Planning Towards Prosperity: How Transit Affects the Educational Trajectories of Students

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LIST OF ACRONYMS

AST	Active School Travel
DRT	Durham Region Transit
GGH	Greater Golden Horseshoe
GTA	Greater Toronto Area
GTHA	Greater Toronto and Hamilton Area
HOT	High-Occupancy Toll
HOV	High-Occupancy Vehicle
HSR	Hamilton Street Railway
HST	Harmonized Sales Tax
LIM-AT	Low-Income After Tax
LRT	Light Rail Transit
MES	Master in Environmental Studies
NIA	Neighbourhood Improvement Area
OCAD	Ontario College of Art and Design
QEW	Queen Elizabeth Way
RER	Regional Express Rail
SPLIT	Subsidized Passes for Low Income Transit
TTC	Toronto Transit Commission
TTS	Transportation Tomorrow Survey
UOIT	University of Ontario Institute of Technology
UTM	University of Toronto-Mississauga
YRT	York Region Transit

ABSTRACT

This Major Paper examines the role access to affordable transportation plays in the education choices of secondary and post-secondary students in the Greater Toronto and Hamilton Area (GTHA). The advancement of the GTHA is dependent on the evolution of technology and urban infrastructure, the expansion and improvement of transportation and transit options are crucial to the prosperity of students and educational institutions. Using a transit equity and justice perspective, the main objective of this Major Paper is to understand the systematic inequalities of the unequal distribution and operation of transit infrastructure. Research involves the assessment of Metrolinx's Regional Transportation Plan – The Big Move, data from the StudentMoveTO survey and a focus group conducted with grade 12 students to understand the barriers and challenges student commuters face.

FOREWORD

This Major Paper signifies the culmination of my Masters in Environmental Studies (MES) degree with a specialization in the Urban and Regional Planning Stream. My studies in the MES program have contributed to the three components of my Area of Concentration: urban infrastructure, transportation planning, and transit equity. Through researching for this Major Paper I have been able to synthesize my learning objectives as they related to my Plan of Study. This research contributes to my understanding urban infrastructures with regards to distribution patterns of infrastructures (Learning Objective 1.1). It explores the political factors that impact urban infrastructure (Learning Objective 2.3). Finally, because this research attempts to identify strategies for addressing transit inequities, I learned about local transit agency initiatives to discount transit fares (Learning Objective 3.2). This Major Paper has significantly contributed to my acquiring and producing knowledge of transit inequities and I hope I have made a contribution to the existing work of Jean-Paul Addie, Roger Keil, Sean Hertel and Douglas Young.

ACKNOWLEDGMENTS

I would like to express my gratitude to my support team for the huge role they have played in caring for my daughters, Sabra-Averie and Gabrielle so that I could focus on my education to provide a better life for my children. To my father, there's no doubt that I've always been the most difficult child but I have now come to appreciate the values that you have instilled in me. To my praying mother, you have brought a blessing upon your child which shall control her life and lead to her salvation (1 Samuel 1:27). I am deeply appreciative of my three sisters who have been an ear to listen and a shoulder to cry on through my educational journey.

My incredible supervisor Roger Keil, deserves much praise for his guidance, wisdom and encouragement. Since taking Urban and Regional Infrastructures, my interest of the urban space began to grow and has brought me to the MES Program. Thank you for your inspiration.

Thank you to the secondary school students that participated in my focus group, I couldn't do it without your valuable contribution.

Lastly, I would like to thank my two princesses for pardoning me from playing dolls and dress up so that I can do my homework, I did it all for you two.

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INTRODUCTION

This paper explores transportation and education in the Toronto region as it relates to limited student mobility that is cause by systematic inequities. As urbanization continues to expand the built form, it is vital that society explores equitable solutions to transportation planning that include all members of society. Bullard (2004) states that transportation plays a role in shaping human interaction, economic mobility and sustainability. Creating equity in transit requires investment in areas of disenfranchisement to allow for access to education, employment and services. StudentMoveTO was an initiative and a survey launched in the fall of 2015 to identify student needs and opinions on transportation from Toronto's four universities – York University, Ryerson University, University of Toronto and OCAD University. The data collected by StudentMoveTO captures student travel patterns within the GTHA and will be used in this paper to illustrate through maps and tables the transit inequities that exist within the region as it pertains to the student experience. "The vitality and success of the universities in the Toronto region depends on options for students to reach campuses effectively at all hours of the day so that they can take advantage of opportunities and meet demands of campus life" (StudentMoveTO, 2015).

Study Context

This study focuses on the Greater Toronto and Hamilton Area (GTHA), an urbanized region in Ontario, Canada, consisting of 26 municipalities, cities and towns: single-tier municipalities of Toronto and Hamilton, the regional municipalities of York, Durham, Peel, and Halton, and the cities and towns within the GTHA regional municipalities (see Figure 1). Eight transit agencies serve the GTHA through a network of buses as well as a regional commuter rail service (GO Train) and a

central subway system and streetcar network operated by the Toronto Transit Commission (TTC). For the purpose of this study, the City of Toronto will be divided into two geographical areas – the "in-between" city, which are the postwar suburbs, and the urban core.

