



# WinSmart Community-Based Travel Marketing Pilot Project

Final Report to Transport Canada



Submitted to the City of Winnipeg  
April 24, 2009 (Updated April 28)

## Executive Summary

The Community-Based Travel Marketing (CBTM) pilot project used an Individualized Marketing approach to help households drive less by switching to transit, walking, cycling and carpooling, with the goal of reducing personal transportation emissions. A secondary goal was to test locally the effectiveness of this best practices model in changing travel behaviour and to build local capacity and expertise.

Funding for the CBTM pilot project was provided by Transport Canada and the Province of Manitoba, in partnership with the City of Winnipeg as one of 11 WinSmart Initiatives under the federal Urban Transportation Showcase Program. Resource Conservation Manitoba, a Winnipeg-based non-profit, non-governmental organization, was contracted to deliver the project due to its expertise and experience in delivering sustainable transportation programs.

The program design works to create a dialogue with households in the target area throughout the project timeframe. This connection started with a baseline survey of randomly selected households within the project area to identify those most likely to change their behaviour, and then focused marketing and

*“Thanks for the nice package and all of the literature. It’s so nice that Winnipeg is doing this!”*

- CBTM household

outreach efforts towards those households. Customized resource packages and personalized trip planning assistance tailored to the household’s circumstances were offered to help them drive less and switch to transit, walking, cycling or carpooling. The resources included a wide selection of materials, such as a bike map, transit schedules, walking brochure, and carpooling information, along with a neighbourhood map created specifically for the project that emphasizes walking or cycling for short trips within the neighbourhood and transit for longer trips. Personalized assistance was provided to help individuals figure out how to get to specific destinations by bus or by bike. Small incentives were offered to encourage household participation and a reward was provided to households that already use sustainable modes of transportation as encouragement to continue. These items along with the requested resources were delivered to the household on bike by trained Travel Ambassadors. Neighbourhood response to the project was overwhelmingly positive, with over half of the participating households requesting resources and assistance.

The project’s impact was measured comparing data from the baseline survey with results from a follow-up survey conducted after the marketing and outreach activities. Changes in travel behaviour for participants in this type of program delivered elsewhere have ranged from a 2 to 14% reduction in drive-alone mode share. Results for the CBTM project came in at the high end of that range, with an 11.7% reduction in drive-alone and an 18.2% reduction in trip-related CO<sub>2</sub> emissions. This was supported by a 54.3% relative increase in cycling, 3.4% increase in walking and 8% increase in carpooling. There was also a 5.4% reduction in vehicle kilometres travelled (VKT). An unexpected shift was a 7.8% decrease in transit mode share, although analysis of the 2007 transit trips that were shifted to another mode revealed that 60% were clearly shifted to

walking, cycling or carpooling while 18% were shifted to drive-alone and the remainder shifted to a mix of different modes. The results showed the CBTM project achieved the goal of helping households drive less and choose sustainable modes of travel instead or more often. The impacts also demonstrated the effectiveness of this approach to reduce personal transportation emissions in Winnipeg.

**Table 1: CBTM Pilot Project Results Summary**

**GOAL**

Support residents of Winnipeg to choose to walk, bike, take transit and carpool, and reduce their drive-alone travel.

**OBJECTIVES**

**RESULTS**

Increase mode share\* for walking, cycling, transit and carpooling

Trip diary data showed a relative increase in mode share for walking (3.4%), cycling (54%) and carpooling (8%). There was a decrease in transit share (7.8%).

Decrease drive-alone trips

Drive-alone trips showed a relative decrease of 11.7%.

Reduce household transportation emissions

There was an 18.2% reduction in CO<sub>2</sub> emissions for household trips.

Decrease vehicle km travelled (VKT)

The number of vehicle km travelled decreased by 5.4%.

Achieve a 40% response rate on travel survey

Baseline survey response: 55.2%, or 823 households, completed the survey.

Follow-up survey response: 77.5%, or 585 of the same households, completed the survey.

Provide personal trip planning assistance to at least 100 households

115 households requested trip planning assistance for a total of 168 trips

370 households requested resources, representing 50% of households that received an order form

\* Mode share refers to the proportion of trips taken by a particular mode of transportation as compared to all trips based on results from the one-day travel diary.

## TABLE OF CONTENTS

Executive Summary .....	2
1.0 Overview .....	5
2.0 Target Area .....	6
3.0 Project Design.....	7
3.1 Phase I: Baseline Survey .....	8
3.2 Phase II: Marketing & Outreach .....	12
3.3 Phase III: Follow-up Survey .....	16
4.0 Results .....	17
5.0 Communication .....	28
6.0 Continued Engagement .....	29
7.0 Future Applications .....	30

### List of Tables

Table 1: CBTM Pilot Project Results Summary.....	3
Table 2: Material Sources and Tally of Household Resource Requests.....	15
Table 3: Analysis of Transit Trips and Mode Share.....	20

### List of Figures

Figure 1: Relative change in mode share – all households .....	17
Figure 2: Relative change in mode share – marketing & outreach households.....	18
Figure 3: Seasonal variations in mode – general reporting of daily use .....	21
Figure 4: Average retail gas prices in Winnipeg (April 2007 to April 2009) .....	22
Figure 5: Winnipeg average maximum temperature – project months vs. normal.....	23
Figure 6: Winnipeg average minimum temperature – project months vs. normal .....	23
Figure 7: Age of project participants vs. 2006 census data .....	24
Figure 8: Household composition vs. 2006 census data.....	25
Figure 9: Employment status of project participants .....	25
Figure 10: # Vehicles per household for project participants .....	26

### List of Appendices

A: Detailed Project Timeline	
B: Baseline Survey Materials	
C: Overview of Baseline Survey Written Comments	
D: ‘Green Your Travel’ Neighbourhood Map	
E: Order Request Form & Trip Planner Request Sheet	
F: GHG Emissions Detailed Calculation (Centre for Sustainable Transportation)	
G: Cost per Tonne GHG Emissions Reduction Analysis	

## 1.0 OVERVIEW

The WinSmart Community-Based Travel Marketing Project (CBTM) worked with households in a target area of Winnipeg using Individualized Marketing techniques to change travel behaviour. Applying this best practices approach, customized resources and assistance were provided to households that had been identified through a survey process as interested in switching to walking, cycling, riding transit, carpooling and other sustainable means of transportation, or increasing their use of these modes. This approach to travel behaviour change is based on the recognition that roughly half of all household trips represent ‘choice’ trips that could realistically be switched from driving to a sustainable mode of travel.<sup>1</sup> Going beyond the commute to work or school, the project considered all household travel and looked at both peak and non-peak travel.

The primary goal of the CBTM project in shifting household trips from the drive-alone mode to sustainable modes of travel was to reduce household transportation GHG emissions. A secondary goal was to test locally the effectiveness of the Individualized Marketing model in motivating households to switch from driving to riding the bus, walking, cycling and carpooling.

Funding for the WinSmart CBTM pilot project was provided by Transport Canada and the Province of Manitoba, in partnership with the City of Winnipeg as one of 11 WinSmart Initiatives under the federal Urban Transportation Showcase Program.

Resource Conservation Manitoba (RCM) was contracted to deliver the program due to its expertise and experience in delivering sustainable transportation programs. RCM, a non-profit, non-governmental organization, is responsible for delivering Workplace Transportation Demand Management, Active and Safe Routes to School, Commuter Challenge and the Manitoba Student Transportation Network in Winnipeg and other Manitoba communities. UrbanTrans Consultants was subcontracted by Resource Conservation Manitoba to provide Individualized Marketing (IM) expertise and to build IM capacity within RCM at the local level.

Key components of the program included:

- A baseline travel survey of randomly selected households within the project area.
- Segmentation of households to determine their interest and readiness to switch to sustainable modes of travel with a focus on working with those most likely to change.

---

<sup>1</sup> In in-depth surveys by the TravelSmart program in Perth, Australia, respondents claimed that 36% of household trips required the use of a car and that 13% of trips were completed using sustainable modes of travel because a car was not available. This left another 48% of total trips in which a household had a choice between driving and using a sustainable mode of travel. While walking, cycling and riding transit were found to be used for some (7%) of these ‘choice’ trips, most (41%) were not, representing substantial potential for change and the focus of Perth’s Individualized Marketing Programs. (Source: Government of Western Australia, Department of Planning and Infrastructure, Technical Reports, Research into the Barriers and Opportunities for Changing Travel Behaviour in Perth, Potential for change in different suburbs. [www.dpi.wa.gov.au/travelsmart/14974.asp](http://www.dpi.wa.gov.au/travelsmart/14974.asp))



- Creation of a neighbourhood map that emphasizes places to go within the project area and highlights how long it would take to cycle or walk to these destinations.
- Outreach to households with a variety of print materials and resources related to transit, walking, cycling and carpooling, along with personalized trip planning assistance.
- Delivery of requested resources to households on bicycle.
- Follow-up survey of all households that participated in the baseline survey to identify any shifts in travel behaviour, and determine corresponding reductions in trip-related emissions, vehicle kilometres travelled and drive-alone mode share.

