Understanding Accessibility in Midsize Cities
An Empirical Analysis of Canadian Cities, and Case Studies of Kamloops, British Columbia and Milton, Ontario

by

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A thesis submitted in conformity with the requirements for the degree of Master of Applied Science
Civil Engineering
University of Toronto

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Abstract

Midsize cities face a number of sustainability challenges, particularly in terms of transportation and land use, however only a small subset of the literature has addressed these issues.

Examination of the literature reveals two reasons for this: there is no consensus on a definition of midsize cities used for transportation research purposes, and there is very little empirical understanding of midsize city characteristics. This thesis addresses both of these issues. In order to establish the bigger picture, an empirical classification of Canadian cities is completed and used as a tool to analyze the travel behaviour characteristics of Canadian midsize cities. This work is followed by two detailed case studies of midsize Canadian cities – the City of Kamloops, British Columbia, and the Town of Milton, Ontario. The case studies employ both qualitative and quantitative research methods to explore the context around travel behaviour in each community.
Acknowledgments

I recently heard a This American Life story in which the narrator, Michael Lewis, speaks to the notion that “there’s a huge accidental component to life’s outcomes – that everyone owes at least some of their success not just to chance, but to other people being nice for no reason at all.” If I may boldly call this master’s degree a success, then I am lucky to have many people to thank for their generosity.

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Appendix A – Kamloops Case Study Materials

Appendix B – Milton Case Study Materials
1 Introduction

This project began with a long conversation about a hypothesis: midsize cities require a different set of transportation and land use policy tools than large or small cities. Where large cities rely on population density and severe roadway congestion to leverage sustainable travel modes, midsize cities do not have transit supportive population densities or severe enough congestion to passively encourage residents to commute by alternate modes. Spatially, however, midsize cities are large enough to require that residents use some form of motorized travel, where small cities or small town centres are less expansive and are more suited to human powered travel. This normative assessment of midsize cities led to pursuing a better understanding of the challenges and opportunities facing these cities in the future, and how best to approach sustainability for midsize Canadian cities.

In practice and in the literature there is a small but growing amount of discussion surrounding the unique context of midsize cities within the urban realm. The Transportation Association of Canada (TAC), for example, has published a report detailing best practices for transportation planning specifically in small and midsize Canadian cities, and Reconnecting America has just released a report dedicated to transit in midsize cities. Though this trend in the transportation and land use literature is promising, there is still a large knowledge gap to be filled.

Case in point, much of the cultural commentary by current urban thinkers such as Glaeser and Florida (Glaeser, 2011; Florida, 2012) is concentrated on large urban areas and mega cities. These authors tailor their criticisms and policy suggestions to the metropolitan context and tend to overlook the smaller but no less important group of midsize cities. Although the TAC and Reconnecting America reports provide a thoughtful overview of transportation planning issues in midsize cities, they do not speak to some of the broader social and cultural issues in these cities that affect transportation and urban form. Glaeser and Florida, on the other hand, speak to these broad cultural issues but do so from only the metropolitan point of view.
It is likely that some of Glaeser and Florida’s points may be extrapolated to midsize cities. For example, each author speaks to the importance of diversity in achieving thriving and sustainable communities. Florida eloquently defines cultural diversity as “an openness to all kinds of people, no matter their gender, race, nationality, sexual orientation or just plain geekiness” (Florida, 2012, p.ix). Glaeser specifically points out that cities foster diversity, education and innovation, which are directly related to humans connecting with each other, and further suggests that city’s land use and transportation systems drive human connections (Glaeser, 2011). Both authors also stress the importance of human capital, or highly skilled populations, as playing a key role in urban economic success.

It is easy to imagine diversity and human contact in the bustling urban context; large cities are seen as the hotbeds of culture and opportunity, and places where innovators go to thrive. And although it is conceivable that smaller urban areas should also strive to foster diversity, education and interaction between people, it is more difficult to imagine how this might play out in a practical way. Further, there is evidence showing that midsize Canadian cities continue to suffer from loss in human capital due to out-migration of highly skilled residents to Canada’s largest cities (Clemens, 2012). Many midsize cities are at a disadvantage in terms of population density, knowledge-based employment, public transportation networks and public space, and it is quite possible that low population density, resource-based or industrial employment, ease of driving, and the low-cost of private space are all reasons that draw people to live in midsize cities in the first place (Bunting et al, 2007).

The challenge, then, is to understand how to turn midsize cities into thriving and sustainable places without disrupting the key ingredients that have enticed people to live in these communities. Currently, there is no known body of research that addresses the issue of why people choose to live in midsize cities and this is likely a difficult question to tackle in its entirety, especially when doing so from a transportation planning perspective. However, it is important to begin to pursue this question to better address the challenges around sustainable growth in a cohort of cities that accounts for a substantial share of Canada’s population.
With regard to transportation and land use, decentralization and auto dependency are at the root of midsize city problems and they affect all sustainability measures – social, environmental and economic. Socially, there is the concern that certain demographic groups (low-income, mentally or physically impaired, or the elderly, for example) may suffer from social exclusion or reduced quality of life due to having limited access to the automobile as a travel mode. Environmental issues surround the resource consumption that is inherent to current automobile-dependent cultures and low-density and isolated land use patterns. Finally, economic issues arise from the inefficiencies, especially at the municipal level, in supporting decentralized development with linear infrastructure, and providing transit services to areas that are primarily low-density and suburban.

Thus, this research takes care to approach the concept of transportation and land use sustainability holistically, and especially to understand the users’ perspective in an effort to humanize the implications. This research explores a number of questions, namely: what are the characteristics of midsize cities, what is an appropriate definition of midsize cities for transportation research purposes, what attracts residents to live in midsize cities, and what factors affect the travel choices of midsize city residents? Understanding what midsize cities are, why people choose to live in midsize cities, and how midsize city residents make their daily travel choices will shed light on some of the cultural issues in midsize cities that affect the status quo of decentralized land uses and automobile dependence.

1.1 Defining and Characterizing Midsize Canadian Cities

A review of the literature suggests that a primary barrier standing between midsize cities and policy makers may be that there is no unanimity over what a midsize city is. Given that there is no consensus on the definition of midsize cities from the transportation planning perspective, this research project is tasked with developing an empirical classification of Canadian cities based on macro-level travel behaviour attributes. This classification analysis establishes a Canadian definition for midsize cities, which forms the basis of this research project, and provides a foundation for future work in the realm of transportation planning for midsize cities.
In this classification analysis, a three-type midsize city classification system has been adopted from Reconnecting America (2012) and tailored to the Canadian context. These classifications are described as follows. A Centre City is the major city in its region and the hub for employers, amenities, education and government – the City of Kamloops, for example. A Satellite City acts as a suburb or bedroom community within a larger region, where the region’s large city hosts the major employment and services. An example of a Satellite City is Milton, Ontario, which is part of the Greater Toronto-Hamilton Area (GTHA). Finally, a Partner City is a city located in a region with multiple cities of similar size, where employment and amenities are shared across cities. Though there are few in Canada, good examples of Canadian Partner Cities are the Cities of Cambridge, Kitchener and Waterloo, Ontario. Partner cities are difficult to quantify with limited macro-level data, and as such, the partner designation is left out of the empirical classification analysis and left to be designated qualitatively.

The Canadian urban classification analysis shows that cities with populations between 50,000 and 550,000 residents are midsized. In Canada, there are 91 midsize municipalities, which as of 2011, are home to 12.4 million residents – 37% of Canada’s population. Of these 91 communities, 55 are centres and 36 are satellites. The satellites are located in one of the five metropolitan areas of Toronto, Montreal, Edmonton, Vancouver and Victoria. The centres are located in the provinces of British Columbia, Alberta, Saskatchewan, Ontario, Quebec, Nova Scotia, New Brunswick and Newfoundland, with BC, Ontario and Quebec hosting the highest concentrations. There are no midsize municipalities in any of the territories, Manitoba, or Prince Edward Island.

The analysis of Canadian cities by regional function, population size, and travel behaviour, shows that, intuitively, centre city residents are more likely to commute by walking than satellite residents, and satellite residents are more likely to commute by transit than their centre counterparts. The major and large centres, however, foster the highest transit commute mode shares of all Canadian cities. The results also show that cities in the midsize group are uniquely automobile centric, with the lowest average
walk to work shares of any other cohort, and with average transit commute shares that are only higher than the small city cohort.

The definition of Canadian midsize cities and analysis of their travel characteristics is provided to guide this research into practice; it is not intended to say that the research findings will apply to all municipalities within the midsize range. In the same vein, the research findings in this study may apply well to municipalities outside of this population range, particularly to those cities with populations near the thresholds. This midsize city definition is sensitive to the Canadian context, and even within the Canadian context must remain flexible to the unique circumstances of each city.

1.2 Midsize City Case Studies

Ultimately, the goal of this research project is to understand the barriers to sustainability in midsize Canadian cities from the transportation and land use perspectives. Thus, it is extremely important to understand the culture around transportation and land use in midsize cities and to engage residents of these cities to help describe this culture. Given the goal of understanding midsize city culture, and because there is not a strong foundation of existing research into this subject, the case study was selected as the most appropriate research tool.

The advantage of the case study approach is that it is typically conducive to research areas that are in the theory development stage. Case studies provide a large amount of detail about specific cases, and a large amount of detail is necessary to understand the context of midsize cities. The trade-off is that the information gained through case studies may not be generalizable to other cities. However, considering that non-generalizable information helps to establish future research questions and contributes to a stronger research foundation, this is considered to be an acceptable concession.

Although three different types of midsize cities have been identified – Centre Cities, Satellite Cities and Partner cities – the midsize city case studies focus only on centres and satellites. This decision stems from the lack of literature around cities of this type in Canada. Partners, as mentioned previously, are rare in the Canadian context and
were eliminated as a candidate due to time constraints. Further, there is an existing body of literature (Bunting et al, 2007) that profiles land use decentralization in the Region of Waterloo partner cities (Cambridge, Kitchener and Waterloo). This existing work is included in the literature review presented in Chapter 2.

Apart from the criteria that one case study focuses on a centre city and the other focuses on a satellite city, the selection of case study municipalities is largely strategic and based on interest and support from administrative staff at the municipal and regional governments. The City of Kamloops, in south-central British Columbia, was chosen as the first case study due to enthusiasm and interest expressed by the city’s administration and their willingness to make their most recent Household Travel Survey (HTS) data available to the researchers. Kamloops is a **Centre City** located approximately 350 km northeast of Vancouver. The Town of Milton, in the Greater Toronto and Hamilton Area (GTHA) in Ontario, was chosen as the second case study due to interest from Metrolinx, the GTHA’s regional transportation authority. Milton is a **Satellite City** located within Halton Region, which borders the City of Mississauga to the east.

The midsize city case study process employs both quantitative and qualitative research methods. Combining qualitative and quantitative methods is also known as the mixed-method approach, and has gained increased traction in the area of travel behaviour research in past decades (Clifton and Handy, 2001). By using a strategic combination of research methods, researchers are able to capture details that are unobservable through quantitative methods alone (Deutsch and Goulias, 2012). The mixed-method approach to this question of culture and sustainability issues in mid-sized Canadian cities is not intended to produce generalizable outcomes. The mixed-method approach does, however, allow researchers to understand the issues around midsize city sustainability on a case-by-case basis and to shed light on some of the unique challenges and opportunities faced by these cities.
The mixed-method research approach used in the case studies is outlined as follows.

1. Collect and Analyze Background Data (Quantitative)
2. Conduct Transportation and Neighbourhood Amenities Survey (Mixed)
3. Conduct In-depth Semi-structured Interviews with Residents (Qualitative)

There are three major data collection tasks involved in the case study process. The first task is based on existing quantitative data, such as census and municipal travel surveys, which provide background information. The second two tasks progress into qualitative research methods. The survey in task two is used to explore the travel behaviour issues outlined in the background analysis, and to recruit residents to participate in the qualitative interviews. The third task – the qualitative interviews – involves semi-structured interviews with a sub-section of survey respondents. The interviews are intended to reveal the decision-making process behind daily travel and residential location and to probe into perceptions of culture in midsize municipalities.

1.3 Report Structure

This remainder of this document is organized into chapters, as outlined below.

Chapter 2: Literature Review

This chapter documents the existing literature on midsize cities and their transportation and land use sustainability challenges.

Chapter 3: Empirical Analysis of Canadian Cities

This chapter outlines the analysis of Canadian municipalities, which includes development of a classification system for Canadian cities, analysis of cities based on functional class, and in-depth analysis of midsize Canadian municipalities.
Chapter 4: Outline of Midsize City Case Studies

This chapter introduces mixed research methods in the context of travel behaviour research and discusses the merits of a mixed-method research approach in this midsize cities project. It concludes with a comprehensive outline of the case study process.

Chapter 5: City of Kamloops Case Study

This chapter documents the City of Kamloops case study in its entirety.

Chapter 6: Town of Milton Case Study

This chapter documents the Town of Milton case study up to the analysis of the transportation and neighbourhood amenities survey data.

Chapter 7: Comparing Kamloops and Milton

This chapter presents a comparison of the results of the Kamloops and Milton surveys.

Chapter 8: Research and Policy Implications

This chapter sets out research and policy implications that arise from Chapter 3 and Chapter 5.

Chapter 9: Conclusions and Suggestions for Future Work

This chapter summarizes the previous chapters and briefly outlines recommendations for future research in this realm.
2 Literature Review

The following review of the literature seeks to compile existing work that focuses on midsize cities and to establish an understanding of the facts about midsize cities. The chapter begins with a broad discussion of midsize cities and provides examples of the many definitions of midsize cities that exist. Next is a compilation of the characteristics of the midsize cities. Then, the issues in midsize cities are outlined. Finally, this chapter closes with a summary and conclusions from the findings in the literature.

2.1 Background

In the literature that involves midsize cities, there is one strong and consistent theme: not enough attention is paid to midsize cities, be it in Canada, in the United States or globally (Rochester, 2003; Bell and Jayne, 2009; Kline and Forbes, 2012; TAC, 2008; Bunting et al, 2007). The vast majority of the urban research that has been conducted to date has focused on places with populations greater than 1 million (Bunting et al, 2007). This is a concern, particularly in Canada, where the large majority of the population lives in places with less than a million residents.

In the process of understanding midsize cities, the first natural step is to define a midsize city. There is a certain amount of danger in doing this, however, due to the number of different of possible measures that may be used to establish an urban hierarchy (Bell and Jayne, 2009; Bunting et al, 2007). Although characterizing cities by size is most common, cities may also be measured by politics, culture, economics, density, or built form, for example (Bell and Jayne, 2009). Nonetheless, given that population size is an easy to derive measure, and that it has been shown to correlate well with built form and density (Bunting et al, 2007), it is most consistently used as the basis for defining cities.
2.1.1 Midsize City Definitions

When considering a definition for midsize cities, it is important to be mindful of the national context of the municipalities. A midsize municipality in Canada may have a unique set of characteristics when compared to midsize cities in other countries around the world, and care must be taken to define these municipalities according to the appropriate context. With that said, given the scarce amount of literature on midsize Canadian municipalities, this review also includes the American definitions for midsize cities.

The midsize city definitions in the literature cover roughly the same population ranges; however, there is no consistent definition, nor is there any justification provided for adhering to these definitions. Further the urban areas in question are not consistent: some studies investigate entire regions or metropolitan areas and others respect municipal boundaries.

The most common population range prescribed for midsize cities is 50,000 to 250,000 residents (TAC, 2008; Kline and Forbes, 2012). This is also the population range that is identified by the Transportation Research Board’s (TRB) Transportation Planning for Small and Medium-sized Communities Committee (TRB, 2012). Both TAC (2008) and Kline and Forbes (2012) specify that their study focus is municipalities and not metropolitan areas. The TRB committee does not indicate how their population range is measured.

Other Canadian studies of midsize municipalities have used population ranges of 50,000 to 500,000 residents (McLeod, 2011; Bunting et al, 2007) and 150,000 to 500,000 residents (O’Hagan and Rutland, 2008); however, these studies focus on metropolitan areas rather than municipalities. Finally, an American report documenting issues in midsize cities describes cities between 100,000 to 300,000 residents as midsize, provided that they are located in a metropolitan area with greater than one million residents (Rochester, 2003).
2.1.2 Types of Midsize Cities

The Canadian literature identifies two different types of midsize cities: self-standing communities and communities that are part of an urban region (TAC, 2008). The American literature, on the other hand, identifies three different types of midsize cities: Centre Cities, Satellite Cities and Partner Cities, which are defined dependent on the role they play in their region (Kline and Forbes, 2012). A Centre City is the major city in its region and the hub for employers, amenities, education and government. A Satellite City acts as a suburb or bedroom community within a larger region, where the region’s large city hosts the major employment and services. Finally, a Partner City is a city located in a region with multiple cities of similar size, where employment and amenities are shared across cities (Kline and Forbes, 2012). Reconnecting America’s midsize city definitions are borrowed and referred to throughout the remainder of this document.

2.2 Midsize City Characteristics

According to the existing literature, midsize cities typically exhibit different characteristics than large cities, and these characteristics can be grouped together into three main categories: resident characteristics, built form characteristics, and economic characteristics. The following sections profile each of these categories. It is noted, however, that due to the fact the most of the literature profiles metropolitan areas rather than municipalities, the characteristics described in this section more so apply to the centre and partner types of cities, rather than satellites.

2.2.1 Resident Characteristics

To the extent that resident perceptions may be called resident characteristics, Bunting et al (2007) use historical place-based rankings to culturally characterize midsize city residents. They find that overall, midsize city residents report higher place-based ratings for their communities than larger or small city residents because midsize cities are seen to support a higher quality of life. Specifically, midsize cities are viewed as havens from the large city problems of pollution, crime and poverty, and congestion. Residents of midsize cities have indicated that they appreciate the mixture of bigger
city amenities and smaller city feel, and they perceive the lack of traffic congestion and short automobile commutes as a convenience. Finally, midsize city residents typically describe their communities as having many recreational opportunities and natural amenities due to their proximity to rural areas. (Bunting et al, 2007)

Beyond the more qualitative resident characteristics, midsize centre populations, on an aggregate level, are more homogenous than populations in large cities. This has been verified in terms of sexuality, ethnicity, and occupation (Statistics Canada, 2006; Hyndman and Schuurman, 2004; Beckstead and Brown, 2003). These findings do not apply to satellites, as satellite populations typically emulate the characteristics of their broader metropolitan area.

In Canada, midsize centre cities have significantly fewer same sex households per capita than the country’s largest metropolitan areas (Statistics Canada, 2006). As the 2006 census was the first census to collect data about same sex partners, there is no longitudinal information available to indicate whether this trend is changing. Similarly, midsize centre cities have fewer immigrants per capita and are less ethnically diverse than the large metropolitan areas of Vancouver, Toronto and Montreal (Hyndman and Schuurman, 2004). This trend, however, is slowly changing as new immigrants to Canada are becoming more inclined to seek employment opportunities in smaller cities (Hyndman and Schuurman, 2004).

Industrial diversity in midsize centres is often lower than in larger cities (Beckstead and Brown, 2003), which implies that residents of smaller and midsize Canadian municipalities have fewer or more specific local occupational choices than residents of larger cities. This measure does not apply in the same way to satellite city residents, however, as they have more diverse employment opportunities due to their regional position than residents of small and midsize centres.

In addition to the evidence-based literature, a 2008 TAC report about delivering planning studies in Canada compiles normative assertions about midsize city residents. The report indicates that household income levels and household sizes tend to be more homogenous in midsize cities (TAC, 2008). The TAC report also asserts that travel
behaviour is much less transit oriented in midsize cities, compared to the Canada’s large cities – this is verified by Bunting et al (2007).

2.2.2 Built Form Characteristics

There is significant evidence showing that the structure of midsize Canadian cities is unique when compared to small and large cities (Bunting et al, 2007). Bunting et al identify a number of key structural characteristics of midsize Canadian cities: “overall low-density profiles and a distinct absence of central density; very good auto-based accessibility and poor transit; and a lack of traditional centralization manifest as core-area stagnation and decline” (Bunting et al, 2007, p45). This study emphasizes that the indicative characteristic of midsize Canadian cities is post 1950s growth and development, and therefore, these cities are mainly suburban in nature. The distinctive feature of midsize cities is the lack of a central core, where large cities, even with significant suburban sprawl, maintain a significant central core (Bunting et al, 2007).

2.2.3 Economic Characteristics

As a trend, industrial diversity increases with city size, and this is particularly true for centre cities with fewer than 100,000 residents (Beckstead and Brown, 2003). The major employers in smaller centre cities have a larger impact on the municipal economy and urban transportation patterns than the major employers in large centres. This trend has been changing, though. New technologies, lower transportation costs and lower communication costs have all led to increases in midsize city economic diversity over time (Beckstead and Brown, 2003).

Kline and Forbes (2012) address joblessness and industrial diversity as indicators of population change in midsize cities. The midsize cities that were able to rebound from the U.S. housing crisis and grown in population had a more diverse industrial base, which was able to absorb some of the unemployed from the housing and construction industries. Kline and Forbes (2012) profile many midsize cities in the U.S. that are investing in new transit projects to stimulate their economies. The authors use the example of Canton, OH, a city of 70,000 residents, which has been losing population over the last 50 years due to the decline of the heavy manufacturing industry. The city
is now investing in a bus corridor project, which will connect its downtown with an outer residential area. The aim is to bring new customers into downtown to support the downtown economic revitalization plan.

There is also an evidence-based study of the knowledge economy (measured by knowledge employment, educational attainment, patents, university enrolment, and total number of academic publications) in Canadian cities (O’Hagan and Rutland, 2008), which delves into midsize cities. Although this study defines medium sized cities as 150,000 to 500,000 metropolitan area residents and small cities as 20,000 to 150,000 metropolitan area residents, the findings are relevant. The authors find that knowledge industry occupations, patent generation and educational attainment are all correlated positively with city size. Further, many of the small and medium sized primary industry cities exhibit poor overall knowledge economies. Conversely, small and medium sized cities that possess universities exhibit better knowledge economies than the average of their cohort. One additional finding indicates that capital cities have higher than average knowledge economies for their size cohorts, with Whitehorse, YK and Charlottetown, PEI being specific examples of this trend. (O’Hagan and Rutland, 2008)

Although municipal governance in midsize cities is not central to this research project, differences in municipal administration are mentioned in the literature. While large cities have their share of public funding issues, midsize cities are at a comparative disadvantage when it comes to having the financial resources to invest in large public projects (Gardner, 1999). Specifically, midsize cities have smaller tax bases and smaller pools to draw from when raising capital for large projects (Kline and Forbes, 2012). The TAC study (2008) reiterates that midsize city governments often face a lack of resources, and it goes further to say that education of staff and stakeholders, and grasping new technology are often larger challenges in midsize cities.

2.3 Midsize City Issues

In 2002 in Rochester, NY, a conversation took place amongst experts in urban issues, which set out to explore the unique place of midsize cities in urban policy. Although
this conversation is centered on midsize cities in the United States, the issues outlined in the discussion parallel the Canadian literature and are used to organize this discussion. The Rochester report identifies four key issues affecting midsize cities in the United States: equity, smart growth and regionalism, economic development, and governance (Rochester, 2003).

2.3.1 Equity

The Rochester conversation addresses equity predominantly in terms of race and poverty, as these were found to be the largest equity issue in midsize American cities (Rochester, 2003). Although racial inequity may manifest itself in different ways in Canada, the significant lack of same-sex households and ethnic diversity in Canadian midsize cities indicate the types of equity issues that are present north of the border (Statistics Canada, 2006, Hyndman and Schuurman, 2004). In the Rochester conversation, a clear tie is made between equity and zoning and land use. Because the price of large-lot suburban housing in midsize cities is entirely affordable and attractive for the middle class, there is a strong class and income divide between the inner cities and their suburban neighbourhoods (Rochester, 2003). As there is no known literature that examines wealth inequity specific to midsize Canadian cities, it is difficult to comment on how Canada compares to the United States in this case.

