Workplace Transportation Choices

Includes:
Final Research Report
Bibliography

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Workplace Transportation Choice

Parimeeta Shah

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Abstract

A research project regarding travel choices to work was conducted at Sobeys Inc., Landsdowne Street, Peterborough, Ontario. This type of research is needed to demonstrate the effects of car pollution and global warming on the environment. Previous research conducted through my literature review showed that in 1992, 9.2 million Canadians, representing 92% of the total workforce traveled to and from work in a typical weekday. The workplace is therefore an important location to raise awareness about the health and environmental issues caused by our travel patterns (Canadian Department of Transportation 2, 2001). The method includes a combination of surveys and a focus group. A total of 84 employees participated in a survey that assessed barriers and attitudes towards alternative transportation to work. The results indicated a high percentage of single-occupancy vehicle use (76%), followed by carpooling (5%), walking/jogging (5%), riding city bus (6%), cycling (4%) and other (4%). Further analysis of the surveys and focus group revealed strong barriers to alternative modes of travel that includes distance to work, time and shift work. Overall, the results suggest that the employees have environmental concerns however both internal and external barriers seem too large to overcome the convenience of the automobile. Future research could investigate how certain cities for example Europeans ones promote public and active travel and plan the city to accommodate around that instead of the automobile, and further see if it is possible to implement those strategies to North American cities.

Introduction and Purpose

Peterborough Green-Up is a non profit community environmental organization that provides information and support on the matters of energy, waste, water, greenspace and transportation issues (see www.greenup.on.ca). Peterborough Green-Up encourages the community to participate in environmental actions that lead to a healthy and sustainable future. In collaboration with Peterborough Green- Up the purpose of this project is to assess the general knowledge and attitudes of the employees of Sobeys Inc. in Peterborough on the effects of transportation on the environment. The reason for this research project is to evaluate how the employees of Sobeys travel to work and identify barriers to alternative transportation. This research will also help the City of Peterborough who is currently putting together our community Transportation Plan.

This research project follows the social marketing technique, which is based upon research which shows that change in behaviour is most effective when carried out at the community level. The major focus of this technique is based upon removing physical and mental barriers that prevent a person from participating in the activity (Mackenzie-Mohr and Smith 1999, 15). Barriers are found to be both internal and external, internal barriers may include personal lack of knowledge or motivation, external barriers are seen as those that lack convenience. Since these barriers prevent individuals from adapting sustainable behaviours they must be identified to develop a social marketing strategy to remove them and enhance the benefits of engaging in the activity. (Mackenzie-Mohr and Smith 1999, 16).

Literature Review

In 1992, 9.2 million Canadians, representing 92% of the total workforce traveled to and from work in a typical weekday. The workplace is therefore an important location to raise

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Geography 470

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awareness about the health and environmental issues caused by our travel patterns. It is also important to motivate people to become active commuters, meaning looking at alternatives to driving a single occupancy vehicle (SOV) and becoming active workplace travelers. Getting to work in large urban areas is a concern for many Canadians. Three out of four Canadians drive their own vehicle to work and in larger centers public transit is most heavily used (Canadian Department of Transportation 2, 2001). The popularity of public transit has risen since 1996 and it is estimated that in 2001 over 4.5 billion trips would be made on public transit in Canada (Canadian Department of Transportation 3,2001). Canada is a country where an immense transportation system is needed to link the various areas of the country. The current patterns of transportation are causing major congestion within the cities and on Canada's major highways. This congestion is having an impact on quality of life, health and the economy. More than 70% of the highways are congested during peak times in the Greater Toronto area that is creating very low levels of service to business and residents (Canadian Department of Transportation 3, 2001)

Transportation must be sustainable in three ways, economic, environmental and social which suggest that the government, industry and individuals must work together to take into account the above when considering decisions affecting transportation activities. The environmental impacts of sustainable transportation include air and water pollution, greenhouse gas emissions and the use of land and natural resources. In 1997, Canada and other countries negotiated the Kyoto Protocol to the United Nations Framework Convention of Climate Change. Canada has to reduce its greenhouse gas emissions to 6% below 1990 levels during the period of 2008-2012. If the current trends were to continue the greenhouse gas emissions from transportation alone are expected to exceed 1990 levels by 32% and by 2020 53%. Over the next 40 years, about 800 million more people are going to own cars which is going to further disrupt

land use patterns. While building more roads will reduce congestion, over time it will increase traffic flow. A shift has to be made from single- occupancy vehicles to public and active transport. Active transport means walking, jogging or biking as a method of travel.