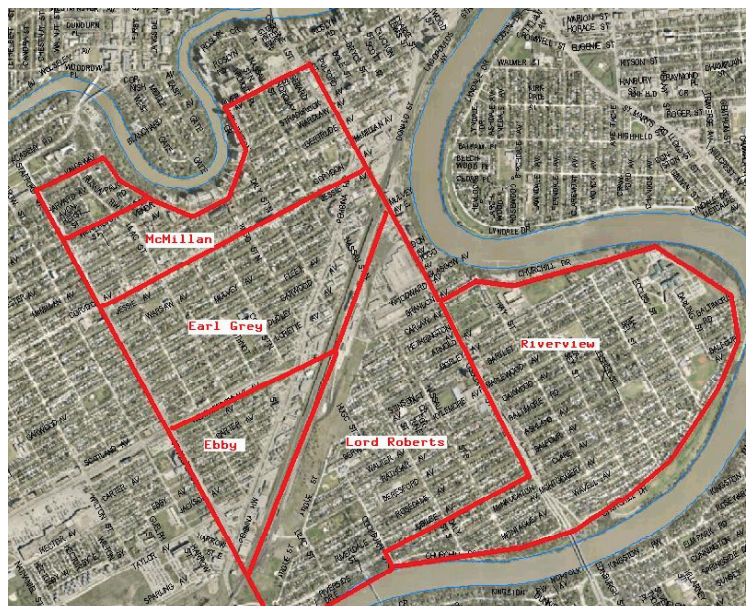
## 2.0 TARGET AREA

The WinSmart initiatives under the Urban Transportation Showcase Program focused on the Pembina Corridor in Winnipeg. For the CBTM pilot project, a steering committee with representation from the Province of Manitoba, City of Winnipeg and Resource Conservation Manitoba selected the geographic boundaries based on:

- A mix of demographics in the households reached;
- Walking and cycling proximity to destinations such as schools, shopping, restaurants, community centres, as well as good access to transit;
- Proximity to the Active Transportation path being developed as one of the other WinSmart initiatives; and
- Project timeframe and budget parameters.

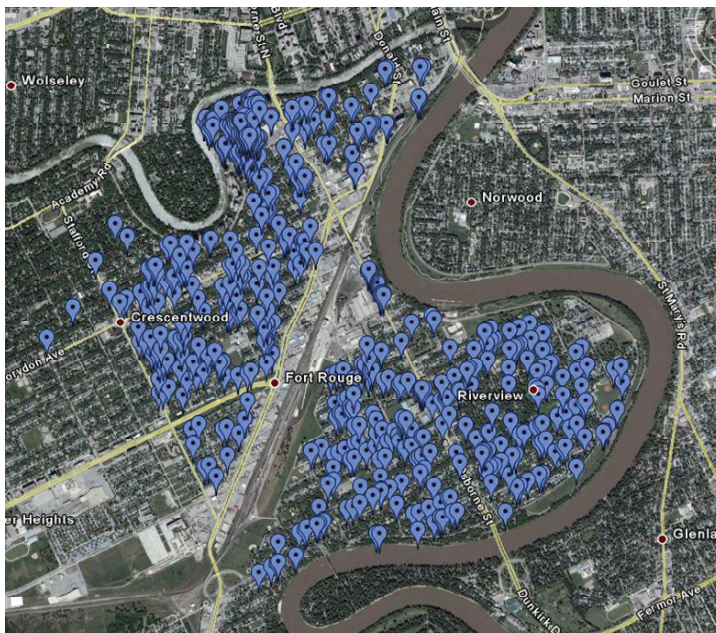
A key aspect for the CBTM pilot project was ensuring that the selected neighbourhoods contained amenities and destinations for residents that were reasonably accessible on foot, by bike or bus.

The project area was bounded by Stafford St. to the west, River Ave to the north, Osborne St. to the east, and Churchill Drive to the farthest east and to the south. As shown in the census division map, it includes the areas of Fort Rouge and a portion of River Heights.



## Distribution of participating households

Plotting of participating households from the follow-up survey, using Google Maps as shown here, demonstrates that respondents were fairly evenly spread out over project area. Of note, however, was the challenge posed in constraining the randomly selected households to the specific streets that formed the boundaries of the project area, as the database of household addresses purchased for the project was organized by postal code and did not accommodate this level of distinction. Attempts were made to match the database listings and our project boundaries as closely as possible, but the process resulted in the inclusion of a few households slightly outside the project area as defined and a higher concentration of apartment complexes in Osborne Village than intended.



## 3.0 PROJECT DESIGN

The Community-Based Travel Marketing (CBTM) project was modelled after similar programs in Vancouver, BC, and Region of Waterloo, ON. This type of Individualized Marketing approach to change household travel behaviour has been used extensively and shown to be successful in Australia and Europe over the past decade, and more recently in the United States and Canada, including Vancouver and the Region of Waterloo. The CBTM project followed this best practices model with adaptations based on lessons learned elsewhere and addressing issues specific to our city and our climate.

Using the Individualized Marketing approach, a connection was established with randomly selected households in the project area and the dialogue continued over a one-year period throughout the baseline survey, marketing and outreach activities, and follow-up survey. Based on results from the baseline survey, a segmentation process was used to identify those most likely to change their travel behaviour to sustainable modes. By focusing the marketing and outreach activities on these households, valuable resources were not wasted on those who are resistant to change.

Customized resources and individual trip planning assistance tailored to the household's circumstances were provided as a catalyst to help them turn motivation into action—riding the bus, walking, cycling or carpooling. Personalized assistance might be as simple as helping household members learn how to use Navigo, Winnipeg Transit's online trip planner, or providing advice on what type of gear makes commuter cycling practical or which route to ride. It is important that households maintain their ability—choosing to change their travel behaviour should not constrain their ability to get to the places they want to go.

The CBTM project included three key phases (see detailed timeline in Appendix A):

**Phase 1: Baseline Survey** (Fall 2007)

**Phase 2: Marketing & Outreach** (Winter & Spring 2008)

**Phase 3: Follow-up Survey** (Fall 2008)

These were followed by:

**Data Analysis & Reporting Results** (Winter 2009)

**Continued Engagement** (Winter 2009 onward)

### **3.1 BASELINE SURVEY**

The baseline survey established the current travel behaviour of participating households and was used to identify potential interest in walking, cycling, taking the bus and carpooling. A gross sample size of 2,200 households was randomly selected out of a possible 9,600 households in the defined project area. The sample size was chosen based on response rates in similar projects elsewhere, which would achieve the project goals of producing a significant reduction in GHG emissions and providing personal assistance to at least 100 households.

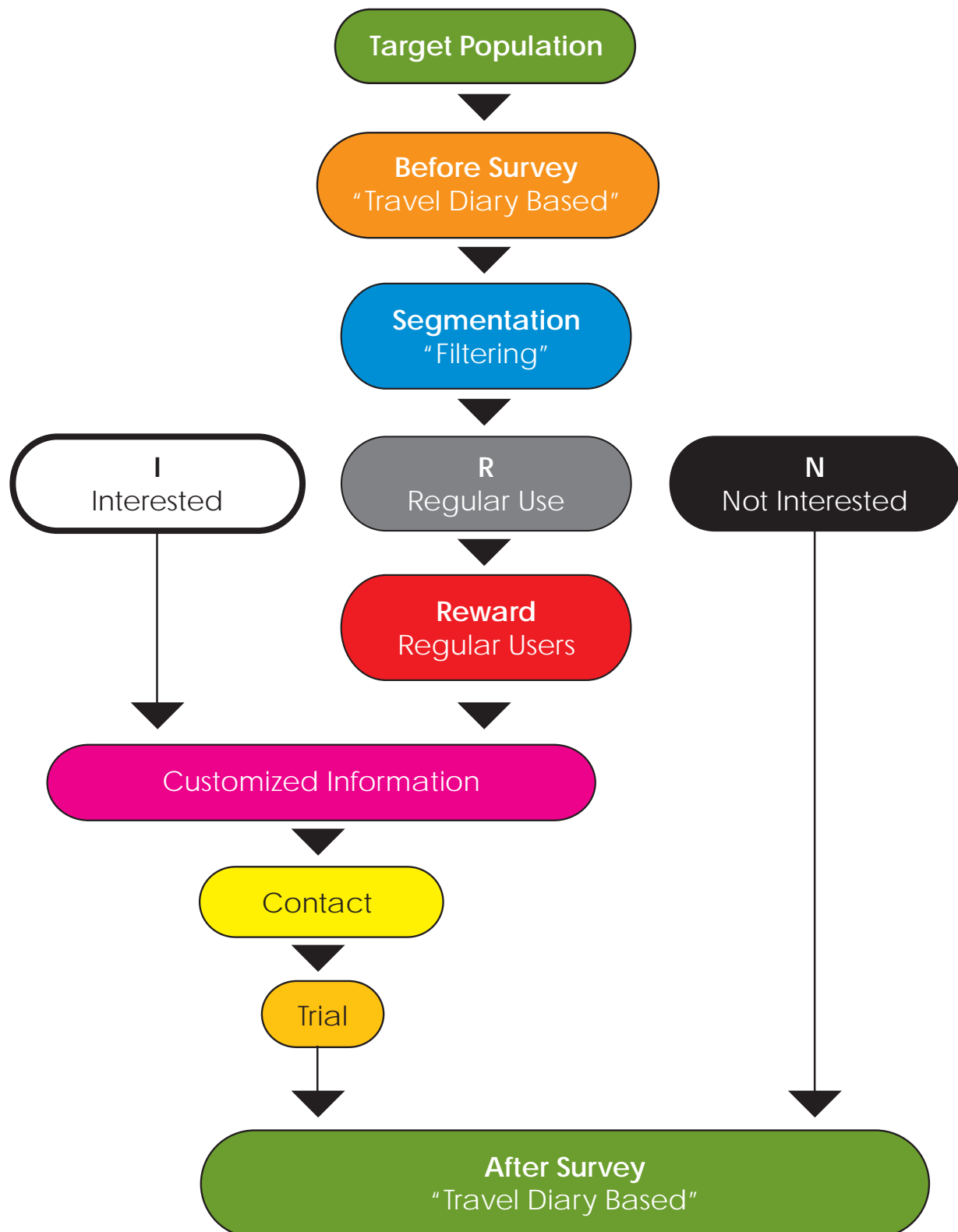
The survey mailing process involved an introductory letter, the main travel survey package, and two reminder mailings to households. Each of these was followed by intensive telephone contact on the day the household was assigned to record their travel.