The imminent aging of the Canadian population is an equity issue that is not touched on by the midsize city literature, but is important nonetheless. Canada as a whole is now facing a surge in seniors, which started in 2011 (Hodge, 2008). For most communities, the surge of seniors will be caused by current residents aging in place, but other more amenity-rich communities will feel even more pressure as additional seniors in-migrate. Suburban settings, which would be typical of midsize Canadian cities, are the most popular residential situation for today’s seniors. Given that mobility, diversity of housing stock, and community support are the central elements to seniors’ well-being, suburban development presents some serious challenges. The suburban status quo of discontinuous sidewalks, curvilinear street networks and development dispersion constrains seniors in carrying out their daily activities. (Hodge, 2008)
2.3.2 Smart Growth and Regionalism

Smart Growth principles would be considered the cure for suburban sprawl, but given that smart growth is most feasible in areas with low land supply and high land prices, it is typically a challenge for midsize cities (Rochester, 2003). The experts involved in the Rochester conversation explain that in the absence of severe traffic congestion, the outlying areas in midsize cities are not prohibitively far from the city centres by automobile. Automobile accessibility coupled with low suburban land prices entices residents to live in low-density neighbourhoods outside the city centre. This point is reiterated by Bunting et al (2007); high automobile ownership rates and ease of driving for most trip purposes allows suburban and exurban locations more success than the inner parts of midsize cities.

Bunting et al (2007) suggest a structure that is common to midsize cities and that is a result of midsize city culture and historical development. They propose that these Canadian midsize metropolitan areas were all very small in the pre-World War II (WWII) era, and that much of their growth has occurred since the 1950’s. Because low-density development is common to the post WWII era, these midsize cities became ubiquitously suburban and automobile-dependent.

In the post-war era, employment nodes grew outside the central area and in places with good vehicle access. Retail has also grown on the fringes of midsize metropolitan areas, and this suburban retail offers free parking and convenient automobile access. As such, these suburban big-box malls often overshadow the services that would otherwise be provided by the core areas of cities. Although this trend is common all across Canada, Bunting et al (2007) distinguish that the difference between midsize cities and larger cities is that midsize cities do not have sufficient activity in their core areas. (Bunting et al, 2007)

It is supposed that midsize city residents’ predisposition for proximity to nature, private home ownership and the convenience of automobile access is what has caused midsize city dispersion (Bunting et al, 2007). Because residents of midsize cities have a strong affinity for the characteristics that they perceive to be related to dispersed land
use and ubiquitous auto accessibility, the process of introducing smart growth principles to midsize cities may be more of a challenge.

A positive point that arises in the Rochester report under the subject of smart growth is the advantage that midsize cities have in terms of regional amenities, which include health care and universities. There was a general consensus that universities are crucial and typically underused assets for midsize cities, in that they are engines for economic development and catalysts for research and action targeted at a city’s specific issues (Rochester, 2003). Though, this is not to say that it is necessarily feasible for all midsize cities to host universities.

2.3.3 Economic Development

Economic development in midsize cities is tied directly to economic diversity – midsize cities with concentrated economies are seen to be at a relative disadvantage compared to midsize cities with more diverse economies (Rochester, 2003; Beckstead and Brown, 2003). The Rochester report identifies several critical elements to economic opportunity in midsize cities:

“A downtown gathering place that is safe, accessible and attractive to both residents and visitors; an inclusive culture that imbues the place with sense of excitement, diversity and energy that will attract and retain young people; and a marketing plan that creates buzz and establishes a brand.” (Rochester, 2003, p 12)

In addressing economic development issues in midsize cities, there is no “one-size-fits-all approach” (Rochester, 2003, p12) – all cities have different sets of strengths and weaknesses. Again, under the subject of economic development, universities are acknowledged as valuable resources for their host city (Rochester, 2003; O’Hagan and Rutland, 2008).

2.3.4 Governance

Governance issues in midsize cities are not the focal point of this research project, but they are mentioned repeatedly in the literature and must not be discounted from this
review. The Rochester (2003) conversation identifies six components of well-governed cities: “strong leadership, citizen participation, coordination of programs, responsiveness to citizen concerns, systematic linkage between policy direction and action, and access to financial resources” (Rochester, 2003, p14). Lack of the last has been clearly identified as a characteristic of midsize cities, and thus, is an important issue to keep in view.

2.4 Transportation Sustainability in Midsize Cities

Though in the above discussion, the midsize city issues were organized under the subjects of equity, smart growth, economic development and governance, they can easily be refraimed to reflect the ‘triple bottom line’ definition of sustainability: equity, environment and economics. The following is a summary of the midsize city issues as they relate to planning for transportation and land use sustainability.

2.4.1 Equity

From the equity perspective, midsize cities do not provide services to support a diverse community of residents. With their single-family suburban housing stock and low-density auto-oriented environments, most residents of midsize cities must afford an auto-oriented lifestyle. The lack of housing and transportation alternatives in these cities creates barriers for new immigrants and low-income families to settle in midsize cities. Further, looking to the future, the dispersed and auto-oriented nature of midsize cities will have a severe impact on the aging baby boomer population over the coming decades. Though suburban development and auto accessibility may be seen as ideal to baby boomers today, the suburbs will become increasingly constraining as this cohort faces the challenges of aging in an auto-centric environment.

Beyond transportation and land use considerations, there are likely other social factors that contribute to the lack of the ethnic, sexual and income diversity that is observed in midsize cities. The general demographic homogeneity that is documented in midsize cities indicates that the existing midsize city populations may be underexposed or resistant to diversity and change. Although this would be an interesting issue to
investigate, it is outside the transportation planning area of expertise and is left for future work.

2.4.2 Environment

In terms of environmental issues, midsize cities are characterized as being too dispersed to be walkable, and too low-density to be served by transit. The consequence, then, is automobile dependency and the emissions associated with widespread automobile use. Further, dispersed development means that midsize cities are not efficiently using their land supply. In general, outward municipal sprawl increases the environmental footprint of midsize cities. It increases the impervious area, creates more decentralized destinations that must be accessed by automobile, and requires far more resources than it would to build density in already serviced areas.

2.4.3 Economics

This dispersed municipal sprawl also has negative economic consequences for midsize municipalities and their taxpayers. Due to the inefficiencies of building linear infrastructure, the cost to build and maintain suburban areas is relatively higher than redeveloping existing neighbourhoods. Not only is it more costly to provide sprawling infrastructure, it is inefficient to serve dispersed neighbourhoods with traditional transit service. Transit systems in midsize cities are therefore extremely expensive to operate and do not provide efficient enough connections for the majority of residents to consider paying transit fares. This exacerbates the disadvantage that midsize municipal governments have in terms of financial resources. With their comparatively smaller tax bases, raising funds to support costly urban sprawl and inefficient transit service is a struggle.

Economic development in midsize municipalities is linked to the attractiveness of the place, its industrial diversity and the amenities that are provided within the community. Midsize municipalities that host a spectrum of industry and employment opportunities are more successful than those that do not. If this spectrum of industries includes higher education institutions, then the municipalities are shown to have even more economic success as a result of larger knowledge economies and more locally focused
expertise. Health care facilities are also an advantage to midsize cities as they attract regional patients and, therefore, outside business to the municipality. Further, education and health care institutions are also transit opportunities for midsize municipalities (Kline and Forbes, 2012), as they often generate a substantial amount of spatially concentrated travel demand.

Although it appears that a simple solution for midsize cities is to turn their attention to creating successful and vibrant downtown areas, Bunting et al warn that it is not easy. City planners have a bad habit of attempting to translate large city solutions to midsize city problems, particularly when it comes to downtown redevelopment (Bunting et al, 2007). The authors point to a number of failings at downtown intensification in midsize cities, and show evidence that merely intensifying built form does not cultivate downtown markets. They use this as a specific example of scaled-down large city policies being ineffective in the midsize city context.

2.5 Chapter Summary

Essentially, the characteristics of midsize cities may be categorized into resident characteristics, built form characteristics and economic characteristics, and the interactions between these characteristics are what lead to the bulk of the issues in midsize cities. This review of the literature synthesizes the findings into key issue areas that affect sustainable transportation and land use planning in midsize cities. Although the topics covered by the literature are near to transportation planning, none specifically address transportation policy issues in midsize cities and more work must be done on this front.

The other key component missing from the literature is a definition for midsize cities that specifically relates to transportation research. The next chapter addresses this gap in the literature, and documents an empirical analysis, which classifies Canadian cities based on travel characteristics. This empirical classification and subsequent analysis are used to distinguish midsize municipalities in Canada and to set an empirical foundation for the midsize city case studies, which are documented in the following chapters.
3 Empirical Analysis of Canadian Cities

In all of the work that has been reviewed, the terms “midsize city” or “medium-size city” are defined in a number of different ways dependent on the focus of the work. None of these studies, however, provide justification for their definition of midsize cities. On one hand, it is not surprising that midsize cities remain undefined, as there is an overwhelming number of ways in which cities may be measured. But on the other hand, the lack of definition around midsize cities is likely one of the primary reasons they so often fall off of the policy radar. This chapter responds to this issue by seeking to define midsize municipalities in terms of transportation planning measures. This exercise involves using census data to model the interaction between population size and other municipal transportation and land use variables in order to come up with a classification system for Canadian municipalities and a definition for the midsize group.

This urban classification system makes a number of significant contributions to the literature. First, it validates and quantifies the assertion that a municipality’s size affects its transportation and land use characteristics. Second, it establishes a common framework for Canadian transportation policy-makers and researchers to use in communicating, sharing and comparing their work. Third, it allows Canadian municipalities to understand their peers, and to measure their progress according to their size and functional characteristics. Finally, it demonstrates a method for classifying and comparing municipalities, which may be used to develop a similar framework in other similarly developed countries like the United States, or Australia, for example.

This analysis of Canadian urban areas also challenges the current literature by investigating individual municipalities rather than metropolitan areas. The classification framework separates municipalities into centres and satellites to show the differences that exist between municipalities that stand-alone and municipalities that are part of a larger region. In the majority of the literature reviewed, and particularly
the Canadian literature, satellite municipalities are overlooked due to their position in large metropolitan areas.

In the following discussion, a few important points must be kept in mind. First of all, no communities are the same and policy solutions must take into account this fact. Though a classification system for Canadian municipalities is extremely useful, the model presented in this section does not override the need for policy-makers to assess the specific context of the individual municipalities. Context sensitivity must be held paramount when setting local-level transportation and land use policy as many places fall on a spectrum within this classification structure. Furthermore, cities are fluctuating entities, and there is some level of monitoring that must occur to understand how the classification criteria change as Canada’s urban populations migrate and evolve. Though the following classification system provides insight into urban function at present, urban areas will evolve into the future, and the classes within this system should be revisited as new data become available.

The remainder of this chapter is organized as follows. First, the general process for the municipal classification analysis is explained. Second, the empirical analysis of Canadian municipalities is presented. Finally, this section closes with a description of the midsize municipalities and their unique characteristics.

### 3.1 Classification Process

This urban classification framework involves three main steps: determining regional function; developing a list of variables that significantly affect population size; and classifying municipalities based the findings of the previous steps.

The first stage of the classification framework requires defining regional function, which is based on Reconnecting America’s midsize city designations: centre, satellite and partner. Only the former two are assessed in this quantitative classification analysis – the definition of partner cities is more difficult with limited macro-level data, and is left to be prescribed qualitatively based on local knowledge. After identifying regional function, the next stage of the classification framework investigates the municipal
characteristics that are related to the size of the municipality. This information provides insight into how municipal characteristics vary according to population size. The significant macro-level travel behaviour characteristics are then carried forward and used to group the municipalities together. In the final stage, municipalities are segregated into satellites and centres, and then grouped along the population continuum based on significant travel indicators.

3.1.1 Empirical Canadian Urban Classification

3.1.1.1 Macro-level Data

The data used in this classification process come from Statistics Canada 2006 Census Community Profiles (Statistics Canada, 2006). Census Community Profiles are available for a number of different geography scales, which creates the issue of identifying the correct geography scale for analysis. As mentioned previously, there is some inconsistency in the geography units used in the literature, and so this is a crucial point of clarification.

The problem with using Census Metropolitan Area (CMA) or Census Agglomeration (CA) data to compare Canadian municipalities is that CMAs and CAs, in most cases, encompass more than one municipality. Given that regional function is a component of the municipal classification model, it is especially important that municipal boundaries are respected in this analysis. Sufficient granularity must be maintained such that satellite municipalities may be distinguished from their broader CMA. To achieve this municipal-level granularity, the Canadian Census Subdivision units are used to gather macro-level statistics from the 2006 Census. A Census Subdivision (CSD) is an “area that is deemed to be the equivalent of a municipality” (Statistics Canada, 2012, p.101).

Another advantage in defining municipalities by their CSD level data is that these data neatly define municipalities by the population that is within their political jurisdiction. Given that municipal governments typically have a significant amount of agency when it comes to transportation and land use policy, this CSD level distinction allows for more meaningful municipal-level policy analysis to arise from the classification results. This is particularly true in the cases when there are a number of satellite
municipalities within a larger CMA. For example, although Milton and Oakville are both within the same region (Halton) and are both part of the Toronto CMA, their local governments may have very different transportation and land use priorities.

In the 2006 census data set, there are 5,418 CSDs (Statistics Canada, 2012). This analysis does not encompass all of the 2006 CSDs, given that many are not considered to be urban areas. In order to restrict the analysis to a manageable yet ample list of municipalities, a 2011 population of 13,000 or higher was used as criteria for inclusion. With this criterion, there are 284 municipalities considered in the analysis.

The 2006 CSD community profile data cover a comprehensive number of population variables. Information of specific relevance to this classification exercise is contained in the following categories: dwellings and households, citizenship, labour market activity, place of work and mode of transportation, and income and earnings.

3.1.1.2 Regional Function

A municipality’s regional function is quantified by the percent of its labour force that is employed internally. In satellite municipalities, a large percentage of the local labour force will be employed elsewhere within the region. In centres, however, the majority of the local labour force will be employed within the CSD itself. Knowing this, then, the threshold of internal employment that designates centre municipalities must be determined.

In order to establish a meaningful transportation-related metric for centre municipalities, the percentage of internal employment in municipalities is interacted with population size and aggregate travel to work mode shares. The combination of internal employment and travel to work mode shares that best predicts municipal population size is used to define centre municipalities.

All of the available travel to work modes (auto driver, auto passenger, transit, walking, cycling and other modes) were tested, however, only transit and walking are shown to be significant predictors of population size. Transit to work shares are log-linearly related to CSD population, even without including the regional function variable. Walk
to work shares, however, are only log-linearly related to population when interacted with the regional function variable.

At the outset of this exercise, it was not the intention to establish transit and walk mode shares as the main urban transportation indicators in the analysis. This is a very suitable finding, though, given that the remainder of the study is tasked with understanding sustainable transportation in the midsize group of municipalities.

An iterative log-linear regression analysis is uses to test the interaction between CSD population, transit to work share, walk to work share and the proportion of internal employment. Note that while CSD population is the dependent variable in these regressions, it is recognized that causality “runs in the other direction”; these regressions are only being used to explore multivariate correlations among the variables. By varying the proportion of internal employment that is used to indicate centre municipalities, it is possible to identify the proportion that maximizes the regression model’s goodness of fit. The results of this iterative analysis are shown in Table 1.

<table>
<thead>
<tr>
<th>Centre % Internal Employment</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>F Statistic</th>
<th>Intercept</th>
<th>Satellite (dummy)</th>
<th>Transit (%)</th>
<th>Walk (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;20%</td>
<td>0.433</td>
<td>0.427</td>
<td>71.216</td>
<td>92.11</td>
<td>-8.971</td>
<td>12.737</td>
<td>-2.81</td>
</tr>
<tr>
<td>&gt;25%</td>
<td>0.516</td>
<td>0.511</td>
<td>99.383</td>
<td>97.508</td>
<td>-11.924</td>
<td>14.943</td>
<td>-4.499</td>
</tr>
<tr>
<td>&gt;30%</td>
<td>0.504</td>
<td>0.499</td>
<td>94.904</td>
<td>91.134</td>
<td>-11.505</td>
<td>14.461</td>
<td>-5.036</td>
</tr>
<tr>
<td>&gt;35%</td>
<td>0.495</td>
<td>0.49</td>
<td>91.611</td>
<td>83.943</td>
<td>-11.187</td>
<td>13.997</td>
<td>-5.692</td>
</tr>
<tr>
<td>&gt;40%</td>
<td>0.479</td>
<td>0.473</td>
<td>85.666</td>
<td>78.751</td>
<td>-10.589</td>
<td>14.282</td>
<td>-5.9</td>
</tr>
<tr>
<td>&gt;45%</td>
<td>0.47</td>
<td>0.464</td>
<td>82.65</td>
<td>76.408</td>
<td>-10.272</td>
<td>13.838</td>
<td>-5.708</td>
</tr>
<tr>
<td>&gt;50%</td>
<td>0.473</td>
<td>0.468</td>
<td>83.819</td>
<td>75.354</td>
<td>-10.396</td>
<td>13.733</td>
<td>-5.849</td>
</tr>
<tr>
<td>&gt;55%</td>
<td>0.455</td>
<td>0.449</td>
<td>77.932</td>
<td>73.41</td>
<td>-9.756</td>
<td>13.385</td>
<td>-5.416</td>
</tr>
<tr>
<td>&gt;60%</td>
<td>0.416</td>
<td>0.41</td>
<td>66.469</td>
<td>68.144</td>
<td>-8.371</td>
<td>12.686</td>
<td>-4.706</td>
</tr>
<tr>
<td>&gt;65%</td>
<td>0.372</td>
<td>0.365</td>
<td>55.314</td>
<td>66.199</td>
<td>-6.756</td>
<td>11.734</td>
<td>-3.177</td>
</tr>
<tr>
<td>&gt;70%</td>
<td>0.364</td>
<td>0.357</td>
<td>53.378</td>
<td>64.578</td>
<td>-6.434</td>
<td>11.531</td>
<td>-2.884</td>
</tr>
</tbody>
</table>

The statistics shown in Table 1 indicate complexity in the relationship between municipality size, internal employment and travel behaviour. Based on the results, the
noteworthy internal employment factors are 25%, 40% and 50%. At these internal employment levels, one or more of the statistics in the table are maximized, or represent a local maximum. Goodness of fit statistics are maximized when internal employment is 25%; however, there is a local goodness of fit maximum when internal employment is 50%. The t statistic for the transit variable is maximized at 25% employment, but there is also a local maximum at 40% internal employment. The walk variable t statistic is maximized at 40% internal employment and has a local maximum at 50% internal employment.

When 40% and 50% internal employment are used to indicate centre municipalities, the walk mode share and transit mode share interact in a more balanced way to explain municipal population size. When 25% internal employment is used to indicate centre municipalities, transit and walk mode shares are both statistically significant predictors of population size, but the transit variable dominates with the maximum t statistic.

Given that, by definition, a centre municipality acts as the economic centre of a region, adopting the 50% threshold for internal employment in centre municipalities is most intuitive. As such, the 50% internal employment dataset will form the basis for the remainder of this analysis.

### 3.1.1.3 Municipal Population Size Indicators

The purpose for conducting this brief population size indicators analysis is to understand what municipal variables are correlated with population size. Although the transit to work and walk to work variables form the basis for the subsequent analyses, this research does not ignore the fact that there are many other interesting municipal characteristics that vary by population size.

Municipal population size indicators are determined through a forward stepwise log-linear regression exercise, where macro-level variables are tested for statistical significance and general improvement of fit. The following table does not necessarily represent an exhaustive list of macro-level variables, however it does represent a number of the issues documented in the literature review.
As shown in Table 2, the transit to work mode share, average household occupancy and number of immigrants per capita all positively relate to the population size of a municipality. The satellite dummy variable, which represents CSDs with less than 50% internal employment, is negatively related to CSD population. This is because all of Canada’s largest municipalities are deemed to be centres. Thus, satellites inherently represent smaller municipal populations. The walk to work mode share, the number of single-detached homes and the average municipal income are all negatively related to population size.

In summary, as the size of the municipality increases, its residents are more likely to take transit to work, live in larger households and be immigrants to Canada. As the size of a municipality decreases, its residents are more likely to walk to work, live in single-detached homes and have higher incomes. These results point to some of the midsize city issues that were documented in the literature review. If high average income is used as a proxy for lack of income diversity, low number of immigrants per capita is used as a proxy for lack of ethnic diversity and if more single-detached homes per capita is used as a proxy for land use density and mixture, then it follows that Canada’s small and midsize municipalities are lower-density, and more homogeneous in terms of household income, ethnicity, and dwelling type than the country’s larger cities.

### 3.1.1.4 Classifying Municipalities

The following classification system for Canadian municipalities is designed to understand what natural boundaries exist between groups of municipalities based on
their population size and per capita use of two key sustainable travel modes. This classification is based on four municipal statistics: CSD population size, regional function (as established previously), percent of the labour force walking to work, and percent of the labour force taking transit to work.

To start, the global list of municipalities is separated into two groups – Centres and Satellites – based on their internal employment ratio. Once separated the data are classified into size cohorts based on similarities in walk and transit to work mode share. In some cases, both the transit and walk shares dictate the boundaries between groups, in other cases, municipalities are grouped only on the basis of significant transit share differences. Analysis of variance (ANOVA) is used to validate the classification to determine whether each group of municipalities is statistically different from the others in terms of transit and walk behaviour.

The results of the analysis are as shown in Figure 1. There are no major or large satellites, as by nature, satellite municipalities depend on other larger or similarly sized municipalities for employment, and are typically are found within the regions of Canada’s major and large centres.

![Figure 1 – Canadian Municipal Classification](image-url)
The Centre groups shown in Figure 1 are all statistically different from each other in terms of both transit and walk to work mode shares based on a confidence level of 95%, except for the case of the large and midsize walk shares. The Satellite groups are statistically different from each other in terms of transit mode shares based on a 95% level of confidence. In terms of walk mode shares, however, the Satellite groups cannot be statistically differentiated from each other. Table 3, below clearly shows these results.

Table 3 – Travel Characteristics by Municipal Class

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Major</td>
<td>Centre</td>
<td>&gt; 1.5 Million</td>
<td>8%</td>
<td>35%</td>
</tr>
<tr>
<td>Large</td>
<td>Centre</td>
<td>550,000 - 1.5 Million</td>
<td>7%</td>
<td>18%</td>
</tr>
<tr>
<td>Midsize</td>
<td>Centre</td>
<td>50,000 - 550,000</td>
<td>7%</td>
<td>7%</td>
</tr>
<tr>
<td></td>
<td>Satellite</td>
<td></td>
<td>3%</td>
<td>11%</td>
</tr>
<tr>
<td>Small</td>
<td>Centre</td>
<td>&lt; 50,000</td>
<td>9%</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>Satellite</td>
<td></td>
<td>4%</td>
<td>5%</td>
</tr>
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As expected, transit to work mode shares are the highest in Canada’s major centres: Toronto and Montreal. The large centres – Calgary, Ottawa, Edmonton, Mississauga, Winnipeg and Vancouver – have an average transit to work mode share that is roughly half of the major centres, but substantially higher than any of the small or midsize groups. Average walk to work mode shares are fairly stable across major and large centres at 8% and 7%, respectively.