A major problem that has started with the building of cities is land use. The dependence on the automobile has been a reaction to land use and design that has encouraged the use of the car. The city started as a place where mixed land use was encouraged; within a couple of blocks you had access to everything such as a school, stores, and work. People lived in the downtown core where residential use was mixed with commercial. Now in many big cities the divisions of the city are very obvious where the suburbs are the residential areas and the places of employment may be one hour commute from home. The designs of modern cities are very unsustainable, however implementation of programs such as Smart Growth will encourage a community based city. The main goals of Smart Growth are having mixed uses of land, creating a walk able city, designing the city compactly, provide transportation choices and encourage community participation. This type of design discourages the use of cars as forms of transport but rather encourages more sustainable forms such are public transit, walking, jogging and biking (Wurtele, geography 203 lecture 2002)

A study done by Robert Cervero called "Mixed Land Uses and Commuting: evidence from the American Housing Survey" demonstrates how mixed land-uses influence the commuting choices of residents. (Cervero, 361 1996). Mixed land uses are thought to increase the number of transportation benefits, especially in suburban areas. Because offices, restaurant, and other services are nearby, people are more likely to walk to more destinations (Cervero, 361 1996). A recent study found that traditional neighborhoods with residential densities, grid street patterns and local shops had far lower use of the car. (Cervero, 361 1996). A study

entiled " Transportation Energy in Global Cities: Sustainable transportation comes in from the cold?" by Newman and Kenworthy (2001) shows that cities with the most roads have the highest transportation costs whereas cities that are more rail oriented have the lowest cost. Plus the cities that are sprawling have the highest direct and indirect costs for transportation.

US cities depend most on the automobile followed by Australian and Canadian cities. European and Asian cities are more transit oriented with more opportunities to walk and cycle. This research suggests that sustainable transportation needs the reshaping of urban land use and investment in non-auto infrastructure

Encouraging active transportation brings much health, environmental and economic benefits that can reduce the dependence of travelling in the automobile. Currently 63% of Canadians are not active enough to achieve the health benefits associated with daily physical activity (Go For Green, 2001). Physical activity improves self-esteem and a sense of well being which can contribute to a happier and more productive work situation. (Go For Green, 2001). It has shown that in Canada the number of cars per 1000 persons has doubled since 1960. Not only have the number of cars increased but the travel distance and frequency of trips has increased (Go For Green, 2001) Even though carbon dioxide emissions have decreased on a per-vehicle basis; the overall rate is rising. If each motor trip is changed to active methods of transportation like walking or cycling it would avoid the release of 26 grams of hydrocarbon, 20 grams of carbon dioxide and 1.6 grams of Nitrogen Oxides per passenger mile (Go For Green, 2001). The economic benefits demonstrate that in Canada the environmental costs of transportation are estimated at $14-16 billion each year. At the workplace, active transportation leads to reduced costs associated with on-site parking for employees and visitors and motor dependent workplace travel (Go For Green, 2001).

The barriers that have been identified (Go For Green, 2001) to using alternate transport include:

- Lack of motivation, skill and energy
- Fear of injury
- Problems with child care
- The layout of the community
- Weather
- Local traffic patterns (speed, volume)
- Distance from home to work
- Time management
- Poor roads

Method

To begin this research project I familiarized myself with transportation concerns and issues by reading the prior literature. This was followed by getting in contact with a representative of the Quaker Oats company, Peterborough After telephoning them I wrote a letter to the gatekeeper explaining the project and asking them if I had permission to initiate a research project. A few weeks later I received a letter by email from the gatekeeper declining to participate in my research project. My second plan was to contact Peterborough Sobeys grocery store, located on Lansdowne Street West, Peterborough. Due to my connections with the store manager I was able to explain him the scope on my project and he happily agreed to conduct the research project.

My method had two phases, phase one was to distribute surveys (See Appendix 1) to the employees of Sobeys and phase two was to conduct focus groups.(See Appendix 2). One hundred and tweenty surveys were distributed to the employees of Sobeys on February 15 2002. A set of surveys were given to each department and a set was put in the staff lunch room. Surveys were either to be returned to me on the days I was working or in the staff room where a box was placed. The top of the survey included a cover letter that introduced me and the purposes of the research surveys. The surveys included eleven questions regarding the modes of transportation used when going to work at Sobeys and the barriers that prevented them from using other modes of travel to work. The ideas for the survey questions were derived from my literature review.

The second phase of my research involved conducting a focus group. Focus groups provide an opportunity to discuss in-depth the perceptions and present behaviours of people regarding sustainable forms of transportation. My original plan was to conduct three focus groups consisting of three to six employees however due to constraints, I was only able to conduct one on March 7 2002 that consisted of four employees. This sample was from the employees that were interested in participating and discussing transportation issues. The sample of questioned discussed were derived from my literature review and my survey.

Results

Of the one hundred and tweenty surveys distributed to the employees of Sobeys, eighty- four or 70% were returned. The following quantitative results were found.