The main survey mailing packet included: a cover letter, household profile questionnaire, one-day trip diaries for each member of the household (including children), an FAQ sheet, and a self-addressed stamped envelope. (See Appendix B for examples of survey materials.) Telephone follow-up was conducted by project staff hired and trained for this specific task.

The survey materials were developed in conjunction with UrbanTrans Consultants and adapted with permission from those used in the Region of Waterloo.



## WinSmart IM - Project Design



- 1) Details on the general commuting habits of each household member;
- 2) Baseline data on each household member's specific travel using a one-day travel diary, which could then be compared to results from the follow-up survey one year later; and
- 3) Information from which to segment the households according to potential interest in switching some of their trips to transit, walking, cycling or carpooling.

# Win Smart HOUSEHOLD TRAVEL SURVEY

Thank you for taking the time to complete this travel survey. It is designed to quickly and easily capture your daily travel choices. It is important that we have a clear understanding of travel patterns, so we are asking to you, the residents, to tell us how you travel in and around the community.

Please take five to ten minutes more about your travel experiences in your community by filling out the comments section on the last page of this packet, including any feedback regarding this travel survey initiative. Your feedback will be taken into consideration for future surveys. Thank you for your participation in this survey in GRI Certificate valued at \$500.00 once we have it.

## INDIVIDUAL ONE-DAY TRAVEL JOURNAL

NAME \_\_\_\_\_ DATE \_\_\_\_\_

To get started, information is located on the last page of this packet. If you are a frequent traveler, please fill in the results, even if you are not.

CHECK HERE IF YOU DID NOT TRAVEL TODAY

TRIP ONE	TRIP TWO	TRIP THREE	TRIP FOUR	TRIP FIVE
TIME TRIP STARTED AT: _____ _____ PM	TIME TRIP STARTED AT: _____ _____ PM	TIME TRIP STARTED AT: _____ _____ PM	TIME TRIP STARTED AT: _____ _____ PM	TIME TRIP STARTED AT: _____ _____ PM

TRIP STARTED FROM:	TRIP STARTED FROM:	TRIP STARTED FROM:	TRIP STARTED FROM:	TRIP STARTED FROM:
HOME SCHOOL WORK PERSONAL BUSINESS SOCIAL RECREATION PERSONAL BUSINESS SHOPPING	HOME SCHOOL WORK PERSONAL BUSINESS SOCIAL RECREATION PERSONAL BUSINESS SHOPPING	HOME SCHOOL WORK PERSONAL BUSINESS SOCIAL RECREATION PERSONAL BUSINESS SHOPPING	HOME SCHOOL WORK PERSONAL BUSINESS SOCIAL RECREATION PERSONAL BUSINESS SHOPPING	HOME SCHOOL WORK PERSONAL BUSINESS SOCIAL RECREATION PERSONAL BUSINESS SHOPPING
OTHER _____	OTHER _____	OTHER _____	OTHER _____	OTHER _____

GOING TO (same one only)	GOING TO (same one only)	GOING TO (same one only)	GOING TO (same one only)	GOING TO (same one only)
HOME SCHOOL WORK PERSONAL BUSINESS SOCIAL RECREATION PERSONAL BUSINESS SHOPPING	HOME SCHOOL WORK PERSONAL BUSINESS SOCIAL RECREATION PERSONAL BUSINESS SHOPPING	HOME SCHOOL WORK PERSONAL BUSINESS SOCIAL RECREATION PERSONAL BUSINESS SHOPPING	HOME SCHOOL WORK PERSONAL BUSINESS SOCIAL RECREATION PERSONAL BUSINESS SHOPPING	HOME SCHOOL WORK PERSONAL BUSINESS SOCIAL RECREATION PERSONAL BUSINESS SHOPPING
OTHER _____	OTHER _____	OTHER _____	OTHER _____	OTHER _____

### HOUSEHOLD CONTACT INFORMATION

HOUSEHOLD NAME (i.e. LAST NAME): \_\_\_\_\_

ADDRESS: \_\_\_\_\_

PHONE NUMBER: \_\_\_\_\_

NUMBER OF PEOPLE LIVING IN HOUSEHOLD: \_\_\_\_\_

Manitoba

WHAT DID YOU DRIVE BY:	WHAT DID YOU DRIVE BY:	WHAT DID YOU DRIVE BY:	WHAT DID YOU DRIVE BY:	WHAT DID YOU DRIVE BY:
WALKING TRAM CYCLING CAR (DRIVER ALONE) CAR (DRIVER WITH PASSENGERS) CAR (AS PASSENGER) TAXI	WALKING TRAM CYCLING CAR (DRIVER ALONE) CAR (DRIVER WITH PASSENGERS) CAR (AS PASSENGER) TAXI	WALKING TRAM CYCLING CAR (DRIVER ALONE) CAR (DRIVER WITH PASSENGERS) CAR (AS PASSENGER) TAXI	WALKING TRAM CYCLING CAR (DRIVER ALONE) CAR (DRIVER WITH PASSENGERS) CAR (AS PASSENGER) TAXI	WALKING TRAM CYCLING CAR (DRIVER ALONE) CAR (DRIVER WITH PASSENGERS) CAR (AS PASSENGER) TAXI

TIME TRIP ENDED AT: _____ _____ PM	TIME TRIP ENDED AT: _____ _____ PM	TIME TRIP ENDED AT: _____ _____ PM	TIME TRIP ENDED AT: _____ _____ PM	TIME TRIP ENDED AT: _____ _____ PM
---------------------------------------	---------------------------------------	---------------------------------------	---------------------------------------	---------------------------------------

ESTIMATED DISTANCE (ONE WAY) IN KILOMETERS (ONE WAY) IN KILOMETERS (ONE WAY) IN KILOMETERS (ONE WAY) IN KILOMETERS (ONE WAY) IN KILOMETERS (ONE WAY) IN KILOMETERS	ESTIMATED DISTANCE (ONE WAY) IN KILOMETERS (ONE WAY) IN KILOMETERS (ONE WAY) IN KILOMETERS (ONE WAY) IN KILOMETERS (ONE WAY) IN KILOMETERS (ONE WAY) IN KILOMETERS	ESTIMATED DISTANCE (ONE WAY) IN KILOMETERS (ONE WAY) IN KILOMETERS (ONE WAY) IN KILOMETERS (ONE WAY) IN KILOMETERS (ONE WAY) IN KILOMETERS	ESTIMATED DISTANCE (ONE WAY) IN KILOMETERS (ONE WAY) IN KILOMETERS (ONE WAY) IN KILOMETERS (ONE WAY) IN KILOMETERS (ONE WAY) IN KILOMETERS	ESTIMATED DISTANCE (ONE WAY) IN KILOMETERS (ONE WAY) IN KILOMETERS (ONE WAY) IN KILOMETERS (ONE WAY) IN KILOMETERS (ONE WAY) IN KILOMETERS
_____	_____	_____	_____	_____

WALK OR BICYCLE TRIP AVAILABLE FOR THIS TRIP?	WALK OR BICYCLE TRIP AVAILABLE FOR THIS TRIP?	WALK OR BICYCLE TRIP AVAILABLE FOR THIS TRIP?	WALK OR BICYCLE TRIP AVAILABLE FOR THIS TRIP?	WALK OR BICYCLE TRIP AVAILABLE FOR THIS TRIP?
YES _____ NO _____	YES _____ NO _____	YES _____ NO _____	YES _____ NO _____	YES _____ NO _____

Due to time constraints, an online version of the survey was not included in the project. While an online survey is appealing from the perspectives of waste-reduction and cost savings, it has not shown to be as effective in generating survey responses. In addition, there are still households that do not have a computer or Internet access at home. Given the importance of a high survey response, since household participation in the marketing and outreach phase is based on connections made through the survey, an online survey has appeal as one of the tools used but not as the only method in the survey process.