The results become more interesting when the centres and satellites are compared across the midsize and small groups. In both the small and midsize groups, the satellite walk to work mode shares are less than half of the centre walk to work mode shares. Average transit to work mode shares in satellites, however, are four percentage points higher than those in centres for each group. Residents of centre municipalities, on average, are significantly more likely to commute by walking than residents of satellite municipalities, and this likelihood increases as the size of the municipality decreases.
In other words, small Canadian municipalities that sustain the majority of their own employment have the most walk commuters per capita.

Residents of satellite municipalities, however, are more likely to commute by transit than their centre counterparts. This is as expected, given that in the larger urban regions, satellite municipalities are better served by the transit infrastructure provided by the region or the large city within the region. Further, with the majority of the employment for satellite municipalities being sustained outside the local area, commutes are longer-distance and more cost-effectively served by transit. This relationship is explored further through a supplementary analysis, which tests the correlation between transit commute shares, population size, and population density for both centers and satellites.

The previous regional function assessment confirms the correlation between municipal transit mode share and population size amongst all municipalities; however, it does not allow for comparisons to be made between variables that affect transit use in the different regional contexts. A simple linear regression analysis shows that transit use is linked to different variables dependent on regional context. The results, in Table 4, indicate that population size and population density are significant determinants of transit use in centers, and although population size and density both affect transit use in satellites, they explain less of the variance in the data. The regression model for all cities is shown to illustrate that municipal transit use is explained more thoroughly when regional function is accounted for.
### Table 4 – Transit Mode Share Models

<table>
<thead>
<tr>
<th>Transit Mode Share</th>
<th>Variable Coefficients</th>
<th>t Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intercept</td>
<td>Population (100,000 residents)</td>
</tr>
<tr>
<td>All Cities</td>
<td>0.0131</td>
<td>0.0094</td>
</tr>
<tr>
<td>Centres</td>
<td>0.0084</td>
<td>0.014</td>
</tr>
<tr>
<td>Satellites</td>
<td>0.0165</td>
<td>0.0196</td>
</tr>
<tr>
<td>Satellites</td>
<td>0.0125</td>
<td>0.0326</td>
</tr>
</tbody>
</table>

In satellite cities, when the effect of being within one of Canada’s major regions (Toronto, Montreal or Vancouver) is included, the population size becomes insignificant and the model’s goodness of fit increases from 0.6 to 0.74. This suggests that, in satellite cities, location is a better predictor of transit use than population size. Being located near Toronto, Montreal or Vancouver increases satellite commute mode shares by 7%, which indicates the importance of the regional transit service around these major and large centers. This finding is also supported by the robust regional transit systems provided in the Toronto, Montreal and Vancouver metro areas, and the presence of strong central business districts in each of the three cities.

### 3.2 A Closer Look at the Midsize Municipalities

There are 91 midsize municipalities in Canada, which as of 2011, are home to 12.4 million residents – 37% of Canada’s population. Of these 91 communities shown in Figure 2, 55 are centres and 36 are satellites. The satellites are located in one of the five metropolitan areas of Toronto, Montreal, Edmonton, Vancouver and Victoria. The centres are located in the provinces of British Columbia, Alberta, Saskatchewan, Ontario, Quebec, Nova Scotia, New Brunswick and Newfoundland, with BC, Ontario and Quebec hosting the highest concentrations. There are no midsize municipalities in any of the territories, Manitoba, or Prince Edward Island.
Figure 2 – Canadian Midsize Municipalities by Regional Function

With the exception of Richmond, BC, all of the municipalities closest to the bigger centres of Toronto, Montreal, Edmonton and Vancouver are designated as satellites. 56% of the Richmond labour force works within Richmond, and as such, it meets the criteria for a centre. Welland, ON is the only satellite municipality located outside of a clearly designated metropolitan area. 51% of Welland’s labour force works outside of the municipality. Given this, it is likely a partner with the nearby municipalities of St Catharines and Niagara Falls within the Region of Niagara. Victoria and Saanich, BC are also likely partner municipalities. Saanich has more residents than Victoria, but quantitatively functions as a satellite in BC’s capital region.

Due to the fairly wide spread in municipal populations represented by the midsize designation, a more detailed analysis of the midsize municipalities was completed to understand how characteristics differ within the broader group. Amongst the midsize centres, travel to work behaviour differs significantly across three population groups:
250,000 – 550,000, 100,000 – 250,000, and 50,000 – 100,000. Within the satellites, only two statistically significant groups emerge: 100,000 – 550,000 and 50,000 – 100,000. The statistical significance of each of these groups is verified at a confidence level of 95% through analysis of variance.

Table 5 – Detailed Breakdown of the Midsize Municipalities

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</thead>
<tbody>
<tr>
<td>Centre</td>
<td>250,000 - 550,000</td>
<td>7%</td>
<td>12%</td>
<td></td>
<td>100,000 - 550,000</td>
<td>3%</td>
<td>13%</td>
</tr>
<tr>
<td></td>
<td>100,000 - 250,000</td>
<td>6%</td>
<td>4%</td>
<td></td>
<td>50,000 - 100,000</td>
<td>3%</td>
<td>9%</td>
</tr>
<tr>
<td>Satellite</td>
<td></td>
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</table>

The centres with populations between 250,000 and 550,000 show more transit commuting than any of the other midsize centres. It is expected that the transit systems in these municipalities are more extensive than in the smaller midsize centres. It is also expected that the municipalities are spatially large enough to allow transit to be a competitive transportation choice, and that there may be higher amounts of traffic congestion, which would make transit a more attractive travel mode. Because each of these centres is located in central and eastern Canada, a more substantial portion of their urban form was developed prior to the 1950s, and this is a built-form advantage (Bunting et al, 2007). These municipalities all have some form of densely gridded street network in their core area, which is more walkable and easy to serve by transit than the curvilinear street networks that tend to prevail in newer and suburban midsize municipalities.

The midsize centres with populations between 100,000 and 250,000 have the lowest average walk share and the lowest average transit share. Of all the groups of midsize centres, these cities have the lowest average combined use of sustainable transport modes for commuting. This appears to be the least efficient municipal population size in terms of fostering sustainable transport behaviour. This group is expected to have less advanced transit systems compared to the 250,000 – 550,000 group, and with
dispersed development, would tend to be more spread out than the 50,000 – 100,000 group. This combination of characteristics makes the automobile the most attractive mode of municipal travel.

The group of midsize centres with populations between 50,000 and 100,000 has the highest walk to work mode share of the midsize cohort. On average, this group of municipalities is likely spatially compact enough to encourage more trips. The transit mode share in this group of municipalities is the same as in the 100,000 – 250,000 group, which implies that transit service does not provide a competitive alternative to non-motorized or automobile travel.

Between the two groups of midsize satellites, the walk to work mode share does not vary – these groups are distinguished only by their transit mode shares. The midsize satellites with 100,000 – 550,000 residents have substantially higher transit mode shares than the 50,000 – 100,000 group. This may be attributed to the larger group providing more extensive local transit service, which would supplement a regional transit service. The local transit systems of the 50,000 – 100,000 municipalities are likely negligible in comparison, and would point to the lower average transit commute share in these communities.

### 3.3 Chapter Summary

This analysis has quantitatively classified Canadian municipalities into two functional types and four size categories, based on macro-level commuting behaviour observed through Canadian census data. This work has shown that as Canadian municipalities increase in size, so do their number of immigrants per capita, average household size and transit commuters per capita. Average income, number of single detached dwelling units and the number of walk commuters per capita tend to decrease as municipality size increases.

This analysis is the first of its kind to separate Canadian municipalities by functional type, and it has shown that very clear travel behaviour differences exist between centre and satellite municipalities. While satellite municipalities have a significant advantage
in terms of regional transit infrastructure and transit commuting, their proportions of active commuting are relatively dismal. This is inherent to the definition of a satellite, which sustains less than 50% of its local labour force internally. Oppositely, centres employ 50% or more of their local labour force internally, and have much higher shares walk commuting. These functional differences represent the need for transportation policy to reflect each context.

When it comes to analysis by size, the midsize group of municipalities has lower average shares of walk commuting than any other size cohort, and lower transit commute shares than the larger cities. In midsize centres, where the majority of commute trips are made locally, the walk commute shares are at least double those of the midsize satellites. In midsize satellites, where the majority of commute trips cross municipal boundaries, transit commute shares are substantially higher than the midsize centres. At the upper threshold of midsize centres, however, municipal transit carries three times more commuters per capita than in the remainder of the centres. There appears to be a tipping point at roughly 250,000 residents, where municipalities falling below this threshold are less equipped to provide local transit service that competes with the personal automobile or active modes.

The remainder of this research project is designed to further explore midsize city issues through completing in-depth case studies of two midsize municipalities: a centre and a satellite. These case studies will seek residents’ feedback about barriers to using sustainable transportation in their municipality, and what mechanisms may encourage their household to take a multi-modal approach to travel. It is clear from the classification of Canadian municipalities that midsize municipalities function differently than the other size cohorts, and thus, this research also intends to explore the culture within midsize municipalities. By making an effort to understand the specific culture in midsize municipalities, the hope is that transportation and land use policy may be better tailored to this urban context in the future. With over 37% of Canadians living in midsize municipalities, policy makers can no longer afford to ignore these communities.
4 Outline of Midsize City Case Studies

The case study portion of this research aims to start filling the large gap in the literature that exists around midsize municipalities. It has been confirmed through the literature review and through the analysis of Canadian municipalities that midsize cities are unique. Therefore, it is crucial that, as researchers and policy-makers, we begin to understand the unique policy needs of this group of municipalities. The two case studies provide an in-depth look at the issues in two different Canadian midsize municipalities. The intent is to add depth to the breadth of midsize city information that has been amassed to date.

The goal of the midsize municipality case studies is to understand how to transform midsize communities into thriving and sustainable places without disrupting the key ingredients that have enticed people to live in there in the first place. The case studies will help shed light on the barriers to sustainability in midsized Canadian municipalities from the transportation and land use perspectives.

This chapter is organized into four sections. The first section provides an overview of the case study selection. The second section provides context around the selection of research methods. The third section outlines the research methods used in the case study process. Finally, the fourth section documents the specifics of the case study process.

4.1 Case Study Selection

Although three different types of midsized municipalities have been identified – centres, satellites and partners – this research focuses on the former two. The decision to focus on centres and satellites is based on time and personnel limitations, and the lack of literature concerning these two types of cities in Canada. The paper by Bunting et al (2007), which was reviewed in the literature, includes a case study of Kitchener, Ontario, which is a partner with its neighbours Cambridge and Waterloo.
The City of Kamloops, in south-central British Columbia, was chosen as the first case study due to enthusiasm and interest expressed by the city’s administration and their willingness to make their most recent Household Travel Survey (HTS) data available to the researchers. Kamloops is a centre city and is located approximately 350 km northeast of Vancouver.

The Town of Milton, in the Greater Toronto and Hamilton Area (GTHA) in Ontario, was chosen as the second case study due to interest from Metrolinx, the GTHA’s regional transportation authority. Milton is a satellite municipality, and is located within Halton Region, which borders the City of Mississauga to the east.

Kamloops and Milton have roughly the same municipal population sizes, at 86,000 and 84,000, respectively. As such, they represent the same midsize population class of 50,000 to 100,000 residents. The selection of case studies from the same class of midsize cities is intended to allow for meaningful comparisons to be made between centres and satellites in this class.

4.2 Research Methods: Background

As part of the overall study goal, it is important to understand the culture around transportation and land use in midsized cities and to engage residents of these cities to help describe this culture. Because understanding culture does not lend itself well to typical quantitative data analysis, this research process employs both quantitative and qualitative research methods. Quantitative research allows for midsize cities to be characterized and for the current behaviour in midsize cities to be observed. Qualitative research, then, allows for the culture and the intricacies of the behaviour of midsize city residents to be understood (Tracy, 2013; Clifton, 2001).

Combining research methods is also known as the mixed-method approach, and this approach has gained increased traction in the area of travel behaviour research in past decades (Clifton and Handy, 2001). By using a strategic combination of research methods, researchers are able to capture details that are unobservable through quantitative methods alone (Deutsch and Goulias, 2012). A brief overview of mixed
and qualitative research methods is provided below, which explains the selection of research methods for the midsize city case studies.

4.2.1 Benefits of Mixed Research Methods

Quantitative research and qualitative research methods are complementary, and this is particularly true in the realm of urban research (Maginn et al., 2008). By supplementing quantitative datasets with qualitative information, it is possible to understand both the quantifiable elements of behaviour and the factors that motivate behaviour (Clifton and Handy, 2001; Deutsch and Gouliahs, 2012). While quantitative research is typically applied to understand “who”, “what” and “when” questions, qualitative research is used to understand “why” and “how” (Clifton, 2011). Thus, combining quantitative and qualitative research methods connects both generalizable and non-generalizable knowledge so that context may be given to observations and individual perceptions may be appropriately connected to group behaviour (Jacobs, 2008). Whereas quantitative data is often designed to be generalizable to an entire population, qualitative data represents only the views of participants, but may be used to gain insights into behaviour of the broader population.

Further to generalizability, flexibility is another primary difference between qualitative and quantitative research methods. Given that qualitative research is centred on open-ended questions, qualitative research is less structured and calls for the researcher to be more adaptive and spontaneous (Mack et al., 2005). Typically, qualitative methods are used as a precursor to quantitative methods, as qualitative methods are particularly useful in theory and hypothesis generation (Tracy, 2013; Trumbull, 2005; Mack et al., 2005) and quantitative methods are useful for hypothesis testing (Tracy, 2013; Mack et al., 2005).

4.2.2 Qualitative Research Methods

Qualitative research takes on a number of forms; most applicable to travel behaviour research are surveys, focus groups and interviews. Each of these qualitative research methods has strengths and weaknesses, the details of which are summarized below.
4.2.2.1 Surveys

Although most surveys are not qualitative in nature, they may be used to gather information about attitudes and perceptions, which have been shown to be significant indicators of travel behaviour (Clifton and Handy, 2001). Surveys are common in travel behaviour research and are relatively easy to employ with statistical validity. However, it is difficult to gain substantial depth and insight from responses to survey questions, especially close-ended questions (Clifton and Handy, 2001).

4.2.2.2 Focus Groups

Inherently, focus groups restrict sample sizes considerably, which removes any statistical significance from the data collected and does not allow for broad generalizations (Sofaer, 2002; Clifton and Handy, 2001). Typically, focus groups are capped at a dozen participants and provide an environment for idea exchange both between participants and between participants and the researcher (Clifton and Handy, 2001). Though focus groups allow for exploring issues at depth, it takes considerable skill and practice to effectively facilitate focus groups, as the group dynamic may affect the outcome of the results (Sofaer, 2002; Clifton and Handy, 2001).

4.2.2.3 Personal Interviews

Personal interviews eliminate some of the complications that arise with focus groups by allowing for a confidential and intimate environment in which to discuss issues. Interviews are also a useful tool for testing the effectiveness of survey instruments, and determining whether respondents understand and interpret the survey as intended (Sofaer, 2002). Interviews are often flexible and provide opportunities for the researcher and respondent to clarify or elaborate about questions and responses. Unfortunately, implementing interviews is very a labour-intensive process and researchers must always be cautious of interview bias. (Clifton and Handy, 2001)

There are two main types of interviews: structured and unstructured. Structured interviews are typically implemented for large samples, and when there are expected to be multiple interviewers (Tracy, 2013). The advantage of structured interviews is that
multiple researchers or assistants may be employed and trained, and consistency is ensured through a strict interview script (Tracy, 2013). Unstructured interviews, or semi-structured interviews, are more predisposed to creativity and are about stimulating discussion rather than dictating discussion (Tracy, 2013). The advantage of unstructured interviews is that the respondent is allowed to be more expressive and the researcher may choose to deviate from the intended script to explore emergent topics (Tracy, 2013).

4.3 Case Study Research Methods

In the midsize city case studies, the mixed methods approach is employed strategically to both enhance understanding and to recruit participants. Given resource constraints and the researchers’ lack of experience in facilitating focus groups, the focus group method was eliminated as a qualitative method for this research. As a result, the project employs surveys and personal interviews.

The survey is predominantly quantitative, though it incorporates specific questions to address perceptions. Most importantly, however, it is designed to recruit participants for qualitative interviews. As such, qualitative methods are implemented as a follow-up to quantitative methods. It is noted that implementing a survey prior to conducting interviews is the reverse of what is recommended in the mixed-method literature (Deutsch and Goulias, 2012; Sofaer, 2002). However, in the literature, it is suggested that interviews would precede surveys when the goal to fine-tune a survey instrument. That is not the goal in this project.

This project is seen as an opportunity to enhance the profile of qualitative research methods in the field of transportation planning, and, given this, the end goal of completing qualitative interviews governs the research process. Prior to completing interviews, quantitative research methods are used to narrow down the research questions, and to explore the observable transportation planning issues in the case study communities.
4.4 Case Study Process

The mixed-method research approach used in the case studies is outlined in the following three steps and as shown in Figure 3. The first step is most broad, and as the research process progresses, the level of detail in the data increases.

1. Collect and Analyze Background Data (Quantitative)
2. Conduct Transportation and Neighbourhood Amenities Survey (Mixed)
3. Conduct In-depth Interviews with Residents (Qualitative)

As shown above, there are three major data collection tasks involved in the case study process. The first task is based on existing quantitative data, such as census and municipal travel surveys, which provide background information. The second two
tasks progress into qualitative research methods. The survey in task two is used to explore the travel behaviour issues outlined in the background analysis, and to recruit residents to participate in the qualitative interviews. The third task – the qualitative interviews – involves in-depth interviews with a sub-section of survey respondents. The interviews are intended to reveal the decision-making process behind daily travel and residential location and to probe into perceptions of culture in midsize municipalities.

At the outset of developing the case study process, a conservative interview target was set to determine the scale of outreach that would be required for the survey. The data collection target is 40 personal interviews, which is used as an input to determine the survey sample size. Two key response rate assumptions govern the ultimate sample size: 20% of survey respondents will consent to participating in interviews, and 20% of the initial sample frame will respond to the survey. Using these assumptions to back calculate from the 40-interview target indicates that a 1,000-person sample frame is required for the survey.

Survey respondents are recruited via mail using marketing sample frames of addresses from InfoCanada, which include first names and last names. The personally addressed letters direct respondents to the project website (www.midsizecities.ca), where there is information about the research team, information about the University of Toronto Office of Research Ethics, and a button linking to the transportation and neighbourhood amenities survey. The survey is accessed using a four-digit identification number. The identification numbers allow the researchers to track respondents who express consent to participating in a personal interview. An additional reminder letter is mailed to delinquent identification numbers approximately two weeks following the initial survey recruitment in order to boost the survey response rate.

A sample of interview participants is selected from the survey respondents who indicate consent to continue with the study. Selection of interview participants is structured to obtain a sample that represents as many demographic groups as possible.
Approximately 20 to 30 minute semi-scripted interviews are conducted with the selected candidates to explore the research questions in more depth. To ensure consistency, the same researcher conducts all interviews. Interviews are recorded on an audio recording device and are later transcribed to text for analysis.

4.4.1 Research Questions

Although the research questions differ slightly for each case study, there is a common framework applied to the survey and the interviews in both cases.

The survey consists of seven sections, which are described as follows.

1. **Access to Transportation** – what modes of transportation do residents have access to?

2. **Employment Status and Travel to Work** – if employed, how do residents travel to work and how might they travel to work under different conditions?

3. **Student Status and Travel to School** – if attending school, how do residents travel to school and how might they travel to school under different conditions?

4. **Travel for Grocery Shopping** – where do residents shop for groceries, how do they travel for shopping trips, and how might they travel for grocery trips under different conditions?

5. **Neighbourhood Amenities** – what amenities are available within walking distance from residents’ homes, and what new neighbourhood amenities would residents support?

6. **Demographic Information** – what are the respondent’s basic personal and household characteristics?

7. **Interview Consent** – does the respondent consent to participating in a follow-up interview?
The details of each survey section depend on the context of the municipality. In Kamloops, for example, the travel to work and travel to school sections include stated preference questions about the circumstances in which residents would walk or cycle to work or school. Because over two-thirds of Milton residents work outside of the town and commute over long distances, these questions were not included in the Milton survey. Travel for grocery-shopping questions are used as a proxy for local travel behaviour, and are intended to allow for local travel comparisons between Kamloops and Milton.

The interviews are semi-structured, and generally seek more clarity about the themes covered in the survey. Further to specific questions about motivation for and barriers to using alternative transportation modes, the interviews also target culture and general perceptions of life in the community and neighbourhood. These questions include:

- What brought you to this city in the first place?
- What do you like about living in this city?
- What would you change about the city?
- What made you choose to live in your neighbourhood?
- What do you like about your neighbourhood?
- What would you change about your neighbourhood?

The open-ended interview questions allow residents to express in their own words their perceptions of their community, and the decision-making process that led them to live in their midsize city. These perceptions and decisions are used to represent some aspects of the culture in midsize cities, and will inform suggestions for policy tools that respect the unique context of these municipalities.

Appendix A includes all of the case study materials for the City of Kamloops: survey recruitment letters, survey, interview consent form, interview recruitment email and interview guide. Appendix B includes all of the case study materials for the Town of Milton: survey recruitment letters, survey, and preliminary materials for the interview process.
5  City of Kamloops Case Study

This chapter is organized in order of the case study process, which was described in Chapter 4. First, is a brief profile of the City of Kamloops. Second, is a discussion of the background analysis, which is drawn from the City of Kamloops 2007 Household Travel Survey. Third, are the results of the transportation and neighbourhood amenities survey, which was issued in Kamloops in the fall of 2012. Fourth, is a discussion of the salient themes from the in-depth interviews with Kamloops residents, which took place in the winter of 2013. Last, is a summary of the Kamloops findings.

5.1  Kamloops Profile

The City of Kamloops, shown in Figure 4, is a midsize centre city located in the Thompson-Nicola region of British Columbia. The city has a 2011 population of approximately 86,000 residents and is ranked 59th nationally in population size (Statistics Canada, 2012). Kamloops is considered to be a transportation hub in British Columbia. It developed in conjunction with the Canadian Pacific Railway in the late 1800’s, and is now located at the junction of the Trans Canada and Yellowhead highways (City of Kamloops, 2013).
Kamloops, in its current form, is a relatively young city, having amalgamated in 1973. In 1967, North Kamloops amalgamated with central Kamloops, on the downtown south shore, and six years later, in 1973, the city absorbed the municipalities of Valleyview, Brockelhurst, Rayleigh, Barnharvtale and Dufferin, and also included a large unincorporated land area (City of Kamloops, 2013). The locations of these former municipalities, which are now neighbourhoods, are shown in Figure 5.
The economy in Kamloops is based largely on the mining and forestry sectors, though in a past study of industrial diversity, Kamloops was ranked one of the most industrial diverse cities in its size range with an index of 58.6% (Beckstead and Brown, 2003). As a point of comparison, the same study found Vancouver’s industrial diversity to be significantly higher at 87.8% (Beckstead and Brown, 2003). In 2011, the major employers in Kamloops were: the Interior Health Authority, the School District, Thompson Rivers University, Highland Valley Copper Mine, the City of Kamloops, and Domtar – a pulp and paper company (Venture Kamloops, 2011).

Weather in Kamloops varies significantly throughout the year with average highs of 28 Celsius in the summer months and average lows of -8C in the winter months (Environment Canada, 2012). In Canada, the city is ranked the second driest based on annual amounts of precipitation (Environment Canada, 2012).
BC Transit provides transit service in the City of Kamloops, where there is currently an estimated transit mode share of 3.8% (BC Transit, 2012). As of 2007, the overall active transport mode share in Kamloops was 8.2%, which is impressive considering the city’s hilly topography and seasonal temperature variation. The automobile mode share in the city accounts for 86%, with 70% of trips made as the auto driver and the remaining 16% made as auto passengers (Synovate, 2008). Comparing Kamloops to the other midsize centres in the 50,000 to 100,000 population group shows that Kamloops has a lower than average walk and transit commute shares.