The 2016 population of the Greater Toronto and Hamilton Area (GTHA) was 6,954,433, or 19.8% of Canada's population (City of Toronto, 2017). Recognized as the largest urban region in Canada it serves as a financial and commercial hub of the nation and is attracting professional and skilled workers from beyond its boundaries. Illustrating the need for a cohesive regional transit system for the purpose of global city competitiveness.

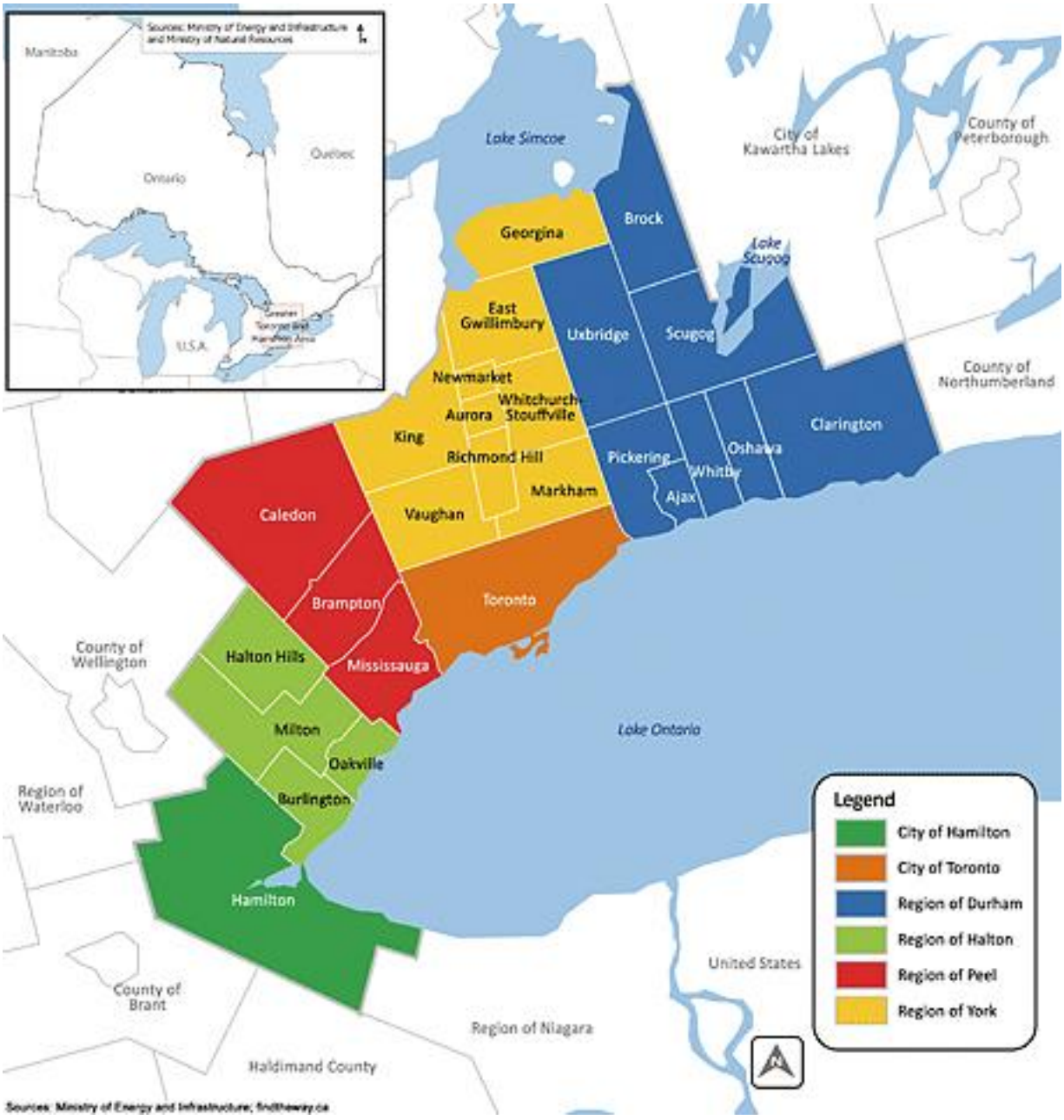

Figure 1. Map of the Greater Toronto and Hamilton Area (Source: Ministry of Energy and Infrastructure)

Research Objectives and Methodology

In this research paper, I will investigate the ways in which the lack of transportation infrastructure has affected the transit experiences of university students within the Greater Toronto and Hamilton Area (GTHA). Student mobility is an important issue to study as it often echoes the bigger

issues of commuting – congestion, pollution and the infrastructure gap – within the region. Additionally, transportation infrastructure investment has halted due to the absence of federal and provincial aid creating transit inequities in the postwar suburbs. "Vulnerable populations are, increasingly, living in suburban area with less transit and fewer public services compared to more affluent, core areas" (Hertel, Keil & Collens, 2016, p. 6). The problem is widely understood, and this paper offers an examination of the relationship that must exist between educational institutions and transportation infrastructure in order to alleviate educational, financial and political barriers that exist for students – especially low-income, marginalized and racialized students. The objective of this research paper is to the answer the following questions:

- What is the impact of political transportation planning decisions on distribution patterns of infrastructure in Toronto?
- What are the barriers to accessing public transit that face students, especially those that live in "in-between" cities?
- What shifts in planning strategy and policy are needed for addressing transit inequity?

