match the identified barriers. See additional description of the tools below. After designing a CBSM strategy, social marketers hold two or more focus group sessions to obtain reactions to what is proposed (McKenzie-Mohr and Smith 1999).

Piloting: Before implementing a CBSM strategy, social marketers pilot the strategy in a small portion of the community to determine its effectiveness in changing behaviors. McKenzie-Mohr (2000) describes using "psychological expertise in research methods and statistics" to conduct "cost-effective and definitive pilots." These involve random assignment and measurements of behavior change across groups. Pilots are then repeated until the desired level of behavior change has been achieved.

Implementation and Evaluation: After pilots have demonstrated that a social marketing strategy is effective, it is ready to be implemented. Advertising and local media are used to create additional awareness. Its effectiveness can then be evaluated. CBSM stresses the importance of evaluating implemented programs using direct measures of behavior and their consequence (e.g. actual energy use) (McKenzie-Mohr 2000).

Behavior Change Tools – and Theories of Change

The CBSM approach emphasizes six "behavior change tools": commitment, prompts, modeling and social norms, communication, incentives, and convenience. In the section below, I describe these tools using information from McKenzie-Mohr and Smith (1999). I also suggest how these tools connect to the relevant social psychological theories of behavior change. I begin with an introduction to the relevant social psychological theories.

Introduction to Social-Psychological Theories of Behavior Change

Since the 1970's, psychologists have recognized that increases in environmental knowledge and awareness do not directly lead to pro-environmental behavior (Kollmus and Agyeman 2001). The Theory of Reasoned Action (Fishbein and Ajzen 1975) and the Theory of Planned Behavior (Ajzen and Fishbein 1980) introduced the importance of focusing on specific behaviors when analyzing attitudes. Their model suggested that for a specific behavior, rational attitudes and normative pressures influence our intention to act. This intention in turn shapes our actions. This general framework has been the subject of empirical testing and has maintained relevance over time. Since 1980, its complexity has increased to include factors that affect our perception of personal responsibility and ability to act. I return to this framework at the end of this section. The Theory of Planned Behavior and its offspring have typically adopted a view of human behavior that is individualistic and based on the subconscious weighing of different types of costs and benefits (Sturmer and Simon 2004). This view underlies social marketing and community-based social marketing.

Another line of research has identified pro-environmental behavior as prosocial or

altruistic behavior. Schwartz's norm-activation model (1977, cited by Bamberg and Moser 2007) emphasizes the importance of moral norms as feelings of strong obligations to engage in pro-social behavior. Bamberg and Moser (2007) summarize subsequent work indicating that moral norms are, in turn, influenced by awareness of environmental problems, "internal attribution" leading to feelings of guilt, and social norms. Stern et al.'s (1993) model of motivation for environmental behavior builds from this altruistic norm-activation model. This theory proposes that people's motivation stems from both "altruistic" and "egoistic" orientations. Not surprisingly, research has revealed that the egoistic orientation is the strongest, and can either motivate or inhibit environmental behavior (Stern et al. 1993). Theories of altruistic behavior are not closely linked to social marketing approaches, though they are relevant in connection with social norms.

Finally, sociologists and planners have emphasized the importance of social and institutional factors that create external barriers to pro-environmental behavior. Kollmus and Agyeman (2001) emphasize the importance of various enablers or constraints related to infrastructure, economic incentives and social or cultural factors. CBSM builds on the work of social psychologists in a variety of ways to overcome the gap between behavior and attitudes, values, knowledge, concern and/or intentions. Blake (1999), Kollmus and Agyeman (2001) and many others in this field also acknowledge the critical links between "external" and "internal" factors.

In this thesis, I refer primarily to Bamberg and Moser's (2007) model below (Figure 1) to explain benefits and "internal" barriers.

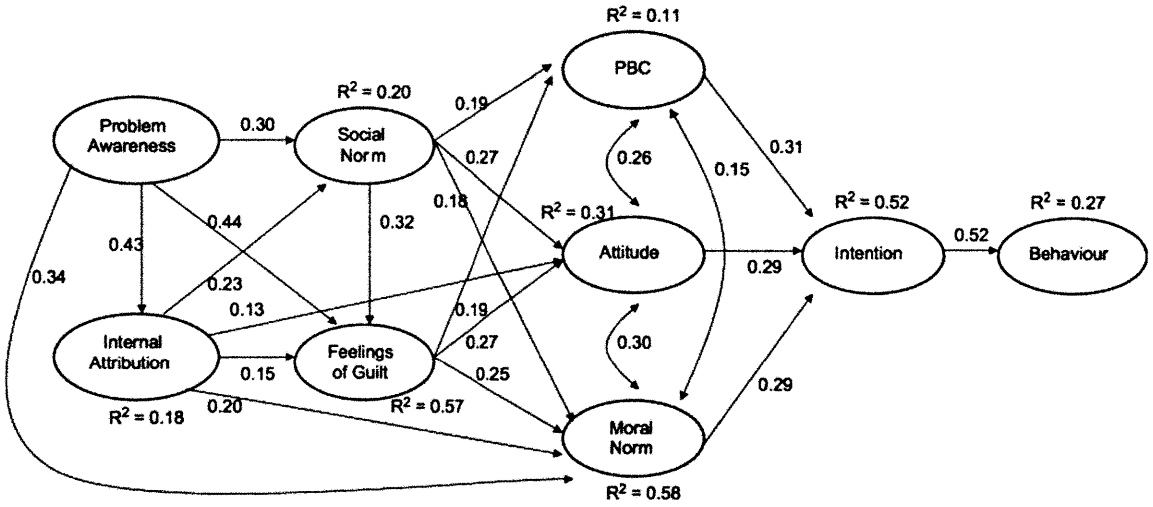

Fig. 1. Results of the MASEM based on pooled random-effects correlations, PBC = perceived behavioural control, single-headed arrows = standardised path-coefficients; double-headed arrows = correlations, R^2 = explained variance.

Figure 1: Factors that influence intention, from Bamberg and Moser (2007)

This model describes the intention to act as the product of three factors: attitude, moral norms and perceived behavioral control. Attitude stems from the belief that the behavior will lead to a predicted outcome and a positive evaluation of that outcome (the rational

model). Moral norms stem from "internal attribution", feelings of personal responsibility and guilt. Perceived behavioral control is the perception that one has the ability to perform a behavior. Perceived behavioral control is influenced by self-efficacy as well as actual control in a given situation. Social norms are seen to influence all three of these factors; they influence moral norms, they provide information about whether a behavior is beneficial, and they influence the perception that a behavior is easy to perform (Bamberg and Moser 2007). Problem awareness underlies all variables. I also emphasize "external" barriers, though in the diagram below they are "hidden" in the line between intention and behavior.

Community-Based Social Marketing Tools

CBSM tools can be divided into two groups. Commitments, prompts, and convenience are used where the intention to perform a behavior already exists. They focus on reducing external barriers and bridging the gaps between intention and behavior. Social norms, modeling and communication aim to create the motivation for sustainable behavior by influencing moral norms, attitudes and perceived behavior control. Finally, McKenzie-Mohr and Smith (1999) suggest that adopting environmental behaviors can enhance individuals' self-identification as "environmentally concerned."

Behavior Change Where Intentions Already Exist

"Commitment" strategies are used to bridge the chasm between intention and action. Many studies demonstrate that an individual who provides a written or oral commitment is significantly more likely to follow-through. A public commitment proves to be an even more powerful tool for guaranteeing follow-through. For example, people who have committed to reducing their electricity use as part of a conservation program have more effectively reduced their actual electricity use than those who were part of similar programs that did not evoke commitments (Pallak et al. 1980). Other research also shows that securing a small initial commitment will substantially increase the chance that an individual will commit to a larger, related request (Freedman and Fraser, 1966). Group commitments have proven effective in settings where there is group cohesion. However, McKenzie Mohr and Smith (1999) state that commitment should only be sought when people already express an interest in doing something.

Commitment strategies seek to bridge the Intention –Behavior Gap by drawing on both internal and external pressures to behave consistently. Internal pressures stem from the prospect of cognitive dissonance. According to Festinger's (1957) theory of cognitive dissonance, individuals should feel discomfort when their actions are inconsistent with their attitudes. However, Stone et al. (1997) point out that the individual must first be aware of their hypocrisy to arouse dissonance or behavior change. After individuals have declared their intention through a formal commitment, not acting on it will evoke dissonance. If commitments are made in a public way, there will be an added external pressure to avoid being viewed as someone who acts inconsistently.

"Prompts" do not increase motivation, but effectively encourage actions to which people are already predisposed. Prompts are visual or auditory tools that help people remember to engage in specific (i.e., sustainable) behaviors in particular situations. For example, signs

identifying "green" products in stores have been shown to significantly increase sales of these products (Herrick 1995). Prompts can also be seen to raise the risk of cognitive dissonance, as people are suddenly reminded that their environmental concern should translate into an action (e.g. turning off the lights).

"Feedback" reinforces positive behavior and encourages it to continue and increase. It contributes to self-efficacy and increases perceived behavioral control, as individuals see that their behavioral changes are having an effect (e.g. lowering energy bills). They may also reinforce positive attitudes, by strengthening confidence in the benefits of that behavior (e.g. financial savings).

Finally, "convenience" is a central aspect of CBSM. McKenzie-Mohr and Smith (1999) emphasize the importance of identifying "external barriers" to an activity and designing a program to reduce these barriers. Sociologists emphasize the importance of external factors in enabling or preventing pro-environmental behavior. Blake's (1999) model suggests that the practicality of environmental behavior stems from social/institutional factors. Schultz and Oskamp (1996) describe how significant barriers can derail all but the strongest intentions. Kollmus and Agyeman (2001) emphasize the importance of infrastructure and economic incentives alongside social and cultural factors as relevant external enablers or constraints. Removing barriers can also affect the "internal" element of perceived behavioral control.

Motivating Behavior

To foster a behavior when motivation is low, CBSM suggests two things. Where awareness of a problem or behavior is low, CBSM suggests using communication to persuade people to make changes. When people are already aware of a possible action but do not yet see its importance, McKenzie-Mohr and Smith (1999) emphasize using norms to "creat[e] the perception that an activity is the right thing to do". Both of these strategies seek to improve attitudes, foster moral norms and increase perceived behavioral control.

As presented in the model above, social norms can influence attitudes, moral norms and perceived behavioral control. Cialdini (2003) suggests that the most effective marketing strategies align descriptive norms (perceptions of what is commonly done) with injunctive norms (perceptions of what is approved or disapproved of) to spur behavior change. Schultz (1999) and Nolan et al. (2008) provide empirical evidence showing how behavior change can stem from descriptive norms. Nolan et al. (2008) further emphasize that people are unaware of the effect of normative influences on their actions (in the context of energy conserving behaviors) and stress that norms would not be as powerful if people were aware of them. McKenzie-Mohr and Smith (1999) state, "Norms develop as people interact and develop guidelines for their behavior, and social diffusion occurs as people pass information to one another regarding their experiences with new activities".

"Modeling" is used in CBSM to demonstrate that an activity is not very difficult and that others are doing it (and presumable benefiting). McKenzie-Mohr and Smith (1999) present examples of how direct contact with people acting "responsibly" (e.g. picking up trash) influences others to do the same. In addition to real-life modeling, "how-to" videos and

demonstrations can achieve some of the same effects on perceived behavioral control. McKenzie-Mohr and Smith (1999) suggest increasing the public visibility of activities using signs, stickers and buttons to build and reinforce social norms. They also recommend building descriptive norms by publicizing information about how widespread "positive" behavior is. Finally, CBSM recommends fostering conversation to encourage social diffusion of activities, and using volunteer "community block leaders" to encourage others to adopt desirable behaviors. These tools all serve to increase both descriptive and injunctive norms. Hogg and Reid (2006) refer to the particularly strong effect of normative influences of people with whom we self-identify (members of our social identity in-group).

Effective communication includes presenting information (e.g. about household resource use) using vivid images to increase problem awareness, internal attribution and moral norms. Specific, concrete and personalized messages delivered through trusted sources are recommended. Message framing also seeks to increase perceived behavioral control; one suggestion for doing this is by invoking a sense of community and shared purpose. The use of threatening messages is also recommended at times, building on Kahneman and Tversky's (1979) finding that people value potential losses more highly than potential gains. Social marketers seek to deliver messages via credible sources. Finally, McKenzie-Mohr and Smith (1999) emphasize using personal contacts and promoting social diffusion of behaviors since "the adoption of new behaviors frequently occurs as a result of friends, family members or colleagues introducing us to them." These people are inevitably the most trusted sources of information regarding the feasibility and desirability of actions.

"Incentives" are another approach to providing motivation for behavioral change. Bottle deposit programs are a commonly cited example. Positive incentives (rewards) have proven more effective than negative incentives, and large incentives that are directly linked to behavior have the most impact. In addition, non-monetary incentives (e.g. public recognition or "competitions") can be used to increase motivation. Incentives seek to influence attitudes by increasing evaluations of the positive outcomes of a behavior.

Increasing Environmental Self-Identification

CBSM indicates that taking environmental actions can increase people's view of themselves as environmentally concerned. McKenzie-Mohr and Smith (1999) state: "When individuals agree to a small request, it often alters the way they perceive themselves... If how we see ourselves is an important predictor of how we will act in the future, it makes sense that programs to promote sustainable behavior should actively assist people to see themselves as environmentally concerned" (McKenzie-Mohr and Smith 1999). The psychology literature provides only mixed support for this broad statement. I discuss the potential caveats in Section 2.

Section 2: CBSM and Social Marketing: Challenges

In this section, I describe differences between CBSM (community-based social marketing, pioneered by McKenzie-Mohr and Smith) and traditional social marketing. I also present the literature that suggests three limitations to CBSM's theory of change. Finally, I describe challenges related to lack of participation and to competition from other theories of change.

CBSM vs. Traditional Social Marketing

CBSM is an offspring of traditional social marketing. Like CBSM, the fundamental objective of social marketing is to influence individual behavior in an effort to achieve positive social change (Andreasen 2002). However, CBSM involves a departure from social marketing practices on two fronts. First, it de-emphasizes the "satisfaction of customer needs" that is a linchpin of social marketing. Second, it de-emphasizes the market segmentation practices of social marketing. These are discussed in more detail below.

Introduction to Social Marketing

Originally stimulated by sociologist G.D. Wiebe in the 1950s, the intellectual roots of the field can be traced to the work of Kotler and Levy (1969). Social marketing became increasingly influential among public health practitioners in the 1990s, though its practical applications can be traced to family planning in the 1960s (Harvey 1999, from Andreasen 2000). Social marketing involves the design, implementation, and control of programs using concepts from private sector marketing, including market segmentation, consumer research, product concept development and testing, directed communication, incentives and exchange theory. Social marketing often aims to increase the acceptability of a social idea or practice. However, actual behavior change is the "bottom line" or "benchmark used to design and evaluate interventions" (Andreasen 2002).

One basic principle of social marketing is the "careful segmentation of target audiences to ensure maximum efficiency and effectiveness in the use of scarce resources". Another basic principle is that social marketing is "not just advertising or communications". According to Andreasen (2002), it must also create attractive benefit packages while minimizing costs wherever possible, making the exchange convenient and easy. Smith (2008) emphasizes this further:

> "[Social] marketing is not about consumer-orientation, it is about satisfying consumer needs. It is not about understanding consumers, it is about serving them. It is not about understanding what to say to them, but building programs and services that they want. [...] It is not enough to value consumers. Social marketing's advantage in the battle for social justice is its single-minded focus on understanding who people are and what people want as the key to providing social benefits (products, programs and services) they value and will adopt. Social marketing is, indeed, our best weapon against paternalism – that most dangerous, if noble, wreak of modern Western optimism."

CBSM De-emphasizes Benefits and Segmentation in Favor of Community Norms

McKenzie-Mohr (2000) states that CBSM strategies seek to identify and remove barriers while simultaneously enhancing an activity's benefits. However, there is little emphasis on the benefits side of the equation. As illustrated in the CBSM steps, research is primarily concerned with identifying barriers. Program design is primarily concerned with removing barriers and fostering behavior through persuasion, commitment, and normative tools. This stands in stark contrast to traditional social marketing, which holds that social marketing must serve consumers and satisfy consumer needs by "creating attractive benefit packages" (Andreasen 2002). Using the framework of Bamberg and Moser (2007) presented above, social marketing focuses on "attitudes" that stem from the calculation of

the likely outcomes and benefits of an action. On the other hand, CBSM de-emphasizes the importance of providing maximum benefits. It further suggests that, once aware of the environmental problem and their ability to make a difference, all people will see the benefits (altruistic or egoistic) of "doing the right thing".

In addition, CBSM rejects social marketing's emphasis on the "careful segmentation of target audiences" in favor of the theory that everyone is susceptible to the same normative pressures. McKenzie-Mohr and Smith (1999) do refer to the principle of segmentation, suggesting the importance of understanding target audience(s) for the purposes of effective communication. They point out that messages can be "more or less extreme" so that they receive "moderate support" among recipients. "Note that if you have the resources to target your message to different sectors of the community, you will need to determine the level of support within each of these sectors (e.g., the elderly, single parents, etc.)" (McKenzie-Mohr and Smith 1999). However, they do not mention the possibility or providing different "products" – and associated benefits – based on the differing priorities and interests within the target community.

Challenges to Community-Based Social Marketing's Theory of Change

A brief review of the literature reveals a few caveats related to CBSM's theory of change. These challenges suggest that there are limits to the situations in which certain CBSM tools can be used to motivate environmental behavior and/or environmental self-identification. First, it appears unlikely that CBSM can increase people's levels of environmental self-identification. Second, it seems that social norms will only be useful to promote common behaviors, or behaviors connected to "injunctive norms" that are understood by the majority of people. Third, social identity theory suggests that the strength of normative influences will depend on people's sense of belonging to the group from which the social norm stems. Finally, it seems that CBSM will only be effective where people are not required to make important sacrifices.

Under what conditions can environmental actions lead to environmental self-identification and further environmental action?

As discussed above, McKenzie-Mohr and Smith (1999) suggest that taking environmental actions can lead people to see themselves as more environmentally concerned. This possibility is referred to in environmental psychology as "positive spillover." However, Cornelissen et al. (2008) find that this is only the case if behaviors are adopted for environmental reasons: "If one is to develop a self-perception as an environmentally concerned individual, this is contingent upon past behavior being perceived as pro-environmental". Cornellisen et al. (2008) find that campaigns that frame actions in solely environmental terms can have positive spillover, but that causally ambiguous messages (e.g. "save money and reduce emissions") do not achieve this effect.

Thogersen and Crompton (2009) conclude that campaigns that "frame the imperatives in a non-environmental way do nothing to increase the incidence of positive spillover". Thogersen and Crompton (2009) indicate that normalized behaviors (e.g. recycling) are also not good for achieving positive spillovers. Based on these findings, it appears that there are limited opportunities to achieve substantial uptake of a behavior *and* to increase

people's self-perception as environmentally concerned. Similarly, one action will not lead to another unless they are perceived as being similar, with a goal linked to important elements of one's self-concept (Thogersen 2004). The take-away message is that environmental campaigners should be very clear with themselves about "whether a campaign is aimed at delivering a specific important behavioural change or whether it is aimed at helping to elicit a wider set of behavioural changes through spillover" (Thogersen and Compton 2009).

How and when can social norms be used?

As described in Section 1, descriptive and injunctive norms exist at a "societal" level. However, social identity theorists suggest that the norms of social identity group are even stronger motivators of action. Social identity theory stems from the work of Tajfel and Turner (1972). A social identity is a statement about group or categorical membership, with "value and emotional significance" attached to that membership (Tajfel 1978). Hogg and Reid (2006) discuss the influence of social norms within social identity groups, and state what is rather obvious – that for a social group to produce normative behavior "the categorization must be psychologically salient as the basis for perception and self-conception – people must psychologically identify with their in-group in that context".

This suggests that people will only be subject to the normative influence of CBSM if the sources of descriptive and injunctive norms (people who perform and recommend the environmental behaviors) are viewed as part of their "in-group" in that context. If only community members viewed as "environmentalists" are doing something, people who do not view themselves as environmentalists will feel little normative pressure. Ashmore et al. (2004) emphasize that people typically acknowledge a set of identities that converge and combine in various ways depending on the context at hand. Thus, people may identify with their neighbors *and* with people who are part of their distinctive identity groups. Overall, it seems fair to conclude that the strength of normative influences will depend on people's sense of belonging to the group from which the social norm stems.

Research also indicates that the influence of descriptive norms (the awareness that others are doing something) depends on people's awareness that a behavior is viewed as morally desirable (or connected to an injunctive norm). As described in Section 1, several studies have demonstrated the effectiveness of social norms in stimulating behavior change. However, they all chose to promote common behaviors with high problem awareness and widespread social norms (e.g. not littering or recycling). Research by Gockeritz et al. (2010) demonstrates that injunctive normative beliefs moderate the descriptive normative influence. On a related note, Goldstein et al. (2008) highlight that the use of descriptive norms depends on the behavior already being common in the community. Providing information about what "most people are doing has an important effect... but is often not the case for more important environmental behaviors" (Goldstein et al. 2008, cited by Thogersen and Compton 2009). This is linked to the final challenge to CBSM's theory of change, discussed below.

How much can CBSM persuade people to give up?

McKenzie-Mohr and Smith (1999) provide no indication that there are limits to the

behaviors and activities that CBSM can effectively be used to promote. They imply that there are no limits to the power of persuasion, stating, "the transition to a sustainable future will require that the vast majority of people be persuaded to adopt different lifestyles". However, the anecdotes describing CBSM's success all refer to relatively minor changes, e.g. composting, reducing household water use, purchasing "green" products, etc. There is no doubt that small changes adopted by a large number of people can have a large impact. At the same time, it is important to be clear about the potential limits of CBSM.

Research indicates that people are not willing to make sacrifices, and that there are limits to the power of pro-environmental attitudes in effecting change. Diekmann and Preisendoerfer (1992, cited by Kollmus and Agyeman 2001) suggest that positive environmental attitudes can directly influence "low-cost" pro-environmental behavior such as recycling, but that they cannot lead people to change their lifestyles where it matters more (e.g. driving or flying less). This theory is supported by Stern et al.'s (2003) finding that egoistic concerns are most important, followed by social concerns, and then biospheric concerns. Thogersen's (2004) work suggests that cognitive dissonance will not address this problem: "Cognitive dissonance may be unpleasant, but the unpleasantness of the sacrifices needed in order to behave in an environmentally responsible way may easily be worse, in which case most people adopt other than behavioral means to resolve the dissonance or simply choose to live with their perceived behavioral inconsistency".

In addition, Martinsson and Lundqvist's (2010) survey of environmental attitudes and behaviors provides strong empirical evidence that pro-environmental intentions and low-cost behaviors will not lead to the lifestyle changes needed for "the transition to a sustainable" future. They find that 11% of the Swedish population has "grey" attitudes but "green" practices, and that 5% of the population has "green" attitudes and "grey" practices. (Only 3% have "green" attitudes and practices.) "Hypocrites" have the highest mean income, while "coverts" have the lowest mean income and may adopt ecological practices because they coincide with their material self-interest. This suggests two things: that economic benefits can be a powerful motivation for environmental action, and that equity and sustainability are closely linked. This relates to the challenge of "competition from other theories of change" presented below. Overall, it seems that CBSM will only be effective where people are not required to make important sacrifices.

Lack of Meaningful Public Engagement in Determining Program Goals

Both social marketing and CBSM provide recipients with little influence over the selection of program goals. According to McKenzie-Mohr and Smith (1999), CBSM "is based heavily upon public consultation" as it "involves obtaining information from the community at three separate times": the focus groups to identify barriers, the phone survey, and the focus groups to review the planned social marketing strategy. They subsequently highlight the option of creating a stakeholder consultation committee to actively participate in determining the marketing strategy. They indicate their preference only to create a stakeholder committee when a program has the potential to be controversial [e.g. garbage disposal fees] or when they need input from as many sources as possible to fully understand the situation.

However these very limited forms of engagement do little to address Brenkert's (2002) critique – social marketers do not engage with the people they target, to identify what *ends* or *goals* they should encourage. Rather, the goal of engagement is to 'package' the idea or end in a manner that is desirable. Like social marketing, CBSM generally excludes community members from the selection of environmental problems or behaviors. In addition to this ethical challenge, the lack of meaningful stakeholder engagement in CBSM may pose a practical challenge, limiting the relevance of the activities that strategies are designed to promote. In suggesting the unimportance of stakeholder input in strategy design, CBSM privileges expert knowledge and devalues local knowledge about "environmental problems" and appropriate actions to address them.

Competition from Other Theories of Social Change

Andreasen (2002) describes several challenges to social marketing. Most fundamentally, social marketing and CBSM face "competition" from theories of social change that focus on interventions at the community or structural level (Andreasen 2002).

Social marketers and psychologists focus on voluntary individual change, as they "believe that it is individuals who must ultimately behave differently if major social problems [...] are to be reduced or eliminated" (Andreasen 2002). However, many social workers, community organizers and planners believe that interventions must focus on the community level. They stress "that the motivation for change must ultimately come from the community", that the community must play a major role in the design, implementation and evaluation of programs, and that the creation of community institutions will ensure the sustainability of programs (Andreasen 2002). The third approach to social change focuses on policymaking, lawmaking, institutional change and technological change to address "structural" problems that constrain the ability of individuals and communities to change (Andreasen 2002).

Andreasen (2002) seeks to clarify that social marketing should only be used when it will be effective, when it is the best approach in a particular context, and when it is ethically appropriate. Andreasen cites a health specialist... "Whilst I firmly believe in prioritizing social and structural change over individual behavior change, there is room for both [...]" Andreasen argues that social marketing should be seen as complementary rather than competitive with community and structural approaches, and that social marketing can be used to promote community- and structural-level change. However, there are also clear cases where social marketing is clearly not the right approach.

> "What use is it to promote condom use to a population where condoms – when they are available – represent such a significant part of the budget, [and when other] needs must be sacrificed in order to make them available, where women's ability [to] 'ask' men to use condoms is undermined by their lower social status [...]. Now, if you took an 'ideal society' where [...] all have equal status and access to the society's resources, now I think it would be acceptable to look at individual behaviour change strategies.... The general principle appears to be where all things are equal in society, look at the individual; where inequalities in society exist, 'change' these first" (King 2001).

Despite the presence of the phrase "community-based" in the title, CBSM maintains its focus on changing individual behaviors. McKenzie-Mohr and Smith (1999) point out that CBSM "draws heavily on research in social psychology which indicates that initiatives to promote behavior change are most effective when they are carried out at the community level and involve direct contact with people" (McKenzie-Mohr and Smith 1999). While it attempts to incorporate the "community level" processes of social norms, diffusion, and interpersonal influence, it ignores the literature on participation, empowerment and local ownership of problems – and solutions. The importance of community-level and structural change for neighborhood sustainability is discussed in Chapter 5.

Section 3: Relevance of CBSM at the Neighborhood Scale

This section discusses the theoretical relevance of CBSM to rain barrels and rain gardens at the neighborhood scale. It also describes three factors that can be expected to have an important impact on the effectiveness of CBSM based on the literature reviewed so far.

McKenzie-Mohr and Smith (1999) fail to mention whether there are contexts in which CBSM approaches will be more or less effective. However, Monroe (2003) describes three characteristics of behaviors that affect the difficulty of social marketing.
Public visibility: Actions that occur in the public realm have different motives and barriers, and will be more amenable to the marketing strategies using social norms (Wilson 2007).
Frequency: Actions that must occur repeatedly (e.g. switching off lights) are generally more difficult to change than those that must only occur once (e.g. buying efficient light bulbs).
Testability and feedback: Actions that can be tested prior to commitment are less risky and easier to promote than those that have no practical return policy.
Rain barrels and rain gardens are both publicly visible, though their visibility may vary from place to place. They also both have "one-time" (purchase and installation) and repeat (use or maintenance) components. They are also not testable. Although not the "easiest" behaviors to promote, CBSM should be relevant to both rain barrels and rain gardens.

Second, there is no description of the geographic scale for which these tools are intended – and no introduction to what a "community" is. While acknowledging that people of different ages and genders will see different benefits and face different barriers, CBSM otherwise implies that "communities" are relatively homogeneous, characterized by close interactions and influenced by similar values and norms. McKenzie-Mohr and Smith (1999) suggest using "community block leaders", which implies that CBSM is appropriate for small, defined geographic areas. Some anecdotes refer to regional transportation and waste systems, but the majority of the "community-based" tools emphasize very local interactions – on the street, in the front yard, or during conversations between neighbors. I conclude that theoretically, CBSM should be highly relevant to neighborhood-level sustainability programs. However, I expect that CBSM will not work equally well in all neighborhoods. In the section below, I introduce the concept of the neighborhood scale and its relevance to sustainability. I then briefly describe the factors that separate neighborhoods, and describe the three that are expected to have the greatest impact on the effectiveness of CBSM.

What is the "Neighborhood Scale"?

The concept of "the neighborhood" is one that has long escaped easy definition. Wheeler (2004) describes neighborhoods as "building blocks of cities, modest-sized physical units that form the environment that we all inhabit every day." He emphasizes that "neighborhood" is a subjective term, but that it has typically been applied to an area that a resident can easily traverse on foot and that possesses some unifying social, physical, economic, or historical characteristics (Wheeler 2004). Clay and Hollister (1983) consider it to be a social/spatial unit of organization that is larger than a household and smaller than a city and caution that further lists of characteristics often become normative. Clay and Hollister (2000) go on to note that though academics are happy to avoid definitions, planners and policymakers frequently face the need to operationally define neighborhoods for administrative purposes. They describe the "functions" related to neighborhoods as economic, administrative, political and social without stepping into normative territory.

Jacobs (1961, cited by Peterman 2000) emphasizes the political function of neighborhoods. She draws a practical distinction between tightly knit and powerful "street neighborhoods" that consist of one or two blocks, and the weaker "district" scale that must act as a broker between street neighborhoods and the city as a whole. Warren and Warren (1977) emphasize the social functions of a neighborhood: as a "sociability arenas", interpersonal influence center, source of mutual aid, organizational base, reference group and status arena. Peterman (2000) quickly moves to the normative statement that neighborhood planning should be about "building community", which involves identifying local needs and links to other external communities.

For the purposes of this thesis, I consider "neighborhoods" to be larger than Jacob's "street neighborhoods" and to be defined by unifying social, physical, economic or historical characteristics rather than by administrative boundaries. I emphasize the social functions and characteristics of a neighborhood and their relevance to CBSM.

Why Sustainability at the Neighborhood Scale?

Planners have recognized the value of improvements at the neighborhood scale since the early decades of the 1900s. Neighborhoods are where people spend most of their time, and are thus the places that they know best. Neighborhood characteristics have a direct effect on residents' quality of life, and they are thus the places that people are most concerned with (Rohe 2009). Neighborhoods provide an opportunity to make sustainability "vivid, concrete and relevant". From a pragmatic perspective, neighborhood-level efforts are most likely to engage citizens in action, and are capable of generating very large impacts for local residents. They can also be viewed as building blocks to city-level sustainability (Seltzer 2010). Seltzer (2010) also discusses the fact that different neighborhoods will require different interventions to become more sustainable and describe neighborhoods as laboratories that "provide the appropriate scale to test integrated sustainability strategies because they concentrate resources and make size and risk more manageable". Munton (1997) emphasizes, "Although sustainable development acquired its initial currency in the international arena, it will be the local responses ... that will determine its success or failure as a practical programme" (cited by Blake 1999).

Neighborhood Mechanisms and CBSM

Over the years, a number of different "neighborhood typologies" have been proposed. "Contextual" variables of neighborhood composition (e.g. social class and/or housing stock) have been used to explain variations in attitudes and behaviors (e.g. Greer 1962, cited by Clay and Hollister 1983). Density, homeownership, residential stability, and ethnic heterogeneity are among the variables that have differentiated neighborhoods along these lines (Sampson et al. 2002). Others such as Hunter (1974) have used social typologies based on residents' image of their neighborhood (Clay and Hollister 1983). Warren and Warren (1977) created a social typology based on three variables: interaction (how often people interact and in what numbers), identity (how much do people feel they share a sense of consciousness about what their neighborhood is), and linkages (the channels that exist with outside groups and the larger community). Granovetter (1973) emphasized the importance of "weak ties" at local scales to support mobility opportunity, community organization, and the diffusion of influence and information. Since Putnam et al.'s (1993) elaboration of the concept of social capital, it has become a dominant framework used to describe the social aspects of neighborhoods and communities. According to Putnam et al. (1993, 35) "social capital refers to features of social organization such as networks, norms and trust that facilitate co-ordination and co-operation for mutual benefits".

A number of other authors have furthered our understanding of social capital and increased its relevance at the community or neighborhood scale. Social capital is roughly divided into "bonding" capital that brings people closer together, and "bridging" capital that connects people who did not previously know each other (Gittell and Vidal 1998). Temkin and Rohe (1998) provided empirical evidence that social capital increases neighborhood stability, dividing social capital into "sociocultural milieu" and "institutional infrastructure". Forrest and Kearns (2001) seek to make social capital actionable at the neighborhood scale by breaking it down into seven domains and describing practices to support each domain. Gittell and Vidal (1998) divide social capital into individual capacities, internal neighborhood organizational capacity, and network or linkage capacity. They apply this framework to analyze community development efforts that seek to build social capital within a community, and that seek to form an external support network through linkages with public, private and nonprofit organizations.

Sampson et al. (2002) go beyond social capital in defining social mechanisms at the neighborhood scale. Their review of studies related to neighborhood effects and problem behavior led them to identify four "classes of social mechanisms" that, though related, appear to have independent validity: social ties/ interaction, norms and collective efficacy, institutional resources, and routine activities. Sampson (2003) stresses the importance of collective efficacy to neighborhood health outcomes, and defines it as "shared beliefs in a neighborhood's conjoint capability for action to achieve an intended effect". He clarifies the link with social capital – that social networks foster the conditions under which collective efficacy may flourish but are not sufficient to engender it. Institutional resources and routine activities (including land use mix) organize when and how people come into contact with each other. Table 1 summarizes these various frameworks. Although there are many overlaps, there are also differences that stem from the authors' focus area (e.g. political vs. health-focused).

In Table 2, I combine these frameworks to emphasize the elements most relevant to neighborhood sustainability efforts (CBSM or otherwise).