To encourage a high response rate in the CBTM project, intensive mail and phone reminders were used along with a draw prize. Each household that submitted a completed survey and individual one-day trip diaries was entered into a draw prize for a \$500 gift certificate at the retailer of their choice.

This persistent but friendly approach, using mail and phone reminders combined with the offer of a draw prize, resulted in a higher than anticipated response rate—55% of households that were contacted took part in the survey, translating into 823 household surveys and 1,587 people completing a one-day trip diary. On some days the survey response rate was as high as 70%. This far exceeded the goal of a 25-40% response based on similar programs elsewhere.

BASELINE SURVEY RESPONSE RATE	
Gross Sample Size (number households)	2,200
Genuine Non-Responses*	708
Net Sample	1,492
Surveys Returned	823
<b>Response Rate</b>	<b>55.2%</b>

\*Genuine non-responses represent households that could not be reached because the contact information was incorrect or out-dated, or household members could not participate due to ill health or language barriers.

## Survey results and segmentation of households

Data from the baseline survey—including both the household profile questionnaire and the individual one-day trip diaries completed by each member of the household—were entered into an online database. The winner of the \$500 draw prize was randomly selected from households entered into the online database.

Over one-third of survey respondents took the time to include written comments, demonstrating the importance of this issue to them. These written comments were organized by theme and captured in a separate document (see Appendix C for an overview of comments received).

Using a criteria matrix, the 823 households that responded were segmented into three categories:

**Group R (Regular)** – respondents who already use sustainable modes of travel (cycling, walking, carpooling, riding transit, etc.) some or all of the time = **673 households**

**Group I (Interested)** – respondents who currently drive most of the time but who are interested in trying alternatives and/or reducing their motorized trips = **101 households**

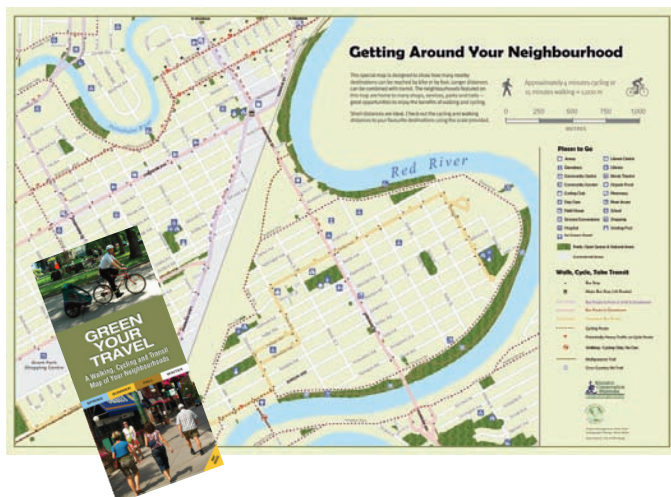
**Group N (Not Interested)** – respondents who currently drive and who are not interested in changing their behaviour = **49 households**

Results of the baseline survey showed a high number of households (81.8% in summer and 75.9% in winter) already had at least one person in their home who rides the bus, walks, cycles or carpools for some of their trips. This is likely due to the availability of local shopping, restaurants and other amenities in the project area, along with easy access to downtown.

The baseline survey results showed a clear interest by participating households in sustainable modes of travel, with only 6% of households not interested in changing their current travel

Existing print resources on sustainable transportation were compiled from a variety of sources and new materials were developed for the project. Resources included mode-related information such as maps, brochures, transit timetables, events and programs (Commuter Challenge, Active and Safe Routes to School) and related materials.





A key resource created specifically for the CBTM pilot project was the Green Your Travel neighbourhood map (modelled after the neighbourhood maps developed by TransLink in Vancouver), which emphasized walking and cycling for short trips and highlighted nearby popular destinations.

Since short trips are the easiest for households to choose walking or cycling, the map provides a scale for users to estimate how long it would

take on foot or by bike. For longer trips, the map shows which bus routes that travel through the area. The map also provides basic information on the different modes and where to find more information. (See an example of the 'Green Your Travel' neighbourhood map in Appendix D.) Additional copies of the map were distributed at local destinations such as the library, community centres and businesses.

Unique to the CBTM project, and related to Resource Conservation Manitoba's broader mandate of sustainable living, the order request form also offered non-travel resources such as information on backyard composting and natural lawn care. This was based on the assumption that households interested in changing their travel behaviour might also be interested in changing other aspects of their household routines. These resources proved to be popular, undoubtedly related to the spring timing of the information distribution.

*"My family received the umbrella and bag...we would like to thank you."*

- CBTM household

## Outreach activities

The order request form and trip planning request sheet (see examples in Appendix E) were mailed with a cover letter in April 2008 to households that had been segmented from the baseline survey as more likely to change their travel behaviour. Telephone follow-up took place to confirm the mailing had been received, answer any questions, and encourage households to complete and return the form. A reminder letter was sent to households that had not yet responded after three weeks.

Incentives were used to encourage participation in this phase—households that submitted a completed order request form chose between a free bike light and reflective leg strap or a pedometer. Households that were segmented as a regular user (Group R) also received an



umbrella and tote bag as a ‘reward’ for using sustainable modes of transportation, at least some of the time, as encouragement to continue that behaviour, whether or not they submitted an order request form.

As completed order request forms came in from participating households, the resources, rewards and incentives were compiled into tote bags printed on one side with “10 Ways to Green Your Travel” and delivered on bicycle by trained Travel Ambassadors. This role modelling of sustainable travel behaviour produced many positive comments from the individuals receiving their tote bag of resources. This provided another opportunity to engage with the household and answer any additional questions. Feedback at the door was overwhelmingly positive, with many participants expressing surprise at the personal delivery and the use of a bike and trailer, and appreciation for the resources and assistance. Several phone calls and email messages of thanks and appreciation were also received.



### Personalized trip planning assistance

Building on lessons learned from Vancouver’s TravelSmart pilot project in which some households expressed reluctance to have a Travel Ambassador come into their home to provide personalized trip planning assistance, the CBTM project provided a ‘trip planner’ request sheet with the order request form instead.

On these sheets, households could ask for personal assistance in planning a specific bike route or bus trip. This turned out to be extremely popular, with 115 households (32%) asking for personalized trip planning assistance. The requests included a total of 85 bike routes and 83 bus trips for a total of 168 personalized trips planned.

Telephone follow-up took place with those households that had checked the “Personal Assistance” box on the order request form. In every instance, it was found that the printed resources and trip planning assistance had addressed the household’s needs.

The popularity of the bike and bus trip planner sheets showed that individuals truly were looking for practical assistance specific to their situation to help them switch to sustainable modes of travel. Many individuals requested trip planning assistance for both bike and bus options to reach their workplace, showing serious consideration of changing their commute behaviour.

Table 2: Material Sources and Tally of Household Resource Requests

Green Your Travel Neighbourhood Map*	Resource Conservation Manitoba (RCM)	278
Cyclist's Map of Winnipeg	Manitoba Cycling Association (MCA)	221
Walking: Activity of a Lifetime	Manitoba <i>in motion</i>	194
Get Active with Human Power	Resource Conservation Manitoba	177
Bus Pass holder	Winnipeg Transit	140
Transit Schedules (multiple route requests)	Winnipeg Transit	137
Downtown Spirit Free Bus	Winnipeg Transit	124
Active & Green Newsletter	Resource Conservation Manitoba	112
The Commuter Cyclist	RCM and MCA	111
Idling Tips/Info	Climate Change Connection	101
Commuter Challenge	Resource Conservation Manitoba	79
Cold Weather Cycling	Toronto BUG, adapted by RCM	57
Winnipeg Transit EcoPass	Winnipeg Transit	52
Bye Bye Beaters	Manitoba Lung Association	51
Manitoba Student Transportation Network	Resource Conservation Manitoba	34
Carpooling	Resource Conservation Manitoba	25
Active & Safe Routes to School	Resource Conservation Manitoba	19

\*This project-specific neighbourhood map was automatically included in every tote bag. The number here represents those households that specifically requested it.