All three questions are directly related to the inequities of transit infrastructure that adversely affect specific populations within the context of social equity and justice. To answer these questions, this paper will examine the social, political and economic factors that impact transportation planning and create inadequate transportation options for the student community. In order to understand this, I use the following methodologies: political economy, racialization of poverty, and neoliberal urbanism theory to look at Toronto through the eyes of a full-time student

commuter. The five chapters of this work will use literature review, comparative analysis, and cartographic illustration to reveal the answers to these research questions.

Existing work on transit equity and access from scholars such as Jean-Paul Addie, Roger Keil, Sean Hertel and Douglas Young will be significant to the composition of this paper. Keil and Young (2010) acknowledge the uneven distribution of benefits in the political framework of public transit planning. While Hertel (2016) notes the importance of the fair delivery of transit infrastructure to meet the needs of transit users in underserved parts of the GTHA. The acknowledgment of the need for equity to be a part of the systematic planning of transit is significant to this Major Paper. Addie (2013) turns his attention to the governance of the GTHA, the creation of Metrolinx was to impose the regional vision for transportation in the GTHA to promote economic competitiveness to attract global capital.

For the purpose of this research, I conducted a total of 9 semi-structured interviews, all of which were individual interviews conducted in person or over the telephone. Participants included policy and planning experts, and official and local politicians. I also conducted an in-depth focus group comprised of 10 senior high school students to better understand transit barriers are often overlooked by transit agencies and local politicians. The participants shared their transit experiences not only as students but as racial and marginalized people. Socio-demographic characteristics were also collect to provide context relating to their experiences and perspectives.

Literature Review

In order to understand the framework, I have consulted the relevant areas of literature: urban infrastructure, transportation planning and transit equity.

Urban Infrastructure

Urban space has the ability to bring people together as well as divide them. The ways in which infrastructure ties as well as severs the land creates distinct landscapes in every city. Toronto's growth puts pressure on aging infrastructure and demands greater investment causing the city to develop rapidly. These development patterns have created the "in-between" city (Young & Keil, 2010), a place that lies between the suburb and the city. The "in-between" city framed my argument on inadequate infrastructures.

The rapid rate of urbanization within cities all over the world has caused a great need for infrastructure. The United Nations has projected that by 2050, 66 per cent of the world's population is projected to be urban (2014). In close relation to transformation that take place in the urban landscape, infrastructure has a significant part to play in the development, beautification and the upward mobility of the city. "Transportation infrastructures – both *technical* systems of highways, rail lines, and airports and *social* institutions and informal practice – provide a provocative lens to uncover how city-regions are produced, rendered visible, and governed" (Addie, 2015, p.188). As cities globally compete for recognition, they demand capital infrastructure in order to attract and retain investment, residents and tourists. Unfortunately, investments are

unevenly distributed throughout the city and create inequality amongst classes that fracture the landscape and create barriers.

Cities depend on the evolution of technology and urban infrastructure (Tarr, 1984). Social, cultural, political and economic factors have played a critical role in the ways which capital infrastructure has been distributed throughout the city and how it has shaped society. "Technological networks (water, gas, electricity, information etc.) are constitutive parts of the urban. They are mediators through which the perpetual process of transformation of Nature into City takes place" (Kaika and Swyngedouw, 2000, 1). Here, cities can be considered a socio-technical process as there are flows of energy, life and people that take place throughout the space. As capital infrastructure became concentrated in the downtowns of cities and suburbs during the Automobile Revolution, networks that interconnected parts of the city also disconnected undesired parts. These patterns were a result of the areas most frequented by the elite, the cities for work and play and the suburbs in which they called home. The areas in-between are almost left undeveloped and were termed the “in-between” city. Creating transportation infrastructure to allow easy entry into and out of downtown while bypassing other areas of the city demonstrates the division of urban space (Addie, 2015). The decisions that determine where infrastructure is constructed depend heavily on political, financial and economical reasoning.

Transportation Planning

Transportation systems have greatly influenced and transformed urban landscapes. Early human settlements began to form around transportation systems because of the function to the

community. Since then the planning of and design of urban areas has been centered on transportation needs – over the course of the last century especially the automobile. Transportation planning has now become a response to challenges created by planning for the automobile: sprawl and congestion. I believe the main function of transportation planning is to make cities more livable through the introduction of infrastructure that accommodates all city dwellers regardless of mode of transit.

The relationship between transportation and land use is particularly significant to the inadequacy of transit in a context of urban sprawl. The pattern of development began for many major cities in the core then later in the suburbs. Transit services within the city were manageable but as population and urbanization rose, between 1970 to 2005, the wealth moved into the city from the postwar suburbs (Statistics Canada, Census 1971, 2006). Automobiles were the mode of transportation utilized by suburbanites as the land fragmentation between city and suburb made transit service infeasible and costly (Porter, 1998). This narrative continues as the peripheries are neglected by transit planners and politicians because of the costliness of providing rapid transit to those whom dwell in the "in-between" city. The contested development of transportation infrastructure divulges an ongoing multiscale negotiation of diverse communities, interests, and space-times (Addie, 2015).