Gittel and Vidal (1998)	Forrest and Kearns (2001)	Tomkin and Rohe (1998)	Sampson et al. (2002)
• Individual capacities • Internal neighborhood organizational capacity • Network or linkage capacity	• Empowerment • Participation • Trust • Safety • Belonging • Support networks and reciprocity • Collective norms and values • Participation • Associational activity and common purpose	• Sociocultural milieu: Identity, Interaction, Linkages, Satisfaction with the area • Institutional infrastructure: Neighborhood organizations and their ability to act	• Social ties / interactions • Norms and collective efficacy • Institutional resources • Routine activities

Table 1: Social capital and neighborhood effects

Eight Elements	Definition and source
Weak / bridging ties	The strength of an interpersonal tie depends on the amount of time, emotional intensity, intimacy, and reciprocal services (Granovetter 1993)
Strong / bonding ties	
Collective norms	People share common norms of behavior (Forrest and Kearns 2001)
Supporting networks and reciprocity	Individuals / organizations co-operate to support one another for mutual or one-sided gain (Forrest and Kearns 2001)
Neighborhood identity	People have a sense of belonging to the place and its people, and share a sense of consciousness about what their neighborhood is (Warren and Warren 1977)
Collective efficacy	People share beliefs in a neighborhood's conjoint capability for action to achieve an intended effect (Sampson 2003)
Neighborhood institutions	Neighborhood institutions exist, represent residents, and can act on their behalf (Tomkin and Rohe 1998)
Network capacity	Institutions have a support network of organizations outside the neighborhood (Gittell and Vidal 1998)

Table 2: Eight elements of neighborhood capital

The eight elements in Table 2 are inter-related, and can be seen as a hierarchy, with the bottom ones somewhat dependent on the top ones. For example, social norms and group identity have been shown to motivate participation in neighborhood institutions, and people work harder for groups they identify as their in-group (Van Vugt and Hart 2004). Neighborhood institutions are likely to be more active and effective where people feel a sense of neighborhood identity and collective efficacy.

Based on the literature, it seems that the effectiveness of CBSM will depend most on the first three of the eight elements in Table 2. As described above, CBSM tools emphasize personal contact for social diffusion, but personal contact is not equally common in all neighborhoods. Strong and weak social ties will enable the diffusion of activities between friends and acquaintances in a neighborhood. In addition, the strength of normative influence within a neighborhood will depend on the extent to which residents categorize themselves as similar to their neighbors and develop collective norms. If collective norms do not already exist, residents are unlikely to suddenly begin taking cues from others.

Collective efficacy and neighborhood institutions are helpful for the CBSM tools involving community and group commitments. Neighborhood institutions will also increase CBSM's ability to deliver programs through "credible sources" and to recruit volunteers. It is also worth noting the potential influence of characteristics of the built environment on the visibility of environmental behaviors such as rain gardens and rain barrels.

Section 4: CBSM and Long-Term Neighborhood Sustainability

The success of a single CBSM program in a given neighborhood must also be considered over longer time frames. This section begins with an introduction to the literature on long-term sustainability at the neighborhood scale. Based on this literature, I draw out its three primary goals as well as four supporting goals. I also explore the challenges to the sustainable communities approach and contrast it with CBSM. Finally, I discuss the potential relevance of CBSM in the context of long-term neighborhood sustainability.

Introduction to Sustainable Communities and Neighborhoods

The movement towards more "sustainable communities" in the United States has grown rapidly over the past fifteen years. The sustainable communities literature is most clearly defined by its emphasis on links between social, environmental and economic issues. Hempel (1999) describes that the theory and practice around sustainable communities has many roots including urban design, ecosystem management and environmental justice. Its diverse roots and focus on uncovering links between social, economic and environmental goals has provided it with broad-based support. Roseland (1997) was among the first to argue " that a collection of apparently disconnected ideas about urban planning, transportation, health, housing, energy, economic development, natural habitats, public participation, social justice all comprise a single framework".

According to Hempel (1999), a sustainable community features economic vitality, ecological integrity, civic democracy, and social well-being, linked to foster a high quality of life and sense of reciprocal obligation among members. Beatley and Manning (1997)

envision "sustainable places" that acknowledge fundamental ecological limits, strive for a high quality of life, stress the importance of community, are integrative and holistic and strive to be equitable and just. DETR (1998, cited by Agyeman 2003) lays out characteristics of Sustainable Communities within three categories: protecting and enhancing the environment, meeting social needs, and promoting economic success. Valuing unpaid work; strengthening local community identity; and creating rewarding opportunities are among the many themes within these categories. Roseland (1998) describes the approach as one that will "enable our communities to be cleaner, healthier and less expensive; to have greater accessibility and cohesion; and to be more self-reliant in energy, food and economic security..."

These definitions support Agyeman's (2005) statement that the movement towards sustainable communities is the clearest example of a more "joined-up acceptance of the environmental, social, and economic principles of sustainability". Agyeman (2005) also makes Beatley and Manning's reference to integration and holism more concrete by explaining how the sustainable community movement focuses on the connections between environmental problems and economic and social issues such as unemployment, urban disinvestment, and civic disengagement. The Urban Ecology Coalition's Neighborhood Sustainability Indicators Project seeks to use the collaborative development of indicators to build a local understanding of the links between society, environment and economy. The success of this type of effort can be seen in a neighborhood organization leader's statement, "We've been so busy getting things done we've never stopped to look at how these various efforts relate to each other" (CRC 1999). Drawing from these definitions, I identify three primary goals of long-term sustainability: environmental integrity, economic vitality, and sociocultural wellbeing. I identify the awareness of links between these three as a secondary or supporting component of long-term sustainability.

The sustainable communities literature emphasizes the importance of fostering a sense of community. Of particular relevance at the neighborhood scale, the sustainable community movement emphasizes the importance of "sense of place". Beatley and Manning (1997) articulate that "place" matters in sustainable communities. They suggest that fostering a sense of place involves multiple things. First, patterns in the built environment are uplifting, inspirational, and engender a feeling of belonging and attachment. Second, "a sustainable community... nurtures a sense of place by understanding and respecting its bioregional context – its topography and natural settings, its rivers, hilltops, open lands, [and] native flora and fauna..." (Beatley and Manning 1997, 32).

The emphasis on place-based identity and attachment to the built and natural environment brings the sustainable communities literature in line with environmental psychologists who advocate environmental education and literacy as the basis for sustainability. For example, Uzzell et al. (2002) states, "any long-term environmental behavior strategy has to be located in the relationships that exist between people in the community and the relationship between those people – individually and collectively – and their environment. If we are to argue that change can only come about through social and collective action that is grounded, at least in part, in identity processes and people's identification with place, then we need to devise social and political strategies that recognize these processes"

(Uzzell et al. 2002). Together, I consider "sense of community" and "identification with place" to be secondary goals of long-term sustainability; this goal parallels the concept of neighborhood identity described in Section 3.

The Sustainable Communities literature also includes an explicit focus on local engagement and capacity building. It emphasizes the importance of broad participation at all stages of planning and implementation. It also emphasizes the importance of including representatives of all relevant groups. Finally, it includes the development of local institutions with the ability to engage community members and to take action on their behalf. Agyeman (2005) describes "deliberative, democratic civic renewal and enhanced civic engagement" as essential to the process of developing sustainable communities - particularly if the process is to be self-sustaining process. The CRC (1999) also highlights a lesson from experience, "If a local group does not have the capacity to engage a diverse and representative set of community stakeholders, it is quite difficult for 'sustainability' to be addressed in a thorough way". Innes and Booher (2001) also suggest that meaningful participation and collaboration will actually lead to better outcomes and increase the likelihood of innovative responses.

As described above the goals of community participation and ownership include enhanced democracy, accountability, and effectiveness of efforts. However, planning and governance for sustainable communities are also linked to the goal of building social and institutional capital over longer time frames. Seltzer (2010) emphasizes the "time dimension" at play, and the need to make good decisions over and over again. He describes how "sustainable neighborhoods are always in a process of becoming, rather than the achievement of a single program, initiative or investment. Sustainability is, therefore, a product of what communities do together and how they do it over time" (Seltzer 2010). Smith (2010) distinguishes between the "hardware" of sustainability (buildings, pipes, devices) and the "software" of sustainability (relationships between people, meaning, flows), emphasizing the importance of software investments. Selman (2001) argues that successful approaches to local participation are underlain by stock of social capital (organizations, structures and relationships built up between individuals within communities). Blake (1999) further specifies that new forms of institutional capacity will be needed if people are to be more actively involved: not only in the implementation but also in the design and evaluation of sustainability projects. Conroy and Berke (2004) also describe local organizational capacity building as central to planning and implementation for long-term sustainability. Drawing from these works, I define a third supporting component of long-term neighborhood sustainability: the existence of neighborhood institutions that can represent, engage and act on behalf of all groups within the neighborhood.

Finally, Blake (1999) and Smith and Blanc (1997) conclude that developing processes of sustainability at a local level will require the negotiation of partnerships between many different environmental stakeholder: governments, businesses, universities and environmental organizations as well as individuals and communities. As more academics and practitioners (e.g. Pavel 2009) have emphasized the need to connect local sustainability efforts to regional-level planning, the importance of external links has increased. I thus define a fourth supporting component: the ability of neighborhood

institutions to link with external organizations for support. Again, this overlaps with the last element of neighborhood capital presented in Section 3.

To summarize: For the purposes of this thesis, I use a model of long-term sustainability that has primary goals and metrics of long-term sustainability in three categories: economic vitality, ecological integrity, and sociocultural well-being. I propose four supporting or enabling components that are ends unto themselves, but that also increase the likelihood of making progress on primary goals: awareness of the connections between social, economic and environmental issues; neighborhood identity (including place-based attachment); representative neighborhood institutions (with broad and diverse participation); and linkages with an external support network. Finally, I suggest that the other elements of neighborhood capital described in Section 3 underlie these primary goals and supporting factors. Social capital may be seen as both cause and consequence of progress on long-term sustainability. It may also be seen as an end unto itself; Putnam's theory presumes that "the more people connect with each other... the better off they are individually and collectively" (Gittell and Vidal 1998).

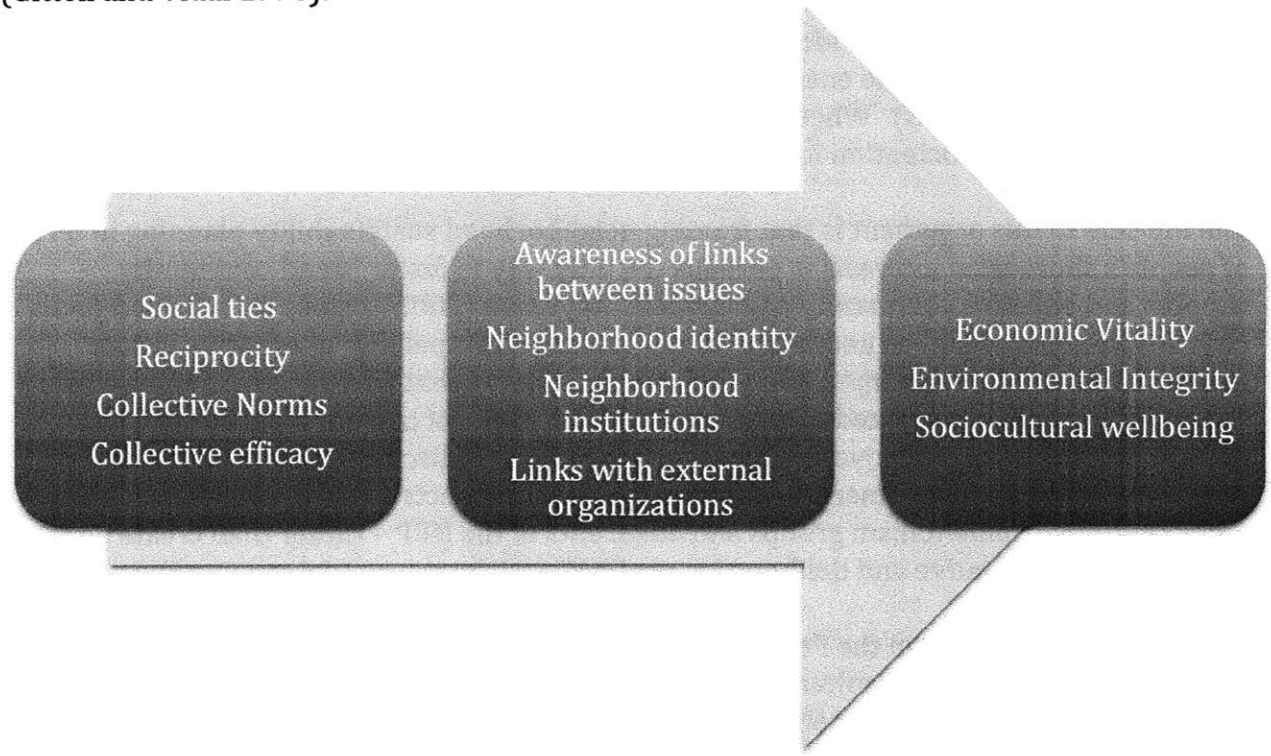

Figure 2: Dimensions of long-term neighborhood sustainability

Challenges to the Sustainable Communities Literature

Challenges centre on the likelihood of achieving real improvements in the environmental sustainability of the communities in question. "Critics may argue that a sustainability agenda is nothing beyond 'good planning' activities" (Conroy and Berke 2004). Saha and Paterson (2008) describe how sustainable development is being seen as akin to traditional good planning practices by many cities. For example, one respondent described sustainable development as "semantics – just another name for what we already do" (Saha and Paterson 2008). Beatley and Manning (2007) emphasize the need for a major

paradigm shift, and Conroy (2006) points out that this shift is unlikely as long as sustainability initiatives are piecemeal actions toward select goals. Campbell (1996) highlights the inevitable conflicts between equity, economic development and the environment, and emphasizes the role of planners in mediating this conflict.

However, the community-led, participatory model of sustainability described above appears to assign planners only a "backseat role" in determining the focus of sustainability efforts. This raises the question of whether communities' priorities will actually enhance all three of the core elements of sustainability. Stern et al. (1993) suggest that it is inevitable that people will only be motivated by "biocentric" altruism if it does not conflict with their "egoistical" and "social" motivations. Historically, environmental issues have been overshadowed by concerns about social and economic wellbeing. Some would argue that embracing an inclusive and open-ended sustainability framework means that environmental action will continue to come in a distant third. Davies and Gathorne-Hardy (2001) raise the critical issue as to "whether there can be any direct correlation between a more participative democracy and environmental protection... there are no guarantees that procedural democracy will produce substantive environmental benefits if there are competing views of what the environment should be like and what it is valuable for" (cited in Bulkeley and Mol 2003). Wheeler (2004) and Murdoch (1997, cited by Blake 1999) discuss how local participation can often lead to parochialism and rejection of change.

The flip side to this argument is that framing neighborhood sustainability planning in terms of people's short-term interests is perhaps the only way to foster broad community support and effective community engagement. Agyeman (2005) argues for a "broad-focus civic environmentalism" as necessary for developing a compelling "alternative vision." Brulle (2000, cited by Agyeman 2003) echoes the opinion that narrow environmentalism's "scientific analysis has created a strong ecological critique of current institutions", but doesn't provide a way to move forward. Agyeman (2005) discusses how traditional environmental initiatives "merely round up the usual suspects – representatives of narrow-focus civic environmentalism groups and adherents of the NEP – rather than create an inclusive, representative and deliberative process".

Preliminary research from the Portland EcoDistricts Initiative supports this hypothesis. For example, C-Change Consultants (2009, cited by Seltzer 2010) sought to use climate change as a starting point for neighborhood planning. They concluded, "The process needed to start with articulating community needs and then, and only then, make the link to actions that had benefits for responding to climate change". Similarly, DistrictLab (2010, cited by Bassett 2010) found that the community resisted using habitat and resource-related performance areas as a framework for articulating their goals. Instead, they were interested in connectivity, security, appearance, and community and place identity. Despite this non-environmental framing, pilot projects for streetscape improvement and revitalization of commercial areas included a Stormwater Mitigation Corridor and Recycling Reuse Facility to improve environmental integrity (Bassett 2010). Macnaghten's (2003) research also points out the validity of this approach. He concludes, "[F]or many people concern about environmental problems begins with personal experiences... People come to the issues through particular things that matter to them... This implies that those

outside traditional communities of supporters are likely to become involved in 'the environment' only when their lifeworld is touched."

The second challenge to the sustainable communities model is the practical difficulty of achieving broad and deep participation. Participation rates in neighborhood planning programs are greater than for most traditional forms of citizen participation; however, they still typically involve fewer than 5% of residents, and may not accurately represent their communities (Berry et al 1993). Furthermore, Selman (2001) challenges the claims about the ways in which participatory processes can stimulate active environmental citizenship and generate social capital. Based on two studies, he suggests that "extravagant claims for participatory approaches must be tempered in the light of experience". While practical activities often drew large numbers, he found that core members of sustainability efforts were generally those who are already deeply involved in the community, so that the "essential pool" of social capital did not seem to be expanding (Selman 2001).

Comparing the CBSM and Sustainable Communities Approaches

In this section, I begin by contrasting the CBSM and the Sustainable Communities approach. I then explore opportunities to use select CBSM tools to advance the elements of neighborhood capital underlying long-term sustainability.

Narrow, Short-Term vs. Broad, Long-Term Focus

CBSM is characterized by a narrow focus on short-term changes in specific aspects of environmental integrity. As described above, CBSM seeks to achieve concrete changes in individual behavior that reduce resource use and/or contribute to the health of local and global ecosystems. Like many adherents to the New Environmental Paradigm, community-based social marketers stress the importance of starting from "environmental" problems. Many of these environmental problems are connected to global issues of water scarcity, climate change, and habitat loss. Although CBSM also looks to use social and economic co-benefits to increase the uptake of programs, concrete metrics of changes in resource use are deemed the sole determinants of program success.

In contrast, the literature on sustainable communities emphasizes the need for diverse indicators of progress over time. Hempel (1999) divides indicators into three categories: general (e.g. school facilities), quality of life (e.g. business vacancy rate and park acreage per 1000 people), and sustainability (e.g. percent of new jobs paying a livable wage and ratio of renewable water supply to water withdrawals). The Urban Ecology Coalition's indicators framework emphasizes the need for different types of sustainability indicators: short-term and long-term, relevant to internal stakeholders and relevant to external stakeholders (CRC 1999). "Core poetry indicators" are those most relevant to community residents in the short term. They include percent of residents who feel safe in their neighborhood, number of residents who share skills or barter services, and percent of block clubs with a scope of activity beyond crime prevention. "Background indicators" are those deemed only relevant to external stakeholders; they include energy consumed, populations of fragile species, and ratio of homeowners to renters. "Deep sustainability" indicators relevant to internal and external stakeholders include: percent of residents who have ever been involved in neighborhood organizing, percent of neighborhood's physical

surface that is permeable, and percent of children who are aware from first-hand experience where and how their food is produced.

Local vs. Expert Knowledge

CBSM and Sustainable Community theorists also create very different roles for local and expert knowledge. With CBSM, environmental "experts" determine the action or behavior that will be the focus of social marketing, based on their diagnosis of local or global environmental problems. They use social marketing experts of expertise to design effective strategies to promote these actions. Within this expert-driven framework, community engagement is seen as a tool to develop strategies and programs that receive greater support and uptake.

In contrast, local knowledge and leadership is central to the long-term neighborhood sustainability approach. Beatley and Manning (1997) describe the value of using sustainability indicators that enable a community to identify its values and priorities, allow people to measure what is important and make decisions based on those results, hold people accountable for achieving the results they want, and determine whether the outcomes are improving our lives (Zachary 1995, 7, cited by Beatley and Manning 1997). The Urban Ecology Coalition also articulates the importance of putting local residents in command of the indicators process, drawing upon professional expertise as appropriate; they suggest a balance that "recognizes and codifies neighborhood assets and local wisdom, and builds new capacities in the community itself, while meeting the test of following appropriate professional standards" (CRC 1999).

	CBSM	**Sustainable Communities**
Starting place	The environment must become the focus of neighborhood sustainability efforts – otherwise, there will be no departure from the status quo.	Environmental sustainability is most feasible and important when tied to other locally relevant issues.
Primary goals	Measurable changes in behavior, resource flows or other environmental indicators	Long-term environmental integrity, sociocultural wellbeing, and economic vitality
Supporting Goals	None	Awareness of connections between issues, place-based identification, neighborhood institutions, broad participation, links with external organizations
Theory of Change	People can be influenced to change their behavior and will influence others to do the same. Individual action rapidly leads to widespread change.	Inclusive, participatory, community-based efforts are needed to generate the capacity and commitment needed to drive long-term change.
Knowledge	Centrality of expert knowledge	Centrality of local knowledge

Table 3: Comparison of the CBSM and Sustainable Communities Approach

Relevance of CBSM to Long-Term Neighborhood Sustainability

As described above, CBSM holds the promise of reducing a neighborhood's environmental impact, but it only contributes to economic or social wellbeing insofar as the specific environmental activities may happen to do so. Finally, it does little to purposefully increase awareness of the links between issues. I certainly do not discount the need for neighborhoods to reduce their environmental impacts, nor do I seek to privilege economic and social issues. Rather, in keeping with the sustainable communities literature, I emphasize the role of neighborhoods in determining their own priorities for long-term sustainability. I conclude that the version of CBSM described by McKenzie-Mohr and Smith (1999) has the potential to advance long-term neighborhood sustainability if neighborhood goals can be achieved through individual-level action. For example, CBSM might be relevant if the primary problem in an area was local air pollution from traffic *and* the area was well served by public transportation leading directly to the drivers' destinations. CBSM might also be a useful tool if residents were most concerned about the contamination of the local swimming hole from pesticides. However, even in these cases, it is difficult to imagine how a social marketer would be able to gauge these issues. A preliminary review of the literature suggests the importance of embedding CBSM within other sustainability efforts.

In addition, CBSM does not build new social ties, nor does it seek to enhance other elements of social capital. It also does not emphasize understanding of local ecology, attachment to place or the development of neighborhood institutions. However, it may provide an opportunity to build collective efficacy; McKenzie-Mohr and Smith (1999) suggest the use of group commitments or goals, and the use of messaging that emphasizes the ability to jointly make a difference. One can also imagine "concrete, vivid, and personalized" messages that increase people's sense of neighborhood identity, attachment to place and understanding of the local environment. Again, one asks, would a social marketer know how to generate neighborhood identity or attachment to place?

In the chapters that follow, I reference Table 2, Figure 2, and the literature reviewed above to explore CBSM's relevance in three neighborhoods in the Greater Toronto Area.

Chapter 2: Methods, Study Areas and Sample

This chapter includes three sections that underlie the results and analysis in Chapters 3 and 4. Section 1 provides a brief overview of my research methods and data analysis, including selection of neighborhoods and areas. Section 2 describes the broader neighborhoods that are the subject of my research. Section 3 discusses the specific research areas and characteristics of my sample of homeowners. Section 4 outlines the consolidation of the four areas into three neighborhoods for the purposes of analysis in subsequent chapters. Namely, it presents the background finding that Moray and Fontainbleu in Oak Ridges are in fact very different neighborhoods, while the two areas in Jane-Finch can be considered together. Thus, in Chapters 3, 4, and 5, I refer to three neighborhoods: "Moray", "Fontainbleu", and "Jane-Finch".

Section 1: Research Methods and Data Analysis

I conducted thirty semi-structured interviews with homeowners in four different areas, located within two broader "neighborhoods" in the Greater Toronto Area. As described below, areas were selected to maximize socio-economic and physical differences, while still including a sufficient number of single-detached and semi-detached owner-occupied homes. Homeowners were recruited using letters and in-person solicitation. Interviews lasted from 25 to 75 minutes, and covered a range of topics related to neighborhood, social interactions, yards, rain barrels, rain gardens and priorities for neighborhood sustainability.

Selection of Neighborhoods and Areas

These two neighborhoods were selected because of the socio-economic and physical differences between them. As described in greater detail in Chapter 2, Oak Ridges is a wealthy, neighborhood 45 minutes north of downtown Toronto in the Town of Richmond Hill. It is located on the boundaries of the ecologically sensitive Oak Ridges Moraine and has experienced rapid growth in recent decades. In contrast, Jane-Finch is a neighborhood in the City of Toronto with a high concentration of social housing, and was recently identified as a "priority neighborhood" because of its poor performance in the City's "strong neighborhood indicators" assessment. Although homeowners are not representative of the population of the Jane-Finch area as a whole, they are the focus of this research because of the theorized connection between homeownership and investment in home upgrades (e.g. rain barrels and rain gardens).

"Areas" within neighborhoods included one or two residential streets with single-family and/or semi-detached homes. I sought to define areas that were as small as possible but that would still allow me to conduct 7-8 interviews. Thus, my recruitment areas included approximately 30 households. The two "areas" within each neighborhood were selected to maximize differences along two variables:

1. Economic status of homeowners, and
2. Physical setting / local amenities.

Housing listing prices were used as the first selection criteria, to maximize economic variation. Qualitative assessment was used to ensure that the areas with the highest and

lowest listing prices were also physically different. In each neighborhood, the areas with the highest and lowest listing prices were also physically different, with different local amenities. This may be coincidence, or it may be a result of the fact that housing prices typically account for location and neighborhood as well as physical buildings.

In the Oak Ridges neighborhood, houses on the adjoining streets of Pagean Avenue and Paradelle Avenue had highest listing prices (~$935,000). Lowest listing prices were found on Moray Avenue and the adjoining street, North Lake Road (~$420,000). In the Jane-Finch neighborhood, highest listing prices were located on Hoover Crescent (~$425,000). Lowest housing prices were located on Driftwood Avenue, at the corner of Venetian Crescent (~$290,000). Appendix A includes a further explanation of the rationale behind this selection methodology. Appendix A also presents the listing prices of houses for sale in the four areas. See Figures 3 and 4 for maps of the two neighborhoods, and the two areas within each neighborhood. It is worth pointing out that the differences in economic status between homeowners in Jane-Finch and in the Moray areas of Oak Ridges are not drastic. Additional research is needed to explore sustainability in *neighborhoods,* including residents of all tenure and socio-economic status.

Recruitment and Interview Protocol

In each neighborhood, I conducted interviews over a four-day period that included a full weekend. After dropping off invitation letters at each house, I recruited participants using door-to-door solicitation. I described my research as focusing on the neighborhood, its assets, its problems, and the potential for different types of programs to address these problems. I thus sought to recruit residents of "average" environmental orientation for the areas in question. I also sought to minimize the selection bias by offering $25 in cash as incentives / rewards. In Section 3, I discuss the ~30% response rate and compare my sample to the population of homeowners and residents in these areas and neighborhoods.

Interviews included both semi-structured questions and structured questions, and lasted between 25 and 75 minutes. The interview protocol was revised after a pilot interview and was adapted slightly for different participants. Over half of interviews were recorded, after I had received written consent from participants. Appendix B includes the recruitment letter, interview dates, and additional description of the recruitment and interview process.

Appendix C includes the interview protocol and the additional interview materials described below. All interviews covered six topics:

- Perception of the neighborhood and its advantages and disadvantages
- Priorities for neighborhood improvement and sustainability planning
- Current gardening / landscaping practices and use of yards
- Support for rain barrels and rain gardens, in theory and in practice on their lot
- Interactions with neighbors and community members (both formal and informal)
- Interest in different sustainability program delivery methods

Figure 3: The Two Areas in Oak Ridges

Figure 4: The Two Areas in Jane-Finch

I also gathered the following information to assess the relevance of these factors to homeowners' responses, and to compare the respondent population to the dissemination area and neighborhood as a whole.

- Length of time in the house and in the neighborhood
- Age range and gender
- Income range and employment
- Country of birth
- Self-description as "environmentally conscious"

The majority of the interview was used to gather qualitative information using semi-structured questions. However, a number of other visual and research tools were used for specific purposes over the course of the interview.

- *Map*: After discussing their perceptions of the neighborhood's assets and issues, residents were asked to circle the area that they define as "their neighborhood" on a map of the broader area. The two sheets are included within Appendix C.
- *Diagram of "neighborhood sustainability themes":* After asking in general about their priorities for neighborhood improvement, I asked residents more specifically about issues and programs related to neighborhood "sustainability". I used a diagram of sustainability themes designed by the Toronto Region Conservation Authority to stimulate conversation on this topic. This diagram is included in Appendix C.
- *Rain barrel and rain garden information sheet*: After inquiring about their familiarity with rain barrels and rain gardens, I asked all residents to look at a one-page information sheet with a description of rain barrels and rain gardens. This sheet included pictures of both measures, and briefly outlined in general terms the "what and why" of rain barrels and rain gardens. This sheet is included in Appendix C. It is worth noting that many residents did not read all (or much) of the text on this sheet, and I often used the information from the sheet to respond to questions.
- *Program rating sheet*: In order to gauge interest in different program designs, I asked residents to read and rate hypothetical rain garden promotion programs on a scale from 1 to 7. I explained that while they all concerned rain gardens, they could be applied to other types of actions, and that I was primarily hoping to gauge their interest in participating in these types of program designs. The list of hypothetical programs is included in Appendix C.
- *Background information sheet:* At the end of the interview, I asked residents to fill out a multiple choice and fill in the blank survey that included questions about age, household income, employment, place of birth, use of local parks and trails, self-description as "environmentally oriented", and use of energy-efficient light bulbs and appliances. Some residents opted to skip some of these questions.

Analyzing Data

I provide an overview of the data analysis process here. However, a detailed description of the transcription, coding and data analysis process is included in Appendix B. Based on specific comments over the course of interviews, I assigned residents ratings from 0 to 5 to compare their interest or concern about different neighborhood sustainability issues, both those presented on the diagram and those mentioned separately. To create the tables of neighborhood priorities presented in Chapter 4, I tabulated the number of people in each area who expressed "interest" or "support" for different sustainability themes, defined as a 3, 4, or 5. I also rated residents support for rain barrels and rain gardens. I assigned separate numbers for their support for these measures "in theory" and "in practice". For example, someone I would assign a 5 "in theory" and a 1 "in practice" to someone who said "What a fabulous idea, rain barrels are a great invention for saving money and water! But I don't think I would ever want to use one because...". Ratings of theoretical and practical interest were considered in conjunction with people's qualitative description of benefits and barriers and their described willingness to purchase or accept "free and installation-less" rain barrels and rain gardens.

Benefits and barriers of rain gardens and rain barrels were also analyzed independently. Descriptions of benefits and concerns were first compiled and analyzed qualitatively, by pulling out key words and concepts. They were then organized and tabulated in different ways. I also assigned ratings from 0 to 5 for level of identification with "New Environmental Paradigm" environmentalism based on their descriptions of the environmental benefits of rain barrels and gardens, their self-rating as "environmentally conscious", and their description of their additional environmental practices. Other questions and themes were analyzed using a binary scale. Data from the background survey and from the program preferences activity were also compiled. Maps were analyzed for their general size, for overlap between the two areas, and for inclusion of the dominant natural heritage features: Lake Wilcox in Oak Ridges, and Black Creek in Jane-Finch. These analyses are described in greater detail in Appendix B.

Section 2: Overview of the Neighborhoods

In this Section, I provide an overview of each neighborhood's history, physical form and amenities, significant water bodies and environmental initiatives. I also compare socio-economic and demographic census data for each neighborhood.

Jane Finch

History of Jane-Finch

The first English settlers arrived in the area in the late 1830s, and the area continued to develop in the nineteenth century with churches, schools and farms along dirt roads. In 1853, the addition of the railway improved transportation and communication, enabling rapid growth in the early decades of the 1900s. The population of North York rose from 6,303 to 20,382 between 1923 and 1939 (DWAC 1986). The boom in the Jane-Finch neighborhood occurred in the 1960s, when roads were paved and widened, and limited bus service began (DWAC 1986). From 1961 to 1971, the population increased more than 20 fold, from 1,301 to 33,030 (DWAC 1986).

The physical and cultural identity of the neighborhood also stems from this time period. The City of North York and the private sector constructed dozens of high-density apartments and row houses during rapid suburbanization. The goal was to integrate higher densities of social and low-income housing into the waves of single-family housing that were sprouting in newly developing suburbs (Rigakos et al. 2004), and the affordable housing attracted newcomers to the country. Many immigrants from the West Indies, Asia, Africa, South America and India settled there, and commuted to jobs in the city of Toronto (CBC 2001 cited by Richardson 2008). Saunders (2003, cited by Nguyen 2011) describes an "instant community" created by the government to

> ...house low income families in their own community of new, well constructed high rise apartment buildings, but the result was an area that was isolated from other residential areas. As development crept around Jane/Finch, clashes between income and racial groups became inevitable. This area became the closest thing in Ontario to the infamous 'projects' of American cities.

City services did not grow to match the rapid increase in population in these affordable and public housing complexes, and little thought was given to the social infrastructure needed to sustain community life (Nguyen 2011). Successive governments either ignored the growing troubles or delivered piecemeal programs with little local input or support, such that by the end of the 1980s, Jane-Finch was an "under-serviced and under-resources, poor, high crime community" (Saiville 2009). The urban form contributed to social problems. A "lack of semi-private space hierarchy, wide swaths of open and vacant space, and deserted night time parking lots did not lend itself to sustainable or safe communities" in Jane-Finch (Saiville 2009). Children in apartments had few social or recreational spaces, and vacant public areas became feared because of drug dealers and crime (Saiville 2009).

The area immediately developed a bad reputation and was portrayed as a hub for crime, drug dealing and social problems. In 1979, a Globe and Mail article compared Jane-Finch to a "ravaged section of New York" where "racial problems... involve all ethnic groups in the area" (Moon 1979, cited by Richardson 2008). Although mainstream newspapers such as the Toronto Star, recognized that "Jane-Finch... resents its stereotype as a concrete jungle of social breakdown", the neighborhood remains "synonymous with trouble" (DiManno 1986, cited by Richardson 2008) to this day. More recent media coverage has presented a more nuanced view, describing the "Jane-Finch Corridor – it has guns, gangs and drugs – but it also has heart and soul. It's a vibrant, very human community of 75,000 people trying to build a better life for themselves and their kids in a troubled environment (Clarkson and Godfrey, 2005, cited by Richardson). A year later, Friesen (2006) echoed that "those who live here say the stereotypes obscure a complex, resilient community struggling to emerge from years of neglect". Nonetheless, the dominant perception of Jane-Finch remains an "immigrant enclave synonymous with poverty, violence and crime" (Richardson 2008). One journalist wrote that "Jane-Finch" has "become a catch-all phrase that suggests poverty, gangs and racial division" (Fresien 2006).

However, since the community's earliest years, there has been a strong grassroots effort to improve conditions in the neighborhood. Nguyen (2011) described how as early as 1973, community workers, politicians and residents started to concentrate their efforts on addressing the community's problems, improving the neighborhood's negative image, and building a sense of community pride (Nguyen 2011). Since then, the neighborhood has developed 30 social and health service organizations, including the Jane-Finch Community and Family Centre, the Black Creek Community Health Centre, the Delta Family Resource Centre, and a number of youth and employment centers and services. The neighborhood is also the birthplace of the idea of "community banking" in Toronto; the Royal Bank of Canada's partnership with community organizations to increase financial literacy and to extend financial services to under-banked groups was the first of its kind (Buckland 2008). There are two community centers in the area, many schools with active Parents' Councils, and local groups focused on music, art and creative expression. One summer, community groups fundraised to buy an advertisement on the subway that reads, "Jane-Finch our home, we love it!" (Saunders 2003, cited by Nguyen 2011).