A high-level assessment of land use in the city indicates that it is primarily low-density. Many of the city’s neighbourhoods are strictly residential, and 7 out of every 10 households live in a single-family dwelling unit (Synovate, 2008).

5.2 Background Data Analysis

In a 2009 report, the city projects a growth rate of 1.25% per year, which by 2039, will yield 120,000 residents and an overall population increase of 47%. Based on this projection, it is expected that over the next two and a half decades, there will be a significant increase in the median age of Kamloops residents. As shown in Figure 6, the number of residents over the age of 65 is expected to grow by 156% (Urban Systems, 2009).

![Figure 6 - City of Kamloops Projected Population Growth (Urban Systems, 2009)](image)
These population growth estimates are consistent with the Canadian literature, which indicates that in the future, there will be significant out-migration of baby boomers from larger metropolitan cities toward medium and small centre cities in search of a quieter pace of life. This trend will be further amplified by younger residents of mid-sized cities simultaneously out-migrating to larger centres in search of opportunities (Hodge, 2008; Foot, 1998).

The City of Kamloops completed its first household travel survey in 2007 using a 3% sample of the city’s 33,456 households. There are a total of 1,060 household responses in the dataset, which include socioeconomic characteristics of the households, details about all individuals within the households and trip diary information for each individual over the age of five. The trip diary data are weighted by household size in order to replicate the city’s 2007 population of 82,000 residents (Synovate, 2008). The information that is of specific importance to this discussion is the age of the respondents, person trip rates, trip distances, travel modes and trip purposes. The HTS report (Synovate, 2008) contains a considerable amount of information, beyond what is reviewed in this chapter, and is referred to again in the policy implications discussion in Chapter 8.

Highlights from the analysis of the city’s HTS data and 2039 growth projections are summarized in the following figures by trip purpose (Figure 7), travel mode (Figure 8) and trip distance (Figure 9) (Toop et al, 2013). Due to the absence of longitudinal behaviour information, this analysis is based on the assumption that travel behaviour amongst age groups will remain consistent between 2007 and 2039. For each travel characteristic, an analysis of variance was completed, which indicates that there is indeed a statistically significant difference (at a level of 5%) in both the trip rates by mode and purpose and the average trip distances across the different age cohorts.
Results of the trip purpose analysis show that the aging demographics will have a significant effect on the distribution of trip purposes in the future. In the 2007 data, work trips and shopping trips make up the majority of the travel; however, assuming consistent longitudinal travel behaviour, the sharp increase in the seniors age group results in a significant increase in amenity related trips. According to the data, by 2039, a large majority of the trips made in Kamloops will be for shopping, work and amenities. Notably, school travel will increase only marginally due to the low growth rates of the school-aged cohorts.
As documented previously, the travel behaviour in Kamloops is extremely automobile-oriented. Given the auto-dependent behaviour of current seniors, the future projections indicate a substantial increase of 50% in auto driver trips, which outpaces the overall population growth of 47%. Transit trips are shown to grow at half the rate of the population, whereas the increase in non-motorized travel is shown to lag only slightly behind the population growth.

Figure 8 - Travel Mode Analysis: (a) Trip rate breakdown, (b) Aggregate effect of population growth (Toop et al, 2013)
The travel distance analysis shows that, due to the aging population’s shorter trips, the overall distance travelled in Kamloops will increase more slowly than the population.

Finally, a travel time analysis indicates that, with the aging population, the day-long travel demand curve will flatten. This is due to seniors being predominantly retired, and therefore, able to travel outside of the morning and afternoon peak hours.

Combining these results shows that while automobile use will increase drastically and the existing transit markets grow more slowly than the population, non-motorized modes will preserve most of their market share. With seniors making fewer and shorter trips, and maintaining a relatively modest use of non-motorized modes, there could be an opportunity for the city to elevate the status of active transportation.

5.3 Kamloops Transportation and Neighbourhood Amenities Survey

Based on the HTS data analysis outlined above, the survey was conducted in the City of Kamloops in the fall of 2012. The survey response rate was approximately 22%,
yielding a total of 223 responses from the 1,000-person sample frame. Notably, over 57% of the survey respondents consented to being contacted for the follow-up interview phase, which is almost three times greater than the assumed response rate.

The Kamloops survey was administered through Google Forms, an open source online form tool. Google Forms is available free of charge, which was an advantage given the limited project budget. However, in certain instances, the limitations of the Google Forms tool affected the design of the survey. For example, the Google Form question structure limits the number of degrees available in Likert-type questions to five, and thus, does not allow the surveyor to include additional fields for “non-applicable” or “other” responses.

The survey focused on generating a deeper understanding of a number of the issues identified in the background analysis and follows the case study questions, which were described in Chapter 4. As shown previously, shopping, amenities and work are expected to be the top three purposes for traveling in the city in the future. Further, given the finding that active transportation may retain a larger proportion of its mode share traction, the survey focuses on understanding thresholds for walking and cycling for both shopping trips and work trips. Amenity-related issues are explored through questions about the potential to incorporate more amenities into residents’ current neighbourhoods. Unfortunately, due to a lack of survey participation from post-secondary students, the data from the “travel to school portion” of the survey is not included in the analysis.

5.3.1 Walking and Cycling to Work

As indicated by Kamloops’ centre city designation, the majority of the Kamloops labour force is employed within Kamloops. Over 90% of Kamloops survey respondents work within the City of Kamloops, while 8% work outside of the city limits. Of the 92% who work in the city, only 30% work within City Centre, which shows that the large majority of the employment in the city is dispersed outside of the city’s downtown area. This employment distribution is shown in Figure 10.
Figure 10 – Workplaces of Kamloops Survey Respondents

Figure 11, below, shows respondents’ seasonal thresholds for walking and cycling to work.
The results shown in Figure 11 indicate that there is only a marginal difference between preference for active travel in the summer and spring or fall; however, there is a significant drop in propensity for walking and cycling to work in the winter. While there is an approximate 20% decrease in preference for walking to work in the winter compared to walking to work in the summer, spring or fall, there is an approximately 50% decrease in preference for cycling to work in the winter compared to cycling to work in the summer, spring or fall. The major takeaway from the above figure is the stated distance thresholds for each mode and the potential walk and cycle to work markets. Based on the above graphs, the city could maximize its walk to work mode share by encouraging more employment and residential land uses within 1km of each
other. Similarly, the city could maximize its cycle mode share by encouraging employment and residential land uses within 2km to 3km of each other.

5.3.2 Walking and Cycling to Groceries

Figure 12, below, shows respondents’ thresholds for walking and cycling to grocery shop. This question was not broken down seasonally based on the assumption that carrying groceries would be more prohibitive to walking or cycling than the weather would be.

![Figure 12 - Travel to Grocery Shopping Analysis: (a) Stated Walk to Grocery Shopping Thresholds, (b) Stated Cycle to Grocery Shopping Thresholds](image)

As shown in the figure, there is an approximate linear relationship between distance and propensity for both walking and cycling to buy groceries. Roughly 50% of survey respondents would be willing to walk up to 1km to buy groceries, whereas less than 40% of respondents would be willing to cycle to buy groceries at all.

Seasonal variation was captured through the question: if there was a grocery store within [1km/2km] of your home, how often would you [walk/cycle] there to buy...
groceries in the [summer, spring or fall, winter]? Notably, only 30% of respondents indicated that they would never walk 1km to the grocery store in the summer, spring or fall, and 50% of respondents would never walk 1km to the grocery store in the winter. This leaves a potential 50-70% market, depending on the season, for walking 1km to buy groceries. In response to the cycling question, roughly 60% said they would never cycle 2km to the grocery store in the summer, spring or fall, and over 80% said they would never cycle 2km to the grocery store in the winter, which indicates a much smaller market, 20-40% depending on the season, for cycling to buy groceries.

All survey respondents answered the travel to grocery shopping questions, whereas only the employed respondents answered the travel to work questions. Given this, it is possible to focus in on the seniors’ responses to the grocery shopping questions to discern whether different trends are observed. Figure 13 shows the same data as in Figure 12, but broken out into two population groups: 25-64 and 65 and over.
In total, 69 survey respondents are classified as seniors (65 years and over) and 152 survey respondents are under 65 years old. On average, the seniors group shows slightly more propensity for walking up to 500m for grocery shopping trips; however, seniors walking propensity decreases below that of the younger age group after the 500m threshold. This finding is particularly important given the context of Kamloops’ aging population projections. Seniors propensity for cycling, on the other hand, is shown to be half of that of the younger adult group for distances up to 2km, and drops off even more for distances over 2km.

In general, propensity for using active modes for grocery shopping trips reduces more drastically with distance than propensity for walking and cycling for work trips. These

**Figure 13 - Travel to Grocery Shopping Analysis by Age: (a) Stated Walk to Grocery Shopping Thresholds, (b) Stated Cycle to Grocery Shopping Thresholds**
findings stress the importance of providing grocery stores and other amenities within residential neighbourhoods or within short distances of dwelling clusters. For the senior population, this point is emphasized further. Where 68% of senior respondents are willing to walk up to 500 meters to access groceries, only 45% of seniors are willing to walk up to 1km to access groceries and only 32% of seniors are willing to cycle to access groceries at all. In preparation for a large increase in seniors living in Kamloops, it is important to acknowledge these differences in active transportation thresholds and to begin to service residential neighbourhoods accordingly.

5.3.3 Neighbourhood Amenities

Two important aspects of non-motorized transportation are the types of pedestrian and cyclist facilities available and the number of amenities within acceptable walking and cycling distance of people’s homes. As such, questions were asked to understand respondents’ support for various transportation infrastructure modifications in their neighbourhood and for the inclusion of various amenities within their neighbourhood. In each question, the neighbourhood area was explicitly defined as the area within 1km of the respondent’s home.

Figure 14 shows levels of support for neighbourhood transportation infrastructure modifications.
The results shown in Figure 14 are meant to be qualitative and to show general attitudes toward transportation infrastructure modifications in Kamloops. Interestingly, off-street bike lanes, bike parking and on-street bike lanes received the most absolute support from survey respondents. More frequent bus service and improved bus stops had fewest opponents, with many respondents being cautiously supportive. Finally, the traffic improvements and increase in on-street parking received the least absolute support and had the most opponents of any of the transportation changes listed.

Figure 15 shows the levels of support for various neighbourhood amenities.
Figure 15 – Support for Neighbourhood Amenities

The results in Figure 15 must be interpreted with caution, and provide an example of the power of qualitative research methods. In the process of administering the survey, the respondents’ interpretation of this question was found to be ambiguous, and this is verified through in-person interviews. In a number of instances when survey respondents already had certain amenities within 1km from their home, they were unsure how to respond to the question. This resulted in many people responding “Never” to supporting a particular amenity because it already exists in their neighbourhood. Even so, the majority of survey respondents were supportive of a recreation facility, more park space, health care services and a farmer’s market being located closer to their homes. Very few respondents supported a pub or liquor store in their immediate neighbourhood and there were mixed responses around public schools due to recent school closures or respondents not having school-aged children.

5.4 Kamloops Interviews

Interviews with 21 Kamloops residents were completed over a two-week time period in the winter of 2013. Although the original intention was to complete 40 interviews, response patterns emerged midway through the two-week time window, and marginal
returns were beginning to diminish as more interviews were completed. Contacting participants, scheduling interviews, and coordinating travel between interview locations was also a more labour-intensive process than originally expected, and as such, the interview target was relaxed to make the research process more efficient.

At the outset, 40 interview candidates were selected with the goal of achieving representation from all age groups, all income levels and all genders. For efficiency, only survey respondents who had provided a valid email address were contacted for interviews. At the midway point in the interview process, when it was clear that not all of the 40 original candidates would be available for interviews, another smaller wave of emails was sent to recruit some of the missing demographics.

Table 6, below shows the basic demographic information of each interview participant. As shown in the table, each participant may be categorized by: gender, age, household size, number of dependents, household income, dwelling type, home ownership, employment status, and student status.
Table 6 – Interviewee Demographics

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<th>HH Income</th>
<th>Dwelling Type</th>
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The home locations of the 21 interviewees provide reasonably representative coverage across Kamloops’ neighbourhoods. The household locations of interviewees are shown in Figure 16, below, with the gender of the interview participant identified by colour. The letters corresponding to each interviewee’s household location, shown in Figure

63
16, will be used to reference individual interviews throughout the remainder of this chapter. It is of note that Person T does not currently live within the Kamloops city limits; however, she currently works in the city and has previously lived within the city limits.

![Map of Kamloops interviewees' home locations](image)

**Figure 16 – Home Locations of Kamloops Interviewees**

By nature, qualitative datasets are robust and offer many opportunities for interpretation and analysis. The 21 conversations with Kamloops residents provided insight into a breadth of issues around living in and travelling around the city. Five main topics have been isolated from the Kamloops interview data and are discussed in the following sections. These topics are: living in Kamloops, walking in Kamloops, cycling in Kamloops, transit in Kamloops, driving in Kamloops, and aging in Kamloops.
5.4.1 Living in Kamloops

One of the primary objectives of this Kamloops interviews is to understand what residents of Kamloops enjoy about living in Kamloops – what do they love about their city? Responses to this question converge into five key characteristics: balance of size and amenities, recreation, community, accessibility, and weather.

5.4.1.1 Balance of Size and Amenities

12 of the interviewees indicated that what they like about the city is its balance of size and amenities. In some instances, respondents alluded to size, specifically, as the characteristic that they appreciate about the city. In other instances, respondents related the size of Kamloops to the number of amenities that it offers, and stated that it is the combination of the city’s size and amenities that they appreciate. Some of the particularly good quotes from interview participants are shown below.

“Kamloops is kind of the perfect little big city. I like that the city is less of a city and more of a small town.” (D)

“I’m not a big city girl. I like small towns, but I like the facilities that Kamloops has. It’s got a nice balance.” (E)

“It’s not too big and it’s not too small, and it has just the right amount of stuff. It’s not like I have to travel to Vancouver or Kelowna to get the things I need.” (F)

“I find that I do enjoy a smaller city feel.” (H)

“I like the fact that it’s a city, but not a big city. If there’s anything I need, I can find it in Kamloops usually.” (I)

“It’s a nice sized community. It has just about everything that I need or want. There’s enough stuff here that you don’t feel like you’re living in a really small town, yet it has that small town flavour.” (N)
“I would also add that I think there's an optimal city size for urban living. I think Kamloops is kind of in that happy medium area. It's not a small town, but it's not an alienating big city either.” (U)

5.4.1.2 Recreation

11 of the interviewees indicated that they like living in Kamloops because of the recreation opportunities. Many interviewees indicated a strong appreciation for Kamloops’ natural amenities; however, some indicated that they also appreciate the indoor recreation facilities that the city offers. Some particularly illustrative quotes are as follows.

“I like that there’s a number of opportunities for recreation, outdoors and indoors.” (A)

“Well, the recreation part of it. There are a million golf courses. Sun Peaks is close. Shushwap Lake is an hour away.” (C)

“Once I hiked, skied and mountain biked in the very same day. Where else can you do that?” (F)

“I like the accessibility to the outdoors. I’ve always lived in really big cities like New York, Toronto and Montreal, so I like the fact that I can jump on my bike and I’m practically in the countryside.” (H)

“I like the recreational parts of the city. We’ve used the YMCA. We’ve used the city complexes. We’ve used the parks a lot.” (I)

“Plus, probably within an hour’s drive of here you have fishing, hiking, skiing, all the lakes – all the outdoor activities in summer and winter that you could ever ask for.” (M)

“Just think about that proximity of wilderness. You’ve got Lac DeBois Provincial Park. You’ve got the largest municipal park in BC: McKenna Cartwright.” (U)
5.4.1.3 Community

10 of the interviewees indicated that they like aspects of the community in Kamloops, including general friendliness, volunteer opportunities, friends, and family. Statements reflecting these sentiments are shown as follows.

“My family is here, or my new family, so that’s kind of keeping me here for now.” (A)

“I always thought I was a really big city person, but I find that there’s a greater sense of community here. People know each other and I like that.” (H)

“It’s got good opportunities for volunteering around the city... Plus, my parents live here, so that keeps me here while they’re still alive.” (M)

“You know, I can go to Motivo coffee and I’m guaranteed to know someone there... I have a really nice sense of being at home when I return to Kamloops: I like that a lot.” (N)

“Well, compared to Qualicum Beach, the people here are more down to earth – very friendly for the most part.” (P)

“It’s a super friendly town” (T)

5.4.1.4 Accessibility

8 of the interviewees mentioned that they like short travel times and ease of access to various amenities in Kamloops. In all cases, the respondents referred to travel by automobile, and many indicated an appreciation for lack of traffic congestion in Kamloops. Interestingly, many of the people referred to the difference between Kamloops and Vancouver in terms of traffic and travel times, and indicated a preference for the smaller city. Illustrative quotes are as follows.

“It’s nice to have the highway through the city to be able to get to places more quickly.” (A)
“I know what it’s like in Vancouver or Victoria: you can be stuck in traffic. You can lose hours out of a day being stuck, and that would drive me nuts.” (C)

“We can jump on the highway and be anywhere in town in 15 minutes or less.” (D)

“It doesn’t take very long to get anywhere. It’s nice to be able to spend more time actually doing things than to be sitting in traffic.” (G)

“When we lived in Vancouver it would take you at least half an hour to get to the highway no matter where you are. In Kamloops, no matter where you live, within 5 to 10 minutes you are on the highway, and then you can go whichever direction.” (K)

“Kamloops has fewer traffic headaches. It was stop and go constantly in Vancouver. That drives me nuts.” (T)

5.4.1.5 Weather

5 of the interviewees specifically stated that they like the weather in Kamloops. These respondents expressed appreciation for the climate, and particularly, the temperate climate. The fact that one quarter of the interviewees specifically pointed out Kamloops’ favourable climate indicates that good weather is likely one of the city’s assets. Illustrative quotes are shown below.

“I like the weather.” (A)

“The weather’s pretty good.” (C)

“We love the climate here. Winters are short. There’s a nice spring and fall. Summers are nice.” (M)

“The weather’s good.” (N)

“I love the summers. I don’t like the winters too much, but it could be worse, like Toronto or Winnipeg.” (O)
5.4.2 Walking in Kamloops

The results of the background analysis and survey analysis show that walking may be an important component of transportation sustainability in Kamloops. As such, the interviews explored why Kamloops residents do or do not use walking as a form of transportation. The following sections highlight two key issues: what motivates those who do currently walk, and what are the barriers to walking in the city?

5.4.2.1 Motivation for Walking

Interviewees A, G, H, I, K, L and U all indicated in their surveys that they either walk to work, walk to grocery shop, or both. Persons A, I and K only walk for shopping trips, Person L only walks for work trips, and Persons G, H and U walk for both shopping and work trips. With the exception of Person G, who walks approximately 6km from home to work, the remaining interviewees all live within Kamloops’ relatively close proximity to their work or grocery shopping destinations. During their interviews, Persons B and E indicated that they regularly walk with their children to drop them off at either school or daycare.

Respondents referred to three primary motivators for walking: exercise, cost-effectiveness, and environmental impact.

Person G, who is most ambitious about walking to work, walks roughly 6 km to work two or more times a week. He lives in the Valleyview area and works in City Centre.

“With young kids, it’s really hard to find the time to exercise. So, I find the walk is part of my exercise routine now. It’s a good hour and I go at a pretty good clip. And it also gives me an opportunity to listen to music or whatever, which I don’t necessarily get the chance to do otherwise.” (G)

Person I regularly walks to grocery shop and says that her motivation is exercise. She lives in the Upper Sahali area and accesses the amenities in Lower Sahali.
“If I need something and it’s a nice day out, I am determined that I will not use my car if I can get around it. My dad always said that you have two feet and one’s not for the brake and gas, so, I try to walk when I can.” (I)

Both B and L are motivated by the cost-effectiveness of walking. L walks to work daily, as she lives only two blocks away from where she works, and consciously chose her home location due to the convenience and low-cost of walking to work. B was not employed at the time of her interview, and tries to let her husband take the car to work as often as possible. Their household only has one car insured because of the expense of operating vehicles. She regularly walks her son to and from school.

“Driving is expensive and maintaining cars is expensive. I would like to take alternate modes as much as possible.” (B)

Person U identifies as an “old-fashioned conservationist” and enjoys walking because of the low environmental impact, the exercise and the sense of community that it instills. He lives and works in City Centre, and claims that walking to work is a luxury that many people no longer have.

“You get to see your neighbourhood twice a day. You get to meet your neighbours. It’s sociable. In the summer, you see life happening around you. You arrive at work refreshed. You come home refreshed from the exercise.” (U)

Having previously lived in very large cities, Person H identified that she is likely more accustomed to utilitarian walking and using other alternative modes of transportation. She lives in the Lower Sahali neighbourhood and regularly walks to work in City Centre and to grocery shop in the Sahali area. H consciously chose to live in Lower Sahali so that she is in closer proximity to amenities and work because she values the short commute, the exercise, and spending less time in her vehicle. She also indicated that she is environmentally conscious.

“I don’t know what other people feel, but one of my huge concerns is climate change and what we’re doing to our environment and what kind of future our kids are going to have. I just think we all have to do our part.” (H)
Although H enjoys walking and does walk regularly, she had previously heard a lecture about pedestrian level of service, and was very cognizant of the city’s shortcomings in the pedestrian realm.

“I do find that when you get up out of the downtown core in Kamloops, things are really designed for drivers and not for people to walk. Plus, the breadth of the streets as well – there are so many lanes and it takes you so long to cross. It’s ok for someone who’s in shape and young, but when you get older – and I don’t put myself in that group yet, but I will be in that group one day – it’s not easy to get across some of those really large streets.” (H)

5.4.2.2 Barriers to Walking

Amongst the interviewees who do not walk regularly, feeling unsafe or uncomfortable are said to be two primary barriers to walking in the city. Additional barriers are distance to work or amenities, the steep hills in certain neighbourhoods, and health or physical ability.

Persons H, I, and L, who do walk regularly, specifically stated that they feel unsafe walking on Columbia Street, which is the arterial route between Sahali, up on the hill, and Kamloops City Centre. Both Person F, who does not walk regularly, and Person I, who does walk regularly, stated that wider sidewalks would make them feel more comfortable, particularly on arterial roads and in high traffic areas. Person C does not walk regularly because it is not pleasant to walk in his neighbourhood.

“People go for a walk in the park in the mountains, but there are not a lot of people out walking or riding on the sidewalks. It’s not that friendly because of traffic. The roads are so wide that nobody’s going 50km/h – they’re moving. It’s not a very pleasant walk in most areas on the main arterials.” (C)

Many interviewees expressed that they do not have anything close enough to their homes to walk to and that; therefore, walking is not feasible. In many of the neighbourhoods that are further from amenities or destinations, hills are also a concern.
“Being in Batch (Batchelor Heights), there isn’t a lot of places that you can just walk to. It’s difficult for us too, because Batch has got quite a hill to get up there.” (E)

“(In Dufferin) it’s hilly and there’s not a lot of people out.” (C)

Although Person M does not claim to walk for utilitarian reasons, he likes living in North Kamloops because it is flat.

“It’s flat. So, that means that it’s easy to walk and get exercise. We’re not up and down like Aberdeen or Sahali or something.” (M)

Person A, who lives in the Aberdeen area, walks to access groceries occasionally, but expresses that it is not necessarily convenient to do so.

“Technically, you have everything grocery-wise that you probably need within walking distance, but it’s just not all in one place.” (A)

Persons P and R both expressed that health and physical ability are barriers to walking. P has arthritis, which prevents her from walking long distances. Person R is over 75 years old and has had a number of health complications in recent years.