### Other Materials

Natural Lawn Care	Manitoba Eco-Network	182
Backyard Composting	Resource Conservation Manitoba	154
Your Next Move: Sustainable Neighbourhoods	Canada Mortgage & Housing Corp.	58

### Incentives

Pedometer	225
Bike light & reflective leg strap	138

### 3.3 FOLLOW-UP SURVEY

All participating households from the baseline survey, including those that were segmented as not interested (Group N) and were not approached with the marketing and outreach activities, were re-surveyed one year later to determine any shift in travel behaviour and provide data from which to calculate reductions in trip-related GHG emissions. From the 823 households that completed the baseline survey, a net total of 805 households received the follow-up survey, as some had moved out of the project area.

The same intensive survey process with telephone follow-up and reminder mailings as the baseline survey was used to ensure the highest possible participation level. An additional draw prize was offered to help offset survey fatigue. The timeframe of the follow-up survey process exactly replicated that of the baseline survey, and households once again recorded their travel on the same assigned day of the week.

Survey response once again exceeded expectations, with 77.5% of households contacted completing and returning the follow-up survey. This translated into 585 households and 1,123 people completing a one-day trip diary.

FOLLOW-UP SURVEY RESPONSE RATE	
Gross Sample (number of households)	805
Genuine Non-Responses*	50
Net Sample	755
Surveys Returned	585
<b>Response Rate</b>	<b>77.5%</b>

\*Genuine non-responses represent households that could not be reached because the contact information was

### Data analysis

Data from the 585 follow-up surveys were entered into an online database. Minor refinements were also made to the baseline survey responses for select households to correct those instances when parents were 'escorting' children by car rather than truly carpooling.

Resource Conservation Manitoba, in conjunction with UrbanTrans Consultants, analyzed the data to determine mode shifts, reduction in vehicle kilometres travelled and demographics. The Centre for Sustainable Transportation (CST), under contract with the City of Winnipeg for the WinSmart projects, tested for statistical significance and calculated the GHG emissions reductions for the CBTM project. (See the CST's detailed report in Appendix F.)



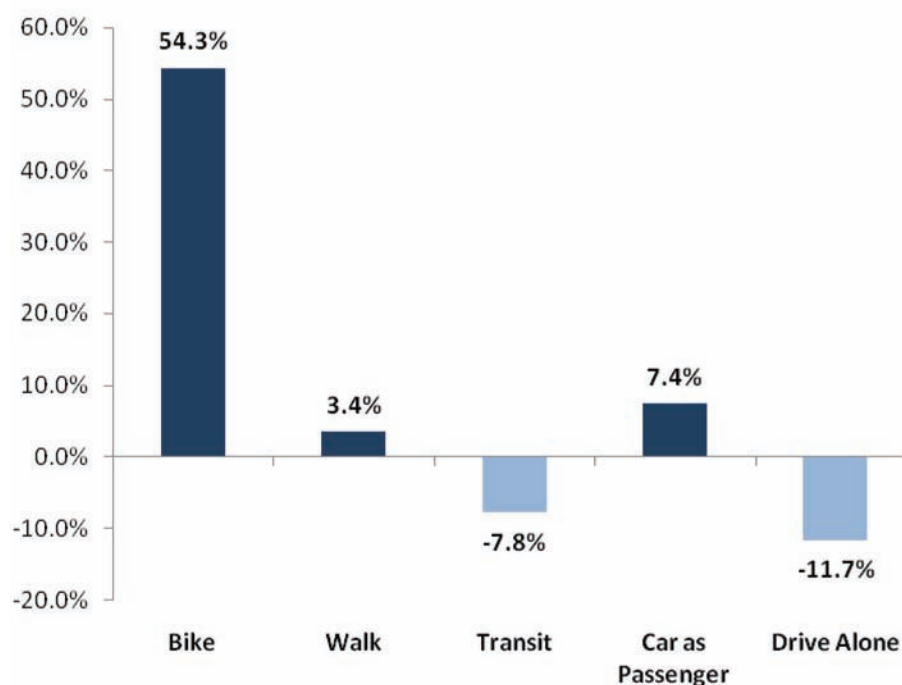
The Centre for Sustainable Transportation determined the survey results to be statistically significant, allowing the results from this pilot project to be extrapolated to other neighbourhoods for future applications. The final data set size was reduced from 585 to 550 paired household surveys (baseline and follow-up surveys) for various reasons, such as the mode of transportation not being identified or missing travel diaries.

## 4.0 RESULTS

Changes in travel behaviour for participants in this type of program delivered in other cities and countries have ranged from a 2 to 14% reduction in drive-alone mode share as a percentage of all trips recorded by participating households. Results for the WinSmart CBTM project came in at the high end of the range, with an 11.7% relative reduction in drive-alone mode share based on the data collected from the one-day travel diaries, and an 18.2% reduction in trip-related CO<sub>2</sub> emissions. This was supported by a 54.3% relative increase in cycling, 3.4% increase in walking and 8% increase in carpooling. An unexpected shift was a 7.8% reduction in transit use. There was also a 5.4% reduction in vehicle kilometres travelled (VKT).

Reduction in trip-related CO <sub>2</sub> emissions = 18.2%	Reduction in VKT = 5.4%
---	-------------------------

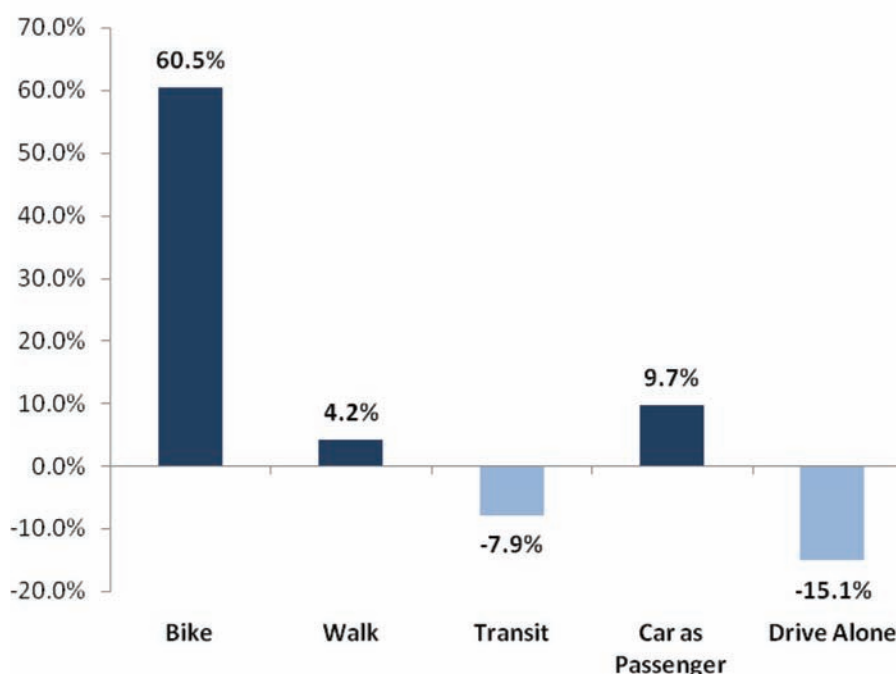
**Figure 1: Relative change in mode share – all households**



It does not appear that the switch to sustainable modes of travel constrained the mobility of household participants, as there were an average of 7 trips per household in both 2007 and 2008. There was a 3.4% decline in the total kilometres travelled by all modes, while the total vehicle kilometres travelled declined by 5.4%.

Drilling further down into the data to look only at those households – 313 in total – that participated in all three phases of the project (baseline survey, marketing and outreach activities, follow-up survey) reveals an even greater mode shift, although the reduction in transit use was similar. Cycling showed a relative increase of 60.5%, walking increased by 4.2% and the decline in transit stayed about the same at 7.9%. Carpooling was up by 9.7% and driving alone declined by 15.1%.

**Figure 2: Relative change in mode share – marketing & outreach households**



### Reductions in trip-related emissions

The WinSmart CBTM pilot project resulted in an 18.2% reduction in trip-related CO<sub>2</sub> emissions for the 550 households that provided paired surveys from both the baseline and follow-up surveys, including those households that were segmented as “Not Interested” and that were not approached during the marketing and outreach phase of the project.