Jane-Finch Physical Form and Amenities

Much of the Jane-Finch neighborhood remains characterized by high-density, high-rise apartment buildings. These developments are often centered on open space or playgrounds, meagerly covered with trees. These buildings house the majority of the area's inhabitants (approximately 60%), though they make up a relatively small proportion of land area (approximately 21%) (DTAH et al. 2010b). However, the geographically larger part of the neighborhood is a "quiet, tidy and pleasant" community of single family homes built on Radburn principles of residential cul-de-sacs served by a distributor road (DTAH et al. 2010b). Most of these homes are 1960s era bungalows, many of them semi-detached. Residential roadways are wide and street trees are of varying size and cover.

Schools and malls occupy 11% of the neighborhood. Schools are distributed across the low-density part of the neighborhood, while retail in concentrated on three of the four quadrants at the busy intersection of Jane Street and Finch Avenue. Both of these streets are four lanes across, and expansive parking lots separate pedestrians from stores. The two plazas and one indoor mall offer a cosmopolitan array of stores and services, primarily independently owned. Price Chopper and No Frills supermarkets add to South Asian, Southeast Asian and Caribbean food options. However, a Ryerson University study identified Jane-Finch as a "food desert" with limited access to fresh food (Lister 2007).

The Jane-Finch neighborhood is well served by parks, recreation centers, schools, health services and community amenities (DTAH et al. 2010b). The parks in the area are very well used, as is the multi-use pathway along Black Creek that extends up to York University and down past Sheppard Avenue, well outside the neighborhood. There is also a Hydro corridor, where a bike and walking path is in the early stages of construction. Total forest cover is 28%, the majority of which is located around Black Creek (described in greater detail below), and natural cover comprises 18% of the study area (DTAH et al. 2010b). Parks and open spaces are maintained landscapes with limited tree cover (DTAH et al. 2010b). Figure 3 provides a land use map of the Jane-Finch neighborhood while Figure 4 features images of the Jane-Finch intersection.

In 2005, the violent crime rate was third out of sixteen police divisions. However, efforts around safety have been dramatically increased in recent years. The Toronto Anti-Violence Intervention Strategy (TAVIS) was created in the response to Toronto's 2005 "Summer of the Gun" (52 of the 80 homicides involved a gun). TAVIS aims to reduce crime and fear, by increasing the visible police presence in the neighborhood. It also works towards crime prevention and community mobilization around crime (TPS 2011). A 2006 community meeting report identifies six challenges facing the area:

1. A lack of local employment opportunities (felt most acutely by newcomers and youth)
2. Insufficient maintenance, upkeep, and promotion of safety within social housing
3. Crime and perceived lack of safety
4. The need for better racial and socio-economic representation in program development
5. The concentration of low income housing in a small area;
6. Continued reporting by the media of negative images of the area, which further enhances the negative reputation. (Green 2006).

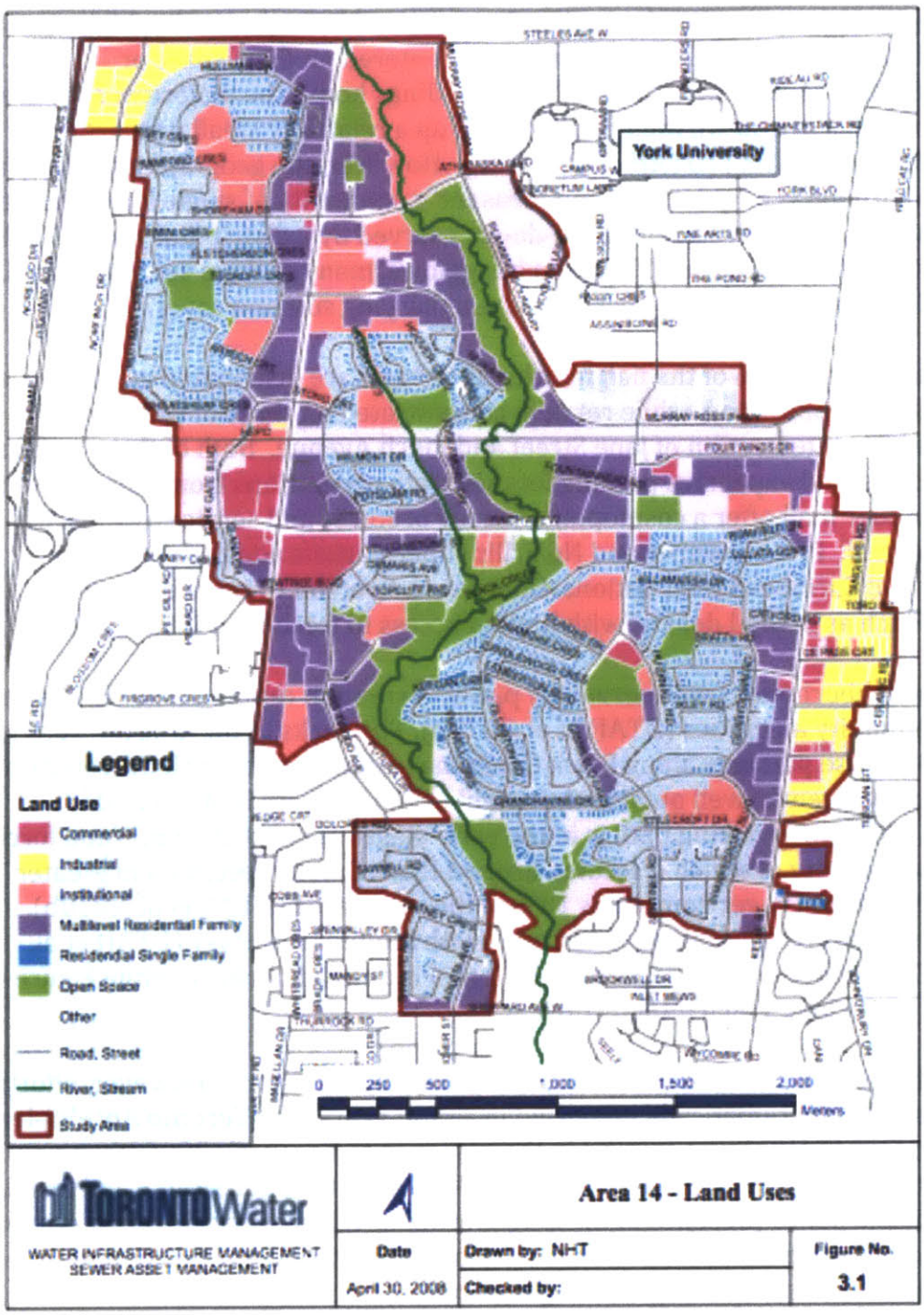

Figure 3: Jane-Finch Land Use Map (City of Toronto 2009)

Figure 4: Three Corners of the Jane-Finch Intersection

Black Creek

Black Creek is a Humber River tributary that flows through the neighborhood. With industrial and residential development in the 20th century, more and more paved surfaces were draining into the Creek, increasing the likelihood of frequent flooding events. In 1954, Hurricane Hazel hit and Black Creek flooded, damaging bridges and surrounding roads. The local Conservation Authority proposed to straighten flood vulnerable sections of the Creek and encase them in concrete to reduce erosion and carry away polluted stormwater. By 1965, almost 5 kilometers of Black Creek (downstream of Jane-Finch) had been channelized. While the area in the neighborhood is not in a visibly degraded state, Black Creek as a whole is generally considered to be the "most degraded tributary of the Humber River". The Conservation Project describes a system "where pollution, flooding, eroding banks and a lack of wildlife habitat are seen as being the normal state of Black Creek" (BCCP 2011). The Toronto Region Conservation Authority has also recognized Black Creek as a priority for restoration as part of the Humber River Watershed Plan.

Jane-Finch Environmental Initiatives

The area also hosts a limited number of environmental programs and organizations. The Black Creek Conservation Project of Toronto is a community-based environmental organization founded to work towards restoration of the Black Creek watershed. Founded in 1982, they work in encompasses a large geographic area that includes Jane-Finch. Their (2011) website describes the conversion of the Black Creek watershed to today's heavily urbanized landscape. They conduct naturalization projects with the support of volunteers

and in partnership with government groups, with the goal of restoring the ecological health and functioning of the Black Creek ecosystem.

Two more recently developed initiatives that demonstrate a "broad focused" approach to environmental action. The long-standing community-based Jane-Finch Family and Community Centre is in the midst of a one-year program entitled "Green Change". The Green Change program trains community residents to conduct paid outreach and assessments of energy use and to engage apartment building members in conservation activities. They describe their goal as to "sensitize Jane Finch residents, our staff and other members from other partnering agencies in building capacity in reducing waste, conserving energy and making other simple life changes that can save money." They describe using a community capacity building, social justice and anti-oppression approach to engaging residents and community members (JFCC 2011).

The Black Creek Community Energy Coalition is an initiative led by the local Friends in Trouble nonprofit youth-run organization and the Ontario Sustainable Energy Association. Their website describes a "vision to develop a community-owned and operated renewable energy project" (BCCEC 2010) with the involvement of local residents, businesses and institutions in the Jane-Finch, Black Creek and Downsview Park neighborhoods, though it is difficult to assess its status and progress.

Oak Ridges

History of Oak Ridges

Oak Ridges is the northernmost community within the Town of Richmond Hill, York Region. It is located entirely within the Oak Ridges Moraine physiographic region, one of the most significant landforms in southern Ontario (DTAH et al. 2010). The Oak Ridges Moraine is a 160km-long stretch of environmentally sensitive land that extends from the Niagara Escarpment in the west to the Trent River in the East. Between 3 and 24km wide, it is a glacial landscape feature with high biodiversity due to the extremely variable topography. It is an important groundwater recharge area and contains the majority of the remaining natural areas in the GTA (Edey et al. 2006). Oak Ridges has always had a strong sense of community (ORFE). However, its governance was split between King and Whitechurch until 1972, when municipal reform annexed Oak Ridges under the Richmond Hill banner.

Much of the terrain is hilly, with pine forests, small creeks, and two kettles lakes: Lake Wilcox and Bond Lake. Until the 1990s, farmlands dominated the northern part of Oak Ridges. The western edge (along Yonge Street) is now entirely residential or commercial; McLeod's Landing consumed the last undeveloped land in the western part of Oak Ridges, and became part of a political battle in the 2003 provincial election.

There is a lengthy history of aboriginal communities around the Lake Wilcox area from pre-historic times to just prior to European contact. Europeans first settled Oak Ridges at the turn of the 18th century when a group of exiled French royalists were granted land and rations by the British government. Like the rest of Richmond Hill, development in Oak

Ridges occurred primarily along Yonge Street; Yonge Street was constructed in 1795 to provide an upland route to the trading posts on the upper Great Lakes, and extended from Lake Simcoe all the way south to Lake Ontario. As Yonge Street changed from a primitive path to mud road, several prominent families chose to locate country estates in the beautiful Oak Ridges area.

Farmers and pioneer merchants built the actual community, but the area remained renowned for its recreational areas (ORFE 2011). At the turn of the 20th century, the construction of a railway brought visitors from York and Toronto for recreation at Lake Wilcox, and many Torontonians purchased lots and built summer cottages around the Lake. During a housing shortage around the time of World War II, many cottage owners converted their buildings into year round dwellings. New housing developments also began to boom in the area in the 1950s. Development eased off until renewed pressure in the mid-1980s that has continued to consume greenfields in Toronto's suburban fringe until today.

Beginning in the mid-1990s, significant conflict emerged in the Greater Toronto Area over proposals to build large housing developments on portions of the Oak Ridges Moraine (Hanna et al. 2007). The conflict focused on the need to protect groundwater resources, forests, farmlands and other green space from urban sprawl. The result of lengthy pressure and debate was the 2001 and 2002 Oak Ridges Conservation Act and Plan that marked an important change in Ontario's land use planning policy. According to Hanna et al. (2007) it was significant in two ways: first, it marks an important effort to use ecological principles to define land use and development decisions. Second, it invoked the province's seldom-used power to override local zoning designations and allowed for collaboration to create new land use designations. The Plan also approved some pipeline Moraine housing developments, and implemented a "land swap" program (the North Pickering Land Exchange) to preserve environmentally important areas and compensate developers / landowners with property on the Moraine.

The community of Oak Ridges is in a "settlement area". The settlement area designation covers only 8% of the Oak Ridges Moraine, and is the only one of the four designations that is eligible for development. Settlement areas "represent a range of existing communities planned by municipalities to reflect community needs and values" (Province of Ontario 2002, cited by Hanna et al. 2007). The Plan did designate one green space trail just south of Lake and neighborhood as "natural core" and "natural linkage" area. Previously planned developments will no longer go ahead. However, since the Plan's creation, previously protected land in the northeastern portion of Oak Ridges and around Bond Lake had its protected status removed by the Richmond Hill Town Council in 2008. Despite some civic protect in 2008, developments in these areas are planned or underway. ORFE (2011) emphasizes that the settlement area designation "does not make it any less sensitive [and that] careful stewardship by each and every landowner will make a positive impact on the health of the Moraine".

Physical Form and Amenities

The neighborhood features an interesting mix housing stock and includes one commercial area. Single-family residential dwellings make up 86% of the area. The majority (~75%) of these houses are part of new residential developments – most of them built within the last 10 years. The streets are uniform in appearance, as all houses were built at the same time by the same developer. Transitional areas surround Lake Wilcox, and feature a unique mix of older cottage-style homes and recently built or renovated estate-type residences. Building frontage and setbacks are not always to code, and the gradual renovation or replacement of cottages has resulted in a somewhat disjointed yet charming appearance. The Town is also pursuing an infill strategy in these areas, leading to new development on small and irregularly shaped lots. These areas tend to have large trees and high canopy cover. However, many (including the Moray area) lack sidewalks.

The Yonge Street corridor is the only retail commercial area. It includes both large and small, chain and independent stores, primarily arranged in strip malls with very large parking lots and minimal tree cover. The only grocery store is the upper-end Oak Ridges Market. There are several elementary schools but no high schools within the neighborhood boundaries, and there historically hasn't been a community centre. A new community centre is now under construction on the southeast side of Lake Wilcox and will be LEED certified.

Yonge Street is the main transportation artery and is located on the west side of the neighborhood. York Region Transit offers buses through Oak Ridges, approximately five of which pass through some part of Oak Ridges. On the east side of the neighborhood runs the recently extended Bayview Avenue. The Bayview Extension was much contested by environmental groups when construction began in 2001. A bridge and five tunnels for the endangered/threatened Jefferson salamander were added to the plan as a result of their efforts. Only limited pedestrian and cycling infrastructure is currently available, though the Town of Richmond Hill recently completed a Pedestrian and Cycling Infrastructure Master Plan that includes both on- and off-street improvements. As of 2006, 91% of the employed labor force traveled to work by car, truck or van, 84% as the driver. Only 6% used public transit, and 3% walked or bicycled (see Table 4).

The neighborhood is in close proximity to many natural areas and trails, including the Oak Ridges Moraine Corridor Park. In addition to Lake Wilcox discussed below, Bond Lake and Lake St. George are other prominent features. However, recreational opportunities are somewhat limited. The small Sunset Beach Park (in the neighborhood) and the Oak Ridges Corridor Park trail (to the south and southeast of the neighborhood) are among the only areas designed for public use. The large Lake St George Conservation Area and smaller Snively Reserve are off limits to the public.

Lake Wilcox

Lake Wilcox is situated on the Provincially Significant Oak Ridges Moraine. It has a drainage area of 489 hectares and is located at the headwaters of Humber River Watershed (DTAH et al. 2010). With a surface area of 55.6 hectares, it is the largest kettle lake on the Oak Ridges Moraine and a central feature of the surrounding neighborhood. Eutrophication is a

major concern for Lake Wilcox; in addition to fertilizers and nutrients from stormwater runoff, septic systems of surrounding properties historically flushed directly into the Lake.

In 1997, the Town of Richmond Hill developed the Lake Wilcox Remediation Strategy, and many of the recommended measures have been put into practice. All septic systems have been decommissioned, and all new developments must use current stormwater management practices. The Town has purchased properties along the Lake, and established public education programs regarding the use of fertilizers. A shoreline naturalization project was also implemented to enhance biological habitat. Finally, the Town installed special measures including a "Lake Lung" to improve oxygenation. The Town of Richmond Hill will begin updating the Lake Wilcox Remediation Strategy in the coming months. Also as part of the Remediation Strategy, the former Lake Wilcox beach has been replaced by a naturalized shoreline. Much of Lake Wilcox is also bounded by private property. A large dock is still used by a canoe club, and by recreational fishers, windsurfers, etc. However, opportunities for recreational use of Lake Wilcox have decreased dramatically in recent decades.

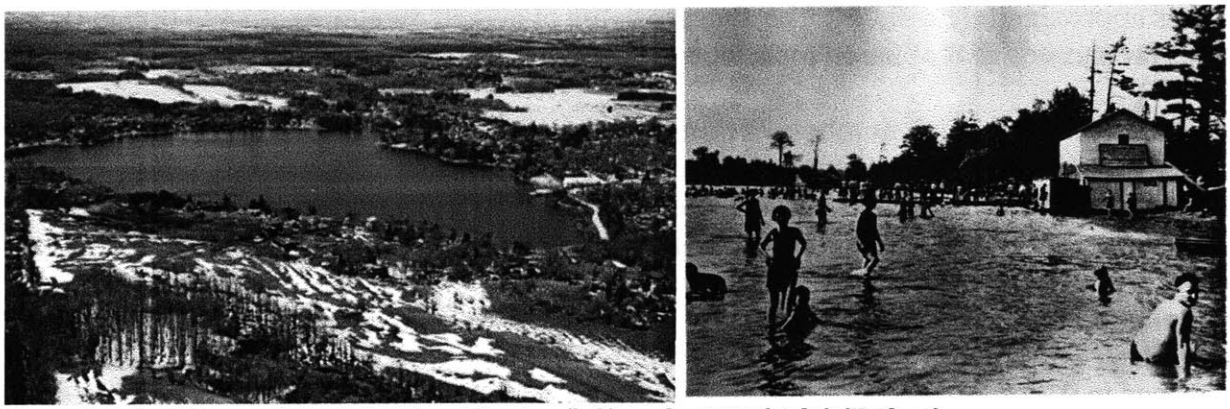

Figure 5: Lake Wilcox and the Oak Ridges Moraine (left), in the 1920 (right) (York.ca)

Environmental Initiatives

A number of government-led environmental initiatives are already underway. The Town of Richmond Hill provides free landscape audits, and has created Summer Outdoor Water Use Guidelines and by-laws to reduce water use. The government of York Region developed the Water for Tomorrow program that offers incentives and education to encourage water conservation. It provides rebates for water-efficient supplies and appliances, discounted rain barrels, and low-water design workshops. Water consumption data provided by the Town of Richmond Hill suggests that the neighborhood's average per capita daily use of 225 liters is well below the national average of 328 liters per day.

A few grassroots organizations also exist in the area. The Oak Ridges Friends of the Environment (ORFE) is a volunteer organization of residents in the community of Oak Ridges with a mandate to protect, enhance and celebrate the area's natural spaces and cultural legacy. They produce and disseminate stewardship news and information, coordinate an annual clean-up day, and partner with the Town and Toronto Region Conservation Area around tree planting and naturalization programs (ORFE 2011). Other

community-based organizations are few and far between – the Oak Ridges Lions Club was the only one mentioned by research participants. The York Region Environmental Alliance serves the larger York Region and was initially formed to campaign against the cosmetic use of pesticides (YREA 2011). They have now expanded their work to include broader campaigns including anti-idling and ecological footprint education.

Whitelaw and McCarthy (2007) emphasize the role of civil society in Oak Ridges Moraine planning. The STORM Coalition emerged initially as local activism to oppose subdivision and aggregate resource development, and eventually set the agenda of various government studies. However, publications do not indicate activism or environmental mobilization in the Oak Ridges community.

Oak Ridges and Jane-Finch: Comparison of Socio-Economic Data

Two neighborhoods that are the subject of my research are drastically different from a socio-economic and demographic perspective (Table 4). For example, median household income in Oak Ridge is approximately $97,000, while median household income in Jane-Finch is approximately $40,000. The average value of owned dwellings of $473,000 in Oak Ridges far exceeds that of Jane-Finch, where average value is $261,000.

Oak Ridges has fairly high numbers of immigrants and visible minorities, at 37% and 29% respectively. However, these numbers do not compare to those of Jane-Finch, where 62% of the total population has immigrated, and 80% are visible minorities. Almost 8% of the population of Jane-Finch has no knowledge of French or English, as compared to 3% in Oak Ridges. The unemployment rate of 3% on Oak Ridges is less than one-third of the 10% unemployment rate in Jane-Finch, and the participation rate in Oak Ridges is 16% higher than in Jane-Finch. Finally, 37% of census families in Jane-Finch are lone parent families, as compared to 9% in Oak Ridges. The percentage of the Oak Ridges population with a university certificate or degree is three times that of Jane-Finch, while Jane-Finch almost triples Oak Ridges in terms of percentage of population without any certificate or diploma.

As discussed above, the characteristics of residential dwellings in the two neighborhoods are very different. In Oak Ridges, single-detached houses make up 86% of private dwellings, semi-detached houses make up 6%, and row houses and duplexes make up 4% each. In Jane-Finch, 59% of private dwellings are in apartment buildings with five or more stories, 18% are in row houses, 12% are in semi-detached homes, and 8% are in single-detached houses. The homeownership rate in Oak Ridges is 92%, while the homeownership rate in Jane-Finch is 35%. The subjects of this research (homeowners of single-detached and semi-detached houses) are majority of neighborhood residents in Oak Ridges. However, they are far from the majority of neighborhood residents in Jane-Finch.

In addition, 96% of dwellings in Jane-Finch were constructed before 1986, as compared to only 17% in Oak Ridges. Thirteen percent of dwellings in Jane-Finch and 4% of dwellings in Oak Ridges require major repairs. The differences in population density are particularly striking; in Jane-Finch, the average density is 6,571 people per square kilometer, more than four times that of Oak Ridges (1,581 people per square kilometer).

	Oak Ridges	Jane-Finch
Census tract(s)	0424.11	0316.01, .03-.06 + 0.5*0312.05 + 0.7*0312.02
Population (2006)	6,650	26,048
2001 to 2006 population change	+84%	-11%
Population density per square km	1581	6571
Buildings and Homes		
Total private dwellings	2,160	8,450
Single-detached houses (%)	86%	8%
Semi-detached	6%	12%
Row houses	4%	19%
Apartments buildings, 5+ stories	0%	59%
Dwellings constructed before 1986	17%	96%
Average value of owned dwellings	472,830	260,862
Owner-occupied dwellings	92%	35%
Culture and Language		
Immigrants as % of total population	37%	62%
Before 1991	55%	44%
After 1991	45%	56%
Non-official language spoken at home	18%	41%
Visible minorities	29%	80%
Most common visible minorities	Chinese South Asian West Asian	Black South Asian Southeast Asian
Households, Mobility, Employment		
Mobility status, five years (movers)	41%	43%
Lone-parent families (% of families)	9%	37%
Median age	36.1	32.2
Median income - households	97,208	40,361
Employment rate	74%	54%
Unemployment rate	3%	10%
Most common occupations	Business, finance, admin Sales and service Management	Processing, manufacturing Sales and service Trades, transport, equipment
Education		
Total population 15+	5,160	19,492
No certificate or diploma	13%	37%
University diploma or degree	37%	12%
Transportation (% of labor force)		
Car, truck, van as driver	84%	50%
Car, truck, van as passenger	6%	9%
Public transit	6%	35%
Walked or bicycled	3%	5%

Table 4: Oak Ridges vs. Jane-Finch, Census 2006

Section 3: Research Areas and Sample Population

Both neighborhoods have substantial within-neighborhood variation. Black Creek is particularly diverse in that it features five full census tracts and parts of two other census tracts. Homeownership in one census tract is 85%, while in another it is 8%, and in still another it is 34%. While homeownership is throughout the Lake Wilcox neighborhood is fairly consistent, there are important physical, social and cultural differences between older and newer parts of the neighborhood. In the sections below, I provide an overview of physical differences between the two areas within each neighborhood, and highlight socio-economic differences based on census data at the dissemination area level. Table 5 includes census data for the four dissemination areas within which the Fontainbleu, Moray, Hoover and Venetian areas are located.

However, it is important to note that dissemination area data cannot be generalized to the sample areas. Dissemination areas are the smallest geographic unit for which census data is available. Nonetheless, dissemination areas include large numbers of diverse households and building types. This caveat is particularly relevant when analyzing Fontainbleu and Venetian area data. The Fontainbleu area is geographically very large and includes 945 dwellings. (Rapid growth has occurred in the area since the dissemination area boundaries were last redrawn). Fontainbleu includes the most expensive homes in the dissemination area, so socio-economic data likely underestimates wealth and education levels. As presented in Table 5, the Venetian area includes many large apartment buildings, including public housing. The 57% of private dwellings in apartment buildings with 5 or more stories will be socio-economically different than homeowners in the Venetian area that are the focus of this research; again, census data likely underestimates wealth.

Moray area versus Fontainbleu

The Fontainbleu area is part of a new development (completed in 2004/5) of large, single-family detached homes. These homes have medium-sized front yards, very large driveways and two-car garages. Houses are estate-like and generally have two stories. Backyards are medium-sized (lots are either 50 or 60ft in depth) and adjoin those of next-door neighbors and houses on the parallel street. A small park with a play structure and tennis courts is in easy walking distance of the study. A stormwater management pond surrounded by a walkway is also right within the area. A golf course is located just on the other side of Bayview Avenue, but is less accessible because of the lack of sidewalks along the connecting road (Bloomington Avenue). There is no outside traffic on streets, though there is a fair amount of internal traffic.

The Moray area is a "transition area" where small cottages from the 1940s are gradually being renovated and/or replaced with new estate-style homes. The unique mix of houses means that there is also a wide range of yard and driveway sizes. Bungalow houses stand next to two or three-storey homes and there is little apparent uniformity in landscaping. Lake Wilcox is less than a five-minute walk away, thanks to a walking path at the end of Moray Avenue. Sunset Beach Park is barely more than a five-minute walk and does not require crossing any busy streets. There are no sidewalks in the study area, but also very little automobile traffic, internal or external. Both the Moray and Fontainbleu areas are approximately 1.5km from the nearest stores or restaurants. Fontainbleu is slightly further.

Dissemination area	191088	191089	202050	204352
	Moray	Fontainbleu	Hoover	Venetian
Buildings and Homes				
Total private dwellings (20% sample)	165	995	330	545
Single-detached houses (%)	94%	84%	15%	0%
Semi-detached	0%	10%	8%	6%
Row houses	0%	5%	74%	36%
Apartments buildings, 5+ stories	0%	0%	0%	57%
Owner-occupied dwellings (%)	82%	96%	47%	44%
Dwellings requiring major repair	9%	4%	3%	15%
Average value of owned dwellings	375,886	482,131	215,171	172,341
Culture and Language				
Immigrants as % of total population	36%	42%	55%	63%
Non-official language spoken most often at home	15%	24%	50%	
No knowledge of official languages	0%	4%	6%	6%
Households, Mobility, Employment				
Mobility status, five years (movers)	40%	75%	28%	38%
Lone-parent families (as % of census families)	9%	8%	45%	42%
Median income in 2005 - all private households	68,907	104,376	48,061	40,012
Employment rate	87%	73%	54%	54%
Unemployment rate	3%	4%	6%	10%
Education (age 25-64)				
No certificate or diploma	10%	5%	31%	41%
University certificate, diploma or degree	33%	54%	15%	9%
Transportation to work (% of total employed labor force)				
Car, truck, van as driver	94%	83%	41%	43%
Car, truck, van as passenger	6%	6%	4%	10%
Public transit	0%	8%	53%	46%
Walked	0%	2%	2%	0%
Other	0%	0%	0%	2%

Table 5: Comparison of the Four Dissemination Areas, Census 2006

As shown in Table 5, there are higher homeownership rates in Fontainbleu's dissemination area than in Moray's (96% vs. 81%). Median household income is also much higher around Fontainbleu ($104,000 vs. $69,000), though there is little difference in unemployment rates. Fontainbleu also has higher values of owned homes, and higher university education levels; 54% of Fontainbleu residents are university-educated, as compared to 33% of Moray residents. Moray and Fontainbleu have similar proportions of immigrants (36% and 42%, respectively) and similar proportions of lone-parent families (9% and 7%, respectively). Sales and service jobs are most common in Moray, as compared to business, finance and administration jobs in Fontainbleu. Finally, participation rates are much higher in Moray (90%) than in Fontainbleu (76%). In addition to differences revealed by

census data, there are important cultural differences that separate these two areas. These are described in Section 4 below.

Figure 6: Fontainbleu (left) and Moray (right)

Venetian area versus Hoover area

The Venetian and Hoover areas have similar styles and ages of buildings. In both areas, buildings are primarily bungalows build in the 1960s, with substantial driveways. However, Hoover area houses are a mix of single-detached and semi-detached, while in the Venetian area they are all semi-detached. Hoover houses generally have single car garages and significant front lawns, while Venetian houses have small front lawns and no garage. Both areas have a good number of large street trees, though canopy cover is low.

The major physical differences between the areas relate to the buildings and amenities that surround them. Hoover is a crescent, with minimal outside traffic, while houses in the Venetian area receive through-traffic due to their close proximity to the Jane-Finch mall. The end of Venetian leads to the back parking lot of the mall, while the end of Hoover leads to an elementary school. Venetian is also in the shadow of large apartment buildings, and connects to complexes of inexpensive row houses. Both Venetian and Hoover are within easy walking distance of Jane-Finch, though Venetian is substantially closer. Both also have good access to parks and to the Black Creek multi-use pathway. One side of the Hoover crescent also backs onto Driftwood Creek and the path alongside it. See Figures below for samples of the housing stock and streetscape.

Census data reveals significant differences between the two dissemination areas, though this may not reflect the sample areas (as discussed above). The Hoover area has a higher median income and lower unemployment rate than Venetian. The average value of owned homes is also higher, though apartments and row houses in the area heavily influence both of these numbers. In the Venetian area, 15% of dwellings are characterized as requiring major repair (compared to 6% in Hoover). Hoover also has higher educational attainment; 41% of Venetian residents have no diploma or certificate, as compared to 31%. Venetian has a slightly higher proportion of immigrants (63% as compared to 55%). Hoover and Venetian have similar homeownership rates (47% and 44% respectively), and similarly high percentages of lone-parent families (45% and 42%). In both areas, 6% of the population has no knowledge of official languages.

Figure 7: Hoover (left) and Venetian (right)

The Sample and its Caveats

Table 6 below provides select characteristics of the sample population. With a refusal rate of approximately 60%, it is very possible that my sample is not representative of the population of homeowners in each area. Given that all homeowners were recruited through door-to-door solicitation, I may not have interviewed the busiest residents of each area. I may also have recruited residents who are friendlier and more interested in talking to strangers than the average. A few homeowners (~20%) appeared interested in participating in my research because of the financial incentive. A few (~15%) were also genuinely interested in their neighborhood or in the topic of "neighborhood improvement". However, the majority of residents seemed willing to talk to me simply to help me out.

Based on Table 6, immigrants may be underrepresented in the Moray sample (25% in the sample vs. 35% in the dissemination area), and families who speak a non-official language may also be underrepresented in both Moray and Fontainbleu (0-14% in each sample vs. 15% and 24% in the dissemination areas). At 43%, people over 60 may be overrepresented in the Venetian area (though homeowners did describe the large elderly population on the street). However, the sample's median income and employment appear representative of all homeowners in the area. The median household incomes of the Venetian, Hoover and Moray area samples are very similar to the dissemination area as a whole, despite the significant number of renters in these dissemination areas. Median income of the sample in Fontainbleu is higher than in the dissemination area, as expected. There is no reason to believe that participants' level of environmental concern is higher or lower than average.

It is important to note that the sample does not include the full range of income and education levels in each neighborhood. Particularly in Jane-Finch, the exclusion of renters and residents of social housing limits my ability to draw any conclusions about "the neighborhood". Further research is needed to assess whether homeowners and other residents share similar priorities for long-term neighborhood sustainability. Additional research is also needed to explore the assumption that homeownership translates to investment in rain barrels. Finally, future research should consider the relevance of CBSM programs to groups other than wealthy homeowners.

	Median age range	Number of people over 60	Median income	# / % Immigrants	Very poor English	Median # people in house	Sample employment
Fontainbleu	36-50	0	$120-170,000	3 / 43%	0	4	Consultant, Lawyer
Moray	36-50	2	$50-80,000	2 / 25%	0	3	Bus driver, Town Parks
Hoover	51-60	0	$40-60,000	6 / 75%	2	4	Registered nurse, Contractor
Venetian	51-60	3	$30-40,000	5 / 72%	2	3	Teacher, Warehouse

Table 6: Characteristics of the sample

Section 4: Four Areas, Three Neighborhoods

Hoover and Venetian residents circled similar areas. Though they were initially analyzed and tabulated separately, there were no significant differences between the results in these two areas. Results for Hoover and Venetian are aggregated in Chapters 3, 4, and 5, and are referred to together as "Jane-Finch". However, Moray and Fontainbleu are discussed separately. In this section, I describe Fontainbleu residents' feeling of physical and social isolation from the rest of Oak Ridges (including Moray).

Over the course of interviews, multiple Fontainbleu homeowners explicitly expressed a sentiment of detachment from Lake Wilcox, from Oak Ridges and from Richmond Hill; many identify themselves instead as Aurora residents. "I don't consider myself part of Richmond Hill. If I describe it, I say I'm part of Aurora. Bloomington is the boundary, so I say basically I live in Aurora, otherwise they think Yonge and Highway 7 and I don't relate to that section of the city anymore" (OR 8).

"What's your definition of my neighborhood? Where my immediate community is? ... It's centered around Bayview North and Bloomington Rd., not much down here – Oak Ridges not much at all. That's it literally. My dog walker is here... We usually say we live up in Aurora, because there's sort of a no man's land... There's nothing south of us to say we're really in Richmond Hill..." (OR 14). One resident even described a feeling of marginalization in the context of Richmond Hill services. "Since we are the most northern part of Richmond Hill, I find sometimes we get left behind when there's snow removal or that kind of thing, we always feel we're second cousins, or at the bottom of the heap... Sometimes I feel marginalized" (OR 6).

Later in the interview, Fontainbleu residents expressed surprise at a worksheet describing them as Lake Wilcox residents. One said, "Lake Wilcox residents? There's an eye opener."

You know what, if you took all these houses down, this was all bush not ten years ago – it was white pines everywhere, it was gorgeous, white pines are my babies. It was just a row down here; this was a real bush ravine. A lot of people that have been around here talk about the Lake, it's just over there you just can't see it anymore because of the development... I can see why in that perspective, we are this Lake Wilcox community." (OR 14) "Am I Lake Wilcox residents? ... Not Oak Ridges either..." (OR 7)

Finally, one homeowner described divisions between long-time Oak Ridges residents and residents of new developments. "When you go to town, you can tell who the 'old Oak Ridges' people are and who lives in the new subdivisions, there isn't much mixing. We're the wealthy yuppies, we all have nice cars and they don't.... We're the wealthy people coming in and ruining their township" (OR 8).

The map drawing exercise also demonstrated this separation. Four of the seven Fontainbleu homeowners circled areas of less than one square kilometer. These very small neighborhoods included adjacent streets with similar houses that were built by the same developer at the same time, as part of the "Fontainbleu" community. These homeowners exclude the upper-end townhouses that were built more recently by the same developer just on the other side of Worthington Avenue.