In the mid-1900s, Toronto like other large metropolitan areas had successfully established a mass transportation system that helped inhabitants navigate the city without the automobile. The later shift from private transit ownership to a city-owned and operated transportation system established the Toronto Transit Commission as a potential world-class transit system which contributed to the recent and unpredicted population growth. In order to control economic

prosperity as well as livability in Toronto and its greater area, it is important that governance play a major role in the challenges of transportation in the urban landscape. Good governance principles provide a significant framework for the practice of transportation planning. Golden (2014) observed the role of governance of regional transit systems in Toronto in order to assess the current governance arrangements in relation to the principles of good governance. Metrolinx, the transportation authority of the Greater Toronto and Hamilton Area, (GTHA), was created by the Province of Ontario in order to manage and oversee the regional expansion of various transportation systems as well as infrastructure. It is essential that ongoing public engagement, funding and elected officials reflect the values of the community in order to make the Toronto region a transit system leader as it once was.

Transit Equity

Transit equity has become significant to urban discourse in Toronto as areas have become more fragmented and infrastructure to support the "in-between cities" are substandard. Dysfunctional land use patterns have contributed to the uneven distribution of transportation infrastructures which have caused transit inequities within the city of Toronto. "Transit is more than infrastructure – it is a public good that provides a gateway into society and the economy, especially for residents with low incomes (Hertel, Keil & Collens. 2016)." All community members differ in their abilities to choose between different modes of transportation, equity provides various transit options to those whose ability may be restricted whether physical or financial in order to meet their needs. Transportation investments, if used properly, can invigorate and revitalize disadvantaged urban areas (Bullard and Wright, 2010, p.6).

In addition, the intersectionality of urban density and transit infrastructures will be analyzed in order to look at the justifications for transit systems or a lack thereof. Highly dense areas can be referred to as the metropolis or downtowns of cities, these areas usually hold high real estate values and become home for higher income individuals. A common rationalization for transit infrastructure is density, as it provides financial foundation for public transit as well as political support (Cervero & Guerra, 2011). Transit-supportive density policies pose a threat to existing low density communities that better transit may never be delivered. "If urban boundaries are expanded before planned higher-density nodes and corridors begin to intensify, it will increase the cost of transit service, making it difficult to serve new urban areas (Ministry of Transportation, 2012)." These types of policies further create transit deserts within and around the city, separating the rich from the poor as well as creating transit barriers. The social divisions in Toronto are reflected in the physical landscape. Networks tie together privileged nodes of the global elite by creating superior accessibility through infrastructure, which allows for the bypassing of uneven development and marginalization (Graham and Marvin 2001; Young and Keil 2010). The transportation barriers that low-income and marginalized Torontonians face daily place limitation on mobility that negatively affect a person's ability to work and play and becomes further marginalized which creates socio-economic inequalities and removes specific people access to the city. "Transit, after all, is quite literally a vehicle to bring people into the community – to access and to benefit from the economy, culture, public services and other activities essential for a high quality of life (Hertel, Keil & Collens. 2016)." When specific groups of people – low-income earners, racial and ethnic minorities, youth and seniors, and people with physical and mental disabilities – struggle to access adequate transit it segregates the city and illustrates urban discrimination.

Structural Roadmap

The following work is divided into five chapters: Chapter 1 is a political narrative of the effects of neoliberalism on the Greater Toronto and Hamilton Area transit agencies. Chapter 2 provides a study of the incorporation, or the lack thereof of social equity within the realm of transportation planning. Chapter 3 examines the progressive relationship between transportation and education. Chapter 4 reveals the findings of StudentMoveTO and the in-depth focus group with high school students to determine transit patterns, barriers and challenges in post-secondary school selection. Chapter 5 concludes the paper by examining the progress of equitable transit in a regional context and provides recommendations to improve and include students in the decision-making process.

CHAPTER 1 – Neoliberalism and its Effect on the Transit System

Socioeconomic processes such as neoliberalization have contributed to urban alternation of Toronto over the last forty years. Harvey (2005, p. 2) states: “Neoliberalism is in the first instance a theory of political economic practices that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets, and free trade.” Neoliberalization downloads or transfers the responsibility of the government to private companies seeking to create free markets. Cities became battlegrounds for creative destruction and these restructuring sites have housed political experiments and innovations while creating a hub for neoliberalization. “The dysfunctional effects of neoliberal approaches to capitalist restructuring, which have been manifested at a range of spatial scales, include persistent if uneven economic stagnation, intensifying inequality, destructive inter-locality competition, wide-ranging problems of regulatory coordination and generalized social insecurity” (Peck, Theodore and Brenner, 2009, p. 51). The process of neoliberalization is an effective tool for governments to create surpluses at the expense of low-income individuals, this chapter will discuss the role neoliberalism has played in the public transportation system and the lives of marginalized people in Toronto. In doing so, it examines the income polarization in Toronto creating spatial segregation which has fostered transit inequities and produced transit deserts.

As the most populous Canadian city, Toronto is home to approximately 2.8 million people. Founded in 1793, it is the capital city of Ontario and the nation's commercial, financial, and cultural center. The process of neoliberalization manifested in Toronto by way of three related processes

– the entrepreneurial city, where the city resembles a business firm more so than a public institution; the city of difference, where ethnic diversity becomes commodified for interurban competition; and the revanchist city, where being poor is a crime and the middle classes have eliminated the spaces of the poor through gentrification and social exclusion (Kipfer & Keil, 2002, p. 20). Under the administration of provincial premier Mike Harris in the 1990s, economic growth was sought at the expense of environmental sustainability and social cohesion through deliberate policy-making which prioritized on economic competitiveness. In 1998, the amalgamation of Metro Toronto and its six municipalities transformed the landscape of the City of Toronto into the megacity of the Greater Toronto Area. This political shift was made to cease provincial funding and reduce the number of elected officials as well as to improve accountability and efficiency.