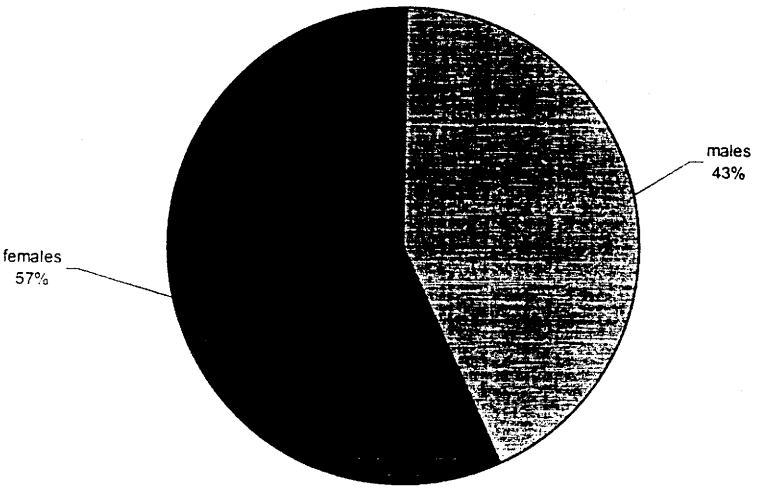


Figure 1 : Gender

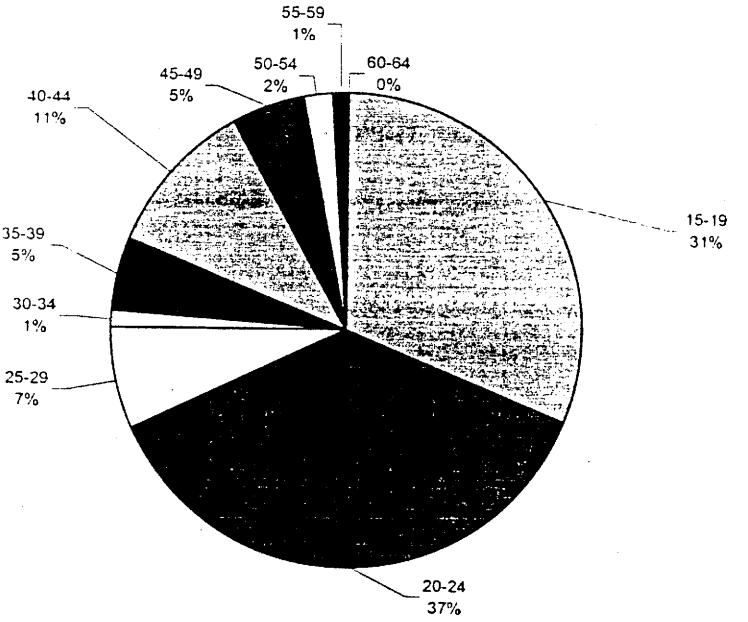


Figure 2: Age

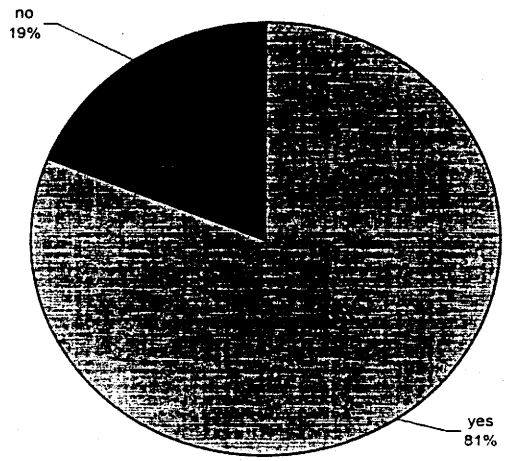


Figure 3a: Own or have frequent access to a vehicle

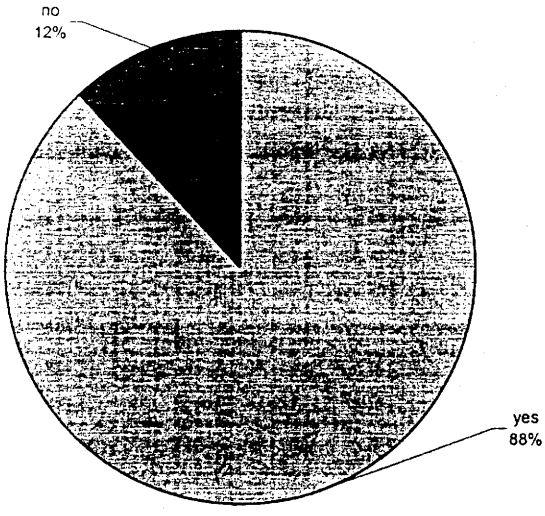


Figure 3b: Access to a vehicle

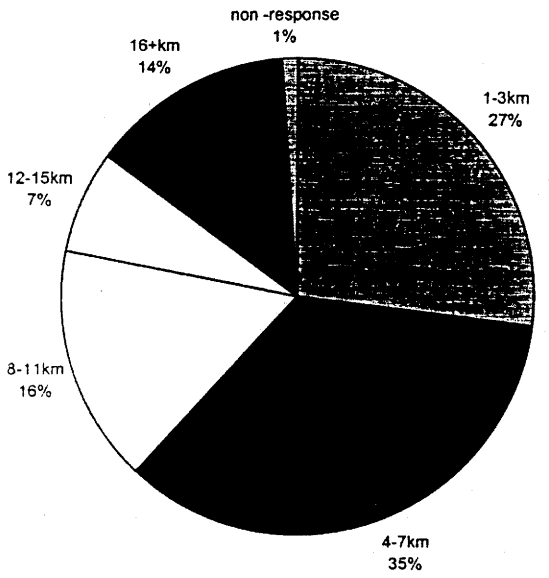


Figure 4: Distance in Km from home to work

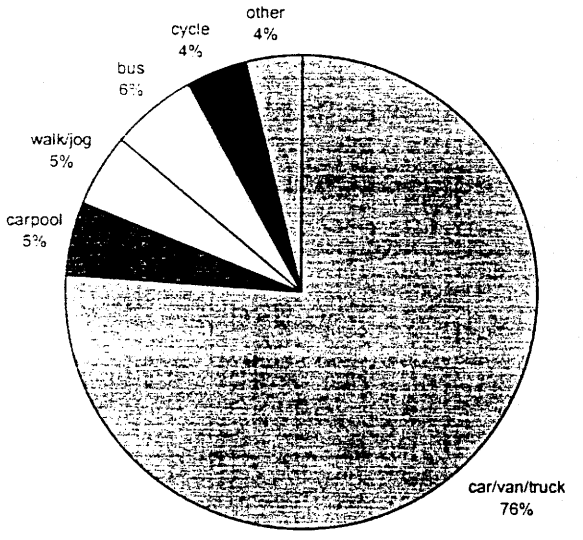