Two of the three medium- to large-sized circles extended north into the adjacent town of Aurora, rather than south towards the Lake. Of all seven Fontainbleu homeowners, only one included any part of Lake Wilcox within their visual representation of their neighborhood. Only one described using the Lake on a regular basis. In contrast, all seven Moray homeowners included all or part of Lake Wilcox within their circles, and all but one included the adjacent Sunset Beach Park. Most residents emphasized the benefits of living near the Lake and surrounding parks and trails, and one explicitly drew the boundaries of his neighborhood based on the places he uses for dirt biking and snowmobiling (OR 16).

In contrast, Jane-Finch residents generally have a broad conception of their neighborhood, and there are no apparent differences between residents of the two areas. The majority of residents referred to their neighborhood as "Jane and Finch", and included the major commercial intersection on their map. As illustrated in the maps in Appendix D, the large maps included both neighborhoods and there was no discussion of physical or social boundaries between people living north and south of Finch.

Sample maps are included in Appendix D.

Chapter 3: Rain Barrels and Rain Gardens - Benefits and Barriers

This chapter begins with an introduction to rain barrels and rain gardens and a description of the scientific basis for prescribing them in the research areas. Section 1 highlights differences in residents' reactions to them in the three neighborhoods and explores the connection of NEP environmentalism to these reactions. Section 2 explains residents' support for rain gardens and barrels as a function of perceived "identity-relevant" benefits. Section 3 describes barriers that are common, that vary by neighborhood, and that are linked to "identity groups". Section 4 suggests the factors that may explain people's identities, and Section 5 explores the role of social diffusion in rain barrel uptake. Throughout, I acknowledge the difficulty of drawing conclusions from such a small sample.

I highlight the following key findings:

- Levels of support for rain barrels and rain gardens do not seem to be determined by environmental attitudes; rain barrels receive highest support in Jane-Finch where environmentalism is least prevalent. Instead, individuals' support for rain barrels and rain gardens depends on their evaluation of benefits that are relevant to different aspects of their "identity".
- People that self-identify as cost-efficient and good gardeners were often as interested in rain barrels as people with New Environmental Paradigm identities. Rain gardens seem to offer fewer benefits to residents who do not self-identify as NEP environmentalists.
- Several of the barriers that differ substantially by neighborhood appear linked to residents' identities and feasible to overcome.
- Several barriers to rain gardens are present across all neighborhoods and seem very difficult to overcome.
- Country of birth / upbringing and socio-economic status / education seem to be important determinants of residents' relevant identities. Place-based experiences and interactions with close friends and family may also influence identities.
- Rain gardens are not well understood. Rain barrels are well understood and appear to have diffused along strong social ties.

Introduction: Relevance of Rain Barrels and Rain Gardens

This section begins with an introduction to rain barrels and rain gardens. It then discusses the specific relevance of these measures for water management in the three neighborhoods in question.

Both rain gardens and rain barrels aim to address the problems of urban stormwater quantity and quality. In urban environments, most rainwater flows from impermeable surfaces into storm sewers, and then directly into rivers and lakes. Urban stormwater runoff patterns are of concern because of their potential to cause ecological and economic damage. Polluted urban stormwater from roofs, sidewalks and yards can lead to algal blooms and eutrophication of downstream water bodies. In addition, urban stormwater runoff can cause flash flooding and basement flooding, thereby damaging buildings and infrastructure. When high volumes of surface runoff flow rapidly through storm sewers into rivers, the rapid increase in stream levels erodes stream banks and creates the risk of flash floods. On properties with poor drainage or leaky foundations, excess stormwater

runoff can also cause basement flooding. Finally, "flashy" urban runoff patterns can increase drought frequency and low water stream conditions.

Rain barrels and rain gardens can also reduce household use of municipal water. Rain barrels allow homeowners to water their existing landscapes with rainwater. Rain gardens can reduce water use by replace landscapes that are more water-intensives.

A rain barrel is a container that collects and stores rainwater from downspouts and rooftops for future use watering lawns and gardens. They are made using a 55-gallon drum, a vinyl garden hose, PVC couplings and a screen grate to remove debris and keep insects out. They can be purchased for $50-90. A rain garden is an area within a landscape that absorbs much more water than the same size area of lawn. It is a shallow depression in the landscape where runoff ponds and gradually infiltrates over the course of a few hours. In addition to increasing infiltration of rainwater and reducing stormwater runoff volumes, they also improve clean the stormwater that they capture. They can be built in the drainage area of downspouts and/or in low spots in the landscape.

There are two basic types of rain gardens: gardens with underdrains, and gardens that are self-contained. Most residential lots feature self-contained rain gardens where normal soils are replaced with approximately 2 feet of porous planting media. Rain gardens should have an area of about 20% the size of a building's roof to capture all of the stormwater (generally in the range of 20-80 square feet). However, they can be a variety of shapes and sizes, as any rain garden will help with stormwater management. They generally feature vegetation that is native to the area and relatively flood- and drought-resistant. Rain gardens also create habitat for a variety of species. They cost approximately $3 per square foot if homeowners do all of the work, or $10-12 per square foot if landscapers are used. It is recommended to locate them at least 10 feet from buildings with basements.

Disconnecting downspouts from sewer systems is often the first step to managing stormwater onsite. Runoff from residential rooftops usually flows into eaves troughs along the edge of rooflines, and into downspouts that connect to storm sewer systems or combined sewer systems. Redirecting downspouts to rain barrels and rain gardens prevents roof water from entering storm sewers. Instead, this relatively clean rainwater is used for plants and trees in residential yards. Plants generally prefer rainwater to tap water, because it is naturally "soft" and free of minerals, chlorine and fluoride (MARC 2011b). Using rainwater for lawns and gardens also saves money for residents who pay for their municipal water use. A house can disconnect a downspout for as little as $9 including labor and parts (McKenzie-Mohr 2007).

Harvesting rainwater from residential roofs can have an important effect when practiced by substantial proportions of households. In Milwaukee, modeling predicted that downspout disconnection, rain barrels and rain gardens in residential areas would reduce the volume of stormwater sent to the treatment plants from neighborhoods by 31% to 37% with "high participation rates" (Kloss and Calarusse 2006). In Long Lake, MN, 18 rain gardens plus sidewalk cuts reduced total runoff in a residential area by 90% (Riggs 2010).

Specific Relevance of Rain Gardens and Rain Barrels to the Three Neighborhoods

This section describes the additional importance of rain barrels and rain gardens in the three neighborhoods, and presents other relevant stormwater management considerations. In Oak Ridges, stormwater management efforts can address flood vulnerability and problems with water quality in Lake Wilcox. In Jane-Finch, rain barrels and rain gardens can improve the capacity of the stormwater system and reduce long-term flood risk.

Both neighborhoods in Oak Ridges drain into Lake Wilcox. Stormwater management is viewed as an important element of improving water quality in the Lake. As discussed in Chapter 2, there has been rapid degradation of water quality in the Lake. The ongoing efforts to improve water quality have included concerted efforts to reduce the use of fertilizers and pesticides, and to reduce the volume of stormwater that ends up in the Lake. In new developments including Fontainbleu, imperviousness ranges from 40-60%, and stormwater management systems culminate in a network of ponds that provide end-of-pipe control for erosion, quality and peak flows (DTAH et al. 2010). In older areas, imperviousness is higher (30-50%). However, stormwater from these areas drains via rural roadside ditches directly to the lake and the Humber River system.

Flooding is also a concern for a significant percentage of Oak Ridges. The Moray area is one of the many developed areas are within the regulatory flood zones that has been identified as flood vulnerable (DTAH et al. 2010). Onsite stormwater management systems can reduce the risk of flooding under heavy rain conditions. Local soils in the Moray area are sandy loam. Clay loam soils are found in the northern part of the neighborhood, including in the Fontainbleu area (DTAH et al. 2010). The depth to the water table varies dramatically across the study area; it is less than 5m for significant parts of the neighborhood (including Moray), and exceeds 16m in Fontainbleu and in the northern part of Oak Ridges.

In Jane-Finch stormwater management efforts can increase the capacity of the storm sewer system to extreme events and reduce flood vulnerability. Jane-Finch is within the Black Creek subwatershed and is approximately 84% urbanized (DTAH et al. 2010b). Stormwater is conveyed directly to Black Creek by storm sewers and roads. The residential areas of Jane-Finch were mainly developed in the 1960's, when storm sewer design criteria were much more lenient than today. They were designed for 2 inches of rainfall per hour, or a 2-year return storm (City of Toronto 2009). The drainage systems in parts of the neighborhood were thus inadequate under heavy storm conditions, and many areas have experienced basement flooding in recent years.

In 2009, the City of Toronto conducted a Basement Flooding Environmental Assessment. This Assessment led to plans to upgrade storm sewer and storage infrastructure at a cost of $18 million (DTAH et al. 2010b). The upgrades are to provide basement flood protection against a 100-year storm for the minor and major systems (City of Toronto). In the Hoover area, the problem was attributed primarily to overloaded storm sewers and high surface flood depth in locally low-lying areas (City of Toronto 2009). The City decided to address the problem by increasing sewer capacity, by increasing inlet capacity, and by closing a

connection point to avoid having to increase sewer capacity in neighboring areas (City of Toronto 2009). The second ranked option in the Environmental Assessment was to increase downspout disconnection and use a high-level storm sewer to drain surface stormwater. Despite its low cost, good impact on surface flooding in low points, and low disruption for construction, this option trailed the hard infrastructure approach primarily because of its lower "feasibility" (City of Toronto 2009). The proposed storm sewer upgrade on Hoover Crescent was completed in the summer of 2010 to the satisfaction of all residents interviewed.

However, the Environmental Assessment indicated that disconnecting downspouts would increase the future level of protection afforded with the new infrastructure (City of Toronto 2009). Toronto Water is thus interested in promoting uptake of lot level stormwater management practices to reduce the strain on the storm sewer system, and to prepare for future impacts of climate change (DTAH et al. 2010b). According to a 2009 City of Toronto Basement Flooding Environmental Assessment, only 18% of the neighborhood's downspouts have been disconnected, increasing the strain on storm sewers. Generally, the soils in this area are clay silt with low to intermediate permeability (City of Toronto 2009).

Section 1: Exploring Support for Rain Barrels and Gardens

In this section, I begin by comparing levels of support for rain barrels and rain gardens across neighborhoods. I then specifically look at the benefits and barriers that figured most prominently for each measure in the three neighborhoods.

Comparing Overall Levels of Support

As seen in Table 7, rain barrels enjoyed fairly high support in all three neighborhoods. Jane-Finch featured the highest number of rain barrel owners, where 4 of the 15 residents already had them in place and used them regularly. Moray followed, with 2 of 8 using them and one other preparing to install one. In Fontainbleu, two homeowners owned rain barrels, though only one used it. Support among non-owners was also highest in Jane-Finch where 7 of the 11 non-owners were interested in buying one or acquiring one for free. In Moray, 3 of the 5 non-owners fell into these two groups, while in Fontainbleu only one of the non-owners reported an interest in installing one (free or otherwise).

As seen in Table 8, rain gardens enjoyed much lower levels of support in Jane-Finch, where only 5 of the 15 homeowners were interested in creating one or in accepting a "free" one. Rain gardens enjoyed highest support in the Moray neighborhood, where 5 of the 8 homeowners fell into these two groups, followed by Fontainbleu, where 3 of the 7 expressed an interest in creating one or acquiring a "free" one (as long as it did not interfere with their current landscaping). No one had specifically created a rain garden in any of the neighborhoods, though three people in Oak Ridges mentioned rain garden-like features in their backyards.

It is particularly noteworthy that all Jane-Finch residents appreciated that rain barrels had some value, while one third of Jane-Finch residents saw no benefits to rain gardens. This trend was similar in Moray, where more people viewed rain barrels as having potential.

However, it was reversed in Fontainbleu where slightly more residents appreciated that rain gardens had value.

Overall, almost a quarter of residents used a rain barrel, and almost a third of residents owned one. In addition, a decent proportion of people without rain barrels described a willingness to buy one (4 out of 21). A much smaller proportion expressed an interest in creating rain gardens in their yard (3 out of 30). However, a substantial proportion of residents would accept both "free" rain barrels and rain gardens that magically appeared in their yard (7 out of the remaining 17 for rain barrels, and 10 out of 27 for rain gardens). Of the remaining homeowners, 4 did not see any benefits to rain barrels, and 10 did not see any benefits to rain gardens. Six recognized some benefits to rain barrels, but not enough to surpass the barriers, and 7 saw benefits to rain gardens but did not want one.

	No interest / benefits	Sees benefits, but doesn't want one	Would take a free one	Interested in buying one	Owns one, uninstalled	Uses one	Total
Fontainbleu	3	1	1	-	1	1	7
Moray	1	1	2	1	1	2	8
Jane-Finch	0	5	3	3	0	4	15
Total	4	7	6	4	2	7	30

Table 7: Interest in Rain Barrels Across Neighborhoods

Area	No interest / benefits	Sees benefits, but doesn't want one	Would take a free one	Interested in creating one	Total
Fontainbleu	1	3	2	1	7
Moray	3	-	4	1	8
Jane-Finch	6	4	4	1	15
Total	10	7	10	3	30

Table 8: Interest in Rain Gardens Across Neighborhoods

Explaining Support for Rain Barrels and Gardens

While the analysis in Section 1 is useful in pointing out similarities and differences between neighborhoods, it fails to provide insight into the factors underlying the varying levels of support for rain gardens and rain barrels (Table 7). In this section, I seek to explain individuals' support for rain barrels and gardens. I begin by testing the hypothesis that those who feel most strongly about environmental issues are most likely to purchase and / or support rain barrels. As my (limited) interview data indicates that this hypothesis is inadequate, I provide an alternative theory that appears to better explain patterns of rain barrel ownership and support. I then extend this analysis to explain people's evaluations of the importance of both rain barrels and rain gardens. I suggest that people's perception of rain garden and rain barrel benefits hinges on the connections of benefits to relevant aspects of their identity.

Rain barrel owners and supporters are not environmentalists

People's actions are driven primarily by their perception of the benefits or importance of these actions. The presence of barriers will prevent people from taking actions that they view as beneficial or important. But even in the absence of barriers, people will not do something unless they have some motivation to do so. As discussed in Chapter 1, CBSM suggests that the motivation for people's environmental actions is generally the sense that something is "the right thing to do" for the environment. This understanding of "the right thing to do" generally stems from environmental awareness, often in combination with social norms.

I begin by analyzing the extent to which people's support for rain barrels stems from their level of environmental attitudes and self-identification. As described in Chapter 2, I assigned all residents an "environmentalism" classification based on their response in the survey and their comments over the course of the interview. Table 9 presents the prevalence of environmentalists in different neighborhoods. It is most notable that 5 of the 15 Jane-Finch residents (all of them immigrants) did not appear familiar with NEP environmentalism. For example, after asking what "environmentally conscious" meant, and hearing a brief definition, one resident drew on my reference to water conservation and pollution and said, "Yes, I'm concerned about our water, it has a funny taste" (JF9). Another drew on my reference to climate change and energy use and talked about her energy bill, "Energy is killing us! Our furnace is old and uses too much energy" (JF6).

Table 10 presents the results of the analysis of whether people who are more "environmental" are more likely to be supportive of rain barrels in theory (this rating is also discussed in the methods section). It demonstrates that environmentalism does explain theoretical support for rain barrels in Fontainbleu. On average, people who are in the "high" environmentalism category thought rain barrels were a very good idea (4.3 out of 5). One resident who had already referred to sustainability multiple times quickly said, "The concept is fantastic of course". In contrast, those in the medium-low environmental category were not particularly impressed (1.2 out of 5, where 0 is "no benefits"). One said, "I never worry about water conservation. I've just never addressed my mind to it.... I don't know anything about this... I don't even know about water, except that we water... All I do is have a watering system, a sprinkling system, and before I had a hose" (OR 7).

However, the explanatory power of environmentalism begins to fail in Moray, where people who are highly environmental are only slightly more supportive of rain barrels (3.8 vs. 4.3). In Jane-Finch, level of environmentalism has no relationship with theoretical support for rain barrels, as seen by the 4.2-4.3 ratings across all categories. The data tables from which these numbers are drawn (demonstrating "support in theory" for rain barrels and rain gardens) are included in Appendix D.

Analysis of what distinguishes current rain barrel owners yields a similar result: on average, rain barrel owners are only slightly more environmentally oriented than their neighbors. As seen in Table 11, the difference between rain barrel owners and non-owners is greatest in Fontainbleu, and lowest in Moray. It is also nonexistent for the (admittedly

very small) sample as a whole. It appears that not all people who own and are interested in owning rain barrels are environmentalists.

This leads to the question, why do non-environmentalists support and purchase rain barrels? Table 11 highlights the types of primary benefits that rain barrel owners in the three neighborhoods described. While both Fontainbleu homeowners appeared motivated by environmental considerations, financial, gardening and practical benefits seemed to rival environmental ones in both Moray and Jane-Finch. Of the 9 rain barrel owners in all areas, 5 described non-environmental primary motivations. One Moray resident described "free water" (OR2), another said, "To be honest, I had a leaky eaves trough and had to catch the water" (OR5). In Jane-Finch, one explained it as "just because it's good to collect water for the garden" (JF1).

Familiarity / identification w/ NEP (#)	Not familiar	Low-Medium	High	Total
Fontainbleu	0	3	4	7
Moray	0	4	4	8
Jane-Finch	5	6	4	15

Table 9: Environmental Identity

Average support for rain barrels (0 to 5)	Unfamiliar with NEP	Low- Medium NEP	High NEP
Fontainbleu	-	1.2	3.8
Moray	-	3.8	4.3
Jane-Finch	4.2	4.2	4.3

Table 10: Average support for rain barrels by NEP environmental identity

Area	Average level of environmentalism	Average for the area	Primary benefits	Number of owners
Fontainbleu	4.5	3.4	Environmental (2)	2
Moray	3.7	3.6	Environmental (1) Financial (1) Practical (1)	3
Jane-Finch	2.5	2.0	Gardening (2) Financial (1) Environmental (1)	4
All areas	2.9	2.8	Environmental (4) Financial (2) Gardening (2) Practical (1)	9

Table 11: Environmental identity of rain barrel owners

Homeowners who did not own rain barrels also described a wide variety of benefits of rain barrels. Table 12 provides a simple list of the frequency of benefits mentioned in each neighborhood (if people emphasized two, then both were counted). Results parallel those of rain barrel owners: environmental benefits are more commonly mentioned in Fontainbleu, while non-environmental benefits are more common in Jane-Finch. For example, one said, "Water is quite expensive" (JF6). Another described how watering with a hose, "it's very expensive" (JF4). These perceived benefits led to the high levels of support described in Section 1. Moray residents also mentioned environmental considerations most often, though financial benefits were also discussed. One emphasized, "If there's any way in the new subdivisions a high percentage of people could have that... those two things, what people are putting on their lawns, and how much is going into the Lake" (OR3).

Table 12 also lists the benefits of rain gardens that residents mentioned. Fewer people described that rain gardens could provide financial and gardening-related benefits – appearance tops the list of non-environmental benefits in Jane-Finch. This fact may explain their lower levels of support in Jane-Finch. In contrast, rain gardens and barrels received good support in Moray and Fontainbleu. Level of environmental self-identification thus appears a much better predictor of support for rain gardens.

In Section 2 below, I suggest that homeowners evaluate rain barrels and rain gardens based on the benefits most closely related to their relevant identities – environmental, or otherwise. This explanation of identities and "identity-relevant benefits" is linked to the work of social identity theorists described in Chapter 1. In Section 3, I further this explanation by suggesting that many barriers to rain barrels and rain gardens also link to these identity groups. I conclude the discussion of identities in Section 4 by exploring some of the factors that may influence people's identities. In Chapter 5, I suggest that understanding the different identities that are relevant to a particular action is central to understanding how social marketing might be used to promote this action.

	Rain barrel benefits	**Rain garden benefits**
Fontainbleu	Water conservation (4) Saving money (2) "Sustainability" (1)	Water flows / heavy rains (3) Appearance (2) Water conservation (1) Saving money (1)
Moray	Water conservation (3) Stormwater / water flows (3) Saving money (3) Protect house from water (1)	Manage water flows (2) Stormwater quantity (1) Appearance (2)
Jane-Finch	Saving money (9) Water conservation (7) Convenience for gardening (5) Water doesn't go into sewers (2)	Appearance (4) Water conservation (3) Gardening considerations (3)

Table 12: Perceived benefits of rain barrels and rain gardens

Section 2: Four Relevant "Identity" Groups

In this section, I describe four "relevant identity groups" and their prevalence across the neighborhoods. For each, I describe how members of these groups evaluated the benefits of rain barrels and rain gardens. I also provide some evidence that these are "identities" rather than one-off evaluations of rain barrels and gardens. I also discuss the prevalence of identity groups in different neighborhoods.

Overall, it appears that people's perception of the benefits of specific "environmental" actions (rain barrels and rain gardens) depended on two things:
1. The degree to which it matched their "relevant identity"; and
2. Whether they perceived these actions to be efficacious in providing benefits associated with that identity.

Environmental Identity Groups

All people have multi-faceted identities. Different elements of these identities emerge as most relevant in the face of different issues. In discussing yards, rain gardens, rain barrels, and other environmental actions, specific elements of residents' identities jumped to the forefront. These identities – which I call "relevant identities" – determined people's descriptions of the benefits of different environmental actions and programs. These are not generic "environmental identities" – they are rain barrel and rain garden specific. While it is very possible that people's relevant identities would be different even for these two actions, this did not seem to be the case.

Four different "environmental identity groups" can be identified among the 30 residents of the Jane-Finch and Oak Ridges neighborhoods:

1. "NEP" environmentalists
2. "Cost-effective" environmentalists
3. "Good gardeners"
4. "Good homeowners"

Many residents clearly demonstrated their dominant affiliation with one identity group. However, these identity groups were not mutually exclusive, and many residents were also strongly aligned with a secondary identity group. In Table 13 that explores the prevalence of identities across neighborhoods, all residents are allocated 3 points, which may be split between two identity groups.

"New Environmental Paradigm (NEP)" Environmentalists: In accordance with the New Environmental Paradigm, these residents are concerned about the health of the Earth's ecosystems and the well being of future generations. They are interested in practices that contribute to local and global environmental sustainability. During interviews, they were quick to describe their personal environmental actions and convictions. For example, one Moray resident listed off "we have a high efficiency furnace, the water tank, it's electric and I would like to change that, my husband wants to put in geothermal... I didn't know about it... but he knows that's important to me so he was thinking of putting it in, that would be great so we could be off the grid" (OR4). In discussing Lake Wilcox, one Moray resident stated, "I really think it belongs to the wildlife... The wildlife trump everything else as far as I'm concerned". Many also emphasized the importance of promoting and ensuring that

other people in the neighborhood also adopt environmental practices. One Fontainbleu resident explained, "here you're doing all this work to make sure that the kids of the future have a planet to enjoy and live on, and no else is doing it and it's kind of depressing" (OR14). It is worth noting differences in versions of NEP environmentalism between neighborhoods; Fontainbleu residents generally adopted a global environmental perspective, while several Moray residents specifically described the environment in the context of the Lake. Two Jane-Finch residents referred to their affection for local fauna (squirrels, birds, and cats).

NEP environmentalists were in favor of both rain barrels and rain gardens as a result of their benefits in terms for conservation and/or stormwater management. "Rain water, it'll be the next big issue here. Of course we're sitting on the Moraine here and water will always be the issue around here... I know we should all be doing more. I'm a New Zealander and I go down for a month each year... there are such tight water controls, and if you go to Australia they do full greywater conversion... and we do nothing" (OR14). A Moray resident quickly responded, "I think it's a great idea, oh yeah, I'd go for it... for the purposes of conserving water, and yes – especially in this area, there is a great concern that when it overflows, the storm drains close to the Lake... "(OR 3). One Jane-Finch resident even explained her rain barrel ownership as follows: "I have a drum at the back where I collect my rainwater. On a really hot day I use that water to wet the plants because I am a nature person and I like plants... and I feed the squirrels and I like stuff like that" (JF10).

When asked about rain gardens, one Fontainbleu resident responded, "It does strike me as valuable", and described benefits including water usage, "decreasing our environmental footprint", having more attractive gardens, and being more sustainable by "getting sort of a watershed within them" where plants will flourish more in the summer when it's hot and sunny (OR8). Another said, "This is really good, it's so simple... it's basically a catch basin – that's where the water is held... isn't that wonderful" (OR 14). It is worth noting that the "environmental" benefits were mentioned in tandem with the potential benefits of rain garden theory for landscaping.

However, members of the NEP group also had concerns about the effectiveness and usefulness of both rain barrels and rain gardens. A Fontainbleu resident in this group wanted to understand how much difference rain barrels would make in terms of water conservation, and also expressed concern about the unpredictable effects of artificially created rain gardens. She referenced all of the "engineering" things done "with good intentions... without looking at the long-term consequences. Because you might think, okay, you're doing positive engineering that's going to have benefits for the environment, but somehow sometimes things don't work out as planned" (OR 11).

For example, a Moray area member of the NEP group did not see how either rain gardens or rain barrels could address local problems related to runoff, and did not personally water her yard therefore did not see the value of a rain barrel (OR13). "[Rain barrels] would be easily overwhelmed. There's too much rain for rain barrels to be effective" (OR13). The same resident did not have high hopes for rain gardens either, though she stressed the local drainage and flooding problems that occur every spring and whenever it rains heavily.

"Cost-Effective" Environmentalists: These residents are concerned about environmental issues and are interested in adopting environmental actions that are cost-effective. Conservation programs that reduce resource use and save money on water and energy bills are thus appealing. One Fontainbleu resident from this group explained, "I know my husband for sure, if there were economic benefits he'd be out doing it!" A Hoover area resident described their current efforts to save energy and expressed an interest in additional cost-effective programs: "We have a timer on our air conditioner... turn off lights... wash only after 9pm... If there was a neighborhood sustainability plan or program that was helping people save money and be more environmentally friendly... Definitely we would consider it if it were within the realm of what we needed or could use" (JF 5). Two cost-effective environmentalists (both immigrants) also emphasized the importance of not wasting, separately from discussions about financial costs.

Rain barrels offer very clear benefits to cost-effective environmentalists, in that they reduce water bills. A current rain Moray area barrel owner explained her decision to buy her three barrels as follows: "It seemed like the thing to do, it's 'free water'" (OR2). A Hoover area resident expressed great interest in acquiring one: "Beautiful... I think I do like that this year... I pay a lot of money for the water – water is expensive, I pay almost $400 every two years. Beautiful, good idea" (JF 3). A Venetian resident said that rain barrels are a very good idea "to conserve water and to save money on water", explaining that her water bill is going up by 4-5% every six months or so (JF 11). She also emphasized that with kids, saving money is even more important (JF 11).

"Good Gardeners": Many of these residents are lifelong gardeners who enjoy spending multiple hours a day in their yards and are interested in tools or practices that assist with gardening. When asked if he gardens, one Hoover resident said, "I do gardening, oh yeah! Tomatoes, cucumbers, salad, you name it! I'm Italian! (JF 14). One Venetian resident explained her mother's passion for gardening and adoption of good practices: "My mom was the first person on the street to get a compost...she got the compost [in 1996], then other people got it, sometimes they share compost" and explained her actions as "mostly garden-focused, but also environmental" (JF 1).

The same Venetian resident explained that her mother has had a rain barrel for almost ten years "just because it's good to collect water for the garden"; she doesn't like to use too much water, and it's better for the plants (JF 1). A Hoover household resident described how the two rain barrels they acquired last year are convenient for watering – and explained that "it's like there's a rainforest" in their yard in the summer. Several other gardening enthusiasts in the Jane-Finch area were also supportive of rain barrels.

However, three Good Gardeners (two in the Moray area of Oak Ridges and one in the Hoover area) were not convinced that rain barrels would enhance their gardening practices. They viewed rain barrels as unimportant because of their current watering patterns. One resident with a landscaping background stressed that the best way to conserve water is "just don't water" by choosing plants that are drought-tolerant. "The

amount of water I use outside is very insignificant" (OR 12). He also stressed that in the area, "the water table is really high... so high [that] you don't need any of that stuff" (OR 12). "Sometimes for the garden, we only [water with the hose] 4-5 times per year. Sometimes it rains... depends on the weather and season" (JF 14).

Three of the Good Gardeners in the Jane-Finch neighborhood found the concept of rain gardens valuable for increasing water retention. They saw a rain garden's potential to reduce the need for watering, and to increase the health of plants in the hot summer months. "It keeps the water... yeah..." (JF 10). However, questions about effectiveness remained. An Italian with a long gardening history responded to the question of whether a rain garden seemed like a good idea as follows: "Who knows? I've never tried" (JF 14). He expressed an interest in seeing a demonstrating rain garden to evaluate it himself: "Listen, nothing's wrong to go take a look, it doesn't cost us money" (JF 14). However, Good Gardeners were primarily interested in rain garden theory as sometime they could adopt and integrate into their current gardening practices without financial investment. For example, one homeowner from Vietnam with a great love of gardening looked at the picture without reading the text, and said "Beautiful idea – I like that one, that keep[s] water in better... I will try" (JF 3).

"Good Homeowners": These residents emphasize the importance of keeping homes and yards clean and attractive. They are willing to adopt practices that they see as contributing to the quality and value of their home and neighborhood. One Fontainbleu resident explained the importance of landscaping: "We want to improve our property and make our yard nicer, make our place nicer – we'll get to enjoy it and it'll be extra value when we sell it... We'll have flowerpots and try to make it as attractive as can, because we enjoy that. I wish everyone in the neighborhood was like that" (OR 7).

The two people who were exclusively members of the "good homeowners" group expressed the lowest levels of support for rain barrels, and were similarly disinterested in rain gardens. One Fontainbleu resident responded to rain barrels by saying that she is "not very interested... the appearance, the hassle, the space" (OR 9). Another Fontainbleu homeowner expressed a total lack of interest in rain barrels and gardens, then rejected rain gardens with even greater fervor: "I don't care about any of this stuff! I don't care about rain gardens!" (OR 7). However, when he connected rain gardens with a problem in his landscaping, he suddenly expressed interest, describing an indentation where water pools, and asking what he should plant there that would do well (OR 7).

Summary and Discussion of Prevalence of Environmental Identity Groups

As described above, rain barrels were able to offer benefits to members of three of the four identity groups in the two neighborhoods. All three groups included current rain barrel owners, who described their reasons for acquiring them in different ways. Rain barrels also received support from other members of all three of these groups. In contrast, rain gardens only received strong support from members of the NEP identity group, though some gardeners also acknowledged potential benefits.

As displayed in Table 13, NEP environmentalism and "good homeownership" are more commonly found in the Oak Ridges area than in the Jane-Finch area, and are particularly prevalent in the Fontainbleu area. "Good gardening" and "efficiency environmentalism" is more common in the Jane-Finch area than in Oak Ridges as a whole, though all identities are found in all neighborhoods. It is worth noting that these *combinations* of relevant identities were common among individuals in the specified neighborhoods. It is also worth noting that the lack of "good homeowners" in Jane-Finch does not mean that these residents are less interested in the upkeep of their homes; rather, this identity did not feature prominently in their evaluation of rain barrels and gardens. This connects to the Chapter 1 description of individuals having multiple identities that are more or less important in different contexts.

Area	Good gardener	Good homeowner	"Cost-effective" environmentalist	NEP environmentalist	Total
Fontainbleu	2	6	2	11	21
Moray	5	2	7	10	24
Jane-Finch	14	1	20	12	45
Total	**21**	**9**	**29**	**33**	**90**

Table 13: Relevant identities

Section 3: Barriers to Rain Barrels and Rain Gardens

In this section, I describe the diverse barriers to rain gardens and rain barrels. I distinguish between those that differ by neighborhood and those that are common to all. I also seek to distinguish between those that are most and least surmountable, and present them in order of their apparent tractability. I point out that a number of important but not insurmountable barriers appear to be closely related to the identities described above. Table 14 lists barriers and the frequency with which they were mentioned. I also discuss lack of familiarity as a very important barrier to rain gardens in all neighborhoods.

Knowledge

Although it is not featured in Table 14, low familiarity with the concept of rain gardens is a barrier that is common to all neighborhoods. Almost everyone in both neighborhoods was familiar with rain barrels. However, very few people in either neighborhood had heard of rain gardens, and no one had intentionally created one. Two people in the Moray area claimed to know what they were, but proceeded to describe other things. A few others were familiar with the term but did not know what they were, and the vast majority of residents were encountering both the term and the concept for the first time. In addition, it was clear that after looking at the "rain garden overview" (and often also hearing a brief oral description), many people remained somewhat unclear about their purpose.

Even among the few people (all in Oak Ridges, mostly NEP) who rapidly understood the purpose of a rain garden, few residents were ready to go out and invest. For example, one Oak Ridges resident's initial comment on rain gardens were as follows: "What's a rain garden? ... Cool, what a good idea, I've never heard of that. Yeah, okay, I've got no problems

with that." Not surprisingly, when asked about his interest in building one / willingness to pay for one, he responded: "I'd never heard of a rain garden before so you know, how bad do I want one? If it's free, send it in, if I had to pay for it, I'd have to think about it, and it depends on how much work is involved in digging it out" (OR 5).

In contrast, all residents appeared to be familiar with rain barrels, and all residents also seemed aware of their purpose (with all but three acknowledging some benefit). In that sense, knowledge was a limited barrier. However, knowledge may be a barrier in a different sense; in Jane-Finch, concerns about health, safety, mosquitoes and stagnant water may stem from unfamiliarity. In all neighborhoods, lack of familiarity may also have led to concerns about the impact of rain gardens on the foundations of their homes.

Cost

Cost is a barrier that differs by neighborhood and that is closely linked to the "cost-effective" identity group. As shown in Table 14, it was of greatest concern among residents of Jane-Finch neighborhood. "I'm not going to pay $45, that's what I've seen them for!", said one Cost-Effective homeowner – also an NEP environmentalist – from the Venetian area. A Cost-Effective Jane-Finch resident said that she would definitely want two if they were free. When asked if she would pay $20 for a rain barrel, she was undecided: "Well... It's better if it's free" (OR 6). Current rain barrel owners in the Jane-Finch neighborhood also mentioned cost. One cost-effective rain barrel owner – also a Good Gardener – explained how it works well and she like having it, but was mad at her daughter for buying it "because I don't want her to spend the money!" (JF 12). Another described a buried rain garden tank that she had seen priced at $2000, and said "no thank you!" (JF 10). She explained how her "barrels are like $20, they're actually recycled barrels from the factories" (JF 10).

Cost was a factor in one Moray resident's decision to buy a rain barrel, and in another's decision not to. One resident said, "They're expensive! I haven't seen one under $75" (OR 13). Another said, "I lined up for one because they were on sale for like $25" (OR 4). She said ruefully of rain gardens and rain barrels, "With any type of environment thing, everything has its price tag and it's always higher than the mainstream" (OR 4).