With the influence of Margaret Thatcher and Ronald Reagan, Canada followed suit of a neoliberal regime which created transfer cuts and fiscal downloading of cost to the provincial and municipal levels. The 1995 provincial election was filled with promises that would require trimming the spending budget, a task that Mike Harris and his Common Sense Revolution were eager to take on through a series of reforms on the welfare and education systems in an attempt to cut $6 billion out of the $56 billion annual government spending. “It is clear to Ontario taxpayers that maintaining 815 municipalities in the province’s current fiscal climate is simply unrealistic. Taxpayers want a smaller, more efficient public sector, and fewer levels of government” (A Note from Al Leach accompanying the report from the Ministry of Municipal Affairs and Housing 1996). This fiscal rearrangement was marketed as a positive solution to bureaucracy that would eliminate the duplication of services, increase taxpayer accountability and fuel economic growth. Ontario Finance Minister Ernie Eaves announced that the projected cost of downloading and fiscal

restructuring to cities and regional municipalities would cost the new "megacity" $164 million in lost tax revenue. The effects of neoliberalism began to unfold as a ripple effect throughout the "new" city and would be felt in schools, hospitals, government institutions, and in every life of the urban and suburban dweller.

In Toronto, amalgamation became part of legislation and reflected neoliberal beliefs as the *City of Toronto Act* stated that its official objectives were to "bring in lower taxes, […] better services and […] deliver services closer to the people" (Leach, 1996). In 2005, the City of Toronto Act was amended to provide Toronto with individual powers in order to govern itself in the interests of the Province and the City because of the significant role Toronto plays in creating and supporting economic prosperity and a high quality of life for the people of Ontario (City of Toronto Act, 2006). The Act is constrained by Sections 151-54, which allows the Lieutenant Governor in and the Minister of Municipal Affairs and Housing, agents of the provincial government to make regulations or creating order which prevail over the powers of the City. The attempt at self-governance was suppressed by the same government that initially issued the city's powers ultimately failing to increase the influence of urban civil society on the institutionalized metropolitan governance process.

Under the Common Sense Revolution, transit funding was halted which resulted in the restricted development of the city by creating holes in the transit system that has rendered it largely inequitable. During the Harris government, transit ridership (1995-2017) in the form of annual passengers per capita declines across the GGH with the exception of Peel region (Pond, 2009). The reduced investment in transportation infrastructure facilitated the increased use of private vehicle. "In 2006, 71 percent of workers in the Toronto census metropolitan area got to

work by car, while only 22 percent used public transit (Fanelli, 2016, pg. 41).” Urban sprawl requires expensive low-density transit infrastructure in order to address the increases in air pollution, greenhouse gases and congestion (Fanelli, 2016). The Ontario government introduced the Greenbelt Act and its companion legislation, Places to Grow Act in 2005 to address urban sprawl, congestion and air pollution. The Greenbelt legislation protects about 1.8 million acres environmentally sensitive and agricultural land in the Golden Horseshoe from urban development and sprawl (Ministry of Municipal Affairs, 2013). The Places to Grow legislation identifies sixteen major growth areas, especially mid-sized cities in southern Ontario, based on their capacity to accommodate future growth in population and employment, as well as provide vital linkages to transit systems in urban growth centres (Fanelli, 2016). Set out to address issues of environmental degradation, the Greenbelt and Places to Grow legislation also attempted to promote the neoliberalist agenda of economic competitiveness through removing barriers that impede the flows of goods, services and people and lost productivity by increasing the use of public transportation and raising density requirements for developers (Fanelli, 2016).

The neoliberal processes started under the Harris administration have had significant consequences for transit within Ontario municipalities. Currently Ontario municipalities face a transit infrastructure deficit of $10.7 billion and an additional $50 billion is needed to expand public transit across the Greater Toronto and Hamilton Area over the next twenty-five years (AMO, 2012; Metrolinx, 2008). In 2008, the Provincial-Municipal Fiscal and Service Delivery Review (Government of Ontario, 2008) proposed that the Province take over some of the services and responsibilities downloaded onto municipalities during the Harris era. The Province uploaded some of the costs associated with public transit in order to reduce the pressures on the municipal

delivery of transit services but these measures have not been able to refute Harris' neoliberal policies. Coupled with the minimal efforts to undo the effect of neoliberalism by the Province, the election of Rob Ford as Toronto Mayor in 2010 executed neoliberal budget polices to reduce City spending including transit services. Ford eliminated TTC bus routes and scrapped former Toronto Mayor David Miller's Transit City (see Figure 2), a transit plan which addressed systematic transit inequity through constructing seven new light rail lines along the streets of seven priority transit corridors. Eliminating this plan demonstrates the connection of social and economic polarization made by Garrett and Taylor (1999) when they state that the allocation of transit services between rich and poor, whites and people of color, suburbanites and inner-city residents, is not happenstance. Ford continued to research City cost savings with the assistance of KPMG and commenced the Core Services Review. The Key opportunities for the review pertaining to the TTC were as follows:

- "There are opportunities to reduce service levels, predominantly in areas recently increased in response to the Ridership Growth Strategy – crowding standards, minimum service frequencies and late night services."
- "There is an opportunity to achieve significant savings overtime by purchasing transit services (e.g. operation of buses on routes scheduled by the TTC). There are further opportunities to outsource selected specific support functions as well. Achieving these savings will take some time and require effective management of labour relations."
- "There are also opportunities to integrate support services with the City in a shared service model, where that will result in economies of scale. Note that it is important to retain industry specific approaches even when management is integrated."