This reduction reflects the emissions saving from one day's travel by participating households. The Centre for Sustainable Transportation determined that the reduction in average emissions per trip per household was 152 g CO<sub>2</sub> for the CBTM pilot project. The average number of trips per household in both the before and after surveys was 7 trips.

$$152 \text{ g CO}_2 \times 7 \text{ trips} = 1,064 \text{ g CO}_2 \text{ per household reduction}$$

$$1,064 \text{ g CO}_2 \times 550 \text{ households} = 585,200 \text{ g CO}_2 \text{ reduction for one day's travel}$$

The overall impact of the CBTM project is calculated below over a conservative estimate of three years, as surveys in Australia and the U.S. have found that households maintain their shift to sustainable modes, without further intervention, for at least three to five years.<sup>2</sup> Other factors outside the project, such as fluctuations in gas prices or infrastructure changes in the neighbourhood, will naturally have an influence that could decrease/increase this lasting impact. In the calculation below, each year is based on 340 days, which is the typical number of days per year that an individual travels.

$$(585,200 \text{ g CO}_2 \times 340) \times 3 \text{ years} = 596.9 \text{ tonnes CO}_2$$

**Impact of CBTM project over three years = 596.9 tonnes CO<sub>2</sub> avoided**

### Analysis of decrease in transit mode share

An unexpected 7.8% relative decrease in transit mode share as a percentage of all trips was examined to determine what mode replaced transit for these trips. A total of 305 transit trips were reported in one-day travel diaries by participating households in the 2007 baseline survey and 296 trips in 2008. Of the 2007 transit trips, 278 trips were examined in detail and results are outlined in Table 3 below.

Looking at only those transit trips from 2007 in Table 3 that were switched to another mode reveals that 60% were switched to walking, cycling or carpooling in 2008, about 18% were switched to drive-alone mode, while the rest shifted to a mix of different modes. The remaining reduction in transit trips from 2007 occurred due to an individual moving out of the home, not travelling on the day of the follow-up survey, or continuing to use transit but making fewer trips in 2008.

<sup>2</sup> Whatcom Neighbourhood Smart Trips – Program Summary. [www.wsdot.wa.gov/NR/rdonlyres/2E1A608A-B089-4662-9BC0-DB63F5528FFD/0/3NeighborhoodSmartTripsSummary.pdf](http://www.wsdot.wa.gov/NR/rdonlyres/2E1A608A-B089-4662-9BC0-DB63F5528FFD/0/3NeighborhoodSmartTripsSummary.pdf)

Table 3: Analysis of transit trips and mode shift

<b>Mode shift</b>		
Switched from transit to walking (21) or cycling (16)	37	13.3%
Switched to car as passenger or driver with passengers	21	7.6%
Switched to drive-alone	17	6.1%
Mixed mode shift with more trips in 2008	12	4.3%
Mixed mode shift with fewer trips in 2008	9	3.2%
Total trips switched from transit to another mode	96	
<b>Other reasons</b>		
Individual did not travel in 2008	16	5.7%
No travel diary submitted in 2008 - individual moved out of the home (16) or simply not submitted (7)	23	8.3%
No change in transit trips from 2007 to 2008 (121) or added transit trips in 2008 (11)	132	47.5%
Transit used in both years but fewer trips in 2008	11	4.0%
<b>Total transit trips evaluated</b>		
	278	

Looking more closely at the 12 mixed mode shifts with more trips in 2008, half (6) were switched to a mix of walking or carpooling along with one mix that included cycling; and the other half were switched to a mix of walking or drive-alone along with two that added carpooling into the mix.

The 9 mixed mode shifts with fewer trips in 2008 included two trips with a mode mix that included walking or drive-alone, and two trips in which the mode mix is predominantly drive-alone.

### External variables – potential impact on project results

The CBTM project did not include a control group; however, efforts were made to assess certain external factors or variables and their potential impacts on the target area and timeliness of the marketing and outreach.



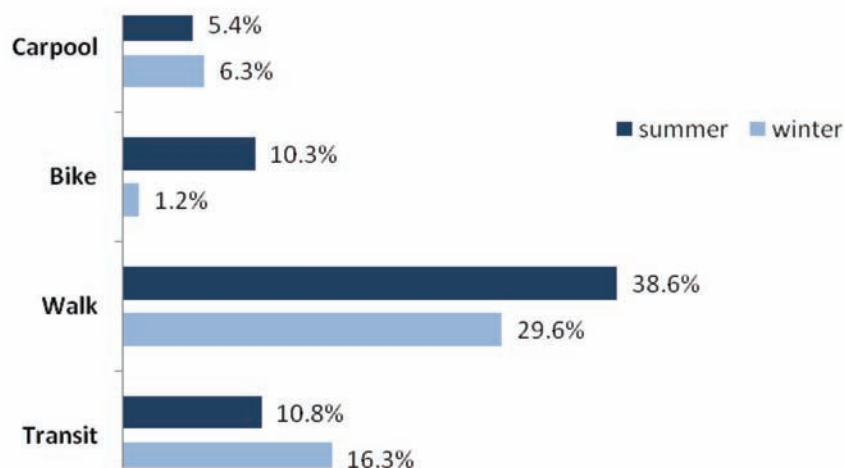
### *Seasonal variations*

Households that currently drive but which may be interested in switching to sustainable modes of travel are a major focus of an Individualized Marketing program. There is also an opportunity to support those that use sustainable modes occasionally or on a seasonal basis to increase their use of these modes.

Active transportation is often considered a seasonal activity in Winnipeg due to cold weather and the icy condition of road and sidewalks in winter. Anecdotal evidence, however, suggests that the number of winter cyclists is on the rise. To support participating household members who might be interested in cycling year-round or extending their cycling season across the shoulder months, a brochure on cold weather cycling (created by the Toronto Bicycle User Group and modified by RCM) was included in the resources offered to households.

Specific to the WinSmart CBTM project, the survey questionnaire was designed to gauge variations in seasonal commuting habits, each household member (including children) was asked in the general questionnaire to identify how frequently they typically use transit, bike, walk, or carpool in summer and in winter on a basis of 1-2 times monthly, 1-2 times weekly, daily or never. This was a useful opportunity to capture baseline data at the neighbourhood level, as other commuting surveys do not capture seasonal variations in modes.

**Figure 3: Seasonal variations in mode – general reporting of daily use**



Based on responses to these questions in the follow-up survey, the general reporting of specific modes used on a daily basis were as expected. Carpooling and riding the bus are more frequently used in winter, while cycling and walking are used more in summer. Although walking holds a high mode share for project participants and remains high through the winter, cycling is higher than city averages for mode share in summer but comparatively similar in winter.

A colder than normal winter through the project, as noted in the next section, may have been an influencing factor. Interest in winter cycling by participating households was notable, with 57 households (16%) requesting the Cold Weather Cycling brochure.

### *Gas prices*

A key external factor influencing the decision to drive is the price of gas. During the one year period between the CBTM baseline survey and the follow-up survey, gas prices increased dramatically and undoubtedly played a role in generating interest in switching from driving to sustainable modes of travel or reducing total kilometres driven. This is evidenced in part by increases in bus ridership in the larger area during the project timeframe as evaluated by Winnipeg Transit.<sup>3</sup>

The average retail price of gas in Winnipeg in September 2007, at the start of the baseline survey, was approximately \$1.05 per litre, as shown in the figure below. Prices continued to climb throughout the following year, peaking in mid-September 2008 around \$1.40 per litre, then began to plummet over the next month, bottoming out around \$0.77 in December.

**Figure 4: Average Retail Gas Prices in Winnipeg (April 2007 to April 2009)**



Source: [www.WinnipegGasPrices.com/retail\\_price\\_chart.aspx](http://www.WinnipegGasPrices.com/retail_price_chart.aspx) by GasBuddy.com

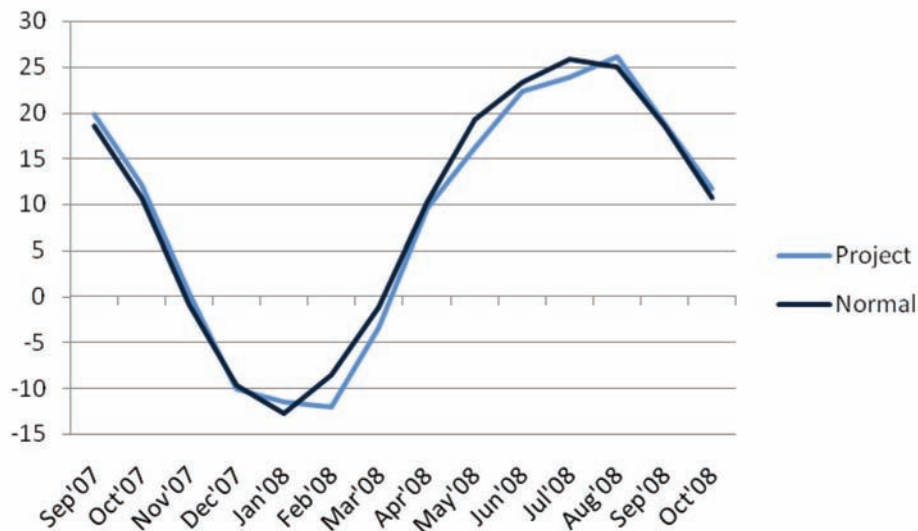
### *Weather conditions*

Weather conditions are one of the key influences on the decision to walk or bike instead of driving or taking the bus. During the timeframe of the baseline and follow-up surveys (Sep-Oct 2007 and Sep-Oct 2008 respectively), the weather could have influenced the travel choices made on the day that the household completed their one-day travel diary. Over the one year