Appearance

Appearance is another barrier that varies by neighborhood, and appears closely linked to the Good Homeowner identity group. Appearance of rain barrels was discussed by several Fontainbleu residents and by one Moray resident. One Fontainbleu resident who owned a terra cotta style rain barrel (but had not yet used it) explained that he drove over 40 minutes away to purchase the attractive one that his neighbor owned. He said, "Lee Valley is very functional, they have very functional ones, not necessarily ones I'd put in my back yard" (OR 8). The other Fontainbleu rain barrel owners bought a plastic barrel and painted it. "It's the same color as the house, when it's up it just disappears. And when there are bushes in front of it it'll be a little better. Every time I was out on the yard and someone walked by, they always asked, "where did you get your rain barrel" (OR 14). She further commented that they seemed deterred by the effort required. Appearance was not mentioned as a barrier by Jane-Finch homeowners.

Use or Maintenance

In all neighborhoods, residents described use or maintenance of rain gardens and rain barrels as a barrier. However, there were different reasons underlying it, with different tractability. Moray and Fontainbleu homeowners primarily emphasized that they have limited time for gardening, and / or don't enjoy it. "More work and more maintenance, that would be the only downside", said one fairly supportive Fontainbleu NEP environmentalist (OR6). They described their efforts to do landscaping that is low-maintenance and attractive, and were open to "free and magically appearing" rain gardens. One Moray homeowner was not particularly excited about them, explaining, "This one, you have to do stuff. And I'm not the do-stuff kind of person to be outside" (OR4). However, she said, "If it's free and there, I'd take care of it. If I inherited it...!" This barrier seems possible to overcome by increasing awareness of rain gardens as attractive, low maintenance options.

In contrast, the two homeowners in Jane-Finch who were primarily concerned about maintenance were in their 60's or older. They were either unwilling or physically unable to garden on a regular basis, and were not open to "free" rain gardens appearing in their yards due to the ongoing maintenance requirements. One had no use for a rain barrel either, though the other was interested in acquiring two of them. As described above, some gardeners emphasized that they water extremely infrequently. Finally, rain barrels are less appealing to residents who have invested in automatic sprinkler systems for their gardens. These barriers would be more difficult to overcome.

Space and Current Use of Yards

In both neighborhoods, residents described physical space and current uses as primary barriers to rain gardens. The prevalence of these factors was consistent across the two neighborhoods, though the specifics varied. Many were concerned about the small size of their yards. Several wanted to maintain a significant amount of space for grass, decks, pools, barbecuing or other uses. One Jane-Finch resident quickly said, "I can't put this one" because of the small size of her yard (JF 12). Another asked, "Does it take away from the lawn?" and emphasized any loss of lawn as a problem. A Fontainbleu resident explained that even if there were no cost or time required, she wouldn't be interested: "I don't know how you'd fit that with a deck and be able to keep the grass for the kids to play on" (OR 9).

People with young children were particularly interested in maintaining grass for games, and kids and dogs were both viewed as a "risk" to any delicate and wet landscaping feature. One Jane-Finch resident with five children described how she "wants [her yard] to be as much grass as possible for the stage we're at... for baseball and soccer and tag and everything else" (JF 8). A Moray resident stated, "My yard's not big enough... and the dog would dig it up. Once my dog dug up the lawn and it cost me $200 for new topsoil and to replant the grass! ... They'd have to pay me a lot to put one of those in" (OR16).

A few residents of Fontainbleu viewed landscaping as a one-time thing, and described their yards as already fully landscaped (OR8, 15). Landscaping preferences were also a barrier in Jane-Finch , where two residents described their desire for a patch of grass ringed by plants (JF 10, 6). "You see I plant stuff around my house... and then in the middle is lawn... It's okay, but as I say, I believe it's for the middle. And it's for a really big yard" (JF10).

Buildings and Geophysical Conditions

In all neighborhoods, local soils, hydrology and building characteristics caused residents to question the feasibility and relevance of rain barrels and rain gardens. The issues they raised were site-specific and significant. In Fontainbleu, clay soils were described as an issue for rain gardens. "We're on very heavy clay area here, you only go down about 6-8 inches and you're in heavy, heavy clay" (OR 8). The other thing – the soil here is quite clayish, so it's not going to absorb (OR 9). "You've got anywhere from an inch to a foot of topsoil on top of the sand. Under the sand there's a layer of clay" (OR 5).

One resident of the Moray area questioned how rain gardens would work in the very sandy soils that they have (OR 12). As described earlier, the high water table in the Moray area was also a factor that led to questions about effectiveness and usefulness of rain gardens and rain barrels. A Jane-Finch described the challenges of the high stone content in their soil: "You see a lot of the soil here too is stone on it, apparently they never put in topsoil when they did construction. So when I planted, I had to get a lot of that stone out, and it was a lot of work to get a lot of that stone out" (OR 10). Finally, several residents in Jane-Finch had downspouts at the side of their house, leaving little room for rain gardens, though some still viewed rain barrels as a possibility. These barriers do not appear tied to identity groups; rather, they are site-specific and seem relatively intractable.

	Rain barrel barriers	**Rain garden barriers**
Fontainbleu	Space / size (2) Hassle (2) Appearance (2) Effectiveness (1) Gardening / watering habits (1) Kids (1)	Yard already planned (2) Concern about foundations (2) Maintenance (1) Effectiveness (1) Space / size (1) Appearance (1) Kids (1)
Moray	Effectiveness (3) Gardening / watering habits (3) Cost (1) Downspout set-up (1) Stagnant water / Mosquitoes (1)	Water table / soil (2) Effectiveness (2) Maintenance (2) Kids / Dog (2) Space / size (1) Concern about foundations (1) Cost (1)
Jane-Finch	Stagnant water / Mosquitoes (3) Gardening / watering habits (3) Safety (2) Cost (2) Downspout set-up (1) Space / size (1) Hassle (1) Not allowed (1)	Loss of grass (2) Space / size (2) Kids (2) Maintenance (2) Concern about foundations (1) Cost (1) Downspout set-up (2)

Table 14:Described barriers to rain barrels and rain gardens

Summary and Discussion of Barriers

Overall, barriers to rain barrels and rain gardens appeared to be equally significant in affecting people's current willingness to implement them. For both rain gardens and rain barrels, seven of those who saw some benefits to them were not willing to accept "free, magically appearing" ones. However, the barriers appeared to be of different tractability. Among the seven not interested in free rain barrels, only two or three of them presented intractable barriers (physical set-up of downspout, old age, plus the combined barrier of "hassle and space"). Three of the other four others described concerns about stagnant water or safety that appeared fairly simple to overcome, and the fourth was unsure of whether the water conservation benefits outweighed the hassle. In contrast, six of the seven who were uninterested in free rain gardens highlighted apparently intractable issues related to space and use of their yards (described above). In addition, four of the ten people who did not recognize any rain garden benefits went on to point out that rain gardens would be unfeasible due to the current uses of their yards (similar space and lifestyle constraints). In contrast, only one of the four who did not recognize rain barrels benefits described a large barrier (an automatic sprinkler system). I suggest that rain gardens are more likely than barrels to require important "sacrifices" – of lawn, deck space or dog run.

Section 4: "Explaining" the Prevalence of Relevant Identities

In this section, I suggest that four factors influence the prevalence of environmentalism and other relevant identities in the three neighborhoods:

- Country of birth / upbringing
- Education / socio-economic status
- Physical and cultural surroundings
- Influence of someone close

I suggest that the first two are of primary importance. However, the second two also appear to have the potential to lead to changes.

Country of Origin

Country of origin emerged as an important determinant of environmental identity, particularly among Jane-Finch residents. Many simply were not familiar with the idea of environmentalism as used in North America. Five of the fifteen interviewees were not familiar with the term "environmentally conscious", and as described in Section 1, did not recognize the idea of environmentalism after it was briefly described. These people were primarily immigrants for whom English was not a first language.

Many Jane-Finch immigrants nonetheless bring efficiency environmentalism from their home countries, focusing on the financial and practical reasons for not wasting. "In the Philippines, people have a very hard time with water... When the rain comes, everyone collects it in pails to save it! ... It's a big thing, everyone gets water!" (JF 6) "Coming from Pakistan there's so much recycling and reuse of things... we don't throw anything away, so it's coming from that attitude" (JF1). However, it is not surprising that this value remains disconnected from a concern about global issues such as climate change, erosion, or habitat destruction. Finally, significant numbers of Jane-Finch immigrants traced their interest in gardening to their home countries. Gardening-focused residents of other neighborhoods

also mentioned the important role of their upbringing in spurring their focus on gardening. "My husband and I have always gardened, even when he was a young fellow helping his parents, and myself also" (JF5).

Education and socio-economic status

Education and socio-economic status also seem to play an important role in the higher prevalence of environmentalists in Fontainbleu. Many studies have shown a positive relationship between education level and awareness of environmental problems / NEP identification (Kollmus and Agyeman 2001). As discussed in Chapter 2, Fontainbleu residents had higher levels of post-secondary education than other neighborhoods. Fontainbleu residents also have the highest income levels, which has also been tied to environmental attitudes. In contrast, interviews provide reason to believe that financial issues are of great concern to many Jane-Finch homeowners; this may decrease residents' likelihood of spending time or money on being environmentally oriented.

Physical and cultural surroundings

As described in Section 2, neighborhood appeared to be strongly correlated with identities. Environmentalists were concentrated in Oak Ridges while cost-effective environmentalists and gardeners were concentrated in Jane-Finch. However, it is difficult to separate neighborhood influence from other variables linked to neighborhood choice. As discussed in Chapter 4, many homeowners seem to have chosen the Moray neighborhood because it matched their identity. Nonetheless, I suggest that a neighborhood's physical and cultural surroundings can play a role in gradually shaping identity – particularly when a neighborhood exposes people to new experiences. For example, the culture of environmentalism in Moray was often described in connection with Lake Wilcox. As discussed in Chapter 4, residents demonstrated an in-depth understanding of the issues of stormwater runoff and eutrophication as a result of having witnessed the degradation of the Lake. One Moray resident described the related evolution of gardening practices in the area. "A lot of people have naturalized front yards. They're not watering their front yards, they're letting it die off. My next-door neighbor who used to be so meticulous about her garden has let it go a little more natural... let it dry... You can see people are more environmentally conscious, they're not out there weed controlling and spraying for bugs" (OR13). She attributed this change to the influence of the many landscapers who live on the street; to the education and sales programs of the Town and landscapers; and to people's experiences with the degradation and attempted restoration of Lake Wilcox. However, I do not suggest that people adopt new identities rapidly as a result of the neighborhood in which they live.

Influence of someone close

The final thing that seems to affect identity is the influence of very close friends and family – particularly children. One Fontainbleu described her daughter's influence on the environmental identity that she brought from her home country. "When we came, she was around 4 or 5, and she has always been interested in recycling. I used to laugh at her, and say, 'Nigerians don't recycle', but she kept on the issue, and we made different changes" (OR 11). Numerous studies conclude that children often influence their parents' environmental attitudes and behaviors (Duvall and Zint 2007).

Section 5: Social Norms and Social Diffusion

My ability to draw conclusions on social norms and social diffusion related to rain barrels and rain gardens is very limited. Nonetheless, it is worth making a few comments based on interview data. First, three of the nine current rain barrel owners described that others within their close network had been directly influential in their decision to buy one. One mentioned that her father had always had a rain barrel, the second described seeing a barrel while visiting a neighbor, and the third had actually received the barrel from her daughter as a gift. A fourth resident expressed an intention to buy one and mentioned that she would seek guidance from a friend who already uses one. These four instances of diffusion are all linked to strong social ties. At the same time, three other people mentioned that their parents had owned rain barrels, though they had not followed suit.

It is also worth mentioning the different levels of awareness regarding rain barrel ownership in the neighborhood. In Moray, all residents were able to point out one or more people on the street who owned a rain barrel. Many mentioned the house on the corner next to the mailbox; some named another person. However, their support for rain barrels did not seem linked to this awareness of local ownership, and there was only statement that people *should* harvest rainwater. "That's really good – they should get people to do that", said one Moray resident (OR1). In other neighborhoods, fewer people were able to identify others on the street that owned rain barrels. In Fontainbleu, both rain barrel owners and non-owners expressed their sense that rain barrels are not very common in the neighborhood. For example, one said, "I know people who have them but not in this neighborhood, I don't think I've seen them in this neighborhood. It's not something that's been promoted or encouraged, but I've seen them. Downtown you see more of that" (OR6). Two current rain barrel owners (in Moray and Fontainbleu) described how people inquire about their rain barrel. "Yeah, they ask about them, they want them too... I think others will get them" (OR5).

Overall, strong ties appear influential in actually motivating the purchase of rain barrels. Weak ties and neighborhood visibility also seem important for introducing people to rain barrels as "something that someone in their neighborhood might do". This is particularly true in Fontainbleu, where, as discussed in Chapter 4, collective norms regarding landscaping seem stronger. At the same time, the low levels of rain barrel ownership appear to preclude any sense of normative pressure. Rain gardens are not currently amenable to social diffusion or normative pressure given that no one was familiar with them and many appeared not to understand their purpose.

Chapter 4: Neighborhood Priorities for Long-Term Sustainability

In this chapter, I discuss the three neighborhoods in the context of long-term sustainability as defined by Figure 2. In Section 1, I present the issues related to economic vitality, environmental integrity and socio-cultural wellbeing that homeowners identified as priorities for neighborhood sustainability. Rather than attempt to assess sustainability using outside data, I follow the sustainable communities literature in presuming that residents of the neighborhoods know best. (A caveat to this section is that residents were not presented with Figure 2 as a definition of "sustainability".) In Section 2, I use data from interviews to characterize social capital in each neighborhood. In Section 3, I explore the trends in homeowners' priorities identified for sustainability.

I highlight the following findings:

- In all three neighborhoods, residents' priorities connect most closely with sociocultural wellbeing. These issues can be considered central to long-term sustainability as they affect residents' daily lives, and also have environmental and economic implications.
- The three neighborhoods have varying levels of social ties, collective norms, reciprocity, and neighborhood identity. However, they are alike in lacking the collective efficacy, neighborhood institutions, and linkages with external support networks that are important for progress towards long-term sustainability.
- Individual-level efforts have a very limited role to play in addressing neighborhood sustainability priorities. In all three neighborhoods, progress can be seen to require action at or beyond the neighborhood scale.

Section 1: Priorities for Long-Term Sustainability

In all three neighborhoods, a significant proportion of homeowners emphasized similar priorities for sustainability. As demonstrated in Table 15, the majority of Fontainbleu residents were concerned about the inadequacy of transportation options and local amenities. This deficit has clear impacts on the environmental dimension of neighborhood sustainability. As described below, it also reduces socio-cultural wellbeing. Moray residents' concerns about Lake Wilcox and recreation link to both environmental integrity and to socio-cultural wellbeing. In Jane-Finch, residents' emphasis on the need to improve the neighborhood's reputation was primarily discussed in reference to sociocultural wellbeing, though economic vitality and ecological integrity may be linked. Finally, in all neighborhoods, energy was discussed in the context of economic vitality and/or resource consumption.

It is a noteworthy trend – and not a surprising one – that people's top priorities for neighborhood sustainability relate to aspects of the neighborhood that they experience on a day-to-day basis. Further research is needed to confirm the idea of "shared neighborhood sustainability priorities" and to assess if renters share homeowners' views.

Area	Lake Wilcox / Black Creek	Neighborhood reputation	Local amenities and transportation	Growth / density	Safety	Total residents
Fontainbleu	0	-	6	2	1	7
Moray	6	-	2	4	-	8
Jane-Finch	0	8	1	4	5	15

Table 15: Sustainability priorities (discussed by >1/3 of residents in at least one neighborhood)

Fontainbleu

Transportation infrastructure and local amenities were the dominant concern in Fontainbleu. They were often discussed in tandem with the issue of future growth.

Six of the seven Fontainbleu area homeowners described the disadvantage of living in a community far from amenities with minimal transportation options. They emphasized the significant distance to the nearest bus stop, and the lack of sidewalks on the route there. "You can't walk anywhere because there aren't sidewalks on Bloomington" (OR 9). One resident described the danger of nannies and high school kids walking along the side of Bloomington road where people drive 80 or 90 km/hr (OR8). Another explained how she always has to pick her children up by car because, despite the "excellent" public transport system in York Region, "you can't take a bus or get home along Bloomington because there is no sidewalk" (OR 11). Connected to this issue, two residents discussed how the inadequacy of transportation options negatively impacts young people's independence (OR 8, 11).

All six indicated that the need to drive everywhere negatively impacts their quality of life (socio-cultural wellbeing). Residents lamented their inability to walk to a store for food. "You have to drive everywhere, there is nowhere you could go to pick up small groceries" (OR 9). "You're out in nowhere land, there's nowhere to go. You really have to think each time you go to your car, where am I going to go, what do I need, where should I go for bread today, [because] it is a good 4-5 miles away" (OR 14). Another said, "I would love to walk to a grocery store. I don't expect a main street area... But I would like to be close enough to take the dog for a walk and get a slush in the summer or pick up some apples" (OR 8).

Three also mentioned current and anticipated traffic problems at the single intersection connecting them to the outside world. They highlighted the difficulty of turning onto Bloomington without stoplights whenever leaving the community, and described having to wait ten or fifteen minutes to exit at rush hour (OR 6, 8, 14). This hyper-local transportation issue was also linked to concerns about the development of additional housing in the neighborhood. Residents were worried that this problem would get much worse because of hundreds of new townhouses being built without new transportation infrastructure. "There are a lot of homes going in a very small amount of acreage. If the infrastructure is there to handle the growth, it's wonderful, but if the growth stops us dead in our tracks in our lifestyle, nothing works" (OR 14). While only two of the seven

Fontainbleu residents touched on the issue of new housing developments, it can be safely concluded that their concerns are shared by an unknown number of other residents who recently organized to oppose a development. This effort is discussed in Section 2.

The concern about the new townhouses was severely compounded by their feeling of powerlessness, and by their inability to access information about the future of their community. "The City won't tell us what the plans are... We are completely in the dark..." (OR 14). "They don't keep us informed at all" (OR8). One resident described the Town of Richmond Hill's unwillingness to commit to anything because the townhouses are being built in stages, 40 or 50 at a time, but that the ultimate plans may actually include 800 to 900 new townhouses (OR 8).

Residents were clear about the infrastructural solutions: building a sidewalk, creating a bus stop near the community with regular bus service, developing a new intersection with Bloomington Road, and/or putting lights at the current intersection. However, they did not sense that there was much they could do, nor did they articulate a vision of what the neighborhood might look like with more local amenities.

In summary, residents raised concerns about the following:
- The safety of those who are forced to walk to the community without sidewalks,
- The hassle of being obliged to pick up children everywhere – and their childrens' resultant inability to develop a sense of independence,
- The disadvantage of having to drive to purchase anything,
- The current traffic problems,
- The threat of increased traffic and other problems related to future housing development.

These concerns most clearly link to sociocultural wellbeing. However, the lack of non-car alternatives also has a significant impact on environmental integrity, as residents are nearly incapable of reducing their vehicle miles traveled and transportation-related emissions. As discussed in Sections 2 and 3, these issues are linked to neighborhood identity and collective efficacy.

Moray

In the Moray neighborhood, the physical state and recreational uses of Lake Wilcox emerged as residents' clear priority. Half of residents expressed some concerns about the impacts of growth and development on sociocultural wellbeing. Drainage (water flow) was a secondary issue that threatened individuals' properties, though few homeowners emphasized it as a concern for collective sustainability.

Six of the eight residents of the Moray area quickly jumped to the problems with Lake Wilcox, and emphasized the importance of "fixing up the Lake". Almost all of them described their sadness at not being able to swim in the Lake anymore or use it the way they used to. All six also condemned the recent attempts at shoreline naturalization. One well-connected resident boldly stated, "Nobody likes what they did to the shoreline" (OR2). According to another:

> We used to go the Lake all the time and swim in it for the first two years, but you can't swim in it now. I don't care to take the kids down there and tell them they can't

> go in... It's a great thing [to have in the neighborhood] but right now it's such a mess, you can't even walk along the beach because of the way they have it all torn up (OR 12).

One resident described how people could walk along the water and swim before they tried to bring it "back to nature", stating: "In my opinion, they ruined it!" (OR16) Even the resident who felt that the Lake should be for wildlife rather than for human use condemned the recent naturalization efforts: "Their idea of naturalizing the shoreline was ripping up the trees that had been there for many, many years and formed habitat for quite a few species, and just leaving it as rubble to decompose. Even the geese can't walk there it's that rugged!" (OR13) Finally, one resident questioned the ecological legitimacy of the shoreline modifications efforts. She emphasized that, according to long-time Oak Ridges residents, Lake Wilcox never used to look like it does now post-"naturalization" (OR3).

Five Moray residents clearly emphasized the importance of enhancing recreational opportunities around Lake Wilcox and local parks and trails. "Residents don't want to go there anymore, it's such a shame" (OR3). One resident mourned the loss of opportunities for dirt biking and windsurfing (OR16). Even the most ecocentric resident looked at the diagram and stated, "I'd like to see recreational use written in here, not just 'culture'" (OR13). She discussed how they used to host events in the area, including a Canada Day swim, canoe regatta, concerts and fireworks, but that everything is now held in a more central location. She highlighted the need for a boardwalk around Lake Wilcox, and described how "the fact that [the area] wasn't policed very well meant that there were a lot of opportunities for recreation... they used to ride horses through there, it was great!" (OR 13). Many residents expressed excitement about future opportunities for local recreation associated with the "green" community centre that is under construction.

Four residents of the Moray area also expressed concern about growth and development in the area. One resident described how there was less pressure in day-to-day living without being "around a zillion people... It's not what it used to be... It was just all bush when I moved in, all trees, that's what I like" (OR 12). Another said, "It used to be waking up to the sound of birds, now it's the sound of traffic. I'm not a city person. If I were to move again I'd move further out, so you don't have to deal with the day-to-day buzz of traffic..." (OR 13). In contrast, one resident described his support for new developments, as they would increase his property value; at the same time he blamed housing development for the water quality issues in the Lake (OR16).

The two Moray residents concerned with "transportation" emphasized hyper-local issues related to growth and development, as had Fontainbleu homeowners. They mentioned their inability to park on their street on summer weekends when non-residents flock to their park and Lake. "You can't get near your own lake now on the weekend in the summer!" said one resident (OR 13). Another also mentioned overcrowding of the park and suggested, "Let's make it a little bigger so we can enjoy it too... It's not that we don't want them to come, but make room for all. They're definitely welcome, better to have everyone get along, the more the merrier right?"

Finally, seven of the eight residents of the Moray area described problems with water flows on their properties and on the street. They explained that many of these problems stem from the haphazard construction and renovation of houses at different times; many also emphasized that numerous properties do not conform to building codes. According to one resident, the older houses are graded from front to back, while the newer ones are graded from back to front; one of his neighbors was required to put in a cistern after inadvertently flooding his garage (OR 16). Another resident described how houses around hers are illegally raised and create flooding problems all along one side of her property. She also emphasized that the Town has not monitored the removal of septic tanks, the maintenance of cisterns and weeping tiles, or the use of mandatory active pumping systems. "They're trying to get things looked after on an infill basis with no enforcement and no follow-up" (OR 13). In addition to concerns about property damage, two residents mentioned mold problems related to water flows.

The majority vision regarding the Lake was clear: "Bring back the fun. Bring back the beach, bring back the fishing...It's all nice to naturalize, but people exist here... It's a huge asset – one of the best attractions – it could bring residents together" (OR3). However, there was less of a clear vision regarding growth, perhaps related to residents' feelings of powerlessness. "The summer before last there were 5000 houses put up within a mile of here. That's scary. But, what do you do?" (Or12). "What can you do, it's growth," said another (OR4). Residents also lacked ideas for improving lot-level drainage and reducing flood concerns: "...we need something here. I don't know what will work with the ragtag bunch of housing that we have here" (OR13). (She did not think that rain gardens or rain barrels were the answer.)

In summary, residents raised the following concerns:

- Lake Wilcox can no longer be used how it should be (and was in the past). Other local opportunities for recreation have also been lost or threatened.
- The increase in population and in traffic has directly impacted quality of life (e.g. noise, lack of trees, large crowds at the park, inadequate parking infrastructure).
- Because of inadequate stormwater infrastructure, inconsistent land grading and nonconformity with current building codes, local water flows pose a risk to many homes.

Again, these concerns most closely link to sociocultural wellbeing. There is a clear synergy with ecological integrity in the desire for water quality improvements in Lake Wilcox. However, there may be a conflict between ecological integrity and sociocultural wellbeing in residents' desire to return the Lake to its former recreational uses. The question of what "environmental integrity" would look like for Lake Wilcox is clearly subject to discussion, as demonstrated by the comment about the Lake's historical shoreline. Concerns about the new housing developments are described in association with decreases in sociocultural wellbeing and environmental integrity. Only one resident mentioned an associated increase in economic vitality (though for the Town of Richmond Hill, economic vitality is clearly linked to the new developments). Finally, concerns about drainage are linked to individual economic vitality, with health considerations related to mold. As discussed in Section 2, concerns about recreation, the Lake, and the neighborhood's rapid growth tie to the strong sense of neighborhood identity. The links between the above-mentioned issues and collective efficacy are discussed in Section 3.

Jane-Finch

Homeowners in the Jane-Finch neighborhood expressed greatest concern about the neighborhood's negative reputation. Concerns related to safety and high-rise apartment buildings were also top priorities for several people, and were often discussed in connection with the neighborhood's stigma.

The eight homeowners who were unhappy with the area's reputation generally emphasized this problem early in the interview. "It's obviously stigmatized..." began one Venetian resident (JF1). Another resident stated, "it's very difficult to remove the stigma" (JF11). She explained that the name Jane-Finch is on the news all the time, but that it is attached to negative events that occur in neighborhoods that are quite far away. In addition, two residents of the Venetian area declined to be interviewed because they did not see any need for any type of neighborhood improvement; they emphasized (through their doorways) that they live in a great neighborhood with a bad reputation.

A Hoover homeowner described the issue as follows:

> People have this image of Jane and Finch, 'Why would you live there? Don't go there'... The first time they come to visit us they come on our street and say 'But it's so nice, the houses are so lovely, I can actually get out of my car!' It's stereotyped... (JF8).

Another resident echoed closely: "They might want to improve the negative opinion and perception that most people have when they hear the term Jane and Finch... I have a lot of friends and their personal belief is that if they step off the bus and they are of a certain race, they will get shot" (JF 15). A lifelong Venetian area resident described how she often misleads people about where she lives – not because she is actually ashamed of her neighborhood, but because she would rather "avoid the conversation" about the neighborhood and its reputation (JF1).

Almost all residents also felt the need to address the issue of safety, often in tandem with the issue of the neighborhood's reputation. Residents seemed to have mixed feelings about safety, acknowledging crime as an ongoing problem that needs attention, but emphasizing the improvements in recent years. Many described their personal feeling of safety. "I feel safer here at night than other places... you know, whatever you're used to" (JF 1). One Hoover resident stated that, as a hospital worker, she comes home after midnight and "it's very safe, I walk from the bus stop to home and have never had a problem... they make sure that people aren't lingering on the streets at night... they really monitor" (JF 10). Three Venetian resident stated that there is crime, but that they have not personally experienced it – and that there is crime everywhere (JF 1, 6, 11). Five people did emphasize safety-related concerns. Two described specific issues: waiting at the bus stop in the early morning and inadequate fences to prevent backyard intruders. Three referred to the need to make people *feel* safer, and one resident suggested that many people believe that safety decreases with proximity to the high-rise social housing buildings (JF15).

The issue of density and public housing was of explicit concern for four residents in the neighborhood. The two in the Hoover area both linked density to the high car insurance rates that unfairly penalize the neighborhoods residents (JF 5, 72). The two in Venetian had

other concerns about the effect of density on the neighborhood, and pointed out the high-rise social housing building right behind their backyards. One described it as follows:

> This one behind us is terrible, it's social housing. I have my theories on community housing, I think you should give people the power to choose where they want to live. It's like the broken window theory, I don't think that people want to live there...

It is worth noting that "agreement" on neighborhood priorities was lower in Jane-Finch than in other neighborhoods. In fact, three residents did not identify any issues with the neighborhood. Nor was there a uniform vision for changing the neighborhood's reputation. Two described the potential of neighborhood festivals, events or concerts: "Like how they have it downtown at Jarvis, City Hall, the Beaches... There are different parks in the neighborhood where you have to introduce people to the area and show people that the area is crime free... Bring things like that here, put one in the park, have a little music..." (JF10). Two pointed towards the need for the revitalization of public housing. "I don't know what it would take to revitalize the social housing, maybe make it more attractive or more mixed, but I don't think it's in good condition... But then there's gentrification too, I don't want people to be displaced either" (JF 1). Five also expressed the potential benefits of streetscape beautification and/or litter reduction.

In summary, residents raised the following concerns:

- The neighborhood is unfairly stigmatized.
- The neighborhood's reputation is linked to concerns about safety and public housing (that a few residents feel are justified, but that most homeowners feel are unjustified).

Concerns about the neighborhood reputation are most closely linked to residents' sociocultural wellbeing. Residents do not mention the impact of reputation on economic vitality or on ecological integrity. However, their suggestions for improving the neighborhood's reputation suggest that there could be gains in these two areas; public sector investment in streetscape beautification could increase ecological integrity, and festivals or events for residents and visitors alike could contribute to economic vitality. Renovating public housing (and potentially creating mixed-income housing) could increase economic vitality and sociocultural wellbeing as long as concerns about displacement were addressed. The connections of these issues to place-based identity and to social ties are described in Section 3. However, for Jane-Finch in particular, it is important to remember that homeowners' priorities for long-term sustainability may not align with those of other neighborhood residents.

Unifying Interest: Energy and Green Buildings

Thirteen residents, distributed across all neighborhoods, described an interest in green buildings and energy for long-term sustainability. For some residents (particularly those facing financial difficulties) the cost of energy is an important economic issue. One Venetian resident emphasized that "energy is very expensive, and it's getting more expensive" (JF12). She was very troubled by the inexplicable increase in her energy bills, despite the fact that she only uses one light bulb at a time: "I make the money, then I pay bills, and sometimes my money is finished" (JF 12). A Moray resident also emphasized the economic importance of energy and green buildings. "Our energy bill is $400 every couple of months... I want to put windmills up, because energy is highway robbery!" (OR 12).

For those not under financial duress, energy efficiency and renewable energy projects are also attractive. For some, the environmental benefits dominate. One Fontainbleu resident emphasized the need for more green buildings, as they are "sorely lacking in Canada. Considering the environmental impact, there is a lot more we could be doing... We should have solar panels. Half of my house is south facing... Every building should be littered with solar panels" (OR 8). A Venetian resident also highlighted green buildings outside of the economic context, saying "I'm all for solar powered everything, that kind of stuff... Solar panels on roofs of schools, I'm all for that" (JF1). Another Venetian resident strongly suggested solar panel or solar-heated water demonstration projects, and a Hoover resident expressed great interest in learning more about using "the power of the sun" for "free energy, free electricity" (JF 9, 15).

Many Oak Ridges residents praised the fact that the new community centre by the Lake will be a green building (LEED certified). Three Fontainbleu residents emphasized the poor environmental performance of most new homes (including their own). They focused on the responsibility of the Town and of developer to ensure that new developments are "green". One Fontainbleu homeowner scorned the fact that the Town's new standards for building envelope will not apply to the dozens of developments with outstanding permit applications (OR14). There is also evidence that residents in all neighborhoods are aware of energy efficiency programs and have taken action in the past. Many described using rebate programs to change furnaces and water heaters, and almost all have converted some or all of their lights to high-efficiency bulbs.

Promoting energy efficiency, renewable energy and green buildings can contribute to economic vitality while reducing energy use and decreasing carbon dioxide emissions. Neighborhood green buildings and renewable energy projects also have the potential to contribute to sociocultural wellbeing; they can increase residents' knowledge and skills, generate enthusiasm, and enhance the sense of neighborhood identity.

It is worth noting that neighborhood "sustainability themes" related to environmental integrity generally received greatest support when closely connected to issues of local relevance. No one expressed any interest in "integrated waste management" as presented on the diagram in Appendix B. However, several Jane-Finch residents moved from the diagram to emphasize the local issues of litter reduction and neighborhood beautification. As described earlier, water flows were a key local issue in Moray due to concerns about the Lake and local flooding.

Area	Water flows	Water use	Energy and green buildings	Litter / beautification	Integrated waste management	Natural heritage	Total
Fontainbleu	3	2	5	-	0	1	7
Moray	7	3	4	-	0	3	8
Jane-Finch	1	5	7	5	0	2	15

Table 16: Environmental integrity (highest and lowest priorities)

Section 2: The Strength of Neighborhood Capital

This section describes the apparent strength of social capital in the three neighborhoods. For each neighborhood, I begin by discussing the elements that indirectly support long-term sustainability: weak ties, strong ties, collective norms and reciprocity. I specifically consider social ties and norms related to landscapes and gardening, as these relate to rain barrels and rain gardens. I then discuss the elements of social capital that can be viewed as more integral parts of neighborhood sustainability: neighborhood identity, collective efficacy, neighborhood institutions and network capacity. Where relevant, I explore connections with neighborhood sustainability priorities. I point out that in all three neighborhoods, there are notable weaknesses in collective efficacy, neighborhood institutions and linkages. The elements of social capital are compared across neighborhoods in Table 17. However, the accuracy of this characterization is limited by my methodology. (I did not use network interviews or other relevant interview techniques.)

Fontainbleu

In the Fontainbleu neighborhood, weak ties are abundant. However, there was no evidence of strong ties or reciprocity within the neighborhood. There appear to be strong collective norms related to the community's appearance. Residents also suggested a moderate sense of neighborhood identity, weak collective efficacy, and weak neighborhood institutions.

Ties, Reciprocity and Norms

When asked about social interactions in the neighborhood, most mentioned casual interactions. One resident who had lived there for the full six years of the development's existence said, "While we are social, we still haven't met all the neighbors... A lot of people walk around here when the weather is reasonable, so we get to meet people that way". Parents and dog owners described feeling more connected. One resident mentioned that she enjoys having other young families in the neighborhood and generally sees them at the park: "The park keeps people there and you get to know the neighbors. I really like the people in the neighborhood" (OR 9). Another said, "We own a dog. When you own a dog, you get to meet people, when you don't own a dog, you don't get to meet a soul" (OR14). She then joked that other dog owners know their dog, though they don't know them, and stated, "If you don't get out into the community, the community won't come to you". However, two described it favorably to past neighborhoods. For example, "Meeting people is easier to do here than in Bolton, and also a lot easier in the summer. It's really just about getting out and saying 'hi'" (JF 15).

None mentioned strong ties or friendships with neighborhood residents. In addition, no one volunteered information that would suggest the existence of reciprocity. To the contrary, one suggested feeling a lack of support networks within the neighborhood: "The onus is on you as a resident to get involved – and the ownership of each problem, you're on your own too. What might be a concern of yours might not be a concern of the house four doors down, so anything, you're on your own" (OR 14).