(Source: KPMG, 2011)

In Ford's quest to increase capitalism profits and cheapen labour costs, late night and weekend bus routes would be eliminated or reduced, and some TTC routes would be outsourced. This plan would exacerbate transit equity in Toronto, causing the distribution of transit services to be inadequate for afternoon and night workers. The reduction in transit access would directly affect for low-income neighbourhoods with existing limited mobilization and create spatial barriers within the urban space. "Ford's neoliberal language of government as business has been normalized in the city's approach to policymaking and in the minds of many Torontonians, including a paradoxical amalgam of those who can afford to purchase city services out of pocket" (Joy & Vogel, 2015).

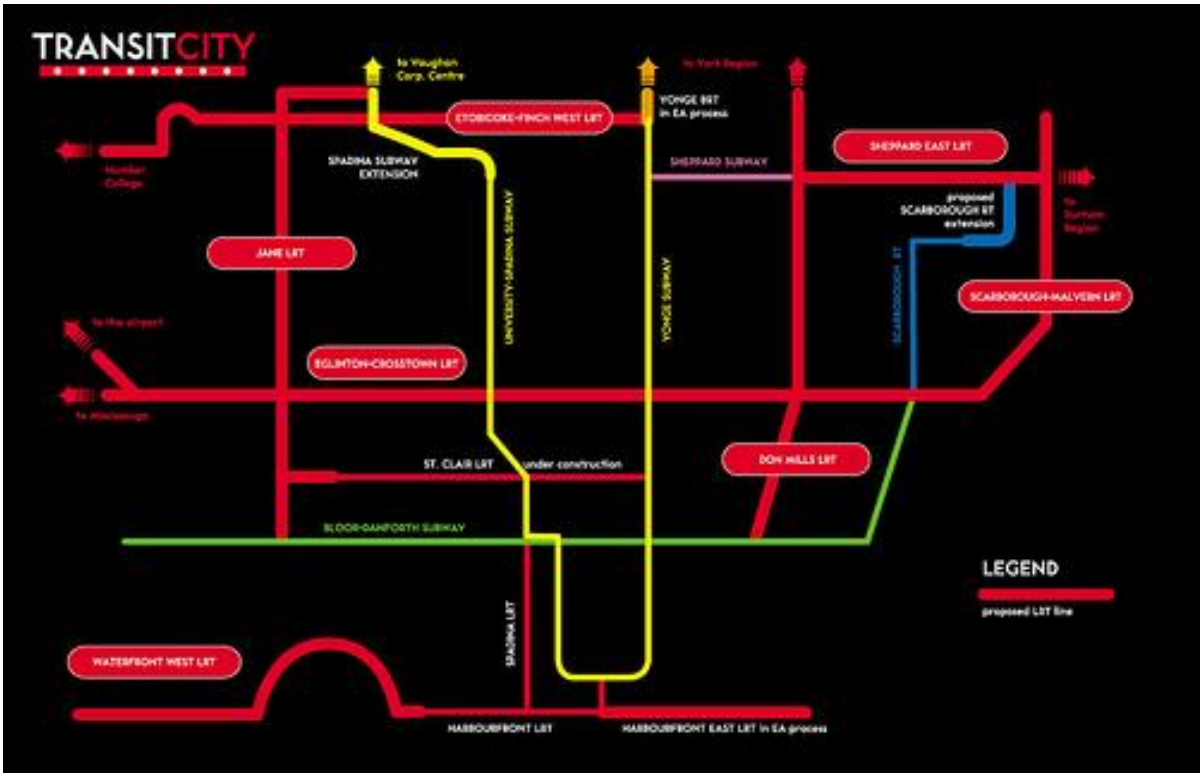

Figure 2. Mayor David Miller's Transit City Plan
(Source: Spacing Toronto, 2007)

The election of Mayor John Tory in 2014 demonstrated that Torontonians were tired of the theatrics from the late Mayor Rob Ford and supported Tory's platform of bringing dignity back to the city and a voice of reason (Joy & Vogel, 2015; Keil, 2017). Tory acknowledged the issues within the city including poor infrastructure, the mayor was successful in restoring transit levels which were previously cut by Ford. Nonetheless this didn't signal the culmination of Ford's neoliberal policies. Tory's mode of operation reestablishes centralized elite power and normalizes roll-with-in neoliberalization in the city as the new regime signals modernization through technical shifts and market mechanisms (Keil, 2017). His promotion of the city to attract economic investment from technologies industry establishes the formation of a new business regime within Toronto. "He wants to be 'sympathetic' to people but also aims to bring in 'disruptive technologies' in order to position the city better in international completion" (Nowak, 2015). Tory's focus on the implementation of the *SmartTrack* transit plan and the ill-conceived subway expansion to Scarborough that are too costly and complex demonstrate a lack of rational as it relates evidence-based policy making and lack in the promotion of transit equity in the quest for global economic attractiveness.