Figure 5: Transportation used most frequently when going to work

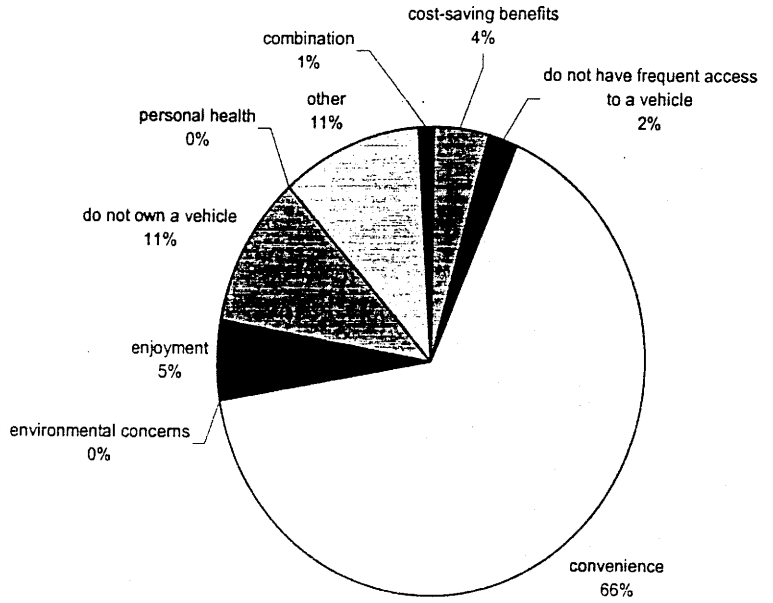


Figure 6: Primary factor that determines mode of transportation

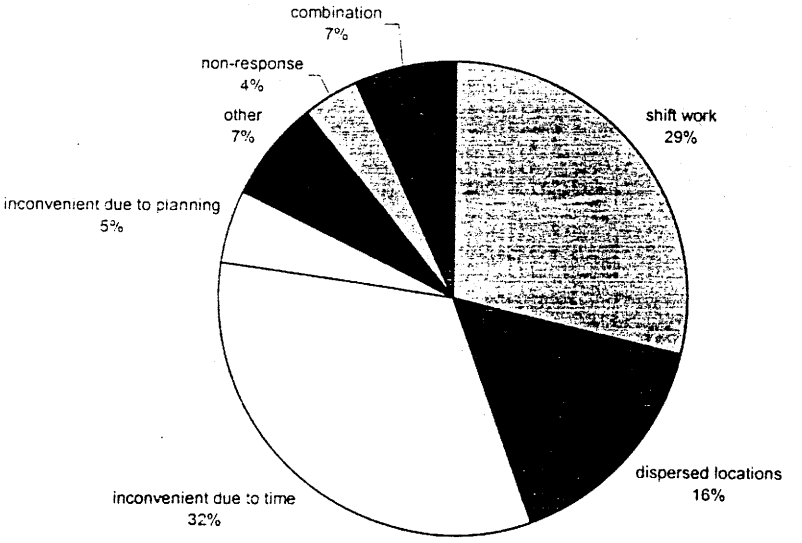


Figure 7: Primary factor that would prevent carpooling to work

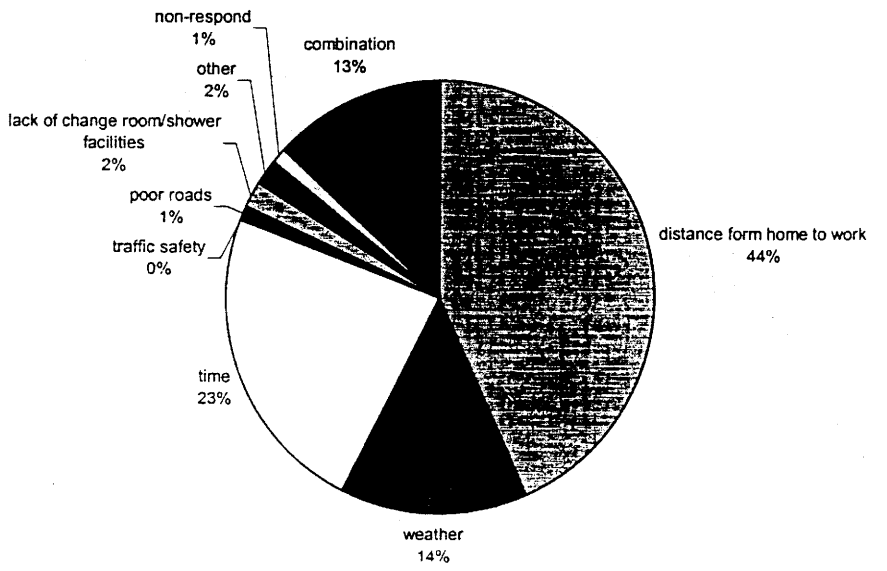


Figure 8: Primary factor that would prevent from walking/jogging to work