There appear to be strong normative pressure to conform to certain aesthetic standards for landscaping. People seem to care about their own yards, and about the yards of others.

"This community does take a lot of pride in its appearance", said one (OR8). Several homeowners described attempts to influence their neighbors practices. For example, one said, "Mine's well landscaped... My neighbor, zero. It's pathetic... he's done nothing, he's been promising for four years that he would landscape... he wants to put in a pool and I've discouraged him" (OR6). Others discussed casual interactions related to choosing and purchasing fences. One of the two rain barrel owners had purchased his after seeing a neighbor's while the other mentioned that people often saw theirs and asked about it (though they now have a fence and shrubs blocking it from view). No one described gardening as a social activity.

Identity, Efficacy and Institutions

In Fontainbleu, informal neighborhood institutions exist. When asked about neighborhood organizations and interactions, all residents mentioned an annual street party organized by a committee of residents. "Everyone pitches in for a pot luck... it's a big party and lots of people together, and it's everyone – not just men drinking, there's entertainment for the kids, lots of socializing and interaction between the neighbors" (OR6). Another explained the governance structure as follows: "There's a group but it's not formal. It's a social group... They've been in the community a lot longer and they sort of rally it, so that there is sort of a neighborhood watch, and by that participation..." (OR14). One resident described how kids generally organize a clean-up event each year. "It's not formalized in any way. I guess one of the kids does it for a school project, and then the parents email, and we all get up and do it because we like the neighborhood" (OR8).

Two also described an informal organization that opposed a recent development on the hill overlooking their community. "Another gentleman who had the issue at the top of the street, he sort of created a group of gentlemen who were watching what town council was doing" (OR 14). A different resident explained in greater detail how the group had organized to ensure that large trees were planted to shield them from the new development overlooking their backyards (OR8). Apparently, their effort yielded only limited success (OR8). The consultant leading the group "knows the maneuvers, has lawyers on call; he sort of rallied the troops and got the rest of us involved" (OR8).

These more or less formal institutions seem to create some sense of collective efficacy; they have demonstrated that, together, they can maintain and enhance the neighborhood's appearance and cohesion. However, the neighborhood seems to have only a limited sense of collective efficacy when it comes to larger issues. They were not able to outweigh the developer's sway in Town Council, despite their best efforts (OR8). Based on this experience, this resident expressed the sentiment that they would not be able to impact the disconcerting new developments described in Section 1 (OR 8). Two residents also described the ineffectiveness of their requests for additional transportation infrastructure, identified in Section 1 as the neighborhood's top priority (OR6, 14). Although they do not seem to collectively have linkages with outside organizations, many individuals may have relevant connections.

These institutions also seem to have contributed to a sense of neighborhood identity. One called it a "great community"; another called it a "beautiful community" (OR8, 16).

Residents are also ethnically diverse, which most people described as a positive part of the neighborhood's character. One resident compared it favorably to her last neighborhood that was homogeneously East Asian and South Asian: "If you weren't within one of those groups [it was hard to meet people]. Here it's a little bit more diverse... You can get out there as much or as little as you want" (OR11). Another said, "You've got a good demographic here... everyone in here, all walks of life" (OR6). However, as described above, there are few strong ties, nor any evident sense of reciprocity.

Furthermore, the physical characteristics of the neighborhood generate only a limited attachment to place among any of the residents. One resident described how the lack of local amenities and car-dependency (identified as neighborhood sustainability priorities) decrease the sense of community. "Here, you make a few friends, but you leave the neighborhood to do anything, to shop, to entertain yourself, to go to work, you don't live within the community. You stay in the community, you sleep and eat in the community but you don't have your life here..." (OR 8). Another pondered the map: "In a neighborhood that doesn't have a neighborhood... that's what's interesting about this enclave..." (OR14). The flipside of the lack of amenities and isolation is that residents all use the few public spaces that do exist. The local park and the stormwater management pond ringed by a paved sidewalk were described as important "destinations" and meeting places. "In the summer we have a park, so I think this park has become an anchor" (OR 14).

Finally, the neighborhood's lack of history limits the strength of this shared identity. At most, residents have six years of shared experience to draw on. One resident put it plainly in referring to the community's newness, stating, "It's ground zero" (OR14). Three people described a desire for more formal organizations. "There isn't anything going on formally, there isn't a group that I'm aware of, because if there were I'd be there in a heartbeat".

Moray

Most Moray homeowners described both strong and weak ties with other neighborhood homeowners. Many also suggested a sense of reciprocity. Despite a strong sense of neighborhood identity, there was no evidence of collective efficacy or institutions.

Ties, Reciprocity and Norms

Strong ties between neighborhood residents were clearly emphasized by most Moray residents. "They're my neighbors but they're my friends", said one (OR3). Another also stated that he knows most of the people on the street, and that they are friends rather than acquaintances (OR12). In fact, he was to attend a party on the street at 4pm that very day! A third described that people on the street go dirt biking together (OR16). He also discussed his past and planned efforts to bring together neighborhood residents who do not yet interact. "Because I've been here so long, I talk to all of them. It makes it easier for me to set stuff up" (OR16).

Several also mentioned their (weak) ties with residents across Oak Ridges. For example, one drew a large map, stating, "I have acquaintances here and over here and here". Another resident described knowing a lot of people through her various jobs and routine activities: "I'm a big believer in 'you live, you work, you shop', everything is local as much as possible.

That's how I have come to know a fair number of people" (OR3). Others also described local connections thanks to driving a school bus in the neighborhood or working for the Town of Richmond Hill (OR13, OR2). However, one homeowner who had been in the neighborhood for thirty-five years described a decline in both strong and weak ties. "It's not as good as before. It used to be you knew everyone, and could let your kids wander with total confidence that you knew everyone they would come across... all the kids would congregate at my house on Saturdays...[and I'd] get together with the parents" (OR13).

A sense of reciprocity was clearly articulated by a few residents. "My neighborhood, I cherish it completely, it's great because I can count on my neighbors if there are any problems..." (OR3). Others discussed borrowing welders, or sharing plants (described below). Finally, in the very short time that I was conducting interviews in the neighborhood, I witnessed two incidents of people shoveling snow for other able-bodied neighborhood residents.

A few Moray residents discussed substantial social interaction in the neighborhood around lawns and gardens. One resident described inviting people over from the neighborhood to sit and relax in their backyard. She also mentioned that one of their neighbors has a greenhouse, and gives her some flowers and tomato plants (OR1). Another discussed how their neighbor splits their plants and "give us their split-offs"; he joked, "The price is very good!" (OR12) Two residents described spending multiple hours each day gardening.

However, for most others, gardening does not play a major role in their lives. "My focus is somewhere else in the summer... I do something in the beginning and then it's got to survive" (OR3). Another explained, "I'm not a green thumb, not at all, I'd like perennials probably, that's the easiest thing, they just come up every year" (OR4). Moray residents generally reported that there is little pressure to conform to aesthetic standards beyond basic maintenance. One stated, "Gotta have the grass cut like everyone else's... We're not crazed, [it just has to be] looked after, maintained" (OR12). Another described that there is no pressure to have the same type of yard as his neighbors, "I do my own thing" (OR12). There was also the suggestion that normative pressure will increase: "This is one of the more relaxed neighborhoods in terms of the appearance of yards, but that will change with the new houses" (OR 16). However, as mentioned in Chapter 3, collective norms seem to have played a role in influencing the neighborhood trend towards naturalized yards.

Identity, Efficacy and Institutions

Moray residents did not describe involvement in any organizations other than churches. One resident discussed having served as Entertainment Director for the Oak Ridges Lion's Club for a few years (OR3). She also mentioned the existence of the local environmental organization, Oak Ridges Friends of the Environment. However, she condemned their involvement in the naturalization of Lake Wilcox, emphasizing that a lot of them are residents that back onto the lake, so ""they certainly have a vested interest [in] naturalizing it so that it creates a very peaceful setting [with] less people flocking to it" (OR3). No other residents were aware of any environmental groups in the area. Several residents mentioned street-wide social events, though they now occur less frequently than in the past. A woman involved in organizing these events described, "We ended up talking, and

stuck things in the mailbox, we had yard sales... Barbecues and Easter egg hunts, we did them for quite a few years." These ended as the organizers' kids grew up and no one stepped in to replace them.

Despite the strong ties and sense of reciprocity in the neighborhood, the lack of neighborhood institutions suggests that there is a limited sense of collective efficacy. This is consistent with residents' sense that there is nothing that they can do about growth (described in Section 1). Two residents discussed their dissatisfaction with the meetings they attended individually in the past: "At the time you felt like you were being called on for opinions, but it always went the way of the developer, every time. I think it's still that way. [Developers] drive the whole town's political system" (OR13). Interestingly, no one mentioned any attempts to get involved in past planning for Lake Wilcox.

Nonetheless, residents seemed to have a very strong sense of identity. This sense of identity can be seen to stem from the local history, ecology, and character of the built environment, as well as from the relationships and sense of community. As described in Chapter 2, people were originally attracted to Oak Ridges because of the recreational opportunities provided by Lake Wilcox. After World War II, cottage-owners decided to make Oak Ridges their full-time home, and many of these cottages are still standing. The strong culture of recreation and love of the outdoors can be traced in part to the significant number of homeowners who have lived in the neighborhood for decades. Although she described that many of the "originals" are dying off, one Moray residents said, "I've been here 35 years... and I'm the new kid on the block" (OR14). She gave a detailed history of Oak Ridges, and listed off three other people who could provide even better information. Newcomers also demonstrated their appreciation of the neighborhood history. For example, one described, "[Lake Wilcox] used to be a happy place... This is many generations of people... I've seen the historical pictures and it was a very, very happy place" (OR3).

The neighborhood identity also remains tied to recreation and the outdoors because of the types of newcomers who are attracted to the area. Six residents strongly emphasized the role of the Lake and the outdoors in their decision to move to Oak Ridges. One described, "You come here, you have a 60 year-old tree in the yard, you've got the Lake at the bottom of the street... and that pretty well did it" (OR12). Another resident moved because "there's a Conservation Area, the Lake... the Oak Ridges Moraine... I like the greenery" (OR4).

Residents demonstrated an understanding of the local ecology. A few provided brief yet sophisticated descriptions of eutrophication, remediation, re-oxygenation or "naturalization". For example: "They used to have a lung to re-oxygenate the lake and combat eutrophication and all that kind of stuff, then one year it broke because of the ice" (OR 5). Others provided theories about the causes of the problems with the Lake. One resident stated that even without runoff and its phosphates and fertilizers, there would be the same nutrients levels from the thousands of ducks and geese on the Lake (OR 12). Another drew on his understanding of water treatment to explain how new houses destroyed a sand pit that had provided a source of natural filtration for water entering the Lake (OR16).

As discussed in Section 1, attachment to the Lake dominated. However, some residents also emphasized how the housing stock adds to the neighborhood's character and sets it apart from the rest of Oak Ridges. "You almost feel claustrophobic looking at the new subdivisions, here you actually have some space, lots of trees... That's the other thing that really appeals to me. Even in the winter, you can look down the street and it's like you're in the 1930's or something... I'm hooked on this street and that's that" (OR3).

For a few homeowners, the concerns about growth and development emphasized in Section 1 were closely tied to concerns about the neighborhood's identity. One resident explained, "[With] all these small little cottages being torn and becoming big houses... you'll lose the small cottage-type feel, so I think that kind of small community is visibly leaving; and then the urban type, like these big houses here they'll be arriving..." (OR 4). As described in Section 1, two felt that, with the increased traffic and population, the damage had already been done. However, the others remained satisfied with the neighborhood. Despite her number one concern that the neighborhood is "growing too fast", one resident stated: "It has changed a lot in 18 years, but it's still good" (OR 2).

Residents were relatively unanimous in emphasizing the community feeling that contributes to neighborhood identity: "Being from a small town in Nova Scotia, it's interesting how this community seems to have that small town charm, and it's the people, and the area, and the Lake... really, it's almost like a small town in a suburban setting" (OR3). Another described a "down-home feel"; he joked about accusing one neighbor of being "from Toronto" because he didn't know another neighbor (OR16).

A few residents discussed whether newcomers "fit in" with the existing community's values and lifestyles, and most felt that newcomers were similarly down to earth. However, one "original" resident passionately emphasized their lack of belonging. "They have no clue what has fallen by the wayside with them being here... They have no clue that this was a community at any time... These are city people... you're never going to get that same belonging to the land again, because they don't belong." (OR13). The potential exclusion of new residents from existing social networks may weaken the neighborhood's social capital.

As demonstrated by census data in Chapter 2, Moray residents are relatively homogeneous, and ethnic diversity remains low. This same "original" was the only resident to mention the increasing diversity as either a positive or a negative. "Some of [the newcomers] are immigrants that come from places where there is nothing natural. So the public awareness is really low" (OR13). Despite the rapid changes within the broader neighborhood, at the street neighborhood level, several residents emphasized the low levels of transience as an important part of the community's cohesion and identity (OR3, 6, 13). One resident mentioned that renters on the street also tend to stay for many years (OR16).

Overall, there is a clear sense of neighborhood identity that stems from the place and its people. Despite the lack of local institutions, only one resident expressed a desire for more formal neighborhood organizations: "I'd like to see [community organizations] in Oak Ridges – choices other than the Lion's Club" (OR3).

Jane-Finch

Jane-Finch residents generally reported strong ties with others of similar backgrounds in the neighborhood. They suggested weak ties and a sense of reciprocity with others in their "street neighborhood". They also described strong interactions related to gardening and certain collective norms related to the appearance of lawns. However, there was only a limited sense of neighborhood identity, and no evidence of neighborhood institutions.

Ties, Reciprocity and Norms

The majority of residents described knowing almost everyone on the street but having only limited interactions with them; instead, their closest friends in the area were people from their home country. For example, when asked about neighborhood social events, one Hoover resident from Italy answered that there are no street-wide gatherings, but listed off several names of Italians with whom he plays soccer, and stated that "neighbors get invited to weddings and showers and whatnot" (JF5). He then described how the neighborhood used to be mostly Italian but "is now more multicultural – which is fine. Most of the neighbors are pleasant, they'll say hello and how are you doing". He mentioned that a few people moved in, work hard, and "they don't bother nobody... the rest, we mix" (JF5).

Similarly, a Venetian resident from the Philippines described her close friendships with other members of Philippino groups: "there are lots of Philippino people in the area, lots of people to talk with..." That same weekend she and her husband had gone on an organized trip to a casino in Niagara Falls, and regularly went to the dances and fundraising events hosted by Philippino groups. When asked about their interactions with people living on their street, she mentioned that there are lots of Italian people who have been there a long time, and said, "We talk especially in the summertime when we all spend lots of time outside". A Guyanese resident mentioned that "there are lots of Caribbean people, so it's easier to make friends with them because you know their culture... [Otherwise], we say hi, but there isn't too much socializing aside from that" (JF 11).

A woman from Vietnam described strong ties with other Vietnamese people with whom she gardens, does yoga and goes to temple. However, she also described a feeling of reciprocity connected to the weak ties on their street: "people in the neighborhood are very friendly, they look out for us if there are ever problems, and everything is good" (JF3). The sense of reciprocity was implied by another resident who described feeling comfortable letting her kids roam their street alone: "Now, I feel okay with them going out – I know that our neighbors know them and they know the rules" (JF8). A resident from Laos described how much she likes the neighborhood because it is quiet and the neighbors are very good. She gave the example of her next-door neighbor from Jamaica who "is a very good man" and helps her shovel the snow (JF12). A Venetian resident mentioned that he buys berries, orange juice and French onion soup for his neighbor who isn't doing well financially (JF13).

However, this long-time Canadian-born resident felt that the strength of ties, "sense of community" and reciprocity on the street had decreased with the new wave of multicultural residents. "They don't have time for the neighborhood... We've always helped people out. I cut the [next door neighbor's] grass for 11 years, until I got tired of it, and put a fence down the middle instead" (JF13). He bemoaned the end of the days of

annual back to school street parties. He nonetheless was able to name virtually everyone on the street, signaling the presence of weak ties, and mentioned that certain new residents showed promise: "The people next door are just starting to come out of their shell".

Many residents described spending multiple hours per day gardening, and also emphasized strong social ties related to gardening. When asked whether he shares gardening tips or seeds with neighbors, one resident answered, "Sometimes, like today I did some tomato seed, we share... I give it to them, they give it to me" (JF5). Several residents mentioned sharing their produce with people who are unable to garden, sharing flowers with other gardeners, or gardening with neighbors. One described how her mother and the neighbors "exchange plants and things like that, so you'll see that there are certain types of plants that everyone has because people shared them" (JF1). She also highlighted gardening's ability to bridge language barriers, mentioning how her mother has a gardening-focused relationship with the woman across the street "who doesn't speak a word of English".

A few also referred to collective norms related to the appearance of yards. "It's very important for it to look nice. If you take care of it, friends, Italians... they look and say 'beautiful, beautiful', they're happy and you're happy too. If the grass gets too high, they wonder and tell you right away" (JF3). Another echoed this sentiment. "You know that the upkeep of your house represents the upkeep of the neighborhood. Everyone here cuts their grass regularly... the lawns are always well manicured, so if you don't do it you look like a piece of crap. So you cut your lawn, you have your flowers, you put the black pitch on your driveway to have it looking nice" (JF10).

However, it was unclear whether they would be influenced by norms. "My husband and I have always gardened... it's not like we need to learn, we know what to do... though definitely some of the neighbors grow different things so we get pointers on that" (JF5). People also expressed preferences for different types of looks: "I love it when it's clean but I don't like too much decoration" (JF6). In both the Venetian area and the Hoover area, a visual inventory revealed a wide range of different styles of gardens and plants in people's front yards. All but one of the twelve Jane-Finch residents who spend time gardening grow vegetables, fruits, or herbs.

Identity, Efficacy and Institutions

None of the Jane-Finch residents are part of any local organizations (though one stressed that she should join the group opposing the relocation of the hospital). Similarly, none of the Jane-Finch residents indicated any awareness of neighborhood organizations that might be relevant. One referenced the existence of organizations that host events in the park for public housing residents, but bemoaned the fact that no one organized anything on their side of the neighborhood. One also questioned the feasibility of neighborhood institutions, describing how in large communities, people work late, and have busy lives. She went on to say, "I don't think you're going to get too many people going out to meetings" (JF5). There was no apparent sense of collective efficacy – moreover, there was no indication that they had ever tried to "accomplish" something with their neighbors in the past. Finally the only evident links with the broader neighborhood or outside the neighborhood were those mentioned above based on country of birth.

Nonetheless, there seemed to be some sense of "neighborhood identity" – though quite limited. This sense of identity seems to stem in part from attachment to the physical neighborhood and its amenities. All residents came together in emphasizing the benefits of living close to an array of amenities and transportation options, and praised the number of local parks and recreation areas. Almost all residents described using parks and trails including the trail along Black Creek. It also seems to stem from the social ties described above, and from the large number of residents who have lived in the area for over a decade. Only one resident described the neighborhood as a community (JF1); she attributed the sense of community to the large number of people who walk rather than drive, and to the public sector money invested in providing services for social housing.

Several people suggested that the neighborhood's high diversity limits cohesion to some extent. "We are a mixed bag here, like a garden with different flowers, people aren't too enthusiastic to sit with this one or this one... the Italians want to be in their group... we don't really have a neighborhood group per se" (JF10). There were no references to important shared experiences or events. If anything, homeowners were brought together by the sense of being proud of a friendly neighborhood with great amenities but a bad reputation. However, unlike in Moray where it was evident that the Lake was a common topic of discussion, it was also unclear whether Jane-Finch residents had discussed this issue together. ,

Five Jane-Finch residents described a need for more organizations and events to bring people closer together and to increase the sense of place. As described above, two also saw this as an important means to improve the negative perceptions of the neighborhood. However, they also placed an emphasis on the need to bring the neighborhood's current residents closer together. One described events in other neighborhoods, "It's nice in the summer to really see the public participate in things, people feel alive" (JF10). She emphasized the benefit of music in the park in the summer: "People will come, a lot of people right around here will definitely put on their clothes and come out and sit down and listen and they will appreciate the neighborhood more" (JF10). One described community events where people could overcome stereotypes, "I've seen him and he looks scary but he's not, look at him handing out lemonade" (JF15). Two Venetian residents highlighted the need to provide greater opportunities for local outdoor recreation, particularly for youth. For example, one resident emphasized the importance of providing more places for people to do activities outdoors, and suggested fishing derbies for children (JF 9). Another wished that there were more local organizations where young people could meet other young residents (JF 11).

It is also likely that elements of social capital would be different among homeowners than among other residents of Jane-Finch.

Elements of Social Capital	Fontainbleu	Moray	Jane-Finch
Weak / bridging ties	Medium	High	Medium
Strong / bonding ties	Low	High	Medium
Collective norms (landscaping)	High	Medium	Medium
Supporting networks and reciprocity	Low	Medium	High
Neighborhood identity	Medium	High	Low
Collective efficacy	Low	None apparent	None apparent
Neighborhood institutions	Weak	None	None
Network capacity	None	None	None

Table 17: Comparison of neighborhood social capital (based on interview data)

Section 3: "Explaining" Neighborhood Priorities for Long-Term Sustainability

In this section I argue that the priorities for long-term sustainability described in Section 1 share the following:

- They are most closely linked to sociocultural wellbeing.
- They affect residents' daily lives.
- They connect to neighborhood identity.
- They cannot be effectively addressed through individual-level actions.

In Fontainbleu, residents' concerns about sidewalks, traffic, bus stops and shopping areas clearly relate to sociocultural wellbeing and affect residents' daily lives. These issues connect closely to the neighborhood's lack of history, and can be seen to limit the development of "attachment to place" and neighborhood. In Moray, Lake Wilcox's ability to spearhead residents' passion can be traced to its historical relevance and connection to neighborhood identity. More importantly, it was an important part of residents' lives within recent history, and residents continue to feel that loss. In Jane-Finch, residents' concerns about the area's reputation and safety affect sociocultural wellbeing. Though the neighborhood's stigma may not affect their lives everyday, most described its relevance in their interactions with people who live outside the neighborhood. It is also clearly tied to Jane-Finch's history of being portrayed by the media as Toronto's urban jungle (as described in Chapter 2). They see the need to shape a new neighborhood identity as central to long-term sustainability.

It is worth noting that, as predicted by Kahneman and Tversky (1979), past and prospective losses evoked stronger emotions than prospective gains. Residents of all areas felt strongly about the importance of *improving* their neighborhood's amenities and characteristics related to these themes. However, they felt even more passionately about *declines* in these amenities – both about losses they'd experienced, and about the threat of future losses. Fontainbleu residents' passion for sidewalks did not rival that of residents of the Moray area in Oak Ridges who had witnessed the rapid loss of Lake Wilcox. However, Fontainbleu residents who felt that they would suffer from new development also fervently described these issues.

It is evident that individual residents of Fontainbleu cannot change the transportation infrastructure or bus routes in the neighborhood. Their options for traveling on foot, by bus or by bicycle are thus very limited. They also have little ability as individual to influence local zoning, development and commercial activity. Similarly, residents of Moray cannot individually affect the shoreline of Lake Wilcox or the recreational uses in the area. Their impact on water quality is unknown, given the alternative hypotheses about the causes of eutrophication. However, they are already taking actions as individuals to reduce their use of lawn products and to naturalize their yards. In Jane-Finch, residents cannot take individual action to improve the neighborhood's reputation aside from by speaking with others outside the neighborhood. It is clear that many are already doing that. Furthermore, their ability to take action is hindered by the lack of consensus on what might be done to address this issue.

In all neighborhoods, several residents stressed the role of the public sector in enabling sustainability and in leading by example. For example, one resident critiqued the Town's use of public money to maintain water-intensive gardens on public lands (OR8). Another critiqued the Town's failure to require higher energy efficiency standards for new developments (OR14). Many came together in their disapproval of the Town's development decisions and actions regarding the Lake. In Fontainbleu, residents also emphasized the role of private developers in promoting environmental integrity by creating greener buildings and communities that maintain the area's natural heritage. I further explore the implications of these trends in Chapter 5.

Chapter 5: CBSM, Specific Actions and Long-Term Neighborhood Sustainability

This chapter explores the relevance of CBSM for promoting specific actions, and for contributing to long-term sustainability at the neighborhood scale. Section 1 addresses the use of CBSM to promote the uptake of rain barrels and rain gardens in the three neighborhoods. Section 2 outlines concerns related to the use of CBSM for this purpose, and presents an alternative model that addresses many of these concerns. Section 3 discusses the use of CBSM to advance long-term sustainability at the neighborhood scale. I conclude with questions to guide practitioners considering the use of CBSM to advance neighborhood-level sustainability.

I highlight the following ideas about the use of CBSM for rain barrels and gardens:

- Rain barrels offer diverse individual-level benefits and rarely require sacrifice. I suggest that social marketing can effectively be used to promote them but that different CBSM strategies may be needed to reach individuals who self-identify in different ways.
- Rain gardens may be difficult to promote given their limited non-environmental benefits and frequent intractable barriers. I suggest that CBSM programs may be most effective where they are directly tied to local concerns or community-level benefits.
- There are a number of situations in which neighborhood-level CBSM programs may be able to drive the uptake of specific actions. However, this may not always be the most cost-effective scale. I suggest that CBSM is most relevant in neighborhoods if it can also indirectly contribute to long-term sustainability.
- The expert-driven model of CBSM leads to practical and ethical concerns at the neighborhood scale. An inclusive, participatory model of CBSM may be able to address concerns related to the exclusion of local knowledge, the inappropriate use of persuasion, and the uneven distribution of benefits.

I also highlight the following ideas about CBSM's relationship to long-term sustainability:

- Neighborhoods' priorities for long-term sustainability do not center on individual actions, therefore CBSM cannot directly advance these goals. In addition, the three neighborhoods do not currently appear to have the capacity to make progress on these issues.
- Modified versions of CBSM may be able to indirectly contribute to long-term sustainability by building neighborhood social capital and awareness of links between environmental, economic and socio-cultural issues.

Section 1: Using CBSM to Promote Rain Barrels and Gardens

In this section, I suggest that different versions of CBSM may be needed to promote rain barrels and rain gardens. I begin the section with a recap of CBSM's tools and theory of change. I then highlight differences between rain barrels and rain gardens that may have implications for social marketing, emphasizing distinctions between neighborhoods. I conclude with a general discussion of the relevance of CBSM for promoting specific actions at the neighborhood scale.

Recap from Chapter 1: CBSM Tools and Theory of Change

As discussed in Chapter 1, traditional social marketing focuses most closely on attitudes (increasing perceptions of the likely benefits of action as compared to the costs). It does so by seeking to create a "product" (or behavior) with the most attractive package of benefits and lowest costs. It also seeks to use market segmentation to create different products based on the needs of different groups. Like traditional social marketing, CBSM also seeks to influence attitudes through messaging tools. However, CBSM de-emphasizes traditional marketing's focus on market segmentation and provision of maximum benefits. Instead, it suggests that all people will act once they understand the environmental problem (and feel the ability and pressure to do so).

CBSM also stands out from traditional social marketing because of its emphasis on using social influence and social norms to promote the diffusion of practices within a community. These social processes are believed to enhance motivation by influencing all three variables that directly influence intention in Bamberg and Moser's (2007) model: attitude, perceived behavioral control, and moral norms. According to theory and research described in Chapter 1, people are more likely to see a practice as doable and beneficial if they know that many others have adopted this practice. They are also more likely to feel moral normative pressure – as long as they are aware of the moral reason for the action. Furthermore, it suggests that adopting a behavior will increase people's sense of environmental identity – though there will only be effects on environmental self-identity where behaviors are adopted *for environmental reasons* and framed in unambiguous environmental terms (Thogersen and Compton 2009).

CBSM prescribes different tools for different types of barriers. Where the intention to act already exists, CBSM seeks to close the intention-behavior gap by increasing the convenience of different actions and by invoking additional "costs" (related to cognitive dissonance) for not following through on intentions. Where motivation is low but people are aware of a possible action, CBSM seeks to use social norms to promote the sense that an action is "the right thing to do". Finally, CBSM uses communication tools to create awareness of an environmental problem or behavior where it does not yet exist.

CBSM and Rain Barrels: Providing Identity-Relevant Benefits

In all neighborhoods, there is a basic awareness of rain barrels. There is also a moderate uptake of rain barrels. However, there is not a universal sense that rain barrels are morally and environmentally important. Given this situation, CBSM prescribes the use of tools that create normative pressure and enhance the sense that rain barrels are the "right thing to do". Based on the results of interviews, I suggest that this may not be the best way to increase their uptake in all three neighborhoods. The conclusions of Chapter 3 were as follows:

- People evaluate rain barrels and rain gardens based on their ability to provide "identity-relevant benefits".
- Many of these benefits are not specifically or solely "environmental".
- The prevalence of the different "identity groups" relevant to rain barrels and rain gardens varies across the three neighborhoods.

Thus, in some neighborhoods, resident were primarily interested in rain barrels as the right thing to do for the environment. However, in other neighborhoods (where the uptake of rain barrels was slightly higher), residents appeared most interested in rain barrels as cost-saving measures or as gardening tools. Two of the four rain barrel owners in Jane-Finch did not even seem to view their rain barrels as environmentally significant behaviors.

These findings present CBSM program designers with a dilemma. On the one hand, there may be the potential to increase the uptake of rain barrels among people *without* strong environmental identities by emphasizing the very real benefits that people *do* value. On the other hand there is the opportunity to "frame" actions as environmental, and increase the chance that people will translate their rain barrel ownership and purchase into a broader sense of environmental identity.

In accordance with CBSM's emphasis on behavior change as the only metric of program success (Andreasen 2002, McKenzie-Mohr and Smith 1999), I suggest that CBSM should focus on maximizing the various *individual-level* benefits that people value in the three neighborhoods. This approach is akin to the traditional social marketing approach in that it seeks to create different products and emphasize different packages of benefits based on the needs of individuals in different groups. I divide this approach into three promising strategies and demonstrate each strategy with a sample "slogan":

- *Illuminate new identity-relevant benefits*: "You hadn't realized this, but rain barrels can actually save you money."
- *Increase awareness of the importance of an identity-relevant benefit*: "Rain barrels save more money than you think."
- *Change the product, price or process to overcome barriers and/or generate new benefits*: "Safe and attractive rain barrels only cost $5 including installation."

I suggest that in all three neighborhoods, there is an opportunity to use these strategies to increase the uptake of rain barrels. I highlight sample opportunities below.

Fontainbleu

- *Awareness of new benefits*: Many people consider themselves NEP environmentalists and "good homeowners". Marketing strategies could emphasize how using a rain barrel is part of good homeownership *and* good environmental citizenship. ("Responsible homeowners on the Moraine use rain barrels to increase groundwater recharge!")
- *Change the product to overcome barriers and generate new benefits*: Given the relevance of appearance in preventing the uptake of rain barrels, making attractive barrels more readily available might have an important effect on their uptake.

Jane-Finch

- *Increased awareness of benefits*: If Jane-Finch's efficiency environmentalists were more confident that their investment would yield rapid financial returns, those who are currently willing to accept a free one might want to buy one, even at the current price.
- *Change the product to generate new benefits and overcome barriers*: If rain barrels were made by a locally company from recycled materials and sold at a lower price, they might receive greater support from efficiency environmentalists (and from those interested in the local economy).

Moray

- *Create awareness of new benefits*: Moray's NEP environmentalists may not all be aware of how rain barrels can reduce runoff and improve watershed health.

In addition to the apparent opportunities for rain barrels to provide benefits that people value, rain barrels did not often appear to require important sacrifices. As discussed in Chapter 3, few people described barriers that seem insurmountable. For example, concerns about stagnant water and the safety of rain barrels for children could be easily addressed. It seems that CBSM could have the potential to stimulate widespread uptake of rain barrels.

CBSM and Rain Barrels: Social Norms and Diffusion within Identity Groups

As described above, I suggest the value of using market segmentation, message framing and identity-relevant benefits to increase the uptake of rain barrels in the three neighborhoods. While this approach is closely aligned with traditional social marketing, it can be paired with CBSM strategies that focus on norms and diffusion.

As discussed in Chapter 1, social identity theory indicates that people are most likely to take normative cues from those with whom they share an "identity". One can imagine that a Good Homeowner in Fontainbleu would feel minimal pressure to build a rain garden after hearing about them from his tree-hugging neighbor. The same would hold for a non-gardener in Jane-Finch who saw that her neighbor was using a rain barrel to water a rainforest of tropical plants. The extension of this idea is that social diffusion will most commonly occur through strong social ties, as friends and family are undoubtedly viewed as one's "in-group". Homeowners' references to the influence of friends and family on their rain barrel ownership provide some support for this theory (discussed in Chapter 3).

I suggest that in diverse neighborhoods such as Jane-Finch, social diffusion will primarily occur within identity groups and through strong ties. I further suggest that the visibility of the identity, the existence of social ties and the strength of collective norms *within* that identity group may impact diffusion. Thus, for Good Gardeners, one would ask:

- *Visibility of the identity:* Are people aware of other people as gardeners?
- *Social ties within identity groups:* Do gardeners know many other gardeners? How much time do they spend gardening together or talking to each other about gardening?
- *Group norms:* Do they feel that they can learn from other gardeners, and/or that they have to keep up with the trends?

Although I cannot draw conclusions about the visibility, ties, and norms of identity groups within different neighborhoods, I suggest that a CBSM strategy could effectively use social diffusion within identity groups to promote rain barrels. As discussed by McKenzie-Mohr and Smith (1999), CBSM programs could use existing ties to provide "models", enhance rain barrel visibility, and stimulate conversation about rain barrels. Some trusted avenues for "segmented" program delivery avenues might already exist at the neighborhood scale – for example, if Jane-Finch had a neighborhood gardening club (they do not) or a neighborhood gardening sale weekend (they do).

In addition, programs could seek to create new links within identity groups. For example, establishing a local institution to serve these identity groups could strengthen the visibility, ties and norms within an identity group. It could also provide an effective channel for CBSM program delivery. Several homeowners' suggestions fall along these lines:

- In Jane-Finch, one Good Gardener suggested expanding the existing "community garden sale days" that occur at the mall but that not all residents are aware of. She also suggested the need for a local nursery; the closest one is a long bus ride away, and transporting plants on a bus is very difficult.
- In Moray, one Good Gardener suggested incorporating a "sustainable garden" category within the annual community gardening competition.
- In Fontainbleu, one NEP environmentalist (also a Good Homeowner) emphasized that developers should provide new homeowners with pamphlets and photographs featuring attractive, climatically appropriate and environmentally friendly plants.

Relevant avenues of communication may also exist at higher levels and may provide economies of scale when targeting identity groups that are not place-based. For example, to reach efficiency environmentalists who are interested in saving water to reduce costs, it may be most effective to include messages within water bills. To increase "Good Gardeners'" understanding of the benefits of rain gardens, messages may want to be delivered via gardening magazines and gardening stores. Even if Jane-Finch had a gardening club, starting from the citywide headquarters of a network of gardening clubs might enable a rain barrel promotion program to have a greater impact per dollar.