Hulchanski's (2010) Three Cities

Toronto can be described as the city of three cities. The divergent neighborhoods illustrated in the Toronto landscape is a result of drastic income polarization since the 1970s. The growing income gaps have shrunk the middle-class and increased the upper and lower classes, altering neighborhoods and relocating desired services and infrastructures. Hulchanski's (2010) Three Cities examines the city of Toronto according to income levels. City #1 describes the high-

income neighborhoods, City #2 identifies the middle-income areas and City #3 is generally the low-income area. These three areas illustrate the income segregation of Toronto and physically displays transit inequality in relation to economic status. Hulchanski described City #1 as being in the central city and close to the city's subway lines whereas City #3 is mainly located in the northeast and northwest parts of the city, outside the central corridor along Yonge Street and the Yonge Street subway. The contrast is apparent in these descriptions that demonstrate the need for better transit access in city #3.

In 1954, Toronto Transportation Commission opened Canada's first subway, the Yonge Subway line that consisted of 12 stops and ran from Union Station to Eglinton Station. The University Subway followed in 1963 connected the west side of Union Station to St George Station. The downtown core continued to extend its subway line throughout the 1970s, making the inner city to most connected place in the city. Hulchanski (2010) mentions that most of the city's low-income neighbourhoods were in the inner city. This location was ideal for such neighbourhoods as it had adequate access to transit and services. For these reasons, gentrification transformed these neighbourhoods to attract more affluent and elite individuals. Neighbourhoods such as High Park, South Riverdale and Roncesvalles were Toronto's early products of gentrification. As a result, low-income households became concentrated in the postwar suburbs in North York, Etobicoke and Scarborough located in the northwestern and northeastern parts of the city and plagued with poor access to transit and services.

In the Three Cities report, a 2006 study analyzed the number and percentage of TTC subway stations within the area or on the edge of the area (within 300 meters) and revealed that City #2 is the most connected with 50 subway stations, the elitists of City #1 have access to 40

stations and the low-income third city only has access to less than half of City #1 at 19 subway stations. These statistics demonstrate that the lower one's income is, the poorer their access to transportation becomes.

The distribution of transit services fosters rising inequalities which create "transit deserts" where the poorest connectivity to rapid transit. This concept analyses the gap between the level of transit service (supply) and needs of a specific population (demand); transit deserts are then areas that lack adequate public transit service given areas containing populations that are deemed transit-dependent) (Jiao & Dillivan, 2013). The creation of transit deserts within the city of Toronto have resulted from income polarization and segregation which caused the inner suburbs to become underserved by the transit system. As previously mentioned, the highest incomes have the greatest connectivity which will be illustrated by a series of maps and display the transit deserts within the city. Borrowed from the Martin Prosperity Institute, Map 1 shows the Toronto's transit deserts which have a transit score of 0. These areas are consequently contained inside of Hulchanski's third city