“If I were to use the bus, I would have to go through my neighbour’s yard, or else go down to Schriener and then down a few blocks, which is quite a distance. I have arthritis really bad, which means I’m good with the right footwear and some walking, but not long distance.” (P)

“There are bus stops close to the bottom of the hill, but if I needed groceries, I could never walk back up.” (R)

The distance from P’s home to the nearest bus stops is approximately 250 metres with little to no grade change. The distance from R’s home to the nearest bus stop is approximately 1 km, and includes significant elevation change.
5.4.3 Cycling in Kamloops

Similar to the previous section, the results of the background analysis and survey analysis show that cycling may also play a role in Kamloops’ transportation sustainability. The interviews also explored why Kamloops residents do or do not use cycling as a form of transportation. The following sections highlight two key issues: what motivates those who do currently cycle, and what are the barriers to cycling in the city?

5.4.3.1 Motivation for Cycling

Of all the people interviewed, only 4 claimed in their survey responses to cycle regularly. Interviewee G indicated that he cycles regularly for work trips. Interviewees J, N and U cycle regularly for shopping trips. In their interviews, however, E, F, H and M also reported that they do occasionally cycle around the city. E occasionally bikes with her children for leisure, F occasionally bikes to work – she makes a particular effort to do so during Bike to Work Week, H cycles for recreation, but also cycles to work during Bike to Work Week, and M cycles recreationally.

G cycles to work between the months of April and September – he walks to work in the winter season – and says that the weather is the only impediment to him cycling in the wintertime. He enjoys cycling because it is exercise, and because it is faster than walking.

J loves to cycle. He has a bicycle with panniers and often cycles to buy groceries, as well as for recreation purposes. He also does not cycle in the wintertime, but rides all spring, summer and fall. His motivation for cycling comes from environmental consciousness and cost savings.

“Why burn the carbon and money, and the piece of the planet?” (J)

N cycles between 3,000 and 4,000 km per year, and uses his bike when the weather is temperate. He owns a utility bike with panniers and is considering also buying a cargo bike so that he can go shopping for larger items. His wife is disabled from a stroke, and so she has a tricycle with a large basket, which they use for groceries when she
accompanies him to the grocery store. He enjoys the exhilaration of cycling and the exercise that it provides.

“It's just such a great thing. You feel good. It’s good exercise. It's wonderful.”

(N)

U cycles in the summertime and uses panniers to carry groceries. As indicated in the previous section on walking, he is motivated to cycle because he is environmentally conscious and enjoys the exercise. Though, in his interview, he admitted that he is not religious about utilitarian cycling.

5.4.3.2 Barriers to Cycling

Of the 18 interviewees who commented on cycling in Kamloops, 13 stated that safety concerns are a large barrier to them cycling in the city and two physically disabled people discussed a combination of safety and accessibility concerns. Six people stated that hills were a barrier to cycling and one person mentioned that he is concerned over the security of his bicycle. Three interviewees specifically stated that winter or bad weather is a barrier to cycling; however, as was demonstrated above, none of the respondents who do cycle regularly actually cycle in the wintertime.

Persons A, B, D, F, I, J, K, L, M, N, P, S and U, all expressed concerns with cycling safety in the City of Kamloops. D and J, for example, both work in Dallas and indicated that they would not cycle to work because there is no safe route to bike along the highway. Person J specifically stated that he wanted the opportunity to voice his opinions because he is physically disabled and is one of the few physically disabled cyclists in the City of Kamloops. He is an avid cyclist, but does not feel safe riding on the highway, and expressed concerns over the safety of riding his bicycle under the highway interchange between Valleyview and Kamloops City Centre.

Another physically disabled cyclist who was consulted, but was not part of the official interview process, indicated the same concerns over the bicycle route between Valleyview and City Centre. She explained that the bollards, shown in Figure 17, are too close to the adjacent roadway to allow her safe space to wait for traffic, and that
they are too narrow for her to navigate her recumbent tricycle through without the assistance of another person. She indicated a number of other inaccessible nodes throughout the City of Kamloops’ bicycle network and suggested that the city reach out to physically disabled cyclists to gain insights about bicycle accessibility.

Figure 17 – Inaccessible Bicycle Trail Gate

Many other interviewees had concerns with cycling on Columbia Street, the main arterial through the city, and some expressed general concerns with citywide bicycle safety and sharing the road with vehicles.

“I would not bike up Columbia because it is unsafe. It is dangerous when cyclists share the road with vehicles. I love to bike, but even during Bike to Work Week, it is quite scary coming to work.” (F)

“It’s not safe to bike with my daughter on Columbia Street – maybe when she’s older. I don’t know how many cars driving down Nicola Street realize that you
have to share with bikes. Even then (on Nicola Street), you have to almost stop at each light. It’s not like you can just go, go, go. A lot of cyclists just take Columbia here, and I can’t blame them because they want to go fast and not have to stop every block to look both ways.” (B)

“To me it’s not that safe (on Columbia Street) because of the busy vehicles and I’ve seen a few accidents.” (L)

“Hills are not the impediment. The impediment is not feeling safe and not having a place you can belong. People ride up Columbia Street on the sidewalk, and you’re not supposed to be on the sidewalk, but it’s simply too dangerous to ride on the road. And there’s no shoulder whatsoever.” (N)

“I mean there’s a lot of traffic. I wouldn’t feel safe.” (P)

“I wouldn’t take up cycling again because I’m old and I’m brittle. I’m fragile.” (S)

“There’s a lack of proper cycling lanes, very busy roads, and drivers are not all that observant.” (U)

Interviewees A, C, E, F, H and L stated that hills are a barrier to cycling in Kamloops. Notably, all of these people live in higher elevation neighbourhoods in the city.

“You could drop down to the university (from Dufferin) on your bike in ten minutes, but it’s getting home that’s all uphill. It’s easier, obviously, to take the road up, but the grades are over 10%. I’ve done it before when I was in better shape.” (C)

“That hill’s intimidating. In Batchelor Heights, they’ve got a back road that they’re connecting to Westsyde. They haven’t connected it yet, and it’s more of a gradual incline. So I could see, if that ever gets connected, that it might be an option because it’s not the same steep incline.” (E)
“There are killer hills in this city. It’s fun going down them but tough going up them.” (F)

“Since I moved here (to Lower Sahali) it’s just easier to walk. Because basically, I end up walking my bike maybe half way home anyway up that hill. I just don’t find it fun to have to bike up a hill like that. So I don’t bike to work anymore. Except Bike to Work Week.” (H)

Although none of the cyclists interviewed cycle in the wintertime, only F, G and M report that bad or winter weather is a barrier to them cycling.

“Wintertime is problematic. I’m not that comfortable hopping on a bike when the streets are icy or anything like that.” (M)

Person M also has concerns over the security of his bicycle.

“Sure, you can lock it up and hope for the best. There are just security issues. When you come back, you want to find it all in one piece.” (M)

5.4.4 Public Transportation in Kamloops

The results of the background analysis and survey analysis show that conventional public transit does not currently have much traction as a mode of transportation in Kamloops. Only two interviewees use transit on a semi-regular basis. As such, the majority of transit discussions with interviewees involved the barriers to using transit, and hypothetical situations in which interviewees may use transit in the future. An additional topic, which arose in many conversations, is the interface between cycling and transit in Kamloops. The following sections highlight three key issues: what motivates those who do currently use transit, what are the barriers to using transit, and what is the interface between transit and cycling?
5.4.4.1 Motivation for Using Transit

Person G is the only interviewee who reported using transit to access work. Person H, who is a part-time student, reported that she uses transit to travel to and from the university when she attends her class.

G uses transit because his household only has one vehicle, and it is convenient for him to take transit home from his workplace, which is in City Centre. The bus stops very close to his house in Valleyview, and he is able to use it to supplement travel home from work when he walks to work in the mornings.

“Yeah, I have the bus right there, so we just choose to have one vehicle for the family – we’ve been able to hold off on that for now. But, we have all the options. I could drive, but then my wife would not have a vehicle for what she needs to do during the day.” (G)

H uses transit to access Thompson Rivers University (TRU) from her workplace in City Centre because she gets a free transit pass (UPass) with her university enrollment.

“I’m a student at TRU just part time, but I get a free bus pass. So I actually leave work two days a week and the end of the day, and I take the bus up to TRU because it’s convenient to take the bus. Then I just walk home from there. I live a ten minute walk from TRU.” (H)

B indicated, during her interview, that she does take the bus occasionally because there is a bus stop nearby her home. However, it is sometimes easier for her to walk into downtown.

During his interview, M reported that he occasionally uses transit to travel to special events in the city, or events where he is planning to consume alcohol.

“Well, both my wife and I have vehicles, so we’re a two vehicle family. There is a bus stop reasonably close, like within basically a block on Parkcrest, where we can catch the bus if we choose. I haven’t used the bus system in Kamloops all that much, but there are times when it is convenient. For the most part,
traffic isn’t much of a problem and it’s way more convenient to get around in a personal vehicle. I would use it for events where I’m going out and alcohol may be involved or something like that, just so I don’t need to worry about drinking and driving. And being on a pension, it’s a much cheaper option than cabs in this town. When I’ve used the bus system, it’s pretty convenient. Aside from some of the exchanges and trying to figure out where everything’s going again.” (M)

E does not use transit, but encourages her daughter to take the bus.

“You know, when I was a kid, it was the loser cruiser, whereas for her (her daughter), that’s just her regular mode of transportation. She’s really liked it because she’s got the freedom.” (E)

N does not use transit, but is very supportive of the handyDART service provided in the city. His wife uses it regularly.

“HandyDART is really great. It’s the best. My wife uses it a couple of times a week. Yeah, I just give them about a day and a half notice. And if they can’t make it, they send a taxi! That’s great. You know, all for three bucks – that’s pretty good.” (N)

5.4.4.2 Barriers to Using Transit

Amongst all of the interviewees who commented on using transit themselves, the barrier to using transit may be generally described as inconvenience. For some, it is the schedule that is inconvenient, for others, it is the sheer duration of the trip or the location of the bus stop that is inconvenient. In all cases, however, interviewees are not willing to suffer the inconvenience of using transit when they have ready access to an automobile. Interestingly, a handful of the interviewees did not comment on transit as if there is any potential of them using it. They spoke about transit in a detached way, or in reference to a family member who uses transit. Essentially, these respondents seemed to be in a pre-contemplative stage with regard to using public transportation.
Interviewees D, F, J and L all expressed that a combination of the bus schedule and the duration of the transit trip is a barrier to them using transit to travel to or from work.

“If there was a bus that I could take to work that would get me to work on time, and then I wouldn’t have to wait for like an hour after work ended, I would take it. I would have no problem. I wouldn’t have to pay for fuel, I wouldn’t have to pay for maintenance on my vehicle, and why not?” (D)

“Taking the bus to work is not an option because of the time. I can’t make the connection at the bus station. If the bus were an express bus, for sure I would take it. I’ve tried, but it doesn’t work in my schedule.” (F)

When J drives, it takes him ten minutes to get to work.

“I have taken the bus, but it’s not very convenient. I think it takes an hour. So, I’d have to catch it at ten minutes to 6:00 (AM).” (J)

“But, I would use public transit if I wasn’t working. I would use transit because I would have time, but not as much money to spend.” (L)

Interviewees M, O, P, R, S and U all expressed that driving in Kamloops is simply more convenient than using transit, and that it is not necessary to take the bus.

“If I had to use it (the bus), I would.” (P)

R indicated that the walk to the bus stop is too far from her home, as she lives approximately 1km up Rose Hill Road, and the bus stop is at the bottom of the hill. She expressed that she and a number of other seniors who live in her mobile home park would benefit from and use some form of public transportation, but they are too far from the nearest bus stop and do not currently qualify for handyDART service.

When she was employed in the City Centre, O used to take transit to work. Now that she is retired, however, she no longer uses the bus.
“I took the bus every day. I just got on the bus there, and got off downtown. It was really handy. You know, I really don’t use it now. I want to drive most of the time.” (O)

S does not use the bus because he often has large items to carry. He keeps bees and could not use the bus to travel for grocery shopping because he cannot carry the 10kg bags of sugar on the bus. He also plays hockey regularly. His wife, however, frequently uses the bus to travel into Kamloops City Centre.

“Yes, my wife uses it often. Yeah, because it stops right outside my house, so it’s already there. And I don’t use it because I go to the rink and I’ve got a bag to carry.” (S)

Interviewees A, C, E, I, K, N, Q, and T seem to be pre-contemplative about using transit. E and I spoke about their children using transit in the city, but made no comments about intending to use transit themselves. I indicated that she would like to see the transit system improved to support her son, who is mentally disabled.

“I would like to see later buses in the evening for people with disabilities. Like my son is disabled, and it would be nice if people who are disabled had alternatives. Like if they went to a show, their parents didn’t have to take them necessarily. There could be a bus that would take them later. Evening transit service is especially inadequate for people with disabilities. If there is one thing that I could emphasize, it’s the disability issues in this city, and the buses to support people with disabilities.” (I)

5.4.4.3 Transit – Cycling Interface

Four interviewees specifically commented on and expressed encouragement for bike racks on buses in Kamloops.

U expressed interest in using transit to access recreational cycling opportunities outside of the city.
“But I like the idea here, where you can take your bicycle and sort of mount it on the bus, and then get way out there and go cycling. I’d like to do that. It’s a neat option.” (U)

A, C and L see the bike racks on buses as an opportunity to overcome the hill barrier to cycling.

“If you’re dressed up and you have your work clothes on, you have over half an hour ride vertically up hill. But, you can put your bike on the bus, and some of the buses will get you so far.” (C)

“Buses do have bike racks on them, so you could bike down the hill and hitch a bus ride up the hill.” (A)

“It’s nice to know you could ride to work but still take a bus home and take your bike home with you. Or you could do it part way – let’s say you weren’t good enough to make it all the way home.” (L)

### 5.4.5 Driving in Kamloops

The results of the background analysis and the survey analysis show that, by far, driving is the most widely used form of transportation in the city. As seen in the previous sections on walking, cycling and transit, respondents’ motivation for driving is essentially rooted in its convenience compared to the other modes of transportation. Certain factors that motivate individuals to use alternative modes also play a role in their driving behaviour. In this regard, a number of interviewees made reference to trip chaining in order to save time, to save money on fuel, or due to environmental considerations.

“Down by Duffy’s Pub and Canadian Tire there’s a little produce place and a decent butcher and a little bakery. I’m starting to use those more and more and more. It’s right on my way home (from work) in my vehicle. It’s nice because it’s convenient.” (C)
“I always think of where I’m going and try not to have to drive in different directions.” (F)

“What I try to do is not go shopping every day. I try to go when I have to go up the hill for my optometrist or my doctor. I try to tie it into doing several things so that I’m not going back and forth and wasting gas. Mind you, my little car now is economical.” (R)

“I stop at Cooper’s in Valleyview on my way home (from work). I just have to be a little more organized with my shopping lists, but it’s not an issue.” (T)

“If I’m doing errands in the city I will try to double up. For example, there’s so much cutting and pruning going on around here with these trees and shrubs that you’re constantly going to the compost. Well, I’ll try to double up and try to go out to do something recreational – go out to Tranquille and do a compost run, or go out to Stake Lake and go to the compost. You try to work it into your transportation so that you’re not making all these trips all the time.” (U)

5.4.6 Aging in Kamloops

This final section of interview analysis stems from the central issue uncovered in the background analysis: Kamloops is facing a drastic increase in median age over the coming decades. Due to the potential sensitivity of the subject, there were no specific interview questions about the implications of aging on travel behaviour; however, a number of interviewees volunteered commentary about transportation issues related to aging.

Interviewee H, in her discussion about Kamloops pedestrian environment, mentioned the walkability issues for the elderly. Her concern is that the current pedestrian environment outside of the downtown area is not comfortable as an able-bodied adult, and this issue will be exacerbated as she ages. She specifically references the width of Kamloops’ arterial streets, and says that walking across these streets is an issue for elderly people.
Three of the interviewees, J, M, and O, made similar comments about the idea that they will not be able to drive forever. None of them currently use transit on a regular basis, and all indicated that transit is too inconvenient to be a feasible travel mode. However, they each stated that, when they are no longer able to drive, they will take the bus.

“If I get old and crotchety, it might be that I take the bus.” (J)

“If I got to the stage where I couldn’t drive, I would definitely be using the bus.” (M)

“I want to drive most of the time. But there might come a time when I won’t be able to drive. Then, I’ll certainly take the bus.” (O)

Interviewee R expressed concern over her quality of life if she is ever to lose her driver’s licence. She also expresses discontent with the way in which the British Columbia government handles senior drivers. In BC, seniors must renew their driver’s licence every two years after they turn 80.

“All being well, I hope to be driving for several more years. I’ve only got four years to go before I’m 80, and then they get really tough on drivers... or senior drivers. The government: their method for testing the elderly is almost criminal. These poor old seniors who have no computer experience, and they’re testing them on computers for gosh sakes. I’m not quite sure what I would do if I ever lost my licence, but I’m not going to worry about it at this point in time.

My new neighbour – she just moved in a year ago – and she lost her licence because she’s got balance problems and also she didn’t feel safe driving anymore. So she feels trapped in here sometimes.” (R)

On a final note, the background analysis in Section 2 shows that as Kamloops’ population ages, the day-long travel demand curve will exhibit less morning and afternoon peaking, and more activity during the midday. It was hypothesized that this trend is due to retirement allowing for more flexible travel and scheduling throughout the day. The retired interview participants affirmed this finding, as they all reported
participating in daytime activities, such as volunteering, shopping, attending appointments and socializing.

5.5 Chapter Summary and Conclusions from the Kamloops Case Study

The City of Kamloops is a midsize centre city, with a population of 86,000 residents. Consistent with its midsize city cohort, travel behaviour in the city is very automobile-centric, with approximately 86% of trips made in personal vehicles. Similar to its midsize centre peers, when alternative modes are used in Kamloops, its residents have a much higher propensity for using active modes than public transportation.

Looking to the future, the City of Kamloops is facing a sharp increase in the median age of its population, and this demographic change could lead to a number of challenges and opportunities around transportation sustainability. Should current behaviour persist into the future, the city will see a flattening of the daily transportation demand, as seniors will be more prone to travel outside of the peak work travel hours. However, if the status quo continues, these baby boomers will be reluctant to seek alternatives to their personal automobiles. Given that increased automobile use in the City of Kamloops is unsustainable across all three metrics of sustainability: environment, equity and economics, the goal of this case study has been to understand what Kamloops may do to support its aging residents and to affect sustainable transportation behaviour.

The hypothesis of this research project is that midsize cities require unique transportation and land use policies which respect the context of midsize cities. Though the findings of this Kamloops case study do not necessarily extrapolate to represent all midsize centre cities, they certainly show that Kamloops residents have self-selected to live in Kamloops to obtain a particular quality of life. Though only a small subset of Kamloops residents have been consulted, there is a substantial amount of consistency in what residents report to value about their city.
Of the five characteristics that Kamloops interviewees reported to appreciate about the city, the top four are characteristics are inherently integrated with urban policy: balance of city size and amenities, accessibility, recreation and sense of community. The fifth characteristic, existing climate, may be viewed as one of Kamloops’ natural assets and an input to policy, but not a direct policy outcome. In order for sustainable transportation policy to be effective in Kamloops, it should respect these characteristics that residents value about their city.

Results of the survey show that, compared to existing behaviour, there are substantial markets for active transportation use in Kamloops. As would be expected, willingness to walk and cycle decreases with distance, and residents are willing to walk farther to access employment than to access groceries. Amongst Kamloops adults, the market for walking is roughly double the market for cycling, and though seniors are more likely to walk shorter distances than their younger counterparts, they are approximately half as likely to cycle any distance. Demand varies according to the season, however walking maintains much higher traction throughout the winter than cycling – demand for wintertime cycling is relatively negligible according to the survey results.

Regardless, the survey results show that there is plenty of untapped active transportation demand in Kamloops. The interview results, then, help to explain how the city may realize this demand. Of respondents who do currently walk and cycle, their motivation stems from desire to exercise, cost savings, environmental consciousness, and sheer enjoyment of walking or cycling. Amongst respondents who do not currently walk or cycle, feeling unsafe was reported as the top barrier to active mode use. Hills in the city were also deemed to be a barrier to both walking and cycling, but more so to cycling. Further, limited physical ability is an important active transportation barrier to keep in perspective and to invest resources in, particularly with Kamloops’ imminent aging population.

Demand for public transit, in Kamloops appears to lag behind demand for active transportation; however, the demand for public transit is strongly dictated by the level of transit service that is offered. Most residents do not use transit, and according to the
interview respondents, many see it as a last resort to meet their travel needs. Given that one of the reported virtues of living in Kamloops is easy and time-efficient vehicle access to any place in the city, it is no surprise that residents have low tolerance for longer transit wait and travel times.

With that said, as the baby boomers in Kamloops continue to age, public transportation will come under considerably more pressure to provide accessibility and quality of life to an elderly population. Although the aging of the population provides will be a challenge for the city, it is also an opportunity to enhance the travel choice set of all Kamloops residents, and to develop a more equitable and sustainable transportation system. In order to do this, however, the status quo of transit service in Kamloops will not be enough. The city must be creative and innovative in providing high-quality and cost-effective transit service, which meets the convenience demands of residents such that it is competitive with the personal vehicle.
6 Town of Milton Case Study

This chapter provides an outline of the work completed to date for the Milton case study. The interviews with Milton residents are left for future work, and as such, this case study chapter documents the case study sequence up to the analysis of the survey results. As with the previous chapter, this chapter is organized in the order of the case study process described in Chapter 4. First, is a brief profile of the Town of Milton. Second, is a review of the background data, which is drawn from the 2006 Transportation Tomorrow Survey and the 2011 GO Rail Passenger Survey. Third, are the results of the transportation and neighbourhood amenities survey, which was issued in Milton in the summer of 2013. Last, is a preliminary summary of the Milton findings.

6.1 Milton Profile

The Town of Milton is a midsize satellite city located within the Greater Toronto and Hamilton Area. It is the fastest growing community in Ontario, with over 56% population growth in the five years between 2006 and 2011. Milton has a 2011 population of approximately 84,000 residents and is ranked 62nd nationally in population size (Statistics Canada, 2012).
The median age in Milton is 34.1 years, and the age profile of Milton residents is indicative of a large number of young families. The most populous age cohorts are 0-4 years, 30-34 years and 35-39 years, as shown in Figure 19 (Statistics Canada, 2012). The senior population in Milton makes up only 7.2 percent of the town’s total population. As the population of Milton has continued to grow, the median age in the town has decreased. Between 2001 and 2011, the median age dropped from 38.3 to 34.1 (Town of Milton, 2012).

Figure 18 – Town of Milton Location (ArcGIS, 2013)
In 2006, the 31% of Milton’s employed labour force worked within Milton, a further 13% worked within Halton Region but outside of Milton, and the remaining 56% of the employed labour force worked outside of Halton Region, largely in Peel Region, Mississauga or Toronto (Statistics Canada, 2012). Major employers in Milton are:

- Karmax Heavy Stamping – 950 employees (auto manufacturing),
- Manheim Auto Auctions Company – 750 employees (auto wholesale),
- Sobeys Milton Retail Support Centre – 500 employees (food distributor),
- Gordon Food Service Canada – 450 employees (food distributor),
- Modatek Systems – 400 employees (auto manufacturing),
- Monaghan Mushrooms – 400 employees (food production),
- Mohawk Racetrack & Slots – 350 employees (entertainment), and
- Corporation of The Town of Milton – 335 employees (government).

The remaining companies in the town employ less than 300 people each. (Town of Milton, 2012) As shown by the data, the town’s top employers are primarily grouped in the automobile and food distribution or production industries.