It is also important to consider the apparent connections between identity groups and country of birth. Particularly in Jane-Finch where most residents are immigrants and many are strongly connected to others from their home country, it seems plausible that CBSM strategies could build on links within these communities to promote social diffusion of environmental practices. Immigrant networks may be neighborhood based. However, the reach of ethnic institutions is equally likely to extend beyond neighborhood boundaries.

The above discussion suggests that designing programs for "communities of identity / interest" rather than for "communities of place" may effectively achieve the widespread uptake of rain barrels. Much of the time, it seems that these types of social marketing programs will be most cost-effective if they do not restrict themselves to the neighborhood scale. However, there are also arguments for using the neighborhood scale to develop CBSM programs for specific identity groups.

First, my research suggests that members of different identity groups are not uniformly distributed across neighborhoods; rather, neighborhood residents tend to share identities. For example, a CBSM strategy could effectively cater to the large number of Jane-Finch residents who are interested in cost-effective actions to save money on water bills. Second, the appearance of different *combinations* of identities across neighborhoods provides an argument for the neighborhood scale. For example, "good gardeners" in Jane-Finch who are also "cost-effective" may want different rain barrels than gardeners in Fontainbleu who are also interested in appearance. Third, programs at the neighborhood level may offer the opportunity to increase the "equity" of social marketing by designing products and

messages that are accessible to underrepresented groups. For example, a practitioner looking to maximize citywide uptake of rain barrels per social marketing dollar might be less likely to consider multilingual messaging strategies than a social marketer thinking only about Jane-Finch. I discuss intra-neighborhood equity in Section 2.

Finally, CBSM efforts that seek to build new social capital within identity groups may indirectly contribute to long-term neighborhood sustainability. A CBSM program that sought to establish a neighborhood-based institution would be particularly valuable from this perspective. If existing identity-relevant institutions were interested in adding an environmental component to their programs, this could also pave the way for long-term sustainability efforts. In Section 3, I expand on the opportunities to use CBSM to build social capital and contribute to long-term neighborhood sustainability.

What About Rain Gardens?

In all neighborhoods, there is an extremely low awareness of rain gardens. There is also a low awareness of the environmental problem that they seek to address. Furthermore, there is limited interest in rain gardens among non-NEP environmentalists. Thus, the strategy suggested for rain barrels may not be feasible; CBSM may not be able to convince individuals that the personal benefits of rain garden creation will outweigh the costs. I thus explore the opportunity to use traditional "environmental" and modified CBSM approaches.

Where awareness of environmental problems and remedial actions is low, CBSM suggests using communication tools to increase awareness of "the problems" (that stem from stormwater runoff) and to encourage "problem-focused coping" (creation of rain gardens). Acknowledging the difficulty of creating this type of problem awareness, CBSM prescribes the use of messages that are specific, concrete and personalized.

However, it seems that there are limits to how concrete and personal the problem of stormwater runoff can feel to most citizens. Kollmus and Agyeman (2001) highlight that awareness of environmental problems is constrained by cognitive limitations; problems are complex, non-immediate, and slow moving. The problems that rain gardens seek to address exhibit all three of these characteristics. It is difficult for homeowners to feel passionate about downstream eutrophication or future flood risk; it is perhaps equally difficult for homeowners to connect these problems to rain gardens and to feel a sense of personal responsibility for addressing them.

Based on the results of interviews, I hypothesize that the success of CBSM communication efforts surrounding rain gardens will depend on:

- Whether people currently self-identify as environmentally oriented,
- Whether the problem has relevant local dimensions, or
- Whether the action or program can generate community-level benefits.

As described in Chapter 3, NEP environmentalists who already understood the issue of stormwater management appeared to be the primary supporters of rain gardens. In all neighborhoods, NEP environmentalists who were not yet concerned about stormwater management expressed greatest interest in hearing about the environmental benefits of

rain gardens. Going back to Bamberg and Moser (2007), this trend suggests that it will be easier to generate problem awareness, internal attribution, and motivation to act among those who already view themselves as "the type of person who would care about something like this". Thus, I propose that efforts to generate problem awareness will be more successful in neighborhoods with high numbers of NEP environmentalists.

However, results in Chapter 4 suggest that communication strategies may be more effective if the "problem" has relevant local dimensions. In the Moray area where people are passionate about Lake Wilcox and are concerned about its health, a message about the Lake would be highly likely to catch their attention. Fontainbleu residents are less likely to be stirred by a message to reduce flow that eventually reaches Lake Wilcox because the Lake is physically and emotionally further away. Numerous studies also indicate that the desire to contribute to *local* environmental health and wellbeing is an important motivator of environmental action (Uzzell et al. 2002, Drummond et al. 2009). Thus, I suggest that social marketers should clearly plan programs that contribute to local environmental health. Communication strategies could then effectively emphasize this local connection. In Section 2, I discuss the importance of involving residents in selecting "environmental" problems and actions for CBSM.

How can CBSM generate support for rain gardens in neighborhoods where people are not NEP environmentalists and where rain gardens do not obviously connect to local environmental problems? I suggest that social marketers can design programs that incorporate other community-level benefits. A CBSM program could generate local economic benefits. For example, rain garden installation might provide summer jobs for high school students. A CBSM program might also provide socio-cultural benefits. For example, rain garden programs might provide elderly residents with an opportunity to spend time outdoors with young people. Research on environmental stewardship volunteerism supports the idea that social benefits can motivate environmental action; meeting new people, learning new skills and knowledge, being able to teach others, and spending time with family and friends are among the top benefits reported by environmental stewardship volunteers (Drummond et al. 2009).

Finally, a CBSM program may actually increase motivation by rewarding residents for the ecosystem services that they collectively provide. Jane-Finch provides a striking example of the potentially efficient use of "incentives" as a tool. As described in Chapter 2, the City of Toronto recently spent $18 million to upgrade storm sewers in and around Jane-Finch. The Environmental Assessment compared three options for Hoover Street and chose the middle one in terms of hard infrastructure and cost. The soft-path option involving downspout disconnection and surface stormwater control was significantly cheaper. However, it was deemed of inferior feasibility. This option would undoubtedly become more feasible if Hoover residents were asked to collectively disconnect their downspouts in exchange for a financial incentive or other desired reward, using money that the City was saving. Rain gardens on private property would be similarly "valuable" to the City.

This type of strategy could contribute to long-term sustainability by generating a sense of collective efficacy. It could help residents to appreciate the links between economic and

environmental issues. It could also increase residents' sense that the City is willing to do their part to promote sustainability. The use of CBSM tools to build social capital is discussed at greater length in Section 3. While CBSM programs to promote rain barrels may not *need* to provide local and community-level benefits to be successful, I suggest that they too can benefit from doing so.

It is worth noting that there may also be limits to the maximum possible uptake of rain gardens. As discussed in Chapter 3, almost one third of all residents described barriers to rain gardens that would be very difficult to surmount. It is unclear whether even the best social marketing strategy could convince residents to give up their children's backyard baseball fields. It is also unclear whether rain gardens would be appropriate or effective in the Moray neighborhood. I expand on this concern in Section 2.

Rain Gardens, Social Norms and Social Diffusion

As described in Chapter 1, several studies have demonstrated the effectiveness of normative tools in stimulating behavior change for behaviors like recycling with widespread problem awareness and social norms. As described above, rain gardens are very different than recycling in terms of the social norms that currently surround them. Given that no one had ever heard of a rain garden before, they were not likely to feel social pressure to adopt them – even if confronted with a sign on their neighbor's lawn. Furthermore, the low level of awareness of "the problem" underlying rain gardens (stormwater runoff) hinders the use of social norms to convince people to "do the right thing to fix the problem" (do something to reduce stormwater runoff).

Nonetheless, it is worth hypothesizing about social diffusion if the above-mentioned CBSM communication strategies proved effective. If residents recognized the "NEP environmental" value of rain gardens, then strong ties, weak ties and collective environmental norms might all promote the social diffusion of rain gardens (as discussed in Chapter 1). However, if residents recognized the importance of rain gardens to address a local environmental problem, other types of collective norms might come into play.

For example, in Moray, one can imagine that shared concern for Lake Wilcox and shared identity surrounding the Lake would create strong normative pressure to protect the Lake. If residents truly believed that rain gardens would protect the Lake, there would be high potential for social diffusion. Again, strong ties and weak ties might play a role in diffusion. However, I hypothesize that norms stemming from *neighborhood identity* would replace *environmental* norms as the third element of social capital promoting social diffusion. For CBSM programs that provided (non-environmental) community-level benefits, the strength of social ties and norms related to *neighborhood identity* might also motivate participation.

These hypotheses suggest the importance of fostering place-based identity and local environmental awareness as part of efforts to promote long-term sustainability. Finally, the delivery of programs through neighborhood institutions with broad-based support could help to foster social diffusion. I expand on the use of CBSM to build neighborhood identity and to catalyze neighborhood institutions in Section 3.

Relevance of CBSM at the Neighborhood Scale

I conclude with a reflection on the general relevance of CBSM for promoting sustainable behaviors at the neighborhood scale. To summarize the above discussion of rain barrels and rain gardens, I suggest that CBSM may be effective in driving the uptake of specific actions at the neighborhood scale if any one of the following conditions holds:

- The action can provide identity-relevant benefits to individual neighborhood residents.
- Neighborhood residents share a high appreciation of the general environmental importance of an action.
- The action or problem is of "local" and "personal" environmental relevance.
- The action or program provides neighborhood-level benefits that residents value.
- Existing, credible neighborhood institutions are interested in promoting the activity.

I also wish to raise an important question surrounding CBSM's theory of change: Are most neighborhoods defined by a single set of "community norms"? Based on the literature and the results of interviews, it seems that multiple identities and corresponding sets of norms exist in the three neighborhoods. Widely shared "community norms" were most apparent in the Moray neighborhood where residents felt a strong sense of neighborhood identity. However, in the diverse Jane-Finch neighborhood, there was limited evidence of a shared neighborhood identity and set of norms. Before deciding upon the neighborhood scale, I suggest that social marketers should consider what identities or norms define a "neighborhood" and make it an appropriate venue for community-based social marketing.

Finally, I suggest that the neighborhood scale may not always be the best scale for CBSM, even if one or more of the above-mentioned conditions is fulfilled. As discussed above, maximizing the uptake of rain barrels may require the use of "identity specific" avenues for program delivery. I suggest that in heterogeneous neighborhoods, programs implemented at higher scales may more cost-effectively drive the uptake of specific actions (though empirical research is needed to investigate this).

Moreover, given a world of scarce resources for neighborhood-level sustainability programs, I suggest that CBSM strategies should seek to build off of the characteristics of neighborhoods that set them apart from other geographic scales. As discussed in Chapter 1, neighborhoods are the places that people know best and are most concerned with (Rohe 2009). They thus provide unique opportunities to engage residents and build the critical "attachment to place" described by Uzzell et al. (2002).

Along these lines, CBSM strategies to promote specific environmental actions will be most relevant when they: address problems that residents care about, provide community-level benefits, are led by a credible neighborhood institution, and/or are part of broader long-term sustainability efforts. I propose that these types of programs are more likely to generate support for environmental actions. They also appear more likely to enable discussion and social diffusion within neighborhoods. Last but not least, CBSM programs that involve community-level issues or benefits are more likely to foster neighborhood identity and other factors that can pave the way toward long-term neighborhood sustainability. I expand on CBSM's relationship to long-term sustainability in Section 3.

Section 2: Additional Concerns and an Alternative Model

In this section, I outline practical and ethical concerns related to the expert-driven model of CBSM. I conclude that involving representative local residents in all aspects of program design can effectively address the majority of these concerns. I present Bryant et al.'s (2000) model of "Community Based Prevention Marketing" in public health that adopts this participatory approach.

Practical Limits to Expert Evaluations of "The Right Tool"

It is not clear that outside environmental expert can accurately select the "best" measure to address an environmental problem. First, experts may lack important knowledge about the unique characteristics of the local environment, and about variations across the study area. For example, in Moray, many homeowners recognized water flows as a concern. However, many also concluded that rain gardens would not be relevant because of the high water table. This conclusion conflicted with an earlier consultants' report statement that "stormwater management measures such as rain gardens are appropriate for most of the study area". Upon revisiting the water table map upon which the consultants' statement was based, it became apparent that the Moray area may not in fact be a good place for rain gardens, precisely because of the very high water table (less than five feet from the surface). Outside experts may need local knowledge to appropriately evaluate the environmental relevance of different measures to a community, particularly when there are important biophysical differences within "the community".

Second, experts may lack important knowledge about the community's unique physical, social, economic and cultural characteristics that may make one option more feasible than another. For example, models may show that rain gardens are most cost-effective *and* require lowest adoption rates to achieve a certain reduction in stormwater runoff. However, if rain gardens are not feasible in Jane-Finch because downspouts are at the side of houses – or because most people like to plant a certain type of vegetable that cannot stand to be flooded – then an expert's assessment of the likelihood of achieving a certain uptake rate based on national averages will be totally inaccurate.

Finally, it is not clear that outside environmental experts can accurately identify "the environmental problem" that should be the target of environmental action, and CBSM. While stormwater runoff may be highly relevant from a long-term regional perspective, the neighborhood of Jane-Finch may be facing a much more urgent and dire "sustainability" problem related to the rising cost of energy and the particularly high inefficiency of the 1960s building stock.

Practical and Ethical Limits to Persuasion

First, there are limits to what CBSM can and should be used to promote. For example, there is the danger of seizing on benefits that may be minimal or disproportionate to the effort that the measures require. En excellent advertising campaign stating that rain gardens are a great way to save money on water bills may mislead homeowners into creating a rain garden rather than pursuing more cost-effective water conservation measures. Presumably, the initial CBSM research would reveal the limited potential of rain gardens to meet the social and economic needs of homeowners. However, the CBSM methodology

does not include the step, "re-evaluate whether you have selected a measure that provides real benefits to the citizens of the community in question". I also suggest that persuasion is unlikely to convince a homeowner in any neighborhood to sacrifice their children's soccer field for the sake of rainwater infiltration.

Communication Barriers and Equity Concerns

It is very clear that not all residents of the three neighborhoods would receive a message delivered in the same language through the same channel. Particularly in neighborhoods like Jane-Finch, where diversity is high and not all homeowners speak or read English fluently, social marketers will need to use wide arrays of communication channels. Promotional materials will need to be multilingual, and delivered through churches, schools, community centers, grocery stores, and other relevant venues. In addition, multilingual social marketing research is needed to ensure that products provide culturally relevant benefits and address the concerns of all groups.

There is a real concern that environmental programs with limited budgets will skip investments in these activities that may have a high cost per capita. If social marketing excludes certain marginalized groups, but is otherwise effective – in that it succeeds in providing products that people value – then it will aggravate current inequalities. For example, immigrant populations in Jane-Finch may be most economically distressed and in need environmental cost-saving measures; they may also be least likely to figure out how to access government funding for energy efficiency upgrades. Selecting actions that are only relevant to owners of single-family homes may also be viewed as inequitable. Community-based social marketing must thus make an explicit effort to provide benefits to marginalized groups and to equalize access to opportunities.

Summary and Alternative Model

McKenzie-Mohr's CBSM raises a number of short-term concerns:

- The exclusion of local knowledge threatens the effectiveness of strategies.
- There are significant obstacles to reaching all members of the neighborhood.
- There is the risk of inappropriate use of "persuasion" strategies.

Meaningful involvement of diverse stakeholders throughout the process can address these problems in the following ways:

- Stakeholders can inform social marketers' understanding of the "environmental" problems in the neighborhood and the appropriate measures to address them.
- Stakeholders that represent the diverse segments of the community can inform the selection of communication venues and strategies.
- Stakeholders that represent the diverse segments of the community can "keep social marketers honest", both in ensuring that benefits are accurately represented, and in ensuring that all community members have an equal opportunity to access benefits.

In addition, when promoting activities like rain barrels that provide important non-environmental benefits, the stakeholders that represent diverse segments of the community can provide a good indication of what benefits will be valuable to whom. Finally, stakeholders can work with social marketers to define program boundaries that are environmentally and socially appropriate.

As discussed in Chapter 1, McKenzie-Mohr and Smith (1999) present the option of having a stakeholder advisory committee but strongly de-emphasize the importance of this aspect of program design. He also presents surveys and focus groups as meaningful forms of "public consultation". However, the planning literature and the results of this research suggest that social marketers must go much further to achieve meaningful public involvement.

To ensure credibility and legitimacy of community-based social marketing, I suggest that program developers should adopt Bryant et al.'s (2000) methodology of meaningful community engagement. Although Bryant et al.'s (2000) Although "Community-Based Prevention Marketing" (CBPM) is aimed at health professionals, its ideas can be applied in the environmental field as well. CBPM stands out from CBSM in that it involves community members and organizations in defining the problem and scope of work:

> In the CBPM framework, community and academic partners work jointly in carrying out a 9-step process: (1) mobilize the community; (2) develop a profile of community problems and assets; (3) select target behaviors, audiences, and when possible, interventions to tailor; (4) build community capacity to address the priority or target problem; (5) conduct formative research; (6) develop a marketing strategy; (7) develop or tailor program materials and tactics; (8) implement the new or tailored intervention; and (9) track and evaluate the program's impact. Community participation, ownership and empowerment are central concepts in the CBPM model, while marketing techniques are used to guide specific program planning and implementation (Bryant et al. 2010).

Bryant et al. (2010) describe how the first step of mobilizing the community also involves building a committee or coalition structure and operating principles.

This model involves community members in problem diagnosis and in "joint fact-finding" for strategy development, thereby increasing the likelihood of an accurate identification of both problems and appropriate solutions. For example, in Moray, the leadership group might commission a study of what types of cisterns, rain gardens, or other soft-path solutions might help with stormwater management and flooding. This model can also build "bridges" across identity groups and enhance social diffusion. Finally, engaging community members in all aspects of program design will provide important benefits in the implementation stage of the program. Rather than recruiting "community block leaders" to deliver expert-driven marketing scheme, community members who have been involved from the start will feel invested in the program's success and will have a personal interest in the uptake of measures within the community. Finally, CBPM involves the creation of a collaborative governance institution that can contribute to neighborhood capital and long-term sustainability. This opportunity is discussed at greater length in Section 3

There remains a danger that CBPM will only attract "diverse" community members who self-identify as environmental. Providing financial incentives to program designers may help to avoid this problem. Orienting social marketing towards issues of broader relevance to long-term sustainability can also increase willingness to participate in planning, and can increase program longevity and success.

Section 3: CBSM and Long-Term Neighborhood Sustainability

In this section, I conclude that CBSM would be of limited use in directly promoting long-term sustainability because neighborhood priorities cannot be addressed through individual actions alone. I highlight the need for institution building to enable community-level efforts on these issues, and suggest that partnerships with outside organizations would also be required. However, I identify opportunities to use CBSM tools and approaches to build social capital, to catalyze additional neighborhood-level efforts, and to increase understanding of the concept of sustainability. I suggest that modified versions of CBSM have the potential to indirectly contribute to long-term neighborhood sustainability.

CBSM and Neighborhood Priorities for Long-Term Sustainability

It seems clear that tackling the three neighborhoods' long-term priorities would require building partnerships and institutions. Not surprisingly, this suggests that CBSM cannot play a central or leading role in the pursuit of long-term sustainability, though it may eventually be relevant to these issues. All three neighborhoods appear to be currently lacking the capacity to make progress on their priorities for sustainability.

As discussed in Chapter 4, residents of Fontainbleu, Moray and Jane-Finch expressed diverse priorities for long-term sustainability. Fontainbleu residents were most concerned about the lack of sidewalks, bus stops and commercial amenities in proximity to their community. Moray residents were passionate about restoring the Lake and increasing opportunities for outdoor recreation. Jane-Finch residents emphasized the importance of changing their neighborhood's negative stigma. All of these issues are central to residents' sociocultural wellbeing, though they have evident environmental and economic dimensions. Tackling these issues would appear to require joint planning, community-level action and leadership from effective neighborhood institutions. There are also limits to what can be accomplished on these issues without building partnerships with local governments and other outside institutions.

In Jane-Finch, efforts to improve the neighborhood's reputation would likely begin with a broad-based planning and visioning stage. Input from all segments of the neighborhood would be required to decide what the neighborhood would like to be known for. There are multiple possible avenues that could contribute to the Jane-Finch's de-stigmatization. For example, improving the neighborhood's reputation might involve designation of the area as a city Business Investment Area; it might involve public investment in streetscapes or community events; it might seek to tap the citywide nonprofit resources to build a strong art and music scene; it might involve joint public-private efforts to improve the state of high-rise apartment buildings. Finally, residents might be required to volunteer their time to implement projects, or they might be asked to take action on their homes to contribute to the theme or goals. A neighborhood institution would need to coordinate the early planning stage, and would then to need to develop links with supporting organizations.

In Moray, efforts to influence the upcoming planning process for Lake Wilcox would have to begin with a search for information on possible levers, coalitions or other sources of power. Neighborhood residents would also do well to come together and attempt to establish their shared interests and visions. An important step would be to build relationships with the

Town of Richmond Hill and the Conservation Area who are likely to be leading the planning process. Residents could also work together to generate creative options that provide new opportunities for recreation in the area without fundamental changes to the Lake itself. Finally, plans or agreements might involve commitments on the part of residents to practice low-impact landscaping and to manage stormwater on their properties. The early visioning and strategizing phases would require a local institution, and the follow-up steps would be likely to require links with public sector actors.

In Fontainbleu, efforts to provide the community with transportation alternatives and local amenities would likely need to start from conversations with the influential parties: the Town and developers. These conversations could also explore the conditions under which current residents would be willing to support the upcoming and much-feared developments in the area. If there were some combination of new developments, transportation infrastructure and local amenities that was mutually agreeable, individuals within the community might also be asked to support these investments by committing to shopping locally or reducing their vehicle miles traveled. The greatest challenge would be to establish a bargaining position. To convince the influential public and private sector actors that their interests are legitimate and that a mutually acceptable solution is possible, Fontainbleu residents would need to speak with a unified voice and would benefit from finding additional sources of support. Establishing a more formal neighborhood organization would appear to be a needed first step.

Again, these pathways are not prescriptions or even suggestions. Rather, they are intended to stimulate thought about what can be accomplished at the individual-level, what requires neighborhood-level organization, and what requires negotiation and collaboration with actors outside the neighborhood. Sustainability efforts will be more successful in the long term if actors at all levels acknowledge that they have a role to play in making progress towards long-term sustainability. However, it seems that neighborhoods will need to develop institutional capacity and partnership-building capabilities before individual-level actions (and CBSM) can play a meaningful role in directly advancing sustainability goals.

Based on the analysis in Chapter 4, it also appears that all three neighborhoods currently lack the capacity to effectively take action on their priorities for long-term sustainability. In Jane-Finch, weak street-neighborhood ties, strong ties within ethnic groups, and strong reciprocity do not seem to have led to any sense of collective efficacy or attempt at neighborhood organization. Neighborhood identity appears weak, and the vision for sustainability remains vague. In Fontainbleu, informal institutions have helped to generate weak ties and a moderate sense of neighborhood identity. Neighborhood priorities are fairly clear, though there is little sense of collective efficacy to make progress on them. In Moray, there is no neighborhood institution and no apparent sense of collective efficacy despite strong and weak ties, reciprocity, neighborhood identity, and a shared desire to bring recreation back to Lake Wilcox. Though organization seems well within the realm of possibility in Moray, a trigger event or opportunity might be needed. In the sections below, I describe how CBSM tools and approaches may be able to build elements of social capital that underlie effective neighborhood institutions. They may also contribute to long-term sustainability by increasing awareness of the links between issues.

Modifying CBSM Tools to Contribute to Long-Term Sustainability

As discussed in Chapter 1, the basic model of community-based social marketing does little to build any of the elements of neighborhood capital. It relies on existing social ties and norms for social diffusion. It also seeks to use existing credible institutions for program delivery. However, CBSM programs and tools can be modified or enhanced with an eye to building new capital within neighborhoods. In Chapter 1, I provided general examples of how these tools could be used to build social capital and indirectly contribute to long-term sustainability. In this section, I provide specific ideas tailored to the neighborhoods in question. These ideas are intended as "proof of concept" rather than prescription.

Fontainbleu: Messaging for Attachment to Place and Neighborhood Identity

As described in Chapter 2, Fontainbleu residents feel detached from Lake Wilcox and the community of Oak Ridges – including its water bodies and natural features. Messaging that emphasizes residents' connection with the Oak Ridges Moraine and nearby water bodies can enhance residents' awareness of the place they live and understanding of its ecosystem function. This may contribute to attachment to place and neighborhood identity.

Jane-Finch: Prompts for Attachment to Place and Neighborhood Identity

Jane-Finch residents live right beside Black Creek and many use the recreational path alongside it very regularly. Nonetheless, Jane-Finch residents did not demonstrate any awareness of its ecology or hydrology. They also seemed unaware that the storm sewers on the street carry rainwater directly to Black Creek. "Prompts" such as painted fishes on storm drains can be an effective way of reminding people of the connections between the built and natural environment. Education signs in parks or on street trees can perform a similar function. Increasing residents' daily awareness of the connection between humans and ecosystems can help foster an attachment to place and neighborhood identity that goes beyond the appreciation of local malls described in Chapter 4.

Moray: Group Goals and Feedback for Collective Efficacy

As discussed in Chapter 4, Moray residents already have strong social ties and a sense of neighborhood identity that connects them to their neighbors and to the physical place they live. A successful group effort towards a shared goal (or even "shared commitment") would contribute to residents' collective efficacy. Using "feedback" to monitor progress towards group goals could sustain the energy level needed for success.

Demonstration Projects for Weak Ties (Modeling)

In all neighborhoods, demonstration projects hold great promise for CBSM. They provide a useful way to introduce new concepts, as described by the two residents who expressed an interest in seeing rain gardens for themselves before passing judgment. Demonstration projects can introduce an array of benefits, and simply leave it up to the viewer to determine the most important benefits of these actions. They can also serve as conversation starters and provide opportunities to build weak ties. They may even help to build a sense of neighborhood identity if "branded" well.

Block Parties and Neighborhood Festivals

Though not described by McKenzie-Mohr and Smith (1999), I suggest that community events should be on every CBSM practitioner's list of tools for social diffusion. Street

festivals immediately provide large audiences, and feature extensive social interaction. Marketing environmental actions as part of these broadly appealing events can stimulate conversation and interest. In all neighborhoods, block parties and neighborhood festivals also provide opportunities to strengthen existing social ties and build new ones. In Moray, well-connected residents hailed block parties with great enthusiasm, as they always welcomed opportunities to socialize time with neighbors. These types of formal social events could also help newcomers to become a part of the tightly knit community. In Jane-Finch, neighborhood-wide events could help to build neighborhood identity and improve its negative reputation (as discussed in Chapter 4). Incorporating outdoor recreation or environmental education components would also help to foster an attachment to place.

Modifying the CBSM Approach to Contribute to Long-Term Sustainability

It is undoubtedly challenging for a neighborhood to move from social ties, supporting networks and collective norms to collective efficacy and neighborhood institutions. As described by Selman (2001), geographically defined communities generally organize for collective action in reaction to a perceived injustice or threat. It is quite rare for neighborhood residents to organize to improve over the status quo. Thus, organizing for long-term sustainability seems unlikely to spontaneously occur. Even the community organizing approach often involves an outside *community organizer* who can bring neighborhood residents together to identify areas of mutual concern (Pilisuk et al. 1996). In practice, it seems that local sustainability efforts are more likely to be initiated by outside institutions than through grassroots efforts (Blake 1999, Smith and Blanc 1997). In light of the importance of leadership and catalysts for action, I suggest that practitioners from outside organizations with funding for neighborhood programs (e.g. social marketers) can seize the opportunity to bring residents together to identity shared interests.

Like in Bryant et al.'s (2000) model of CBPM, social marketers would begin by building a committee or coalition of diverse stakeholders. However, rather than starting from a collaboratively diagnosed "environmental" problem, the effort would start from a collaboratively diagnosed "neighborhood" problem or opportunity. It would then look to incorporate environmental benefits into the project or program as feasible. In the section below, I describe how the five methodologically rigorous steps of community-based social marketing can be applied to identify a feasible and exciting "sustainability" project. I suggest that this type of short-term effort could help to build collective efficacy, enhance neighborhood identity, and serve as a "pilot" for a permanent neighborhood institution.

Five Steps to a Sustainable Communities Project

I suggest that the five steps of community-based social marketing can be applied in order to develop a neighborhood project or program that achieves multiple goals. Rather than starting with the selection of the behavior, it begins with an assessment of current institutions, ongoing projects, and groups within the community who should be part of the program development process. The next three steps align well with McKenzie-Mohr and Smith's process. I assume a "social marketer" from an outside organization with a set budget for program development and implementation. These resources provide residents with an incentive to participate and increase the likelihood of program success.

1. *Identify opportunities*: Using focus groups, surveys, and interviews with neighborhood residents, the leadership committee will seek to gauge residents' thoughts on the following questions: What would improve this neighborhood ecologically, economically and socially? What types of projects or programs would you personally be interested in participating in? Would you be interested in being part of project development?
2. *Design a project or program:* Based on this information, the leadership committee can then design a project or program that is feasible, can be completed in a reasonable time frame, and that will have broad-based support.
3. *Pilot the concept and its ability to engage residents:* The committee can test the idea's appeal using additional meetings or focus groups, and based on whether residents who had expressed interest are willing to partake in aspects of planning or implementation.
4. *Market the program well:* Effective marketing (CBSM tools) can be used to increase community members' interest in the project. It should also clearly point out the links between social, economic and environmental issues that make it a "sustainability" project. It should use vivid, personal messaging, encourage conversations, and promote visibility. (Free, buttons, hats, or stickers can serve as additional conversation starters.)
5. *Evaluate the model:* After the program or project's (hopefully successful) completion, the leadership committee and others who have been closely involved can assess the following: Do we want to take on other projects? Do we feel that this approach to sustainability is promising? Does this type of institution work in this community? Who else would need to be involved to increase the success of future projects or programs?

What types of projects might be amenable to this approach? In all three neighborhoods, renewable energy projects could be exciting, short-term financially feasible options (thanks to Ontario's Feed-In-Tariff program). Many residents also expressed an interest in outdoor recreation programs and events, particularly for youth. Other examples might include: urban agriculture projects, streetscape or park beautification projects, job training programs, art exhibits or youth photography programs. Organizing a community-wide festival or celebration would be a popular option that could be tailored for different neighborhoods.

I summarize the desired theory of change. Social ties will develop between the diverse members of the leadership committee. Stakeholders who work together to design and implement a program will develop a sense of collective efficacy. They will also develop an understanding of what neighborhood residents are interested in, and of what can stimulate widespread engagement. If the temporary institution (leadership committee) proves effective and the program is deemed a success, the institution may become a more permanent fixture in the neighborhood. Because of the diversity of its founding stakeholders, the institution may prove capable of engaging diverse residents and building weak ties between them. Finally, if its programs are truly relevant, they can contribute to a broader sense of neighborhood identity and collective efficacy. In addition to building neighborhood capital, these types of projects could serve as local proof of concept for broad-based "sustainability". They could demonstrate opportunities to identify links between environmental, economic and socio-cultural wellbeing, and to make progress in

multiple realms. Furthermore, the early research stages of the process could underlie future efforts to address neighborhood priorities.

This theory of change is supported by a number of authors. De Sousa (2003) describes how social networks, long-term interactions, capacity-building and "social capital" emerged unexpectedly as major benefits of a greening project in Toronto. Selman (2001) emphasizes that practical tasks are needed to generate enthusiasm and draw participants beyond the usual suspects. He goes further in emphasizing the possible links with long-term sustainability.

> Sustainable development... will not maintain enthusiasm to the same extent as practical tasks. Equally, though, practical tasks must be linked to a 'bigger picture' so that learning about sustainability occurs, and people become committed on a long-term basis. Opportunities for public involvement in general plan-making often meet with general apathy; the most evident instances of effective participation are ones where individuals, often as residents, are presented with a specific opportunity to improve their immediate quality of life (Selman 2001).

In summary, I argue that CBSM has limited potential to directly address neighborhoods' long-term priorities. However, there may be opportunities to use CBSM to indirectly contribute to long-term sustainability. Modified versions of CBSM may be able to:

- Build diverse elements of social capital,
- Increase neighborhood identity and attachment to the place,
- Enhance understanding of links between environmental, social and economic issues,
- Catalyze additional organization and action for sustainability.

In the following paragraphs, I briefly outline neighborhood-level sustainability efforts that illustrate some of the approaches described above.

Examples of Different Approaches To Neighborhood Sustainability

Three ongoing neighborhood sustainability efforts can be seen to incorporate these modified CBSM methods or principles: LoDo Denver Living City Block, Portland EcoDistricts, and the Kansas City Green Impact Zone.

Living City Block, LoDo Denver: In Denver, an outside organization convened local stakeholders and brought in outside resources to jump-start a district-wide energy efficiency effort. Like in the Bryant et al. (2000) model, they started from an environmental focus: reducing energy consumption and environmental impact. Adopting a traditional CBSM approach, the primary goals are based on measurable reductions in resource use:

> By the summer of 2012, Living City Block Lo Do Denver will have reduced its aggregate energy use by 50%. By the summer of 2014, LCB will have reduced total resource use 75%, and by 2016 we will have helped at least two historic buildings reach a net zero energy profile. (Living City Block 2011)

However, program designers have worked closely with local and external partners to design and implement the project. They have also paired their primary focus on energy with the intent to enhance other elements of a "thriving urban community" (Living City Block 2011). Community engagement related to energy efficiency has been supplemented with charettes on transportation, place making and infrastructure.

EcoDistricts, Portland: The EcoDistricts Initiative is an example of an outside organization seeking to engage districts in the development and implementation of concrete sustainability projects. It is a partnership between the City of Portland and the Portland Sustainability Institute that seeks to provide scalable project capital and public policy support for building and infrastructure projects (PoSI 2011). The Initiative currently suggests a technical assessment and environmental goals; as described in Chapter 1, community members were not impressed with the environmental performance areas that were proposed to structure the discussion. However, they enthusiastically participated in identifying specific projects that linked environmental, sociocultural and economic goals (e.g. stormwater management facilities alongside streetscape improvements) (DistrictLab 2010, cited by Bassett 2010).

The Ecodistricts Initiative demonstrates the opportunity for outside organizations to initiate and support sustainability projects that generate social capital. It also highlights the possibility of starting from neighborhood priorities to achieve environmental benefits and to generate excitement about the concept of sustainability.

Green Impact Zone, Kansas City: The Kansas City Green Impact Zone demonstrates the opportunity for CBSM to directly improve long-term sustainability once effective local organizations have established goals and strategies. In Kansas City, local groups identified priorities, developed links with outside actors, and then developed programs requiring individual- and community-level action.