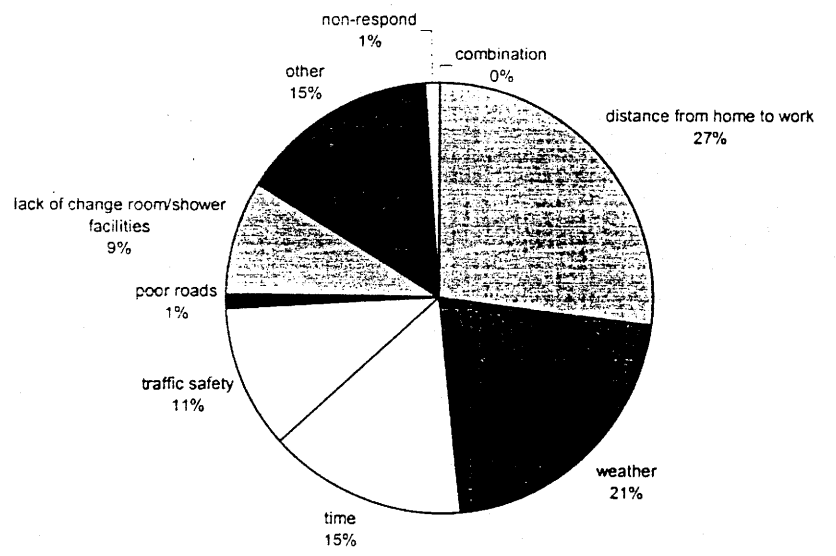


Figure 9: Primary factor that would prevent from cycling to work

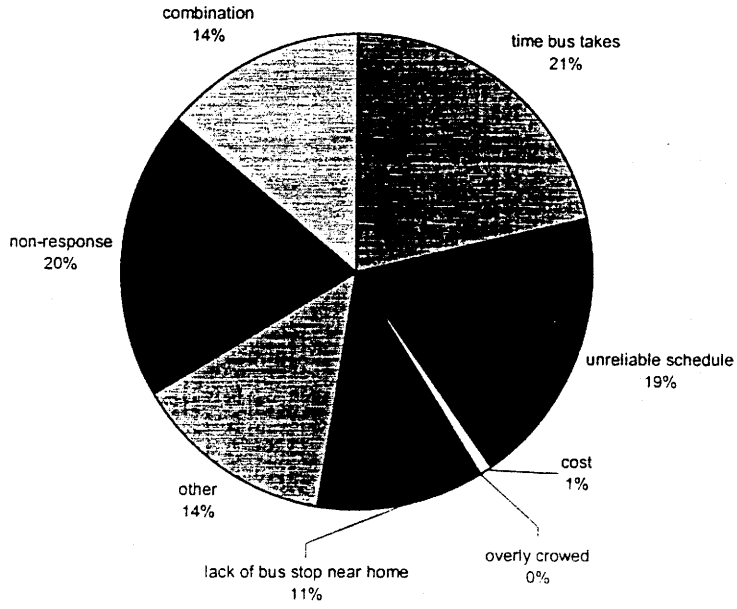


Figure 10: Primary factor that would prevent from taking the city bus

The following figures show the likeness of using the indicate mode of travel, 1 being most unlikely and 7 being most likely

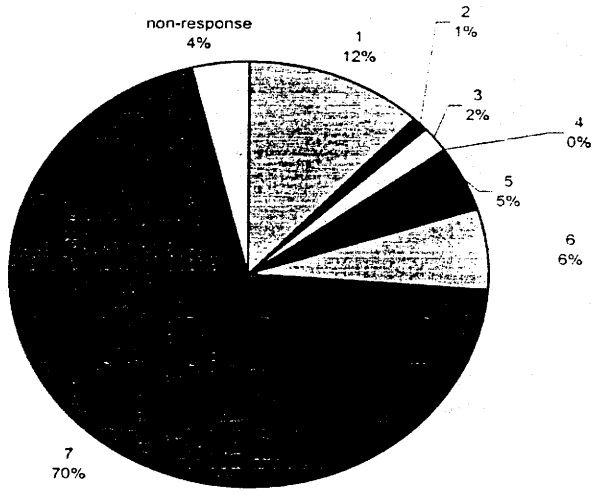
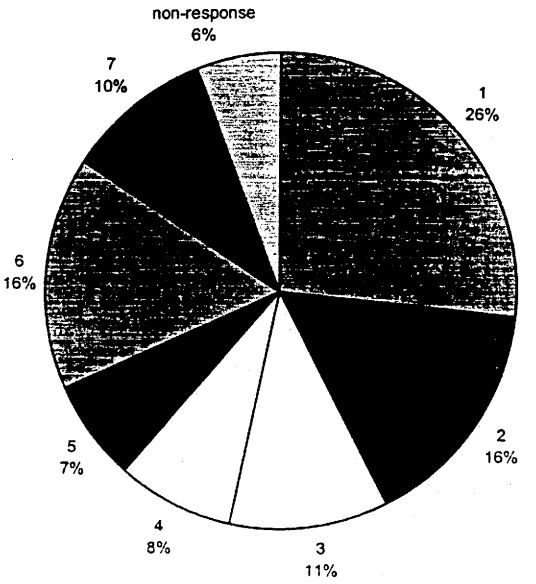