Average temperatures in Milton range from -7 degrees Celsius in winter months to 21 degrees Celsius in summer months (Eliassen, 2013). On average, the town sees 146 days with precipitation every year, which makes it the 32nd driest city in Canada (Environment Canada, 2012).
Residents of Milton have numerous travel alternatives to choose from. The town offers Milton Transit service for local trips, and GO Transit provides both bus and rail service for regional trips. The town has established bicycle and trail networks for non-motorized travel. For regional vehicle travel, Milton is closely connected to Highway 401 by two interchanges: Martin Street and James Snow Parkway, and is a short automobile trip from Highway 407, the region’s toll route. The town’s arterial road network forms a well-connected grid; however, the lower level road networks are circuitous and typical of post-war development.

6.2 Background Data Analysis

Two sources of data provide insight into the existing conditions in Milton: the Transportation Tomorrow Survey Data, provided by the University of Toronto, and the 2011 GO Passenger Survey Data, provided by Metrolinx.

6.2.1 Transportation Tomorrow Survey Analysis

The Transportation Tomorrow Survey (TTS) for the Greater Toronto and Hamilton Area provides a detailed outline of demographic characteristics and travel patterns in Milton for the year 2006. Unfortunately, due to Milton’s extreme growth between 2006 and 2011, this information is slightly outdated; however, it serves to provide a general picture of travel patterns in the town, which likely continue to hold. The TTS has been conducted every 5 years since 1986 (UofT DMG, 2010). Although, a 2011 edition of the survey has been completed, its data are not currently available.

The 2006 employment distribution of Milton residents, and the distribution of people employed in Milton is shown in Figure 20.
Roughly equivalent proportions of Milton residents were employed in Milton, and Peel Region, and the remaining third of the Milton labour force were employed predominantly in Toronto and Halton Region. The vast majority of people employed in Milton lived in Milton, and the remaining jobs were filled by people from Halton Region, Peel Region, Hamilton and Toronto. Where approximately half of the jobs in Milton were filled by Milton residents, only one third of Milton residents were employed in Milton.

As expected, work trip origins and destinations for Milton in 2006 follow the employment patterns. Figure 21 shows the distribution of work trip origins and destinations throughout the GTHA. There are approximately 50% more work trips made by Milton residents compared to the work trips destined for Milton employers.
Figure 21 – Milton Work Trip Origins and Destinations in 2006 (UofT DMG, 2006)

Over a 24 hour period in 2006, Milton residents made approximately 113,400 trips, of which 35% were work trips, 9% were school trips, 38% were home-based discretionary trips and 18% were non-home-based trips. 46% of all these trips were made within Milton. The following, Figure 22, shows the breakdown of these trips by mode of travel.
Throughout a given day in 2006, 90% of the trips made by Milton residents were auto-based trips. The remaining 10% of trips were divided between walking, cycling, GO transit, local transit and other modes. As a comparison, over a 24 hour period in 2006, City of Toronto residents made 53% of trips as auto drivers, 15% as auto passengers, 23% by local transit, 8% by walk or cycle, and 2% by other modes. A negligible percentage of the City of Toronto residents’ trips were made by GO train.

In the AM peak (6AM-9AM), Milton residents made approximately 26,800 trips, with 84% of those trips being by automobile, as shown in Figure 23. This trend shows that Milton commuters have slightly higher propensity to use other modes such as walking, cycling, Milton Transit and GO Rail. The 3% share trips made by GO Rail will be discussed in more detail in the subsequent sections.

**Figure 22 – 24 Hour Travel Mode Use in 2006 (UofT DMG, 2006)**
The comparative auto-dominance in Milton may be explained by some of the town’s household characteristics. These characteristics are shown in Figure 24, with the City of Toronto statistics for comparison. The average Milton household made 6.1 trips per day in 2006, whereas the average Toronto household made 4.9 trips per day.

Figure 23 – AM Peak Travel Mode Use in 2006 (UofT DMG, 2006)

Higher average trip rates in Milton are likely a result of households having more people and more workers than the average Toronto household. Higher automobile trip rates in Milton are likely a result of having more drivers per household, and almost one more vehicle per household than Toronto residents. However, it is possible that the

Figure 24 – Average Household Characteristics in 2006 (UofT DMG, 2006)
City of Toronto trip rates are artificially low because the TTS does not collect information about walk trips for non-work and non-school purposes. Additionally, 80% of work trips made by Toronto residents remain in Toronto and only 27% of work trips made by Milton residents remain in Milton. This trend points to the regional breadth of workplaces for Milton residents. It shows that, under these regional commuting conditions, local Milton transit, walking and cycling play a much smaller role in work travel for Milton residents.

6.2.2 2011 GO Rail Passenger Survey Data Analysis

The Rail Passenger Survey is a biennial survey completed by GO Transit, with the aim to monitor ridership, trends and customer behaviour (GO Transit, 2012). The survey data collected in 2011 targets travel destined for Union Station in Toronto. Information collected in the survey includes trip origins and destinations, access and egress modes, socio-demographic characteristics and passenger opinions. The former information provides quantitative data about passenger travel; the latter passenger opinions supplement the quantitative data with some qualitative information such as suggestions for GO Transit improvements or general feedback about service.

Inherently, the information from the 2011 Rail Passenger Survey (RPS) only pertains to the small sub-set of Milton residents who use the GO Rail service. As shown in the previous TTS data analysis, this represented approximately 2% of day long trips and 3% of morning peak trips made by Milton residents in 2006. However, given that GO Transit is an important component of regional travel and Milton residents are shown to have a high propensity for regional commuting, it is helpful to understand how Milton residents interact with GO service.

Within the 2011 RPS data, there are 224 entries from Milton residents who use GO Rail. Of these, 93% access the GO system through the Milton GO Station. The other 7% access GO Rail from Lisgar, Erindale, Dixie, Bronte, Oakville, and Port Credit. All of these 7% access the alternative GO stations via the automobile.
The Milton residents who access Milton GO Station use a number of different modes to access the station. The mode distribution is shown in Figure 25 and holds true for two different time periods: day long and AM peak. Access mode use is shown to be the same for both time periods due to the fact that 98% of respondents who accessed the station, did so in the AM peak period (6AM to 9AM).

![Mode Distribution Chart](image)

**Figure 25 – Milton Station GO Rail Access Mode Use (Day Long and AM Peak)**

*GO Transit, 2012*

The mode use for the AM peak period shown in Figure 25 corresponds to the same AM peak from the TTS data analysis in the previous section. The 2011 RPS data show that 87% of the Milton survey respondents accessing Milton GO Station do so in an automobile. The remaining 13% of respondents access the station by Milton Transit, walking, cycling, or other modes. When compared to total AM trips made by Milton residents, this mode distribution shows more than double the share of Milton Transit use. This indicates that Milton Transit and GO Transit are have compatible and overlapping markets, meaning that residents who are inclined to use regional transit tend to be more inclined to use local transit.

Given that demographics provide context for people’s travel choices, it is helpful to understand the predominant demographic characteristics of Milton’s GO Transit users. Of the 2011 RPS respondents, 88% are full-time employed and another 3% are part-
time employed. Another 3% of respondents are students and 2% are either unemployed or retired. The largest GO Rail user group are the employed, making up 91% of the total respondents. 54% of Milton’s RPS respondents are male and 46% are female, indicating a slightly higher propensity for GO Transit use amongst the male population.

The RPS also collected income and age information from respondents. Figure 26 shows user groups broken down by age and income.

![Milton GO Rail Users by Income and Age (GO Transit, 2012)](image)

**Figure 26 – Milton GO Rail Users by Income and Age (GO Transit, 2012)**

In terms of age, the largest GO Rail user group is the 35-44 year group, with almost double the users of any other age group. In terms of income, there are two large user segments; those with household incomes between $50,000 and $74,999, and between $100,000 and $124,999. As shown in the above figure, 20% of respondents chose not to disclose their income.

Looking at the interaction between age and income, it becomes clear that the largest share of users come from age groups that are most likely to be full-time employed: between 25 and 65 years old. The mid to high household incomes exhibited by the
majority of the RPS respondents are as expected, given that most respondents travel to downtown Toronto for work.

In the qualitative comments and opinions provide by Milton GO Rail users, there are a number of repeating trends. From a GO service perspective, many users mention wanting rail service on the Milton line outside of peak hours and many users request more frequent service on the Milton line. Other comments include a number of requests for wireless internet on the trains.

Analysis of the 2011 RPS provides context into how Milton users of the GO Rail system travel, and it points to the large majority of users destined for workplaces in Toronto. The TTS data, however, shows that only 14% of employed Milton residents work in Toronto. Of the remaining Milton workforce, 26% work in Mississauga and another 11% work outside of Milton in Halton Region. Given this, it is crucial to understand how the GO Transit network may better serve the needs of the broader segment of Milton’s regional commuters – not only those rail passengers destined for Toronto. This could be a combination of GO Bus and GO Rail serving destinations within Peel and Halton Regions.

### 6.3 Milton Transportation and Neighbourhood Amenities Survey

Based on the background analysis outlined in the previous section, and following a similar structure to the Kamloops survey, the Milton transportation and neighbourhood amenities survey was conducted in the early summer of 2013. The survey response rate was approximately 17%, yielding a total of 172 complete responses from the 1,000-person sample frame. Notably, over 47% of the survey respondents consented to being contacted for the follow-up interview phase, which is approximately 2.5 times greater than the assumed response rate.

The Milton survey was administered through Survey Monkey Pro, which is an online survey tool. Access to the professional-level Survey Monkey license was provided as an in-kind contribution from Metrolinx. Survey Monkey Pro is a substantial upgrade
from Google Forms. It allowed for a more efficient survey design, and removed the limitations around Likert-type questions, which affected the Kamloops survey design.

The survey focused on generating a deeper understanding of a number of the issues identified in the background analysis, and collecting information that is comparable to the results of the Kamloops survey. Given that the majority of Milton residents are employed outside of Milton, the questions about thresholds for walking and cycling to work were not included in the Milton survey. The Milton survey does, however, include the same questions as the Kamloops survey about understanding thresholds for walking and cycling for shopping trips. Replicating the Kamloops survey, amenity-related issues are explored through questions about the potential to incorporate more amenities into residents’ current neighbourhoods. Again, due to a lack of survey participation from post-secondary students, the data from the “travel to school portion” of the survey is not included in the analysis.

### 6.3.1 Workplace Locations

As shown in the background section, and as indicated by Milton’s satellite designation, the majority of the Milton labour force is employed outside of Milton. 77% of Milton survey respondents work outside of the Town of Milton. The largest share, 35%, of Milton’s labour force works in the City of Mississauga, and another 16% work in downtown Toronto. The distribution of workplaces is shown in Figure 27, below.
Analysis of the revealed travel to work responses is shown in the following chapter, which provides a comparison of Kamloops and Milton. However, note that 70% of respondents who work in downtown Toronto, commute by GO Rail, and 15% of respondents who work in Milton commute by active modes.

6.3.2Walking and Cycling

With the enhanced capabilities of Survey Monkey Pro, and based on lessons learned in the Kamloops survey, the Milton survey asked respondents about their thresholds for walking and cycling to grocery shop in each season. Recall that in the Kamloops survey, distance thresholds and seasonal variation for grocery shopping travel were examined through separate questions.

Figure 28, below, shows respondents’ seasonal thresholds for walking and cycling to grocery shop.
Figure 28 – Travel to Grocery Shop Analysis: (a) Stated Walk to Grocery Shopping Thresholds, (b) Stated Cycle to Grocery Shopping Thresholds

Stated propensity for walking to grocery shop in the spring, summer and fall, is approximately double that of the wintertime. 60% of survey respondents report that they would walk to the grocery store. As distance increases, the percentage of respondents willing to walk decreases. The same is true for cycling; however, only approximately 30% of respondents report that they would cycle to the grocery store, and propensity for wintertime cycling is roughly one quarter of the propensity for cycling in spring, summer and fall.
In Kamloops, respondents’ thresholds for active travel to work were shown to be higher than active travel for groceries due to the burden of carrying groceries home. Given this, it is likely that the thresholds shown in Figure 28 are a conservative proxy for active transportation propensity in general. It was previously shown that the existing day-long active mode share in the town is only 4%, and as such, there are clear gains to be made in terms of fulfilling the potential demand for walking and cycling trips. Although a large portion of the employment trips made by Milton residents are regional, there is room to increase active transportation use amongst the locally employed labour force, and to increase walking and cycling as transit access modes amongst the share of Milton residents who commute by regional transit.

6.3.3 Neighbourhood Amenities

Two different sets of neighbourhood amenity questions were posed to Milton residents, which are relatively similar to those in the Kamloops survey. These questions gauge respondents’ support for various transportation infrastructure modifications and amenities in their immediate neighbourhood. Again, the neighbourhood is defined as the area within 1km of a resident’s home. In the Milton survey an adjustment was made based on lessons learned from Kamloops, and a “not applicable” or “I already have this in my neighbourhood” option was added to the list of potential responses. This addition removes ambiguity around how respondents answered if they currently have these infrastructure or amenities in their neighbourhood.

Figure 29, below, shows levels of support for neighbourhood transportation infrastructure.
As in Kamloops, support for off-street bicycle trails and bicycle parking gained the highest amount of support from Milton survey respondents. The majority of Milton respondents also favour local transit improvements, and approximately half of the respondents favour more crosswalks and on-street bike lanes. Interestingly, more on-street parking and more road lanes were deemed to be more favourable than wider sidewalks or complete sidewalks.

Figure 30, below, shows levels of support for various neighbourhood amenities. Two charts are shown in this figure: (a) shows all of the responses, including those who indicate that they currently have an amenity in their neighbourhood, and (b) shows only the ranked responses to better display the hierarchy of support amongst those with amenity-deficient neighbourhoods.
Figure 30 – Support for Neighbourhood Amenities (a) All Responses (b) Applicable Responses
Figure 30 (a) shows that respondents have at least a 40% likelihood of having any of the amenities in their neighbourhood, with the exception of community gardening space.

A local farmer’s market, a restaurant or coffee shop, health care services, and a park or recreation space all received the most support from respondents. A neighbourhood sized grocery store, a bank or credit union, indoor recreation space, a community gardening space, and child care each also received support from the majority of the respondents without these in their neighbourhoods. The only two amenities that did not receive support from the majority are a pub or liquor store and a public school.

6.4 Preliminary Conclusions from the Milton Case Study

Milton is a midsize satellite within the GTHA, though as seen through analysis of residents’ employment locations, Milton is not necessarily a satellite to Toronto. The largest share of the Milton labour force is actually employed in the City of Mississauga, the second largest city within the GTA. This has different implications for Milton residents’ commuter travel, than it would if commuter travel demand were more concentrated within Toronto’s central business district. Given the large employment attraction to Mississauga, Milton’s commuter demand is not easily served by GO Transit, the downtown Toronto-focused regional transit network. Milton residents, as shown through the existing Milton travel mode shares, are challenged to find alternatives to the automobile for both local and regional trips.

In the aggregate, Milton’s transit and active commute mode shares are unimpressive compared to other cities in its midsize cohort. However, when respondents are clustered by employment destinations that are better-served by alternative travel infrastructure, alternative mode shares are significant. 70% of the surveyed commuters who travel from Milton to downtown Toronto use GO Rail, and 15% of the surveyed commuters who work within Milton walk or cycle. It is possible that the largest challenge Milton faces in terms of influencing sustainable commuter travel is the large variability in destinations.
From a local travel perspective, Milton survey respondents have indicated that there are significant active travel gains to be made in the town by mixing amenity, employment and residential land uses. There is also general support from Milton residents for improving the town’s off-street cycling network and local transit service. Support for road widening and more parking indicate that there may be a stronger automobile culture in Milton than in Kamloops, or that Milton residents feel captive to the automobile.

Interviews with a subset of survey respondents will seek to explore these issues in more depth. Interviews will aim to understand what residents of Milton like about their town, and what made them choose to live in Milton. They will also investigate motivation for using alternative travel modes in Milton, and barriers to using alternative modes for different travel purposes. It is hoped that the interview results will shed more light on some of the unique transportation opportunities and challenges in Milton.
7 Comparing Kamloops and Milton

This chapter serves to compare the survey results from Kamloops and Milton. Although in the previous chapter, some comparisons were made to highlight changes in the data collection method or lessons learned in Kamloops, which were then applied in Milton, this chapter involves a brief analysis of the travel characteristics in each municipality. The analysis in this chapter refers back to the midsize city classification findings from Chapter 3, and employs the survey results for each municipality to investigate differences in travel behaviour. First, the contexts of each municipality are reviewed as they relate to the midsize city classification analysis. Second, commute behaviour in each municipality is discussed. Third, local travel behaviour is analyzed, and finally, conclusions are presented.

7.1 Midsize City Context

According to the 2006 Statistics Canada data used for the midsize city classification analysis, Kamloops is a Centre City with 88% internal employment, 7% active commuters and 4% transit commuters. Milton, on the other hand is a Satellite Town with 31% internal employment, 3% active commuters and 6% transit commuters (Statistics Canada, 2006). Given that Milton saw substantial growth in the years between 2006 and 2011, it is quite possible that these employment location and commute behaviour statistics have changed since the 2006 census.

The survey results for Kamloops show a very similar but slightly higher internal employment ratio than the 2006 census. 92% of Kamloops survey respondents work within Kamloops, and 8% work beyond the city limits. The latter workplaces range from nearby mining sites to elsewhere in Canada. In Milton, the percentage of survey respondents who are employed within the town is lower than the 2006 percentage. Only 24% of employed survey respondents reported working within Milton. Of the remaining 76% who are employed outside of the town’s limits, the majority are employed in Mississauga, Downtown Toronto and elsewhere in the GTHA.
The functional difference between these centre and satellite municipalities is seen through vastly different personal transportation areas of influence. Where, on a daily basis, Milton residents travel region-wide, Kamloops residents are much more likely to remain within the Kamloops city limits. Only 46% of daily trips made by Milton residents are local trips, whereas over 99% of the daily trips made by Kamloops residents are local.

In the previous chapters, it is shown that both Kamloops and Milton are midsize municipalities, and thus, their current transportation systems and behaviour are very automobile centric. However, beyond their common population sizes and auto-centricity, each municipality has very different characteristics. Given the vastly different local and regional travel patterns that exist in each municipality, it is useful to compare more detailed travel characteristics to generate hypotheses about how regional function affects both local and regional travel behaviour.

7.2 Travel to Work Behaviour

Outside of the personal automobile, Kamloops residents have four main options for travelling to work: telecommute, cycle, walk and local transit. Milton residents, on the other hand, have additional choices, which include regional bus, regional rail and adjacent municipalities’ local transit service. Differences in commute mode use are shown below in Figure 31. These percentages do not represent mode shares; they represent the percentage of respondents who use any of the given modes in a typical week.
Milton respondents are over twice as likely to work from home as Kamloops respondents, which is a probable reflection of more effort being placed on transportation demand management in the GTHA and a result of the region’s staggering traffic congestion. This may also be a result of Milton having more knowledge economy workers than Kamloops. Working from home is likely much easier to facilitate through office work than in more resource-based occupations, in which employees are typically required to be on-site.

Kamloops respondents are nine times as likely to cycle during their commute, and 50% more likely to walk during their commute than Milton respondents. The Milton results in Figure 31 include the respondents who walk or cycle to access the GO Station, which reflects incorporating active modes into regional travel. Regardless, Kamloops respondents have a much higher inclination toward using active modes to access work.

Kamloops respondents are roughly four times more likely to commute by local transit, and they are exactly four times more likely to be locally employed. This indicates a fairly comparable propensity for local transit commuting in Kamloops and Milton.

Milton respondents are substantially more likely to work regionally, and thus, regional transit options are the most favoured commute alternative in Milton.
7.3 Local Travel Behaviour

Given the difference in local and regional employment contexts in these municipalities, it is difficult to draw any firm ‘local transportation culture’ conclusions by comparing commute behaviour in Kamloops and Milton. As such, the travel for grocery shopping data, obtained through the survey, are used as a proxy for local travel behaviour and travel culture in each municipality.

Figure 32, below, shows the distances between respondents’ homes and the nearest grocery stores. The bars represent the percentage of respondents living within the given distances from a grocery store. For every distance threshold up to 5km, there is a higher percentage of Milton respondents, which indicates that more Milton residents live in closer proximity to grocery stores than Kamloops residents. Where roughly 70% of Milton respondents live within 2km of a grocery store, only 50% of Kamloops respondents live within 2km of a grocery store.

![Figure 32 – Proximity to Grocery Store]

Though the results of Figure 32 show an interesting difference between Kamloops and Milton from an accessibility perspective, these results become even more interesting when coupled with respondents’ reported travel to grocery shopping modes. Figure 33
below, shows the percentage of respondents in each municipality who use alternative modes to access groceries.

![Bar chart showing percentage of respondents using different modes to access groceries in Kamloops and Milton.](image)

**Figure 33 – Typical Travel to Grocery Shopping Modes**

Though very few respondents in either municipality use transit to access groceries, Milton respondents are over twice as likely as Kamloops respondents to use transit for grocery shopping. When it comes to active modes, however, Kamloops respondents are roughly 75% more likely than Milton respondents to walk and cycle to access groceries.

In this vein, there is one additional set of data to compare: the stated walk and cycle thresholds for grocery shopping travel. Figure 34, below, illustrates the same information that was shown in each of the case studies. The baseline travel distance thresholds for Kamloops respondents are compared with the reported summertime distance thresholds for Milton respondents, in order to address seasonal variability.
Again, this comparison indicates that Kamloops residents are more inclined to use active modes to travel longer distances to access groceries.

7.4 Chapter Summary

In the midsize cities classification framework, commuter travel behaviour is shown to be a key distinguishing factor between centre and satellite municipalities. Specifically, residents of midsize centres are over twice as likely as residents of midsize satellites to commute by walking, and residents of midsize satellites are over 50% more likely than residents of midsize centres to commute by transit. However, from the city classification analysis there are many questions that remain about what unobserved variables cause the commute behaviour differences in centres and satellites.

The results of the brief comparative analysis in this chapter show a preference for active travel amongst Kamloops residents, which does not exist at the same level in Milton. Though Milton residents are slightly more inclined to use local transit to access groceries, there does not appear to be a local transit culture in Milton that is equivalent to the local active transportation culture in Kamloops. This validates the original assumptions from Chapter 3 about satellite municipalities being extremely dependent on regional transportation systems to support sustainable travel at the aggregate level.
Whether these findings translate to other midsize centres and satellites remains to be seen. It is possible that these local travel differences are specific to Kamloops and Milton. It has been shown that Kamloops residents value accessibility and recreation, and these values seem well-connected to the observed travel behaviour in the city. What is not clear is to what extent this finding would be consistent across the group of Canadian midsize centres. It is likely that a different set of values has drawn people to live in Milton, but in the same vein, it remains to be understood what these values are, and how consistent they would be across Canadian midsize satellites. The forthcoming Milton interview results will shed light on the values of its residents; however, future research must investigate additional midsize Canadian cities to understand how these findings translate to other cities in the midsize cohort.
8 Research and Policy Implications

This chapter presents the research and policy implications that have come out of this project, and references all of the work completed in the previous chapters. First, the general implications for midsize city policy and research are discussed, and second, some specific policy ideas are presented, which address the findings of the Kamloops case study. Policy ideas for Milton are left for future work – it is expected that the Milton interviews will be crucial to informing this discussion.

8.1 Midsize City Research and Policy Implications

The classification and analysis of Canadian cities from Chapter 3 clearly shows that municipal population size and regional context affect travel behaviour, and indicates that there is value in examining midsize cities from the municipal perspective rather than the more aggregated metropolitan area perspective. Although this is less of an issue for centres, which are most typically located outside of major urban regions, it is an important issue for satellites, which are often overshadowed by the larger centres in their regions. Much of the research to date has been focused on the issues in midsize metropolitan areas, but this work does not capture the local level of detail necessary to fully understand transportation planning issues.