As described on their (2011) website, they "assembled a core team of leaders within the neighborhood and community development organizations... [and assembled] the programmatic, nonprofit, private, and civic leadership necessary to support a comprehensive strategy". They identified issues related to economic and sociocultural wellbeing:

> "The zone has experienced extreme abandonment, with about 25 percent of its properties in vacant lots and another one-sixth in vacant structures. Unemployment...[is] estimated to be as much as 50 percent in parts of this zone. Fewer than half the homes are owner-occupied. Almost 20 percent of all mortgages were delinquent over the last two years. Median home prices for the area are under than $30,000. The Green Impact Zone strategy [aims] to transform this community to a thriving, sustainable neighborhood — not just to hold the decline at bay." (MARC 2011)

They then established five program areas that affect people's daily lives and that can improve long-term environmental, sociocultural and economic wellbeing: housing and weatherization, employment and training, public safety and community services, energy and water conservation, and infrastructure. In each priority area, they are developing new programs and promoting existing program. The success of the Green Impact Zone will depend in large part on the individual uptake of these programs; CBSM tools may thus be able to play an important role in long-term sustainability.

Conclusions and Recommendations

In this thesis, I combined findings from the literature with results of interviews to explore the relevance of community-based social marketing to sustainability at the neighborhood scale. I recognize that my 'findings' would be more accurately labeled 'hypotheses for further research'. Nonetheless, I am confident concluding that CBSM must be used more thoughtfully than suggested in the existing literature. I leave practitioners with a list of questions to address when considering a neighborhood-level CBSM approach.

Why the Neighborhood?

For CBSM to be effective, there must be a clear theory of why action at the neighborhood-level will achieve more than action in other venues. Social marketers may choose the community level because of the presence of a local environmental problem that can rally the community to take specific actions. Social marketers may choose the community level because of residents' shared identity, or because of ties to a community-based organization that can catalyze diffusion. Finally, social marketers may choose to incorporate a CBSM strategy or approach within a broader effort to promote long-term neighborhood sustainability. However, for some programs, the "neighborhood" may not in fact be the best venue for marketing activities. This is particularly relevant in diverse neighborhoods where residents may not think about their neighborhood as their "community". *Community-based social marketing efforts should clearly evaluate the advantages and disadvantages of choosing the neighborhood as a starting point for a program.*

How can individuals benefit from this activity?

A core theory of social marketing is that you have to provide people with benefits that they value. People lead busy lives, and are motivated to take an action *because there is a reason to do so,* rather than because there are few reasons not to. People may also be interested in different benefits of an activity. They will thus be responsive to different marketing strategies and will want different products. *When individual uptake is the primary goal, CBSM efforts may benefit from adopting traditional social marketing ideas about purposeful market segmentation and maximization of benefits that people value.*

How can "the neighborhood" benefit from this activity?

Even if individuals do not stand to directly gain from an activity, programs and products can be designed to address neighborhood-level concerns and to provide place-based benefits. CBSM may start from a specific environmental activity, and look for ways to generate local benefits through program design. Or, CBSM may start from a local priority and develop a sustainability activity accordingly. When CBSM programs are designed with clear local relevance, it will be easier to craft concrete, personalized, and vivid messages. Social diffusion is also likely to be enhanced. Psychological models are not needed to explain why people are more likely to talk with their neighbors about issues that are interesting and relevant to them. Furthermore, linking environmental activities to economic and sociocultural neighborhood issues can increase community members' understanding of the concept of "sustainability". *CBSM practitioners should identify actions and design programs that are meaningful to neighborhood residents in order to increase their success and contribute to long-term sustainability.*

Who should be involved in social marketing program development?

There are practical reasons why involving diverse community members in all aspect of program development will increase a CBSM program's success. Local residents understand aspects of the economic, social and physical environment that outsiders cannot. They will be best equipped to identify important neighborhood issues and opportunities for CBSM strategies to provide neighborhood-level benefits. They will also be well placed to help social marketers understand individual-level benefits that may motivate the adoption of a behavior. From an ethical perspective, involving representatives from different segments of the neighborhood will ensure that costs and benefits are fairly distributed across groups and that social marketers do not abuse the power of persuasion. Finally, CBSM programs with collaborative governance structures can build social ties, create a sense of collective efficacy, and motivate further neighborhood-level sustainability action. *CBSM strategies that involve diverse community members have the potential to be more effective, more ethical, and more likely to stimulate further sustainability efforts.*

How can CBSM contribute to long-term sustainability?

It is clear that community-based social marketing alone is unlikely to lead to long-term neighborhood sustainability because progress on neighborhood priorities generally requires action beyond the individual level. Neighborhood-level organizations will usually be needed to catalyze action and their efforts will further benefit from the support of outside institutions. However, CBSM may contribute to long-term sustainability if it can strengthen ties between residents, increase attachment to place, build neighborhood identity, and generate a sense of collective efficacy. At their best, CBSM efforts may be able to catalyze or support the development of neighborhood institutions. I suggest that McKenzie-Mohr and Smith (1999) may be misguided in emphasizing that behavior change is the only metric of CBSM program success. A CBSM program that leads to the uptake of 30 rain barrels *and* stimulates neighborhood-wide engagement may be much more valuable to neighborhood sustainability than a program that leads to the passive uptake of 100 rain barrels. *CBSM programs at the neighborhood level should also be evaluated based on their ability to contribute to long-term neighborhood sustainability.*

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Appendix A: Selection of Areas within the Two Neighborhoods

I acknowledge that it would have been preferable to select streets based on actual sale prices over a number of months or years; this would have ensured that all streets were included as candidates and would have eliminated any differences in the discrepancies between listing prices and sale prices. However, this was not feasible given the limited time frame of the research. Census data on property value and other socio-economic indicators were not deemed appropriate selection criteria because of the large variations within "dissemination areas", particularly in the Jane-Finch neighborhood. The dissemination area is the smallest unit for which census data is available; this data is nonetheless presented in the section below, as part of the detailed description of the areas.

In the Oak Ridges neighborhood, houses on the adjoining streets of Pagean Avenue and Paradelle Avenue had highest listing prices. Three houses were for sale, with prices ranging from $899,000 to $969,000. Lowest listing prices were found on Moray Avenue and the adjoining street, North Lake Road. One house was for sale on each of these two streets, with listing prices of $379,000 and $458,000. The areas of Pagean / Paradelle and Moray / North Lake Road are physically different along the following variables: age of housing stock, tree canopy cover, and proximity to Lake Wilcox and the Oak Ridges Trail. Pagean and Paradelle Avenue are located within a housing development community entitled "Fontainebleu". Hereafter, the more expensive Pagean / Paradelle area is referred to as the Fontainebleu area. The less expensive area is referred to as the Moray area, as the majority of interviews were conducted on Moray Avenue. Maps of the boundaries of these areas and their location within the larger neighborhood are included below as Figures X, Y and Z. Photographs of houses and streets within each area are included in Chapter 2.

In the Jane-Finch neighborhood, highest listing prices were located on Hoover Crescent. The two houses for sale were listed at $469,000 and $379,000. Lowest housing prices were located on Driftwood Avenue, at the corner of Venetian Crescent. Two houses were for sale, listed at $269,900 and $309,000. As described in greater detail in Chapter 2, these two areas are physically different in that Hoover Crescent is a Radburn-style crescent, with fairly large bungalow houses, a school at the end of the street, and minimal outside traffic. Driftwood Avenue and Venetian Crescent features smaller, two-story, duplex-style houses, in close proximity to high-rise apartment buildings and inexpensive condominiums, with significant outside traffic. They are close to different parks and sections of the Black Creek multi-use trail. Hereafter, the more expensive area is referred to the Hoover area (all interviews were conducted with residents of Hoover Crescent). The less expensive area is referred to as the Venetian area, as four of the seven interviews were with residents of Venetian Crescent. Photographs of houses and streets within each area are included in Chapter 2.

Appendix B: Recruitment, Interview Process, and Data Analysis

Recruitment and Interview Process

Oak Ridges interviews occurred March 10-13, 2011. Jane-Finch interviews occurred March 19-22, 2011. I dropped off letters at all 30-40 houses before beginning in-person recruitment. This recruitment letter included a brief description of my research on "neighborhood improvement programs" and invited homeowners to call or email me to schedule an interview time. However, only one of the thirty interviewees contacted my to schedule a time. I recruited the other 29 homeowners in person, by knocking on doors up and down the street. Residents had the option of being interviewed in their home on the spot, or of scheduling an interview at a later time, in their home or in an outside location. All residents chose to be interviewed in their homes. Interviews lasted between 25 and 75 minutes, depending on the length of participants' responses.

The initial research protocol was revised based on a pilot interview with a homeowner in Boston on March 5. A few questions were removed from this revised protocol after the first few interviews with Oak Ridges homeowners. For example, questions on willingness to pay for rain gardens were deleted because of homeowners' difficulties responding. The final interview protocol is included as Appendix A. Over half of interviews were recorded, after I had received written consent from participants.

I re-listened to all recorded interviews in the two weeks after they occurred. I took detailed notes on all content and transcribed the sections of greatest relevance. Where residents did not provide permission to record, handwritten notes were typed up and expanded on within 48 hours of the interview. After a general analysis of themes and trends in each neighborhood and across neighborhoods, each interview was analyzed individually.

It is worth noting that variations in interview protocol and in residents' interpretation of questions let to a few discrepancies in data. First, the written / paper-based activities described above were not used where it was impossible or inappropriate to do so. Residents with physical disabilities, very weak English language skills, poor vision, or low literacy levels were not asked to complete these tasks, leading to some cases of "missing data". This was particularly relevant in the Venetian area of Jane-Finch. Where feasible, oral questions were used as a replacement for written tasks. Also, some residents used rankings rather than ratings for program design, and these were interpreted accordingly.

Data Analysis

I used ratings from 0 to 5 to compare certain aspects of residents' responses. I assigned a 0 where a topic was dismissed or not mentioned, and a 5 where a topic was emphasized as an important priority. While somewhat subjective, ratings were based upon specific comments and effectively allowed for categorization and comparison. I view the numbers

in between 0 and 5 as falling along a continuous scale. The following themes/ characteristics were coded in this way:

- Level of interest in different sustainability themes (those in the diagram and others)
- Level of support for rain barrels and rain gardens "in theory" (perceived benefits)
- Level of support for rain barrels and rain gardens "in practice"
- Level of identification with New Environmental Paradigm (NEP) environmentalism.

To create the tables of neighborhood priorities presented in Chapter 4, I tabulated the number of people in each area who expressed "interest" or "support" for different sustainability themes, defined as a 3, 4, or 5.

For rain barrel and rain gardens, ratings of theoretical and practical interest were considered in conjunction with people's qualitative description of benefits and barriers (see section below), and their described willingness to purchase or accept "free and installation-less" rain barrels and rain gardens. Each resident was then placed into one of five groups:

- No interest or perceived benefits (very low support for measures in theory)
- Theoretical support, but no interest in having one (medium or high support in theory, very low support in practice / high barriers)
- Willing to accept a "free and installation-less" barrel / garden but unwilling to pay (medium or high support in theory, low barriers)
- Willing to actively create one or purchase one (high support in theory, low barriers)
- Already owns and uses one

See Chapter 3 for these results. I acknowledge that these categorizations can be questioned on two grounds: the researcher's subjective judgments, and the gap between people's stated willingness and actual behavior. While I concede these categorizations may be somewhat optimistic, I am confident that they accurately describe the variation and trends in people's interest in acquiring rain barrels and rain gardens.

Benefits and barriers of rain gardens and rain barrels were also analyzed independently. Descriptions of benefits and concerns were first compiled and analyzed qualitatively, by pulling out key words and concepts. They were then organized and tabulated as follows.

Barriers: Barriers to rain barrels and rain gardens were tabulated and ordered according to the number of residents who described them as a major issue. Many residents mentioned two, three or four concerns; each concern that was described as "major" was attributed a full count, so numbers in this table (Table X) add up to more than 30. This counting methodology was chosen because barriers and concerns were emphasized as separate factors preventing implementation of these measures; addressing one of the three or four mentioned by a single resident would not be sufficient to enable implementation.

Benefits: Benefits of rain barrels and rain gardens were also tabulated and ordered according to the number of residents who mentioned them (Table X). However, this table did not convey their relative importance. Unlike for barriers - where any one of four would prevent implementation – residents only needed to perceive one important benefit to consider the adoption of these measures. Many residents emphasized one type of primary

benefit, though many described two that seemed to weigh into their evaluation equally. Furthermore, trends quickly emerged in the "types" of benefits that residents described – and they re-emphasized these themes and benefits in other discussions about sustainability and environmental actions. As explained in greater detail in Chapter 3, residents described specific sets of benefits and motivations for environmental actions that tied closely to their identities and worldviews. Table X in Chapter 3 illustrates the distribution of "environmental identities" across the four neighborhoods, and describes associated perceptions of the benefits of rain garden and rain barrel (or the lack thereof). Each resident was allocated 3 identity "points" to account for the fact that several residents belong to two environmental identity groups. Numbers in this table thus add up to 90, rather than to 30.

Other questions and themes were best analyzed using a binary scale, and were recorded as either present or absent. These include:

- Current rain barrel / rain garden ownership and use
- Preferences regarding program design
- Emphasis on the responsibility of other actors (local government, developer)
- Emphasis on the importance of considering youth in sustainability and program design
- Familiarity with the concept of "sustainability" or "environmentalism"

Sample Recruitment Letter (Jane-Finch)

Dear Jane-Finch Homeowner,

I am a Master's student in MIT's Department of Urban Planning and I am doing a thesis research project about community participation in neighbourhood improvement programs. As part of this research, I am hoping to interview you about your interest in different types of programs.

Interviews will last approximately 35 minutes. To thank you for your time, you will receive $25 as cash, as a gift certificate, or as a tax-deductible charitable donation.

Interviews can occur anytime on Saturday March 19 or Sunday March 20. They can also be scheduled for Monday March 21 or Tuesday March 22.

You have the option of being interviewed in your home, at the Yorkgate Mall, or at Black Creek Pioneer Village.

If you are willing to participate, you can reach me by phone at 647-239-0768 or by email at dcl@mit.edu to schedule a convenient time.

The broader goal of my research is to help public and non-profit organizations design neighbourhood improvement programs that reach more people and provide greater benefits to residents.

Thank you very much for considering this request! Please feel free to contact me with questions.

Sincerely,

Deborah Lightman

Master in City Planning Candidate 2011
Massachusetts Institute of Technology
647-239-0768
dcl@mit.edu

Additional Information

The information I gain from interviews will be used to write a Master's thesis, to be completed by July 1, 2011. I will not use your name or any identifying information in any publications that come out of this research. I will be sharing anonymous information from interviews with staff of the Toronto Region Conservation Authority (TRCA). The TRCA is providing funding for interviews, and hopes to use the research findings to enhance their neighborhood-level efforts.

You were selected at random and are not obliged to participate in this research. If you do agree to speak with me, you can choose to end the interview at any time. MIT's research review board has approved this research.

Appendix C: Interview Protocol and Supporting Materials

Interview Protocol

What I am doing for my Master's thesis is talking to people who live in the neighborhood to understand why people might or might not be interested in different types of "sustainability" programs. In the first part of the interview, I'll ask you to tell me a bit about your neighborhood. Then I'm going to show you one definition of "sustainability" and ask what you think are the "sustainability priorities" in your neighborhood. In the third part of the interview, I'll ask you about your interest in some specific sustainability initiatives.

Background on the Neighbourhood and Neighborhood Involvement

- How long have you lived in this particular house?
- How old is this house – when was it built?
- How long have you lived in the area?
- Could you tell me a bit about what you like best and worst about the neighborhood? Most important assets? Most pressing problems?
- What community organizations, groups, or programs do you support or participate in? How / why do you participate in these programs?
- Do you have many friends or family in the neighborhood?
- Could you outline what you see as "your neighborhood" on this map?

Background on Sustainability

- If you were developing a "sustainability plan" for your neighborhood, what would you focus on?
- *Introduce diagram*: Which of these ten "themes" would you focus on? What types of specific programs or projects or goals?
- Are you aware of any environmental programs in the neighborhood?

Yards

- How do you use the yards of your home?
- How important to you is the appearance of your yard?
- In an average week in the spring or summer, how much time do you spend working on your yards' landscaping?
- Does water from your roof flow from your downspout into your yard, or is it connected to the storm sewer system?

Barriers and Benefits of rain barrels / rain gardens

- Do you currently have a rain barrel / rain garden on your property?
- Do you know of any of your friends or neighbors that have rain barrels / rain gardens?
- How familiar are you with rain barrels / rain gardens?

(Here I provide all participants with a description and photograph of rain barrels and rain gardens, and a list of the many possible related benefits.)

- At the moment, how interested are you in installing a rain barrel / rain garden on your property?
- What do you see as the main benefits of rain barrels/ gardens? Other benefits... to your family or to your neighborhood?
- What do you see as the main drawbacks of having rain barrels / rain gardens? Others?
- If there were no cost and no time required, would you be interested in having a rain barrel / rain garden magically appear on your lot?

Augmented Value through Program Design
(Physical "sheet of paper" will be used to allow people to manually arrange them)
Rate the following seven programs on a scale from 1 to 7

.

Consent Form

CONSENT TO PARTICIPATE IN INTERVIEW

Study title: Community Participation in Neighbourhood Sustainability Programs

You have been asked to participate in a research study conducted by Deborah Lightman from the Department of Urban Studies and Planning at the Massachusetts Institute of Technology (M.I.T.). The purpose of the study is to explore how neighbourhood sustainability programs can best match the priorities and situations of community members. In particular, it will compare why residents of two neighbourhoods (Black Creek and Jane-Finch) might choose to participate in different types of neighbourhood sustainability programs. The results of this study will be included in Deborah Lightman's Masters thesis. You were selected as a possible participant in this study because of your residence within either the Black Creek or Jane-Finch neighbourhood. You should read the information below, and ask questions about anything you do not understand before deciding whether or not to participate.

• This interview is voluntary. You have the right not to answer any question, and to stop the interview at any time or for any reason. I expect that the interview will take about 30 minutes.

• You can receive $25 in the form of cash, a gift certificate or a tax-deductible donation as compensation for this interview. This funding is being provided by the Toronto Region Conservation Authority to thank you for your time.

• Your name will not be included in any publications that may result from this research. Unless you give me permission, direct quotes will not be included in any publications that may result from this research, and the information you tell me will be confidential.

• I would like to audio record this interview so that I can use it for reference while proceeding with this study. I will not record this interview without your permission. If you do grant permission for this conversation to be recorded on cassette, you have the right to revoke recording permission and/or end the interview at any time.

This project will be completed by June 1, 2011. All interview recordings will be stored in a secure workspace until June 1, 2015. The recordings will then be destroyed. Notes from interviews will be compiled and shared with the Toronto Region Conservation Authority after all indentifying information has been removed.

I understand the procedures described above. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

Please check all that apply:

[] I give permission for this interview to be recorded as digital audio.
[] I do not give permission for this interview to be recorded as digital audio.

[] I give permission for direct quotes to be included in publications resulting from this study.
[] I do not give permission for direct quotes to be included in publications resulting from this study.

Name of Subject_____

Signature of Subject _____ Date _____

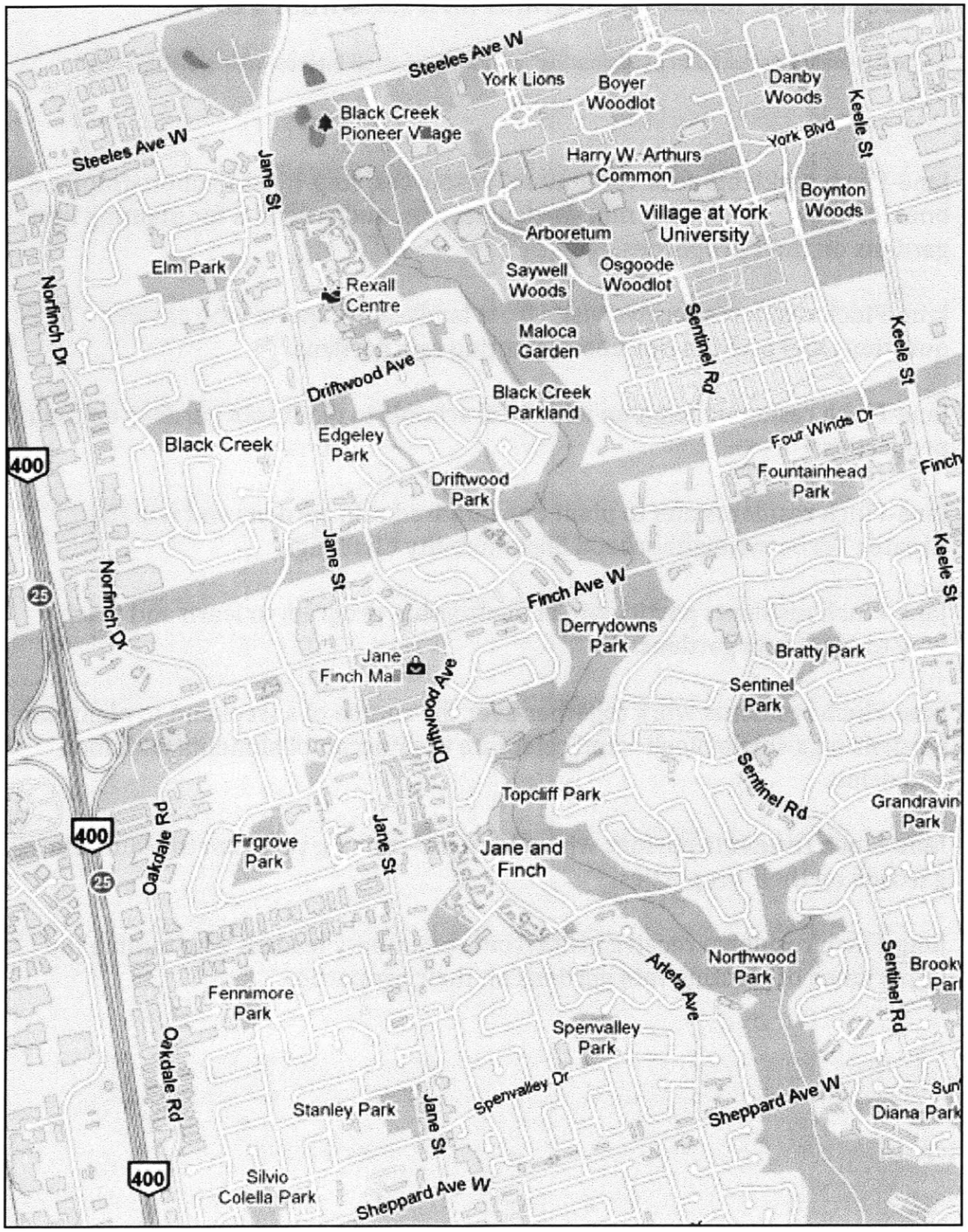
Signature of Investigator _____Date _____

Please contact Deborah Lightman with any questions or concerns at 617-999-8443 or at dcl@mit.edu.

If you feel you have been treated unfairly, or you have questions regarding your rights as a research subject, you may contact the Chairman of the Committee on the Use of Humans as Experimental Subjects, M.I.T., Room E25-143b, 77 Massachusetts Ave, Cambridge, MA 02139, phone 1-617-253-6787.

Map Drawing Sheet

Please circle the area that you think of as "your neighborhood".



Program Rating Sheet

Please rate the following programs on a scale from 1 to 7.

1 = "extremely interested in participating" and 7 ="not at all interested in participating"

Jane-Finch residents receive "how-to" resources, step-by-step photographs, a booklet of award winning rain garden designs, and seed kits for planting rain gardens on their properties.

Jane-Finch residents receive visits from landscape experts who answer questions and provide tips about planting rain gardens.

Jane-Finch residents team up with local schools to plant rain gardens on their properties.

Jane-Finch residents aim to plant one hundred rain gardens and win the Greater Toronto Neighborhood Sustainability Challenge.

Jane-Finch residents participate in mentorship program to learn and teach how to plant rain gardens.

Jane-Finch residents work together over the course of a weekend to plant rain gardens on a single block – and celebrate their accomplishments with food and drink.

Jane-Finch residents partner with a local job-training program to plant rain gardens on their properties.

Jane-Finch residents receive visits from community leaders who outline the importance of planting rain gardens on their properties.

Background Information Sheet

Current age:
□ Under 30
□ 30-40
□ 41-50
□ 51-60
□ 61-75
□ 75+

Annual household income (before tax):
□ Under $25,000
□ $25,001 - $30,000
□ $30,001 - $40,000
□ $40,001 - $60,000
□ $60,001 – $90,000
□ > $90,000

Place of birth:

_____

Number of people who live in your household: _____

Current employment:

_____

Average number of hours you work per week:

_____

Do you use local trails or parks?
□Yes
□No

Do you consider yourself "environmentally conscious"?
□Yes
□No
□Somewhat

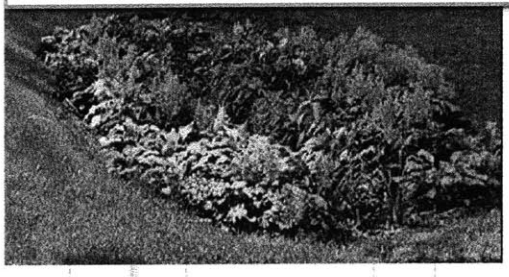
How many of your light bulbs and appliances are energy-efficient?
□None
□About one quarter
□About one half
□About three quarters
□All or almost all

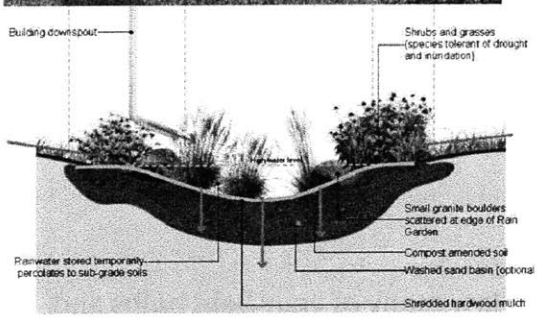
Rain barrel and rain garden overview flyer

Rain Barrels and Rain Gardens

*When it rains heavily, large volumes of "stormwater" from roads and paved surfaces flow through storm sewers into local rivers and streams. Streams become polluted, eroded, and water levels can rise quickly, leading to flooding. Normally, rain from **residential roofs** also flows into local streams. **Rain gardens** and **barrels** allow this water to be used on site instead.*

A **rain garden** is an embedded garden with water-loving plants that is designed to catch runoff in your yard.





A **rain barrel** is a container that collects and stores rainwater from downspouts for watering plants.

Rain barrels are low maintenance and easy to install. You can build one yourself using basic materials from a hardware store, or buy one ready-made.

Rain gardens require some effort to install and take time to grow. You can design and plant one yourself, or hire a professional.

Rain gardens and rain barrels both have many benefits:

They reduce the risk of basement flooding and flash flooding.

They can lower water bills by reducing water used for gardening.

They improve the health of local rivers and streams.

Rain gardens have extra benefits:

They create habitat for birds and other species.

They can make yards more attractive.

They can provide an opportunity to learn about plants and to spend time outdoors with family and friends.

Appendix D: Additional Results

Support for Rain Garden and Rain Barrels "In Theory"

	Low (0-1)	Medium (2-3)	High (4)	Very high (5)	Total
Fontainbleu	3	1	-	3	7
Moray	1	1	1	5	8
Jane-Finch	0	4	4	7	15
Total	4	6	5	15	30

Table 18: Support for rain barrels in theory

	Low (0-1)	Medium (2-3)	High (4)	Very high (5)	Total
Fontainbleu	1	2	3	1	7
Moray	3	3	1	1	8
Jane-Finch	6	6	2	1	15
Total	10	11	6	3	30

Table 19: Support for rain gardens in theory

Sample Maps, Oak Ridges and Jane-Finch

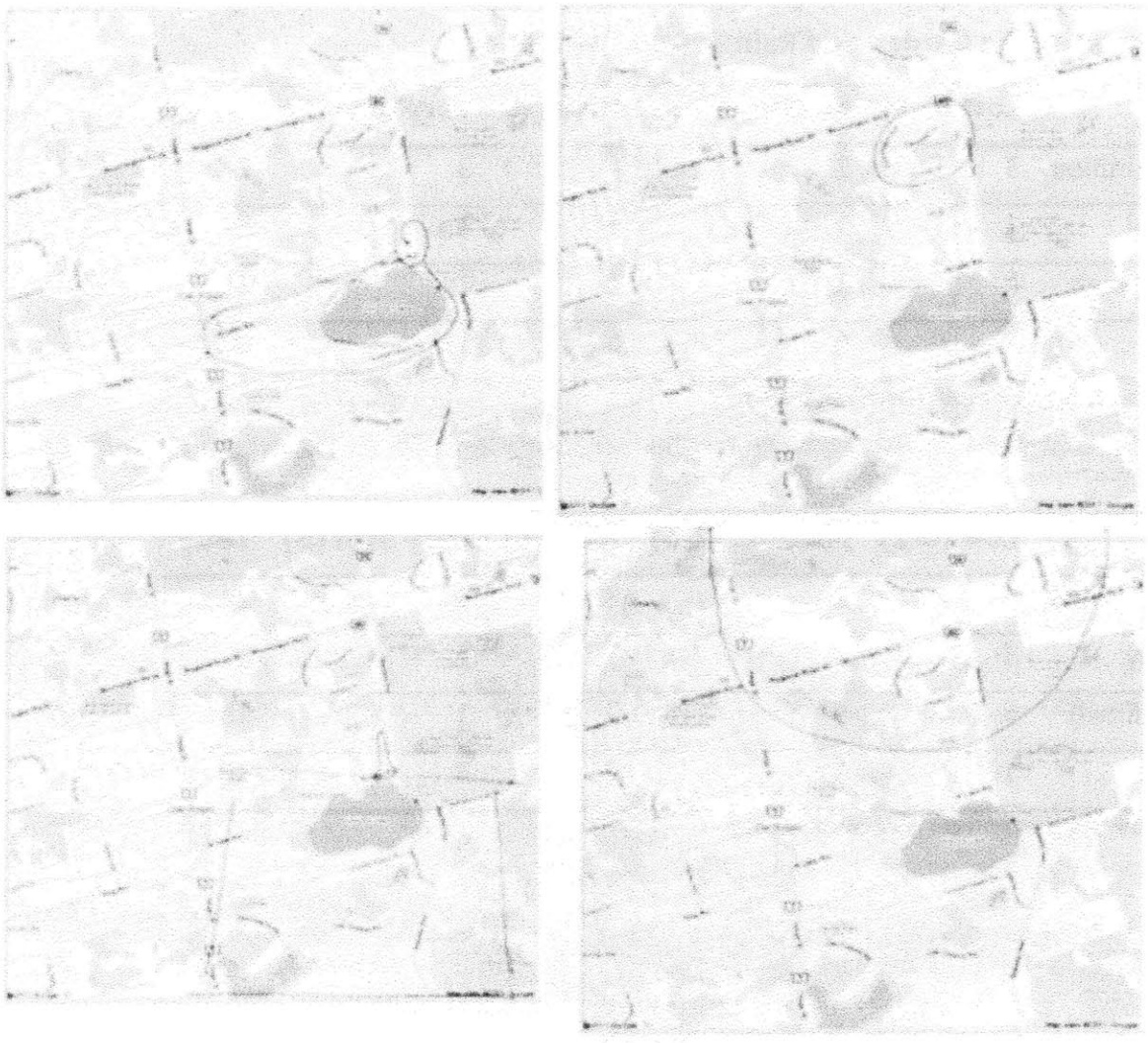


Figure 8: Moray (left) and Fontainbleu (right) maps

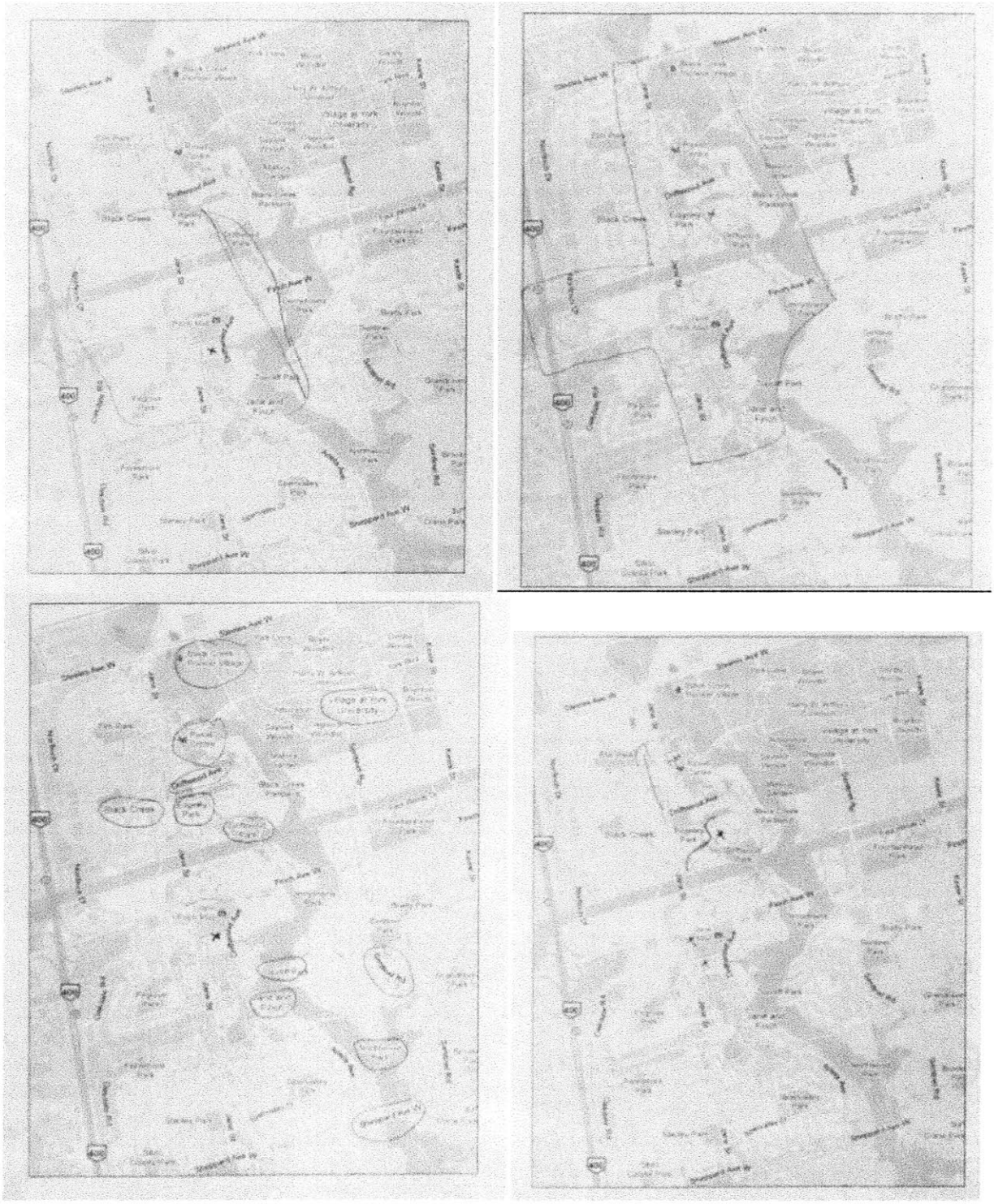


Figure 9: Venetian (left) and Hoover (right) maps