Figure 11a: Single occupancy vehicle



11b: Carpooling

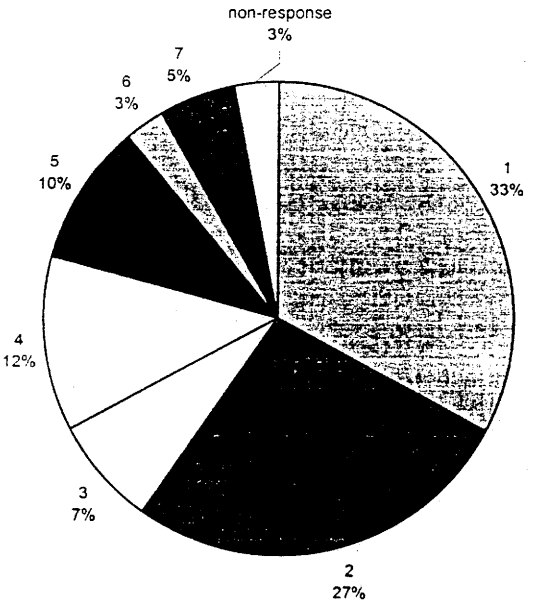


Figure 11c: Walking/ Jogging

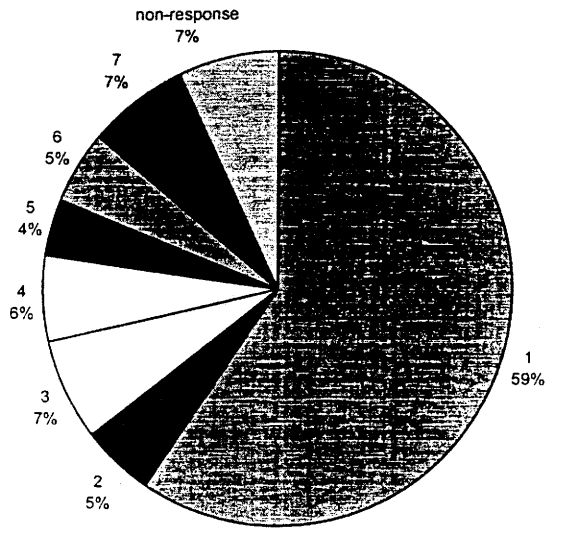


Figure 11e: City Bus

A focus group was conducted with four employees of Sobeys on March 15 2002. The questions discussed were derived from my literature review and my survey. However due to a high interest in the topic discussion sometimes veered away from the original questions. The results of the focus group are as follows:

The type of transportation used by the participants of the focus groups was either

- Single occupancy vehicle
- They received a ride to work from another family member
- If either form of travel method was unavailable they walked to work, however this was a rare circumstance.

My participants used the above forms of travel to work because:

- Driving to work was convenient due to time constraints such as starting work right after school.
- There is a high chance that a car is available due to ownership or sharing it with other family members.

Since vehicle use was the primary form of travel to work the barriers that prevented my participants from carpooling, walking, cycling and city bus are:

Carpooling

- Due to different shifts at work it is hard to coordinate rides
- Due to dispersed locations it is sometimes not convenient to carpool
- Never really thought about sharing rides and coming together

Walking

- The distance from home to work is too long to walk and therefore time is a factor
- The weather in the winter is not favourable to walk in
- The streets around the area of Sobeys are not very pedestrian friendly due to traffic volume and the streets around their home do not have sidewalks.
- The employees can work till 11pm so it is not safe to walk home at night.

Cycling

- The participants did not like cycling or own a bike
- There is a fear of cycling on Lansdowne Street as it is busy, congested and not pedestrian friendly.

- The weather in the winter is not favourable to cycle in.
- Lack of proper change room facilities to clean up and change into uniform.

City Bus

- The time the bus takes to get from home to work and the unreliable schedule.
- There is not a bus stop near their homes.
- The bus does not run on Sundays and later in the night when employee works.
- Buses frequently breaking down.

The methods used when traveling to other destination apart from work include:

- A car if going out with friends, carpooling because live close and everyone is meeting at the same place and time.
- A bus if going to school at Trent University because a car is not available. Did not like taking the city bus of Lansdowne West because of its inconvenient route, however didn't mind taking the Trent Express because of the frequency of runs, direct routes and increased availability at peak periods.
- Walking and cycling were not strong options because the distance to go places to shop, the movies etc… are not a walking distance from their homes

Barriers that could be lifted to discourage single occupancy vehicle use and increase use of public transportation and active travel:

External:

- More bus stops nearer to the homes

- Easier access of the city bus by having more frequent runs and a more reliable schedule (e.g. Trent Express)
- Sidewalks in subdivisions
- Special lanes on the street for bikes
- More trails and paths for walking
- Proper change room facilities to clean up and change into uniform

Internal:

- Making prior arrangements for carpooling to work
- Walk to work with another employee if work schedule permits
- Incorporate walking to work as part of daily schedule