The advantage of compiling local-level travel behaviour data is that this data may be aggregated and amalgamated to analyze the regional scale. This research project suggests that, moving forward, researchers employ municipal-level data in their work on understanding cities and city regions. This will ensure that local level granularity is retained and that municipal level characteristics may continue to be incorporated into our understanding of metropolitan issues.

8.2 Policy Implications for Kamloops

The review of the literature in Chapter 2 illustrates a number of social, environmental and economic vulnerabilities for midsize cities, and particularly midsize centres. Kamloops faces many challenges in terms of developing a sustainable transportation system, though; the city has some unique cultural edges, which, if leveraged, may
produce desirable travel behaviour outcomes. The remainder of this section summarizes the key Kamloops research findings, and then proposes a transportation policy vision for Kamloops based on these findings.

Qualitatively, it has been found that Kamloops residents:

- value high accessibility, and particularly, being able to access any part of the city within an approximate 15 minute time period,
- value recreation,
- are interested in walking and cycling more often,
- feel that busy roadways and hills are two primary barriers to walking and cycling, and see Columbia Street as the manifestation of both barriers,
- see transit as an opportunity to overcome the barrier of using active transportation to travel uphill,
- would be more likely to use transit if it were convenient, and
- use a personal vehicle because it is most convenient, or because they feel that there is no reasonable alternative.

The notion of 15-minute citywide accessibility is a key takeaway from the Kamloops interviews. Although residents typically associate high accessibility with the automobile, most did not attach the value to driving, but attached the value to the low time associated with travel. This is an important distinction to make.

Columbia Street, especially given that Kamloops residents have singled it out as an issue, presents an opportunity for the City of Kamloops to improve its transportation system. In terms of land use and transportation, the street runs through some of the most densely populated areas of the city, and forms part of the city’s densely gridded downtown street network. Columbia Street is one of the busiest arterial roads in Kamloops. It runs east/west through City Centre and connects Highways 5 and 97 in the South East Sector with Highways 5 and 97 in the South West sector. Between City Centre and the South West sector it negotiates a steep hill. Columbia Street is a viable route connecting many different origin and destination pairs in the city, including City
Centre / South West, City Centre / South East, and South West / South East, for example. The sector map is shown in Figure 35, and AM and PM trip tables aggregated to the sector level are appended at the end of this chapter in Figure 36, and Figure 37, respectively.

Figure 35 – Kamloops Sector Map (Synovate, 2008)

Daily traffic volumes on Columbia Street exceed 30,000 vehicles per day in the steep portion of the hill between the City Centre and South West sectors (City of Kamloops, 2013). There are currently at least seven different Kamloops Transit routes operating on Columbia Street, which all connect to different areas of the City Centre, South West and South East sectors. The current Kamloops Transit map is appended to the end of this chapter in Figure 38.

The findings of the Kamloops case study suggests that the city will gain from introducing some means of high frequency all day transit service operating on Columbia Street. This transit service must be marketed as and perform as a shuttle
within the 5km corridor of Columbia Street, with headways of approximately 5 minutes, or short enough that residents can depend on its arrival without consulting a schedule. Kamloops buses currently have racks for bicycles and it is imperative that this Columbia Street transit line has ample capacity for bicycles. The Columbia Street high frequency line would replace the sections of existing routes that operate on Columbia Street, and would allow these routes to feed into either end of Columbia Street, without traveling the length of the street.

In order to reap the full benefit of a Columbia Street transit line, the City must also continue to invest effort in its pedestrian and cycle infrastructure, and in creating streets that enhance the comfort and safety of all active transportation users.

A high-frequency Columbia Street transit line will:

- provide residents with a high degree of accessibility along a route which connects many of the city’s origins and destinations,
- create two key transit nodes at either end of Columbia Street, which will allow the city to shorten the length of other transit routes and, thus, also increase their frequency,
- provide opportunities to enhance land use mixture and density, and develop transit oriented land uses along the corridor,
- provide residents with a convenient and sustainable way to navigate the hill between the lower elevation area in the City Centre and the higher elevation area in the South West sector,
- provide pedestrians and cyclists with safe alternative to walking or cycling through the Columbia Street corridor,
- boost transit reliability along a key transportation spine and help improve the perception of transit in Kamloops,
- be a relatively low capital cost project compared to other potential transportation infrastructure projects,
• provide the city with an opportunity to test high frequency transit service for potential implementation along other heavily used transportation corridors like Tranquille Road, for example, and

• provide an opportunity to collect data about residents’ response to convenient and reliable transit service.

As with other midsize centres, active transportation has more commuter traction in Kamloops than transit does. Given the perceived convenience of transit service in Kamloops, this may not be a difficult-to-explain phenomenon, and may be closely tied to the level of transit service that is provided in midsize Canadian cities. Transit is expensive to operate, particularly in communities where ridership is low; however, when these communities are already investing in delivering transit service, adjusting and experimenting with transit service changes is a fairly low-cost endeavour. The City of Kamloops has a clear link in their transportation system that could benefit from higher-level transit service, and so, this is an opportunity for the city to make a bold change toward improving the sustainability of their transportation system.

![AM Peak Period Trip Table (Synovate, 2008)](image-url)

**Figure 36 – AM Peak Period Trip Table (Synovate, 2008)**
Figure 37 – PM Peak Period Trip Table (Synovate, 2008)
Figure 38 – Kamloops Transit Map (BC Transit, 2013)
9 Conclusions and Suggestions for Future Work

9.1 Conclusions

Previous to this work, there has been a small amount of research and policy attention paid to midsize cities; however, there is no consensus over the population size or geographic area used to define midsize cities. The existing research shows that there are differences between large and midsize cities in terms of demographic composition, built form and economics. The policy discussions have linked these differences to midsize city sustainability issues according to the triple bottom line definition of sustainability, which incorporates equity, environment and economics.

From the equity perspective, many midsize cities do not support equal quality of life across a diverse cross section of residents, and this is particularly true in terms of providing mobility choices for all incomes, ages and abilities. From the environmental perspective, midsize cities tend to be more dispersed and low-density, which causes undue demand for fossil fuels. From the economic perspective, midsize cities tend to be less diverse and more vulnerable to downturn, and compared to large cities, do not see the same economies of scale in providing infrastructure and social services.

Though the literature outlines a number of midsize city issues, it is difficult to discern what types and what sizes of cities these issues affect, when there is no common definition for midsize cities. In order to help move the midsize cities conversation forward, this research has involved developing a framework for classifying cities, and therefore, empirically defining cities in the midsize group by both population size and regional function. In this framework, cities are separated into centres and satellites, based on an internal employment threshold of 50%. Centres employ 50% or more of their labour force internally. Satellites employ less than 50% of their labour force internally. Cities are then classified by size and aggregate commuter travel behaviour into statistically significant groups.
The results show that over 37% of Canadians live in midsize cities, which are municipalities with populations between 50,000 and 550,000. On average, municipalities in the midsize group exhibit alternative commute mode shares of 14%. Due to the differences in employment destinations that exist between centers and satellites, however, use of alternative travel modes manifest in different ways. In centres, the alternative mode share is evenly divided between walking and transit at 7% walking and 7% transit. In satellites, the alternative mode share is heavily apportioned to transit at 3% walking and 11% transit.

While midsize satellite municipalities have a significant advantage in terms of regional transit infrastructure and transit commuting, their proportions of active commuting are significantly lower. Conversely, midsize centers have significantly higher shares of walk commuting, and exhibit lower amounts of transit commuting. The likelihood of center residents commuting by transit is substantially reduced when municipal populations fall below 250,000 – this population size appears to be the tipping point amongst Canadian centers, below which transit is reduced to a captive commute mode. Of all the categories of midsize cities, the midsize centers with populations between 100,000 and 250,000 residents have the most improvements to make in terms of sustainable commute behaviour.

Across all midsize cities there are key aggregate travel behaviour similarities, yet it is unclear exactly what unobserved factors affect these travel behaviour commonalities. The case study portion of this project employs both quantitative and qualitative research methods to explore the unobserved issues in two midsize cities: Kamloops, British Columbia, and Milton, Ontario. At the time of creating this document, only the survey data is available for comparison, as the Milton interviews have yet to be completed.

Comparing the survey results from Kamloops and Milton shows that, although substantial markets for local active transportation exist in each municipality, Kamloops survey respondents are more predisposed to using active modes for local travel. Whether this is trend is representative of a key difference between centres and satellites
remains to be seen, and thus, must be investigated through future work. In terms of
transportation infrastructure, survey results for both communities show general support
for off-street bicycle corridors and improved local transit service. In terms of
neighbourhood level amenities, survey results show support for incorporating more
amenities into neighbourhoods to reduce trip lengths and encourage active travel.

In general, Kamloops and Milton residents seem to be willing to embrace more
sustainable urban form and travel behaviour. Kamloops interview participants
expressed intuitive and rational opinions about adopting alternative modes of
transportation: the automobile is preferred because it is more convenient than transit,
and more convenient and safer than active modes. This puts the responsibility on the
municipal governments to deliver safer and more convenient alternatives to the
personal automobile. Where large cities have the benefit of traffic congestion to help
lower the convenience of automobile travel, midsize cities must develop alternatives
that compete with a citywide 15 minute auto travel time envelope.

A key finding of the Kamloops interview process is that the choice to live in Kamloops
seems to be strongly affected by people’s self-selection toward midsize cities.
Residents explained their preferences for cities that are not too big and not too small,
which provide a balance of amenities and accessibility, and offer recreation
opportunities. Kamloops residents specifically stated that they chose to sacrifice access
to certain large city amenities due to the trade-off of living in a smaller and less
congested environment. It is expected that the self-selection driver is slightly different
in Milton, and that people may elect to live in Milton specifically because they do not
want to live in a large city or are priced out of the large city; yet, they are not willing to
relinquish access to the large city amenities or employment. This will be investigated
through the Milton interviews.

Given that midsize city residents have self-selected to midsize cities, it is important
that transportation and land use policies fit the midsize city context. The automobile is
tough competition in midsize municipalities and municipal governments must deliver
sustainable transportation solutions that will provide residents with realistic
alternatives. When midsize municipalities elevate their alternative mode shares, they will be moving toward municipal transportation systems that are more equitable, more environmentally friendly and more economically efficient.

9.2 Suggestions for Future Work

This research has presented many opportunities for future work in the realm of midsize cities. Some suggestions are as follows:

- Completion of the empirical municipal classification analysis for other countries like the United States, or Australia, for example.
- Recalibration of the Canadian urban classification with future comprehensive census data.
- Enhance and test the Canadian urban classification process with other built form metrics such as transit coverage or transit efficiency, street grid density, bicycle lane coverage, and sidewalk coverage.
- Compare similar case studies of additional centre and satellite municipalities to discern commonalities amongst centres and commonalities amongst satellites, and to isolate additional characteristics that distinguish centres from satellites.
References


Clifton, Kelly Jean. 2001. Mobility strategies and provisioning activities of low-income households in Austin, Texas. Ph.D., The University of Texas at Austin.


Appendix A – Kamloops Case Study Materials
October 18, 2012

Dear «FirstName» «LastName»,

You have been randomly selected to participate in a transportation survey, which is part of a collaborative research project hosted by the City of Kamloops and developed at the University of Toronto. The goal of this research is to understand how you typically travel around Kamloops and to get your feedback about transportation in your community.

When the study is complete, a summary of the results will be posted on the Midsize Cities Project website for you to view. Rest assured, all of the information you provide in the survey will be grouped with others to ensure your anonymity. Ultimately, your anonymous responses will help Kamloops, and other cities like Kamloops, to develop effective transportation strategies for the future.

Please go to www.midsizocities.ca to find the survey and more information about the project. The survey itself should take you no longer than 15 minutes. At the start of the survey, you will be prompted for your four-digit identification number, which is provided at the top right corner of this letter.

If you do not have access to the web, please contact me (Erin Toop) at this local number: 250-374-8315, ext. 2258, and I will be happy to help you complete the survey over the phone.

Thank you in advance for taking the time to participate in this study. If you have any questions about this project, please do not hesitate to get in touch with me by phone or email.

On behalf of the research team,

Erin Toop, P.Eng.
MASc Candidate, University of Toronto
erin.toop@mail.utoronto.ca
250-374-8315 ext 2258

Dr. Eric J Miller
Professor, Civil Engineering
University of Toronto

Christopher Darwent, P.Eng.
Traffic and Transportation Engineer
City of Kamloops
October 31, 2012

Dear (FirstName LastName),

This is a reminder that you have been randomly selected to participate in a transportation survey, which is part of a collaborative research project hosted by the City of Kamloops and developed at the University of Toronto. The deadline to complete the survey is **November 15, 2012**.

When the project is complete, a summary of the results will be posted on the Midsize Cities Project website for you to view. All of the information you provide in the survey will be grouped with others to ensure your anonymity. Ultimately, your responses will help Kamloops, and other cities like Kamloops, to develop effective transportation strategies for the future.

Please go to [www.midsizedcities.ca](http://www.midsizedcities.ca) to find the survey and more information about the project. Note that you must type the above address into your web browser’s address bar – it will not appear in search results. The survey should take you no longer than 15 minutes. At the start, you will be prompted for your four-digit identification number, which is provided at the top right corner of this letter.

If you do not have access to the web, please contact me (Erin Toop) at this local number: 250-374-8315 ext. 2258, and I will be happy to help you complete the survey over the phone.

Thank you in advance for taking the time to participate in this study. If you have any questions about this project, please do not hesitate to get in touch with me by phone or email.

On behalf of the research team,

**Erin Toop, P.Eng.**
MASc Candidate, University of Toronto
erin.toop@mail.utoronto.ca
250-374-8315 ext 2258

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**Dr. Eric J Miller**
Professor, Civil Engineering
University of Toronto

**Christopher Darwent, P.Eng.**
Transportation Engineer
City of Kamloops
Kamloops Transport Survey

Welcome to the Kamloops Transport Survey.

Your participation in this study is completely voluntary, and you are free to withdraw at any time or to decline answering any questions that you are uncomfortable with. Your personal information will be kept confidential. When the results are reported, your responses will be grouped together with others to ensure anonymity.

At the end of this survey, you will be asked whether we may contact you to complete a follow-up interview. Our hope is to interview a number of survey participants to better understand your views about transportation and your community. As with the survey, there is no obligation to participate, but we would greatly appreciate the opportunity to include you in the interview process. All interviews will be conducted by me (Erin) in February and March of 2013.

A report of the results will be made available to you on the Midsize Cities Project website following the completion of study. The results will also be published in my MASc Thesis.

All the best, and thank you again for taking the time to complete this survey.

Erin Toop, P.Eng.
MASc Candidate, Civil Engineering

Instructions

At any point during the survey, you will have the option to go back and change your answers to previous questions. Your responses will not be recorded until the very end, when you hit the "Submit" button. Unfortunately, you may not save the form and come back to it. The survey must be completed in one session, so please allow yourself at least 15 minutes to respond.

Survey Identification Number *
To begin, please type the four-digit ID number (located in the top right hand corner of your recruitment letter) into the box below.

Access to Transportation

The Access to Transportation questions will help us to understand your daily transportation options.

Do you have a valid N or Class 5 driver's license?

- No
- Yes

How many vehicles does your household either lease or own?
This is the number of vehicles owned or leased by your household, which you would be able to drive on a typical day.

- None
- 1
Access to Transportation

Is your transit pass a U-Pass?
- No
- Yes
- Unsure

What is your employment status?
Please click on the category that best describes your employment status. If your status is not listed, please choose other and specify your status. You will be asked about your student status in the following section.
- Not employed
- Retired
- Working part time
- Working full time
- Other: [ ]

Employment Characteristics
**Where is your workplace located?**
If your location is not listed, please specify under ‘Other’.

- [ ] Downtown Kamloops
- [ ] Within the Kamloops city limits, but outside of downtown
- [ ] Outside of the Kamloops city limits
- [ ] Other: ___________________________

**Approximately how far is your workplace from your home?**
Please indicate the range below.

- [ ] Less than 1 km
- [ ] 1 km to less than 2 km
- [ ] 2 km to less than 3 km
- [ ] 3 km to less than 4 km
- [ ] 4 km to less than 5 km
- [ ] 5 km to less than 10 km
- [ ] 10 km to less than 15 km
- [ ] 15 km to less than 20 km
- [ ] More than 20 km
- [ ] I don't know / not applicable

**Do you think that your workplace is within reasonable walking distance of your home?**

- [ ] No
- [ ] Yes

**Do you think that your workplace is within reasonable cycling distance of your home?**

- [ ] No
- [ ] Yes

**Do you work for any of the following employers?**

- [ ] Interior Health Authority
- [ ] School District #73
- [ ] Thompson Rivers University
- [ ] Highland Valley Copper Mine
- [ ] New Gold Inc
- [ ] Domtar
- [ ] City of Kamloops
- [ ] Northern Trailer
- [ ] BC Lottery Corporation
- [ ] CN
- [ ] NRI-Distribution
In a typical week, which of the following best describe your work schedule?
Please check the box that best describes your work schedule, or describe your schedule under "Other".

- Rotating shifts
- Weekday nights
- Weekend nights
- Weekend daytime
- Standard business day (approximately 8AM to 5PM, Monday through Friday)
- Other: 

Travel to Work

In a typical week, how do you travel to and from work?
Please choose all that apply. If you travel in a way that is not listed, please specify under 'Other'.

- I drive myself
- I drive myself and one or more others
- Someone else drives me
- I take transit
- I walk
- I cycle
- I work from home
- Other: 

Walk to Work

In this section, imagine that your home or work locations are flexible. Please answer the following questions for each season to indicate how far you would be willing to walk for your work commute.

In the summer, what is the maximum distance you would be willing to walk to get to or from work?
The times shown in brackets are approximate.

- I would never walk to or from work in the summer
- Up to 500 m (6 minutes)
- Up to 1 km (12 minutes)
- Up to 1.5 km (18 minutes)
- Up to 2 km (24 minutes)
- Up to 2.5 km (30 minutes)
In the spring or fall, what is the maximum distance you would be willing to walk to get to or from work?
The times shown in brackets are approximate.

- I would never walk to or from work in the spring or fall
- Up to 500 m (6 minutes)
- Up to 1 km (12 minutes)
- Up to 1.5 km (18 minutes)
- Up to 2 km (24 minutes)
- Up to 2.5 km (30 minutes)
- Up to 3 km (36 minutes)
- Up to 4 km (48 minutes)
- Farther than 4 km (longer than 48 minutes)

In the winter, what is the maximum distance you would be willing to walk to get to or from work?
The times shown in brackets are approximate.

- I would never walk to or from work in the winter
- Up to 500 m (6 minutes)
- Up to 1 km (12 minutes)
- Up to 1.5 km (18 minutes)
- Up to 2 km (24 minutes)
- Up to 2.5 km (30 minutes)
- Up to 3 km (36 minutes)
- Up to 4 km (48 minutes)
- Farther than 4 km (longer than 48 minutes)

**Cycle to Work**

In this section, imagine that your home or work locations are flexible. Please answer the following questions for each season to indicate how far you would be willing to cycle for your work commute.

In the summer, what is the maximum distance you would be willing to cycle to get to or from work?
The times shown in brackets are approximate.

- I would never cycle to or from work in the summer
- Up to 1 km (5 minutes)
- Up to 2 km (9 minutes)
- Up to 3 km (14 minutes)
- Up to 4 km (18 minutes)
In the spring or fall, what is the maximum distance you would be willing to cycle to get to or from work?
The times shown in brackets are approximate.
- I would never cycle to or from work in the spring or fall
- Up to 1 km (5 minutes)
- Up to 2 km (9 minutes)
- Up to 3 km (14 minutes)
- Up to 4 km (18 minutes)
- Up to 5 km (23 minutes)
- Up to 10 km (45 minutes)
- Farther than 10 km (longer than 45 minutes)

In the winter, what is the maximum distance you would be willing to cycle to get to or from work?
The times shown in brackets are approximate.
- I would never cycle to or from work in the winter
- Up to 1 km (5 minutes)
- Up to 2 km (9 minutes)
- Up to 3 km (14 minutes)
- Up to 4 km (18 minutes)
- Up to 5 km (23 minutes)
- Up to 10 km (45 minutes)
- Farther than 10 km (longer than 45 minutes)

What is your student status?
Please click on the category that best describes your student status. If your status is not listed, please choose other and specify your status.
- Full time student
- Part time student
- Not a student
- Other: 

School Characteristics
What institution do you attend?
Please check the box beside your school. If your school is not listed, please specify under ‘Other’.
- Sprott Shaw Community College
- Thompson Rivers University
- A correspondence or distance education program
- Other: 

Approximately how far is your school from your home?
Please indicate the range below.
- Less than 1 km
- 1 km to less than 2 km
- 2 km to less than 3 km
- 3 km to less than 4 km
- 4 km to less than 5 km
- 5 km to less than 10 km
- 10 km to less than 15 km
- 15 km to less than 20 km
- More than 20 km
- I don’t know / not applicable

Do you think that your school is within reasonable walking distance from your home?
- No
- Yes

Do you think that your school is within reasonable cycling distance from your home?
- No
- Yes

Travel to School

In a typical school week, how do you travel to and from school?
Please choose all that apply. If you travel in a way that is not listed, please specify under ‘Other’.
- I drive myself
- I drive myself and one or more others
- Someone else drives me
- I take transit
- I walk

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Walk to School

In this section, imagine that your home or school locations are flexible. Please answer the following questions for each season to indicate how far you would be willing to walk for your school commute.

In the spring or fall, what is the maximum distance you would be willing to walk to get to or from school?
The times shown in brackets are approximate.

☐ I would never walk to school in the spring or fall
☐ Up to 500 m (6 minutes)
☐ Up to 1 km (12 minutes)
☐ Up to 1.5 km (18 minutes)
☐ Up to 2 km (24 minutes)
☐ Up to 2.5 km (30 minutes)
☐ Up to 3 km (36 minutes)
☐ Up to 4 km (48 minutes)
☐ Farther than 4 km (longer than 48 minutes)

In the winter, what is the maximum distance you would be willing to walk to get to or from school?
The times shown in brackets are approximate.

☐ I would never walk to school in the winter
☐ Up to 500 m (6 minutes)
☐ Up to 1 km (12 minutes)
☐ Up to 1.5 km (18 minutes)
☐ Up to 2 km (24 minutes)
☐ Up to 2.5 km (30 minutes)
☐ Up to 3 km (36 minutes)
☐ Up to 4 km (48 minutes)
☐ Farther than 4 km (longer than 48 minutes)

Cycle to School

In this section, imagine that your home or school locations are flexible. Please answer the following questions for each season to indicate how far you would be willing to cycle for your school commute.

In the spring or fall, what is the maximum distance you would be willing to cycle to get to or from school?
The times shown in brackets are approximate.
I would never cycle to school in the spring or fall
I would never cycle to school in the winter

In the winter, what is the maximum distance you would be willing to cycle to get to or from school?
The times shown in brackets are approximate.

Travel for Grocery Shopping
For the Travel for Shopping questions, we would like to focus on regular shopping trips. i.e. trips to buy groceries and other household necessities that must be purchased on a regular basis.

Approximately how far from your home is the nearest grocery store?
Please indicate the range below.

Do you think that this grocery store is within reasonable walking distance from your home?

Do you think that this grocery store is within reasonable cycling distance from your home?
In a typical week, how do you travel for grocery shopping trips?
Please choose all that apply. If you travel in a way that is not listed, please specify under 'Other'.