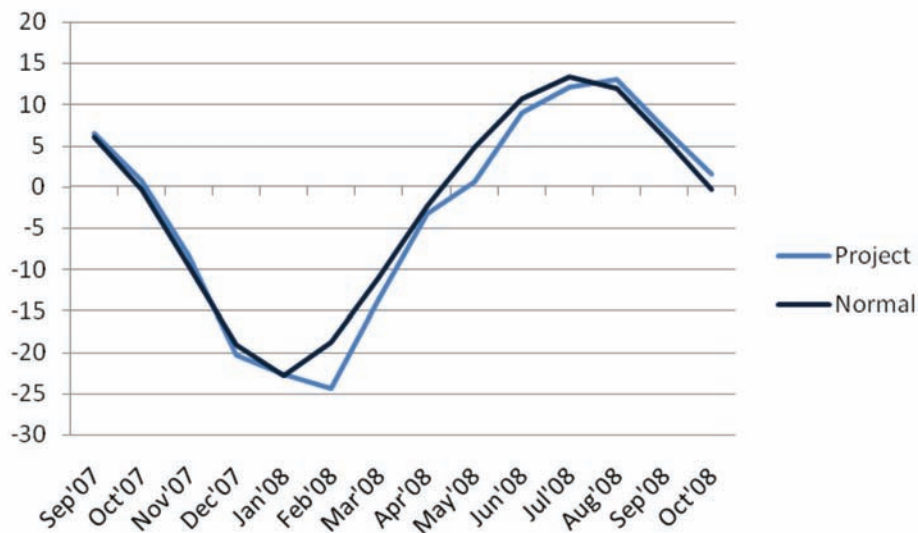
<sup>3</sup> Evaluation of 2007 and 2008 fall bookings at 27 major transit stops in the survey area, covering six streets and eight intersections, provided by Phil Wiwchar, Market Research Analyst, Winnipeg Transit.

period between the two surveys, weather conditions may have influenced responses in the follow-up survey regarding general travel behaviour and the frequency that different modes were typically used, i.e. 1-2 monthly, 1-2 weekly, daily or never. In general, as shown in the figures below, the fall of both 2007 and 2008 were slightly warmer than normal, while the winter and summer of 2008 were both substantially colder than normal.

**Figure 5: Winnipeg average maximum temperature – project months vs. normal**



**Figure 6: Winnipeg average minimum temperature – project months vs. normal**



Source Figures 5 & 6: Environment Canada, National Climate Data and Information Archive.  
[www.climate.weatheroffice.ec.gc.ca](http://www.climate.weatheroffice.ec.gc.ca)

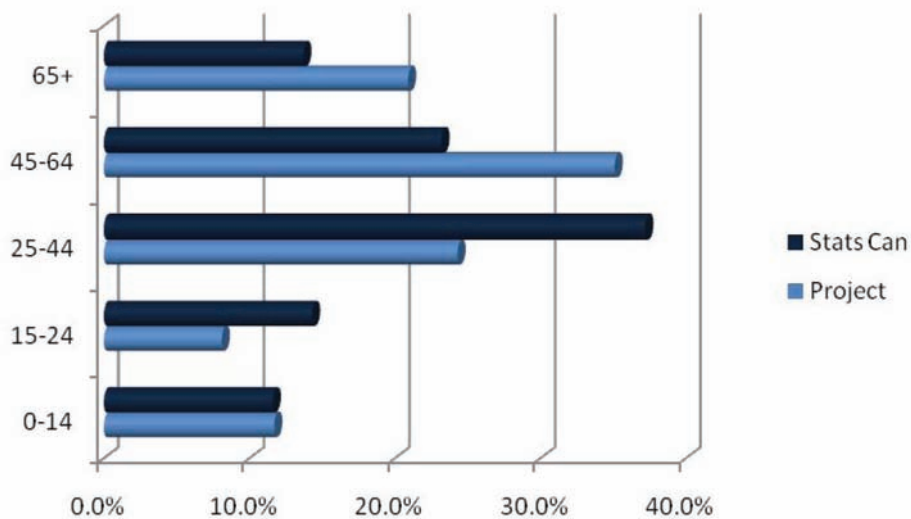
## Demographics of project participants

The demographics of the participating households show some interesting differences in terms of age groups and household composition compared with 2006 census data. Additional demographic information captured in the household profile of the survey questionnaire included employment status and the number of vehicles owned per household.

### *Age groups*

Comparing the ages of project participants against 2006 census data from neighbourhoods in roughly the same area of Winnipeg as the CBTM project shows a skewing towards older respondents in both the 45-64 and 65+ age groups as shown in Figure 7. This is accompanied by a lower proportion of respondents in the 15-44 age groups.

**Figure 7: Age of project participants vs. 2006 census data**

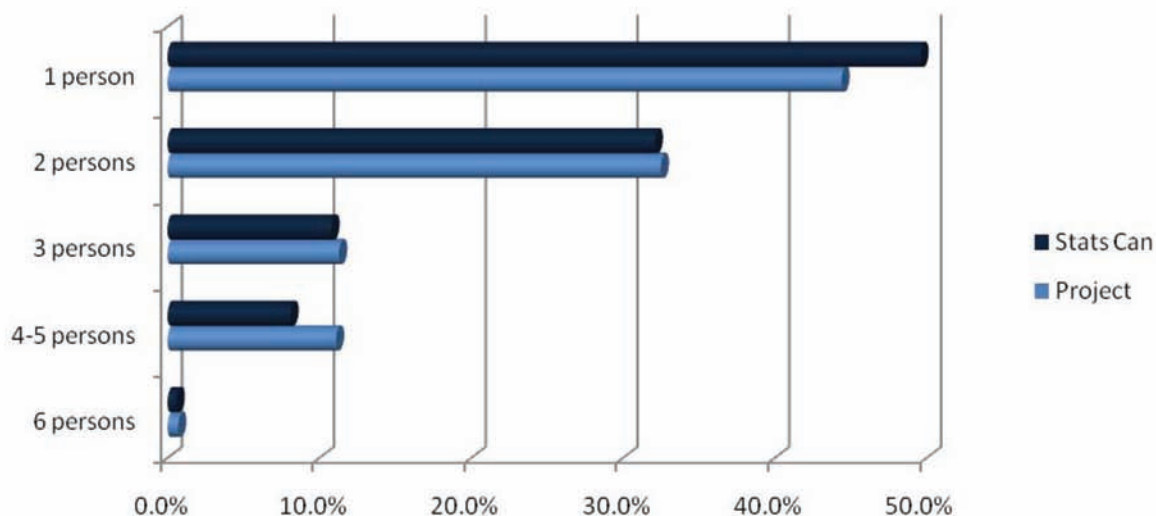


### *Household composition*

The differences in household composition, as seen in Figure 8, show a higher proportion of multiple person households. A smaller proportion of one person households is offset by households with 3 and 4-5 person households.



**Figure 8: Household composition vs. 2006 census data**

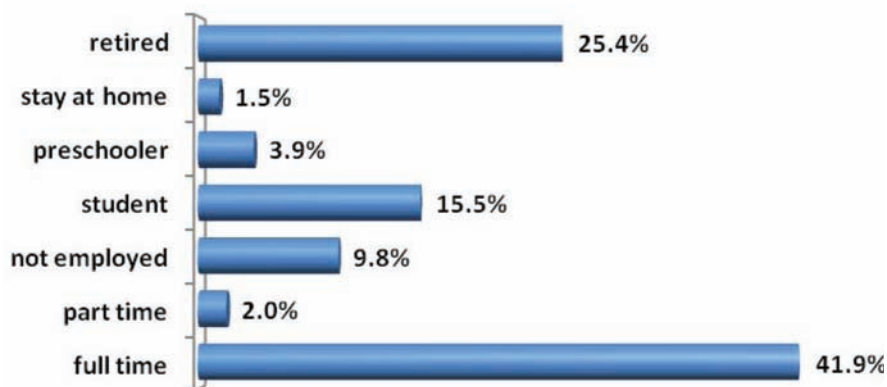


Source for Figures 7 & 8: 2006 Census City of Winnipeg Neighbourhood Profiles  
<http://winnipeg.ca/census/2006/>

### *Employment status*

The skewing towards a slightly older demographic is shown in the high proportion (25.4%) of respondents who indicated they are retired.