Analysis and Discussion

The participants of my study include 57% males and 33% females. The ages of the participants varied, however 81% were between the years of 15-24. This demonstrates that a majority of the employees of Sobeys are young. Eighty one percent said that they owned or had frequent access to a vehicle and 88% had access. These figures reveal that the use of a car was a large option as a form of transport when going to work due to its availability. Tweenty seven percent lived 1-3km from work and 35% lived 4-7km. These distances show that other forms of transportation than the car could be options because these are walking and biking distances. Yet distance was a primary barrier to active travel methods. The most frequent method of transportation when going to work is a single occupancy vehicle representing 76% as seen in figure 5. The remaining 24% is composed of carpooling, walking, taking the city bus, biking and

others. The primary factor that determined the mode of transportation to work included 65% saying convenience. This is important when observing the relationship between car and convenience because 50 respondents that wrote chose the car as the primary mode of travel also chose that it was the most convenient method of travel. The three primary factors that prevent the employees from carpooling to work are: 33% said it was inconvenient due to time, 29% shift work prevented them and 16% said dispersed locations. Figures eight and nine demonstrate that the factors that prevent them from walking to work also prevent them from biking. The main three include distance, weather and time. This type of relationship exists because each of the travel methods involves physical activity that would be affected by the above factors if prior arrangements were not made. Such arrangement could include using multiple methods of travel such as combining the bus and walking, wearing the appropriate clothing due to weather conditions, leaving more time to travel to work. Twenty six percent said that the primary factor that prohibited them from taking the city bus is the time the bus took, followed by 23% saying that it has an unreliable schedule. A following 17% said that it was a combination of both factors. This shows that the city bus doesn't relate to the employees schedules as many of them must work later than the bus runs and on Sundays when there is no service. Figures 11 a- e showed the likeness to use the indicated form of transportation. Seventy percent were more likely to use a single occupancy vehicle, 10% would carpool, 5% would walk to work, 7% would cycle and 7% would take the city bus. These results demonstrate the barriers again using a single occupancy vehicle are not as large a concerned compared to the barriers that exist towards the other methods of travel

After careful analysis of my surveys and focus groups the responses that the employee of Sobeys gave confirmed the findings in the prior literature. Seventy Six percent of the sample

surveyed used a single occupancy vehicle to attend work at Sobeys Peterborough and due to the barriers that exist, both external and internal, more environmentally methods of transport are more unlikely to be used. Even though the sample for my focus group was small it was an excellent way to create discussion on how more environmentally forms of transportation could be implemented. Each member of my focus group recognized the importance of the environmental concerns but the existing barriers seem too large to compete with the convenience of the automobile

A similar type of study was done in 2000-2001 at which transportation management strategy was conducted for Julian Blackburn Hall at Trent University where a high number of employees used a single occupancy vehicle(Au and Laing 2001). Similar results are found between the two studies even though the locations within the city of Peterborough are at opposite ends. Sobeys is located at the west side of the city whereas Trent University is located in the north end. Many of the barriers that are present to the employees of Sobeys are lifted to the employees of JBC. For example if catching the city bus from downtown the Trent Express is very accessible and frequent during the school year however does not run during the summer months of May to August. The Peterborough Rotary Trail passes by the campus thus encouraging walking, blading and bike use. Shower and change room facilities are located at the Athletic Complex and are accessible to students and employees.

After studying prior research and conducting my own research project, results show that individual behaviour changes are needed to encourage the benefits of active transportation and educate the public about the environmental problems that car use is causing.

Conclusions and Recommendations

Encouraging active travel methods to the work place allows community group members to work together towards a practical, safe and important initiative that will have personal health benefits and increase environmental awareness. As mentioned above it is important that behaviours and attitude towards active transportation change. Here are some recommendations that may help the employees of Sobeys Peterborough in encouraging active and public modes of travel and discourage the use of single occupancy vehicle. It has been recognized that cycle is not a popular from of activity for the employees however the options of carpooling, public transit and walking are alternate options.

Active Travel to Work

Bicycle Parking:

- Locate bicycle parking in a place protected from the rain and bad weather.
- Locate the parking area close to building entrances, elevators and stairways.
- Publicize the location of the bicycle parking area with signs throughout the building.

(Caravan for Commuter, 2000)

Bike Parking is available at Sobeys however the number of spots available is not equivalent to the number of employees working at one time.

Shower facilities:

- Consider providing shower facilities and lockers. If not possible, consider an arrangement with a nearby business that has facilities, or with a health club.

(Caravan for Commuters, 2000)

Bathroom Facilities not shower facilities are available which allow for a quick clean up and a change into uniform.

Route Coordination:

- Route selection has a lot to do with a bicyclist's and a walker relative safety and security on the roads. Many businesses are located adjacent to major highways or feeder roads, but there may be a network of quiet roads and residential streets nearby.
- The company can help bicyclists and walkers identify a practical route between home and work
- Route maps can be displayed on a bulletin board
- Notices of group rides, and lists of bicyclists who want to ride with others.
- Plan your route in advance. Look for sidewalks, crosswalks, lighting, etc. You may want to consider a route that includes transit stops in case you are running late or it starts to rain
- If you are going to be walking at night, take a ride in the evening to make sure the route feels safe.
- If you live too far from work for a practical bicycle or walking commute, become multi-modal and consider cycling to the bus, transit, or a co-worker's house and carpool.