☐ I drive myself
☐ I drive myself and another / others
☐ Someone else drives me
☐ I take transit
☐ I walk
☐ I cycle
☐ Someone else shops for me
☐ Other: 

How far would you be willing to walk for shopping trips?
The times shown in brackets are approximate.

☐ I would never walk to go shopping
☐ Up to 500 m (6 minutes)
☐ Up to 1 km (12 minutes)
☐ Up to 1.5 km (18 minutes)
☐ Up to 2 km (24 minutes)
☐ Up to 2.5 km (30 minutes)
☐ Up to 3 km (36 minutes)
☐ Up to 4 km (48 minutes)
☐ Farther than 4 km (longer than 48 minutes)

If there was a grocery store offering competitive prices and quality within 1 kilometer of your home, how often would you walk there for your shopping trips?

<table>
<thead>
<tr>
<th></th>
<th>1 - Never</th>
<th>2</th>
<th>3 - Sometimes</th>
<th>4</th>
<th>5 - Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the Spring or Fall</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>In the Summer</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>In the Winter</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

How far would you be willing to cycle for shopping trips?
The times shown in brackets are approximate.

☐ I would never ride my bike to go shopping
☐ Up to 1 km (5 minutes)
☐ Up to 2 km (9 minutes)
☐ Up to 3 km (13 minutes)
☐ Up to 4 km (18 minutes)
If there was a grocery store offering competitive prices and quality within 2 kilometers of your home, how often would you cycle there for your shopping trips?

<table>
<thead>
<tr>
<th></th>
<th>1 - Never</th>
<th>2</th>
<th>3 - Sometimes</th>
<th>4</th>
<th>5 - Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the Spring or Fall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In the Summer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In the Winter</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Neighbourhood Amenities

In this set of questions, we would like to know whether you would support any improvements to the neighbourhood that you live in. There is space at the end of each question for you to tell us more about what you may like to see in your neighbourhood.

Would you be supportive of the following transportation modifications or additions in your neighbourhood? Consider your neighbourhood as the area within 1 km around your home.

<table>
<thead>
<tr>
<th></th>
<th>1 - Never</th>
<th>2</th>
<th>3 - Maybe, with more information</th>
<th>4</th>
<th>5 - Absolutely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wider sidewalks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More crosswalks and pedestrian crossings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bike lanes (on the street)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bike trails (off the street)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bike parking racks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More frequent bus service</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improved bus stops</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More on-street parking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More traffic lanes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Are there any modifications, not mentioned above, which you would like to see in your neighbourhood?

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https://docs.google.com/spreadsheet/gform?key=0AiX2dDmtrcqdhNOCfKfREhrR3o3S1VWplpQcm...
Would you support the addition of the following amenities in your neighbourhood?
Consider your neighbourhood as the area within 1 km around your home.

<table>
<thead>
<tr>
<th>Amenity</th>
<th>1 - Never</th>
<th>2</th>
<th>3 - Maybe, with more information</th>
<th>4</th>
<th>5 - Absolutely</th>
</tr>
</thead>
<tbody>
<tr>
<td>A neighbourhood sized grocery store</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A local farmer's market</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A restaurant or coffee shop</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health care services</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A bank or credit union</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More park space</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A public school</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A pub or liquor store</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child Care</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A recreation facility</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Are there any amenities, not mentioned above, which you would like to see in your neighbourhood?

Demographic Questions
In this final set of questions, we are simply asking you for some demographic information so that your responses can be grouped with others. All of this demographic information will be kept confidential.

What is your gender?
- Female
- Male
- Prefer not to say

What is your age as of December 31, 2012?
Please click on the category that includes your age.
- 18-24
- 25-34
- 35-44
How many people live in your household, including yourself?
Please click on the category that best describes your household size.

- 1
- 2
- 3
- 4
- 5
- 6 or more

How many dependents are there in your household?
A dependent is anyone who relies on you or others for support.

- None
- 1
- 2
- 3
- 4
- 5 or more

What type of home do you currently live in?
Please indicate the type of residence that you currently live in. If none apply, please click "Other" and specify.

- Single detached house
- Townhouse or row house
- Apartment or condo
- Duplex
- Mobile home
- Student Residence
- Other: [ ]

Do you own this home?

- No
- Yes
- Other: [ ]

What is your household's annual income? 144
Please click on the category that best describes your household's combined annual income in 2012.

- Less than $25,000
- $25,000 to less than $45,000
- $45,000 to less than $65,000
- $65,000 to less than $100,000
- $100,000 or more
- Prefer not to say

Follow-up Interviews

You are finished the survey. The final question is to let us know whether we may follow up with you for an interview. If you click yes, we will follow up with you in the coming months to explain the interview process and obtain your consent. Should you change your mind, you will be free to opt out of the interview at a later date.

Please do not forget to hit the "Submit" button at the bottom of the page when you are done.

Are you willing to participate in a follow-up interview in early 2013? *
If you answer yes, please also leave us your contact information below.

- Yes
- No

Email Address


Phone Number


Best time and day(s) to reach you


Sample Recruitment Email to Kamloops Interview Participants

Hello [First Name],

Thank you again for completing the Kamloops transportation survey in the fall. I am following up with you because you indicated that you would be willing to participate in an interview this winter and I would appreciate the opportunity to talk with you more about your survey responses.

Interviews should take 30 to 45 minutes, and I will record our discussion on a tape recorder so that I do not need to take notes while we are talking.

I am happy to meet you at your home to make this process as easy as possible for you. If you are uncomfortable with me coming to your home, then I will ask you to join me at the Urban Systems office (Suite 200-286 St Paul Street) during a weekday.

I will be conducting interviews between February 26th and March 11th (inclusive) and will plan to available between 8:00AM and 9:00PM on each of the days, including weekends. I will be scheduling interviews based on the order that I receive replies, and will do my best to accommodate your first choice of date and time.

If you are still willing and able to participate in an interview, please let me know your preferred dates, times and location. Again, I really appreciate your participation and would like to make this interview as convenient as possible for you, so feel free to make suggestions about how I may accommodate your schedule.

Thanks in advance,

Erin

Erin Toop, P.Eng.
MASc Candidate in Transportation Planning
University of Toronto
Consent Form
City of Kamloops Travel Behaviour Interviews

This form confirms that you consent to participating in this interview, which will take approximately 45 minutes of your time.

During this interview, I will be taking notes and using an audio recording device. The audio recording will remain completely confidential, and I (Erin Toop) am the only person who will be responsible for transcribing the information. Once all of the information is fully transcribed, the audio file will be destroyed.

Interview data will be kept in encrypted files on my computer, and only my supervising professor, Dr Eric Miller, and myself will have access to this information. Your anonymous responses will be provided to the City of Kamloops Transportation Engineering Department following the completion of this project, as your responses will be helpful in the city’s future transportation plans.

By signing this form, you are making a decision to participate. Your signature indicates that you understand the above information and are willing to participate in this interview.

If you have any questions or concerns following the interview, please do not hesitate to contact me at erin.toop@mail.utoronto.ca or 416-931-6484, and I will be happy to respond.

_____________________________________________  ________________
Signature of Participant                              Date
Interview Guide
City of Kamloops Travel Behaviour Interviews

To start off, I would like to understand what brought you to the City of Kamloops, and to this particular neighbourhood that you live in.

How long have you lived in Kamloops for?

What do you like about living in Kamloops?

What made you choose to live in the neighbourhood that you are currently in? How long have you lived in this neighbourhood?

What would you say you like best about your neighbourhood?

In your survey, you said that you would be (willingness to incorporate amenities and transportation improvements into neighbourhood). Let’s talk about the transportation improvements first:

Why would you (not) support (wider sidewalks, more pedestrian crossings, on street bike lanes, off street bike lanes, bike parking racks, more frequent bus service, improved bus stops, more on-street parking, more traffic lanes, additional suggestions)?

Why would you (not) support (local grocery store, local farmer’s market, a restaurant or coffee shop, health care services, a bank or credit union, more park space, a public school, a pub or liquor store, child care, a recreation facility, additional suggestions)?

Now I would like to move on to talking a bit about your transportation options.

You said that you (do/do not) have a valid driver’s license and (access/no access) to a vehicle. In your day-to-day life, how do you typically travel around the city?

You (do/do not) own a transit pass. What (made/would make) you purchase a monthly pass? What types of trips or reasons (do/would) you use transit for?

You (do/do not) own a bicycle. What sorts of trips or reasons (do / would) you use your bicycle for?

What would your ideal cycling route look like?

What sorts of trips or reasons do you walk for?

What would your ideal walking route look like?
Interview Guide  
City of Kamloops Travel Behaviour Interviews

In your survey, you said that you are (employment and school status). Tell me a bit about your typical weekday routine.

If employed:

Now I am going to ask you some questions about your (work) to understand more about where you regularly travel to.

Where do you work and what is your job?

How is it that you came to work at this location? How long have you worked there for?

In your survey you said that you primarily (travel to work mode) to work. How much time do you estimate that it takes you to travel to work?

Is there anything that would make you more likely to walk to work?

What are the some of the reasons that might prevent you from walking to work?

Is there anything that would make you more likely to bike to work?

What are the some of the reasons that might prevent you from biking to work?

What would have to change for you to consider riding transit to work?

This next set of questions is about shopping for groceries and household necessities.

How often do you typically need to go shopping for groceries and other household items?

Where do you usually shop? How far are these stores from your home?

In your survey, you said you (travel to shopping modes) to the grocery store. Could you explain why?

Is there bus service between your house and a grocery store? Have you ever taken the bus to go grocery shopping?
Interview Guide
City of Kamloops Travel Behaviour Interviews

You said that there (is/is not) a grocery store within walking distance of your home. Would you consider it a benefit to have a competitive place to shop within walking distance of your home?

What are some of the barriers that you think would stop you from walking to buy groceries? What about barriers to biking to buy groceries?

Is there anything that could be improved in your neighbourhood that would encourage you to walk to buy groceries?

We have talked about work, school and shopping. To finish, I would like to talk about other places you travel to, or other activities you travel for.

In a typical week what else do you do with your time?

What are the major activities/appointments/social gatherings that take you away from your home?

Where do you have to travel these activities?

What are the reasons you chose to visit those particular destinations to participate in these activities?
Appendix B – Milton Case Study Materials
June 12, 2013

Dear «FirstName» «LastName»,

We want your feedback about transportation in Milton. Our research at the University of Toronto is the first of its kind to investigate transportation in midsized cities and will greatly benefit from your perspective as a Milton resident. By participating in this research, you have an opportunity to help shape regional transportation policy. The findings from this study will be shared with Metrolinx (our regional transportation authority) and the Town of Milton.

Please go to www.midsizecities.ca to complete our survey and to find more information about our project. The survey should take you no longer than 10 minutes. At the start, you will be prompted for your four-digit identification number, which is provided at the top right corner of this letter.

When this project is complete, a summary of the results will be posted on the Midsize Cities Project website for you to view. All of the information you provide in the survey will be grouped with others to ensure your anonymity. Ultimately, your responses will help Milton and other midsize cities improve their transportation systems.

Thank you in advance for taking the time to participate in this study. If you have any questions about our research, please do not hesitate to get in touch with me (Erin) by phone or email – my contact information is below.

Sincerely,

Erin Toop, P.Eng.
MASc Candidate, University of Toronto
erin.toop@mail.utoronto.ca
416-931-6484

Dr. Eric J Miller
Professor, Civil Engineering
University of Toronto
Dear «FirstName» «LastName»,

This is a reminder that we want your feedback about transportation in Milton. Our research at the University of Toronto is the first of its kind to investigate transportation in midsized cities and will greatly benefit from your perspective as a Milton resident. By participating in this research, you have an opportunity to help shape regional transportation policy. The findings from this study will be shared with Metrolinx (our regional transportation authority) and the Town of Milton.

Please go to www.midsizecities.ca to complete our survey and to find more information about our project. The deadline to complete the survey is July 19, 2013 – it should take you no longer than 10 minutes. At the start, you will be prompted for your four-digit identification number, which is provided at the top right corner of this letter.

When this project is complete, a summary of the results will be posted on the Midsize Cities Project website for you to view. All of the information you provide in the survey will be grouped with others to ensure your anonymity. Ultimately, your responses will help Milton and other midsize cities improve their transportation systems.

Thank you in advance for taking the time to participate in this study. If you have any questions about our research, please do not hesitate to get in touch with me (Erin) by phone or email – my contact information is below.

Sincerely,

Erin Toop, P.Eng.
MASc Candidate, University of Toronto
erin.toop@mail.utoronto.ca
416-931-6484

Dr. Eric J Miller
Professor, Civil Engineering
University of Toronto
Welcome to the Milton Transportation Survey.

Your participation in this study is completely voluntary, and you are free to withdraw at any time or to decline answering any questions that you are uncomfortable with. Your personal information will be confidential. When the results are reported, your responses will be grouped together with others to ensure anonymity.

At the end of this survey, you will be asked whether we may contact you to complete a follow-up interview. Our hope is to interview a number of survey participants to better understand your views about transportation and your community. As with the survey, there is no obligation to participate, but we would greatly appreciate the opportunity to include you in the interview process. Interviews take roughly 20 minutes and will be conducted by me (Erin) in the summer of 2013.

All the best, and thank you again for taking the time to complete this survey.

Erin Toop, P.Eng.
MASc Candidate, Civil Engineering
University of Toronto

∗1. To begin, please type the four-digit ID number (located at the top right hand corner of your recruitment letter) into the box below.


2. Please also leave us your email address so that we may follow up with you we have any questions about your survey.


Access to Transportation

The access to transportation questions will help us to understand your daily transportation options.

3. Do you have an Ontario Class G driver's licence? (Class G is a regular motor vehicle licence)
   - No
   - Yes
   - Other (please specify)

4. How many usable motor vehicles does your household either lease or own?
   - None
   - 1
   - 2
   - 3
   - 4 or more

5. Do you own a bicycle that you think is acceptable for commuting?
   - Yes
   - No

6. Do you have a current transit pass? Click all that apply.
   - No
   - Milton Transit Pass
   - PRESTO Card
   - Other (please specify)
7. What is your employment status?
Please indicate only your employment status, we will ask you about your student status in the next set of questions.

- [ ] Not employed
- [ ] Retired
- [ ] Working part time
- [ ] Working full time

Other (please specify)
8. Where is your workplace located?

- Milton
- Burlington
- Halton Hills
- Oakville
- Guelph
- Brampton
- Mississauga
- Downtown Toronto

Other (please specify)

9. Which of the following best describes your work schedule in a typical week?

- Rotating shifts
- Standard business day (approximately 8AM-5PM, Monday-Friday)

Other (please specify)

10. In a typical week, how do you travel to and from work?

Please choose all that apply. If you travel in ways that are not listed, specify under "Other".

- I drive myself
- I drive myself and one or more others
- Someone else drives me
- I take Milton Transit
- I take the GO Bus
- I take the GO Train
- I cycle
- I walk
- I work from home

Other (please specify)
11. Are you a student?
Please click on the category that best describes your student status. If your status is not listed, choose other and specify.

- Full time student
- Part time student
- Not a student

Other (please specify)
12. What institution do you attend?

13. In a typical week, how do you travel to and from school? 
Please choose all that apply. If you travel in ways that are not listed, specify under "Other".

- I drive myself
- I drive myself and one or more others
- Someone else drives me
- I take Milton Transit
- I take the GO Bus
- I take the GO Train
- I cycle
- I walk
- I study from home

Other (please specify)
Grocery Shopping

In this section, we would like to focus on regular shopping trips. These are trips to buy groceries and other household necessities that must be purchased on a regular basis.

14. Approximately how far from your home is the nearest grocery store?

☐ Less than 500 m
☐ 500 m to less than 1 km
☐ 1 km to less than 2 km
☐ 2 km to less than 3 km
☐ 3 km to less than 4 km
☐ 4 km to less than 5 km
☐ More than 5 km

15. How often do you shop at this grocery store (the store nearest to your home) as opposed to other grocery stores?

☐ Always
☐ Often
☐ About half the time
☐ Infrequently
☐ Never

Other (please specify)

16. How do you typically travel for grocery shopping trips? Please choose all that apply. If you travel in ways that are not listed, specify under "Other".

☐ I drive myself
☐ I drive myself and one or more others
☐ Someone else drives me
☐ I take transit
☐ I walk
☐ I cycle
☐ Someone else shops for me

Other (please specify)

160
### 17. How far would you be willing to walk for regular grocery shopping trips?

<table>
<thead>
<tr>
<th></th>
<th>I would never walk to go shopping</th>
<th>Up to 500m (6 minutes)</th>
<th>Up to 1 km (12 minutes)</th>
<th>Up to 1.5 km (18 minutes)</th>
<th>Up to 2 km (24 minutes)</th>
<th>Up to 3 km (30 minutes)</th>
<th>Up to 4 km (48 minutes)</th>
<th>Farther than 4 km (more than 48 minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the spring</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>In the summer</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>In the fall</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>In the winter</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### 18. How far would you be willing to cycle for regular grocery shopping trips?

<table>
<thead>
<tr>
<th></th>
<th>I would never cycle to go shopping</th>
<th>Up to 1 km (5 minutes)</th>
<th>Up to 2 km (9 minutes)</th>
<th>Up to 3 km (13 minutes)</th>
<th>Up to 4 km (18 minutes)</th>
<th>Up to 5 km (23 minutes)</th>
<th>Farther than 5 km (more than 23 minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the spring</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In the summer</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>In the fall</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>In the winter</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
Neighbourhood Amenities

We would like to know whether you would support any modifications to the neighbourhood that you live in. Consider your neighbourhood to be the area within 1 km, or about a 10 minute walk, of your home.

19. Would you be supportive of the following transportation modifications or additions in your neighbourhood?

<table>
<thead>
<tr>
<th>Modification</th>
<th>Never</th>
<th>Not likely</th>
<th>Maybe</th>
<th>Probably</th>
<th>Definitely</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wider sidewalks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete sidewalks on both sides of the street</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More crosswalks and pedestrian crossings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bike lanes (on-street)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bike trails (off-street)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bike parking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More frequent local bus service</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improved bus stops</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More on-street car parking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More road lanes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Are there any modifications, not mentioned above, that you would like to see in your neighbourhood?
20. Would you support the addition of the following amenities in your neighbourhood?

<table>
<thead>
<tr>
<th>Amenities</th>
<th>Never</th>
<th>Not likely</th>
<th>Maybe</th>
<th>Probably</th>
<th>Definitely</th>
<th>I already have this in my neighbourhood</th>
</tr>
</thead>
<tbody>
<tr>
<td>A neighbourhood sized grocery store</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A local farmer's market</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A restaurant or coffee shop</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A pub or liquor store</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Health care services</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A bank or credit union</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A community gardening space</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Park or outdoor recreation space</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>An indoor recreation facility</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Child care</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A public school</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Are there any amenities, not mentioned above, that you would like to see in your neighbourhood?
Demographic Questions

In this final set of questions, we are simply asking you for some demographic information so that your responses can be grouped with others. All of this demographic information will be kept confidential.

21. What is your gender?
   - Female
   - Male
   - Other

22. What is your age as of December 31, 2013?
   - 18-24
   - 25-34
   - 35-44
   - 45-54
   - 55-64
   - 65-74
   - 75 and over

23. How many people live in your household including yourself?
   - 1
   - 2
   - 3
   - 4
   - 5
   - 6 or more

24. How many dependents are there in your household?
   A dependent is anyone who relies on you or others for support (i.e. children, elderly, disabled, etc).
   - None
   - 1
   - 2
   - 3
   - 4
   - 5 or more
25. What type of home do you currently live in?

- Single detached house
- Semi-detached house
- Townhouse or row house
- Apartment or condo
- Duplex

Other (please specify)

26. Do you own this home?

- No
- Yes

Other (please specify)

27. What is the combined annual income for your household?

- Less than $25,000
- $25,000 to $49,999
- $50,000 to $74,999
- $75,000 to $99,999
- $100,000 to $124,999
- $125,000 to $149,999
- $150,000 or more
- Prefer not to say
Interviews

You are finished with the survey. This final question is to let us know whether we may follow up with you for an interview. Interviews will be completed by me (Erin) either over the phone or in person, at whatever time is convenient for you.

28. May we follow up with you for an interview in summer 2013?

If you click yes, we may contact you via email in the coming months to explain the interview process and obtain consent. You will still be free to opt out of the interview at a later date.

☐ Yes
☐ No

29. If you clicked "yes" above, please leave us your contact information.

Email Address
Phone Number
Best Time to Reach You
Consent Form
Town of Milton Travel Behaviour Interviews

This form confirms that you consent to participating in this interview, which will take approximately 45 minutes of your time.

During this interview, I will be taking notes and using an audio recording device. The audio recording will remain completely confidential, and I (Erin Toop) am the only person who will be responsible for transcribing the information. Once all of the information is fully transcribed, the audio file will be destroyed.

Interview data will be kept in encrypted files on my computer, and only my supervising professor, Dr Eric Miller, and myself will have access to this information. Your anonymous responses will be provided to Metrolinx following the completion of this project, as your responses will be helpful in the region’s future transportation plans.

By signing this form, you are making a decision to participate. Your signature indicates that you understand the above information and are willing to participate in this interview.

If you have any questions or concerns following the interview, please do not hesitate to contact me at erin.toop@mail.utoronto.ca or 416-931-6484, and I will be happy to respond.

_________________________________________  _____________
Signature of Participant                        Date
Town of Milton Interview Guide

To start off, I would like to understand what brought you to the Town of Milton, and to this particular neighbourhood that you live in.
How long have you lived in Milton for?

What do you like best about living in Milton?

What made you choose to live in the neighbourhood that you are currently in? How long have you lived in this neighbourhood?

What would you say you like best about your neighbourhood?

How often do you travel into Toronto? What other cities in the region do you tend to travel to?

In your survey, you said that you would be (willingness to incorporate amenities and transportation improvements into neighbourhood). Let’s talk about the transportation improvements first:

Why would you (not) support (wider sidewalks, more pedestrian crossings, on street bike lanes, off street bike lanes, bike parking racks, more frequent bus service, improved bus stops, more on-street parking, more traffic lanes, additional suggestions)?

Why would you (not) support (local grocery store, local farmer's market, a restaurant or coffee shop, health care services, a bank or credit union, more park space, a public school, a pub or liquor store, child care, a recreation facility, additional suggestions)?

In your survey, you said that you are (employment and school status). Tell me a bit about your typical weekday routine.

If employed:
Now I am going to ask you some questions about your (work) to understand more about where you regularly travel to.

Where do you work and what is your job?

How is it that you came to work at this location? How long have you worked there for?
In your survey you said that you primarily (travel to work mode) to work. How much time do you estimate that it takes you to travel to work?
Is there anything that would make you more likely to walk to work?

What are the some of the reasons that might prevent you from walking to work?

Is there anything that would make you more likely to bike to work?

What are the some of the reasons that might prevent you from biking to work?

What would have to change for you to consider riding Milton Transit / GO Transit to work?

**This next set of questions is about shopping for groceries and household necessities.**

Where do you usually shop? How far are these stores from your home?

How often do you typically need to go shopping for groceries and other household items?

In your survey, you said you (travel to shopping modes) to the grocery store. Could you explain why?

You said that there (is/is not) a grocery store within walking distance of your home. Would you consider it a benefit to have a competitive place to shop within walking distance of your home?

What are some of the barriers that you think would stop you from walking to buy groceries? What about barriers to biking to buy groceries?

Is there anything that could be improved in your neighbourhood that would encourage you to walk to buy groceries?

**To finish, I would like to talk about other places you travel to, or other activities you travel for.**

In a typical week what else do you do with your time?

What are the major activities/appointments/social gatherings that take you away from your home?

Where do you have to travel these activities?

What are the reasons you chose to visit those particular destinations to participate in these activities?