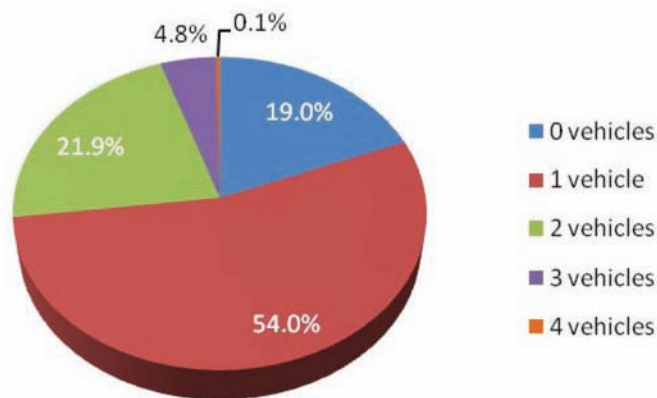
**Figure 9: Employment status of project participants**



### *Number of vehicles owned per household*

The CBTM survey provided an opportunity to capture the number of vehicles per household, data not collected in the census. While over half of the participants are 1 vehicle households, of particular note is the fact that 19% of households do not own a vehicle, similar to the number of 2 car households.

**Figure 10: # vehicles per household for project participants**



### **Trip purpose (origin-destination)**

Survey respondents identified their starting and ending point for each trip, which in many cases also identified the purpose of the trip. Their choices included: home, work, school, shopping, social recreation, personal business (such as banking), or “other”.

Origins and destinations selected by respondents in the baseline and follow-up survey were very similar. Looking specifically at the follow-up survey conducted in fall 2008, respondents completed 4,007 trips. About 40% of trips started from home, followed by social recreation (14%), workplace (13%), shopping (13%), personal business (10%), school (6%) and other (6%).

### *Trips starting from home*

Of the 1,589 trips that started from home, the top three destinations were social recreation (25%), work (23%) and shopping (16%). These were followed by personal business (15%) and school (12%).

*Trips starting from social recreation*

Of the 543 trips that started from a destination for social recreation, the majority (71%) were heading home afterwards while some went on to another place for social recreation (10%) or shopping (10%).

*Trips starting from the workplace*

Of the 521 trips that originated from the workplace, over half (58%) were heading home, while some went on to do personal business (10%), shopping (6%), other (6%) or social recreation (5%). There were a number of trips in which the respondents went to other work locations (13%).

*Trips starting from shopping*

Of the 515 trips that started from a shopping destination, the majority (70%) went home afterwards, while some went on to do more shopping (17%) and the remainder went on a mixed variety including social recreation (3%), other (4%), personal business (3%) or to work (3%).

*Trips starting personal banking*

Of the 395 trips that started from a personal business destination, most (61%) went home afterward while several went shopping (11%), for social recreation (10%), to do more personal business (10%) or to work (7%).

*Trips starting from school*

Of the 223 trips that originated from school, almost three-quarters (74%) went home while some went on to shopping (8%), other (5%) or to work (4%), while the rest were equally split among social recreation, personal business or to another school (3% each).

*Trips starting from "other"*

Of the 221 trips that started from an unidentified location or purpose, more than half went home afterwards (58%), while some went on to work (13%), shopping (10%), more "other" destinations (17%), school (5%) or social recreation (5%).

## 5.0 COMMUNICATION

Information sharing about the CBTM project and reporting on the project's preliminary results took place through a series of update sessions provided to provincial and municipal representatives, and to the national community through conference presentations.

Four project update sessions were held, taking place in November 2007, July 2008, October 2008, and February 2009. Participants at the individual sessions varied, but in total included representatives from:

- Intergovernmental Affairs, Province of Manitoba
- Science, Technology, Energy and Mines, Province of Manitoba
- Public Works, City of Winnipeg
- Planning, Property & Development, City of Winnipeg
- CAO Secretariat (former), City of Winnipeg
- Fleet Management Services, City of Winnipeg
- Winnipeg Transit
- Centre for Sustainable Transportation

Conference presentations on the CBTM project were delivered at:

- Walk 21 Toronto, an international conference held in October 2007 (Toronto, ON)
- Green Communities Canada National Conference, April 2008 (Winnipeg, MB)
- Planners Network 2008 Conference, a North American gathering held in July 2008 (Winnipeg, MB)
- Association of Commuter Transportation (ACT) Canada TDM Summit, a national conference held in October 2008 (Halifax, NS)

Neighbourhood promotion was not part of the communications strategy, since households could not self-select to participate and the CBTM project engaged a limited number of households in the target area.





Two focus groups that included individuals from the CBTM project took place in February 2009. Designed and facilitated by UrbanTrans, these focus groups were used to determine the participants' use and knowledge of technology; to help evaluate various online tools; and to test the appeal of the web-based approach. Interest in participating in the focus groups was overwhelming, with the twenty available spots filled within a few hours of an emailed invitation to CBTM participating households.

The online information and tools will be launched before the end of the project contract with the Province of Manitoba in August 2009.

## 7.0 FUTURE APPLICATIONS

The WinSmart CBTM pilot project demonstrated the effectiveness of this approach to reduce household transportation emission in Winnipeg, even in the absence of new transit or active transportation infrastructure in the project area. The next step to build on this successful pilot would be a large-scale application in which all households are contacted within a defined target area. Reaching out to all households provides the opportunity to promote the project neighbourhood-wide, stage sustainable transportation events related to transit, cycling and walking within the target area, and build partnerships with local businesses and neighbourhood groups. Similar applications elsewhere have created a coupon booklet as part of the project to encourage households within the target neighbourhood to shop locally and to use active modes of transportation for these short trips.

Studies have shown that the large-scale application of Individualized Marketing tends to have even more impact. In Perth, Australia, a similar pilot project conducted in 1997 resulted in a 6% reduction in the drive-alone mode share, whereas a subsequent large-scale application in 2000 produced a 14% reduction.<sup>4</sup>

Implementing a large-scale, i.e. neighbourhood-wide, application of CBTM in a neighbourhood that has recently benefitted from transit or active transportation improvements further increases the impact of the approach, optimizing the value of the investment in infrastructure. When Portland, Oregon, implemented North America's first large-scale application in 2004, in conjunction with the opening of a new light rail line, a follow-up survey determined a growth in transit trips of 24% in the control area where there was no intervention, but noted a growth of 44%, or nearly twice as much, in the Individualized Marketing project area.<sup>5</sup>

---

<sup>4</sup> Government of Western Australia, Department of Planning and Infrastructure, Technical Reports, TravelSmart Household, City of South Perth. [www.dpi.wa.gov.au/travelsmart/14974.asp](http://www.dpi.wa.gov.au/travelsmart/14974.asp)

<sup>5</sup> Metrolinx, The Big Move: Transforming Transportation in the Greater Toronto and Hamilton Area. [www.metrolinx.com/thebigmove/strategies/strategy5.html](http://www.metrolinx.com/thebigmove/strategies/strategy5.html)

Expertise and experience established through the CBTM pilot project means processes and protocols have been set that will provide cost efficiencies in implementation of the neighbourhood-wide application. Project design for the large-scale application finds efficiencies of scale by surveying a representative sample of households to measure the impact of the program rather than all households in the target neighbourhood as was done in the pilot project. The integrity of the approach is maintained by reaching out to all households through telephone contact to identify those households most likely to change their travel behaviour and focusing marketing and outreach activities to those households.

Using the data from the CBTM pilot project results, a large-scale application delivered to 11,000 households is estimated to result in 2,958 tonnes CO<sub>2</sub> emissions avoided. While recognizing this is a scenario analysis only and unlikely to produce these exact results, the figure is a relatively conservative calculation, as the change in travel behaviour in other large-scale applications elsewhere has outpaced the pilots.

An analysis of the cost per tonne GHG emissions reduced or avoided found that the CBTM pilot project cost \$419 per tonne while the extrapolated cost for the proposed large-scale application to reach 11,000 households would be reduced to \$117 per tonne (see Appendix G).

The strengths of this approach to reducing household transportation emissions are many – it produces measurable results, promotes active transportation which improves the personal health of residents, engages individuals, households and neighbourhoods in climate change solutions, and encourages community cohesiveness and local shopping.

Resource Conservation Manitoba has submitted a proposal to the Province of Manitoba to fund a large-scale application of CBTM, and is in discussions with the City of Winnipeg regarding the potential role of this travel behaviour change approach in traffic mitigation strategies for new infrastructure projects, such as the Disraeli Bridge rehabilitation, which includes a new pedestrian/cycling bridge, or the widening of Kenaston Blvd-Route 90 with accompanying active transportation infrastructure, and as a component of the annual active transportation work plan as new infrastructure is introduced.

***CBTM project contact:***

Beth McKechnie  
Green Commuting Initiatives  
Resource Conservation Manitoba  
Email: [beth@resourceconservation.mb.ca](mailto:beth@resourceconservation.mb.ca)  
Tel: (204) 925-3772

---