(Caravan for Commute, 2000)

Promotion of the Program

Employees are most apt to become bicycle/walking commuters if they know that their employers regard bicycling/walking to work as a legitimate and professionally acceptable mode of transportation. This awareness can be best accomplished by active promotion of the bicycle to work program and cooperation between managers and employers. There are many techniques for promoting a bicycle commuting program including:

- Allow employees who bicycle to work to dress casually one day per week.

- Have a monthly draw or prizes for bicyclists and walkers who ride and walk 2-3 days per week
- Inform bicycle commuters of carpools on rainy days
- Organize corporate challenge events among competing businesses
- Promote a Bicycle to Work day, week or month.

(Caravan for Commute, 2000).

The new draft of the transportation plan for the city of Peterborough was distributed in January 2002 outlining the problems and possible conclusions to a variety of uses. For example it suggests that in Peterborough the 1996 data show that 86% of people were either an auto driver or passenger. The 2021 goal is to aim for 82%. In 1996 5% used the transit system, the 2021 target is 6%. In 1996 7% of people walked or cycled and the 2021 goal is 9%. (Peterborough Comprehensive Transportation Plan Update 2, 2002). I believe that these goals should be improved by reducing the use of cars by at least 10-15% and increasing public and active transport by 20%. The report does recognize the problems of current transportation in the city by looking at the pedestrian system, bicycling system and transit system and has made valid suggestions and solutions but I do not believe that they are reflected in the targeted 2020 figures.

A realization must occur that we are a car dependent society and because of various factors such as distance and time from work to home, convenience and lack of motivation, our society will always rely on automobiles. However by taking little steps to promote other

forms of transport, people are more likely to observe personal health, economic benefits and environmental benefits which on a larger scale will help the society as a whole.

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Appendices

Workplace Transportation Choices

Hello my name is Parimeeta Shah. I am undertaking a study on workplace travel habits for my Trent University course on Human Geography taught by Professor John Marsh.

The purpose of my project is to discover the attitudes, needs and challenges of Sobey's employees on commuting to work. The final report will provide recommendations to address these challenges and will determine ways to promote active, efficient and accessible travel.

I would appreciate it greatly if you could help me by completing the following survey.

You have the right to not participate in this survey or to not answer questions you wish not to. Please note however, that all responses will be kept anonymous and only aggregated responses will be used in this study. I do hope you will participate. A summary of the results of this project may be obtained by contacting me at (705) 743-2345 after March 31st 2002.

My research will also be provided to Peterborough Green-Up, who are currently doing work to promote biking, walking and busing in our community and to the City of Peterborough who are currently putting together our community's Transportation Plan.

Thank you,

Parimeeta Shah

Parimeeta Shah
Geography, Trent University

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1) Gender: Male Female

2) Age: 15- 19 20-24 25-29 30-34 35-39
40-44 45-49 50-54 55-59 60-64

3a) Do you own or have frequent access to a vehicle? YES NO
b) Do you have access to a vehicle YES NO

4) What is the approximate distance in kilometers from your home to your place of employment?
1-3 Km 4-7Km 8-11Km 12-15Km 16+ Km

5) What form of transportation do you use most frequently when going to work?
a. car/van/truck (drive alone)
b. carpool (drive with a minimum of one other person)
c. walk/ jog
d. bus
e. cycle
f. other_____

6) What is the primary factor that determines your mode of transportation to work?
a. cost-savings benefits
b. do not have frequent access to a vehicle
c. convenience
d. environmental concerns for e.g.: air pollution
e. enjoyment
f. do not own a vehicle
g. personal health benefits to using active transportation such as walking and cycling
h. other _____

7) What is the primary factor that would prevent you from carpooling to work?
   a. shift work
   b. dispersed locations
   c. inconvenient due to time
   d. inconvenient due to planning
   e. other_____

8) What is the primary factor that would prevent you from walking/ jogging to work?
   a. distance from your home to work
   b. weather
   c. time
   d. traffic safety
   e. poor roads
   f. lack of change room/ shower facilities
   g. others_____

9) What is the primary factor that would prevent you from cycling to work?
   a. distance from your home to work
   b. weather
   c. time
   d. traffic safety
   e. poor roads
   f. lack of change room/ shower facilities
   g. others _____

10) What is the primary factor that would prevent you from taking the city bus?
   a. time the bus takes
   b. unreliable bus schedule
   c. cost
   d. overly crowed
   e. lack of bus stop near your home
   f. others _____

11) On the following scale of 1-7, please indicate how likely you would use the following forms of transportation to get to work at Sobeys. **1 being most unlikely** and **7 being most likely.**

Single occupancy vehicle
1 2 3 4 5 6 7

Carpooling
1 2 3 4 5 6 7

Walking/Jogging
1 2 3 4 5 6 7

Cycling
1 2 3 4 5 6 7

City bus
1 2 3 4 5 6 7

Thank you very much for your participation!!

Please insert the survey into the box provided.

2

Focus Group

1. What type of transportation to you use most frequency when going to work at Sobeys ?

2. Why to do use that method of travel when going to work at Sobeys?

3. If driving in a single occupancy vehicle is your primary method of travel, what are the barriers that prevent from carpooling, walking, cycling or taking the city bus?

4. What is the primary method of travel used when going to school, going shopping, the movies, seeing friends etc..

5. What barriers could be lifted that would encourage you to participate in more active forms of travel to work?