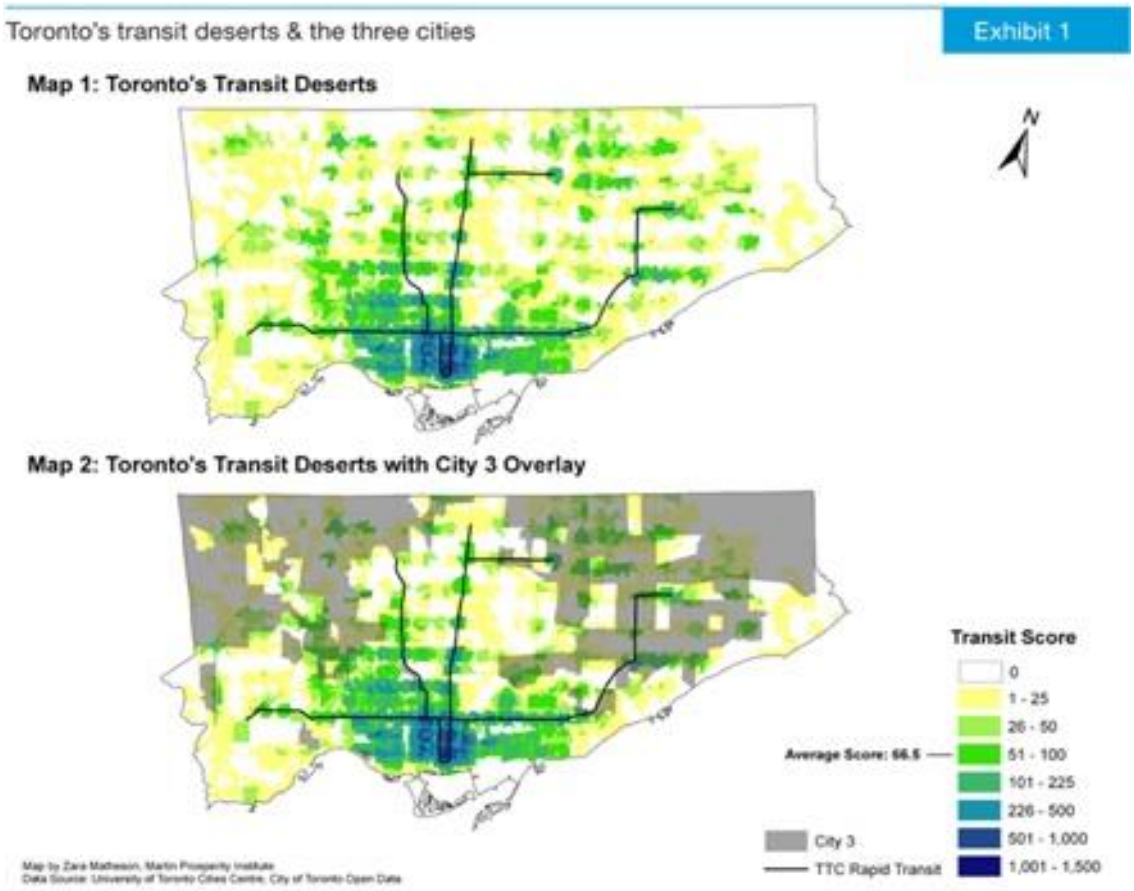

Figure 3. Toronto's transit deserts and the three cities

Figure 3 demonstrates that City #1 is three times more connected than City #3 as the transit scores are respectively 102.8 and 27.8. The difference between City #1 and City #2 is merely a 1.5 ratio, half of the ration between City #3. The transit issues faced by City #3 is due to the limited access to subway stations. City #3 has access to half the amount accessible by the residents of City #1. The inferior access to subways and streetcars are factors that contribute to the poor transit score of the third city.

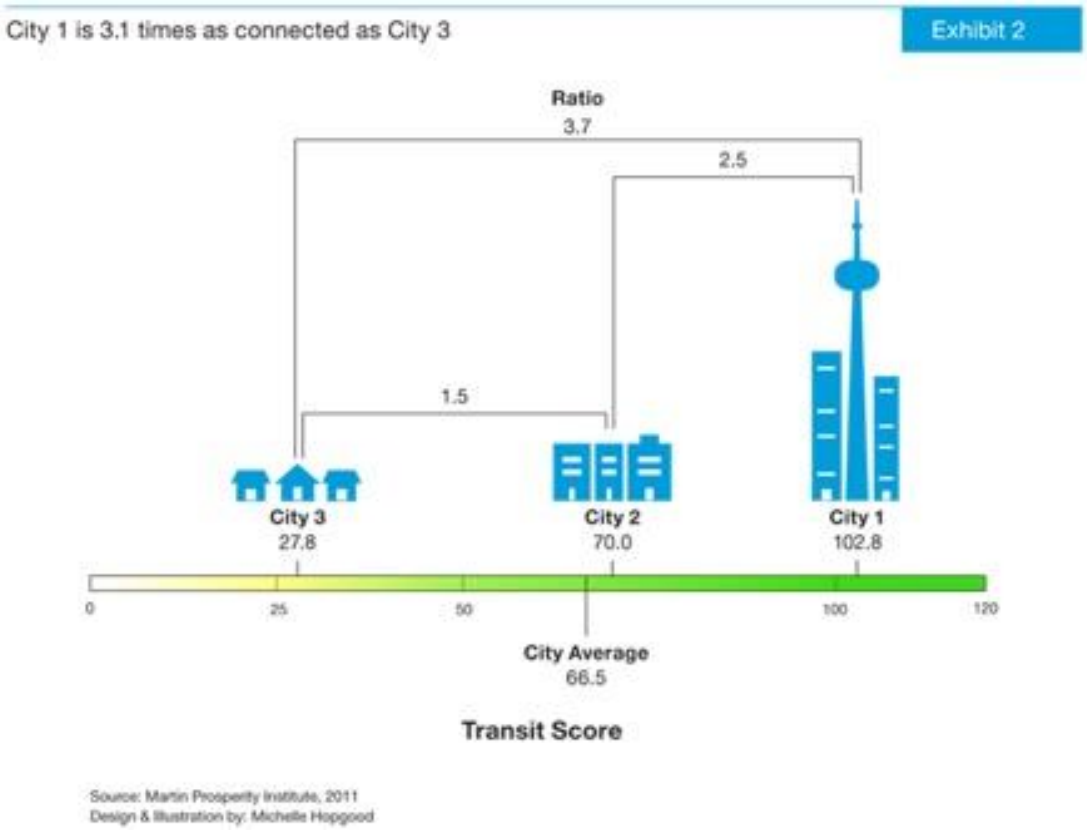

Figure 4. Transit Scores of the three cities

Transit scores have been calculated by the Martin Prosperity Institute to represent connectivity and uses data from the Toronto Transit Commission that combines the number of stops within 500 meters of the Census block and how often a bus, subway or streetcar stops there in a specific hour. City #3 is less connected the rest of the city as it is solely served by buses, demonstrated a strong correlation between individual income and transit connectivity.

Transit systems have been historically built upon the lines of social disparity (Bullard and Wright, 2009). An individual's access to transit is predetermined based on their economic and social status within society, discriminating and segregating people with low-incomes. The intersection of transit and social equality was studied by Garrett and Taylor in 1999 and scholars

identified themes relating to transit inequality, which include: income polarization, changing nature of employment and the decentralization of workplaces. As cities continue to grow and intensify, transportation infrastructure is strategically placed in areas of higher incomes as opposed to lower incomes.

Currently, public transit funding decisions are heavily influenced by elites that ensure investment reflect "demography and economic attractiveness" (Hertel, Keil and Collens, 2015). These decisions overshadow the needs of lower-income neighbourhoods and continue to provide more transit choices for over served people. Such investment priorities further marginalize according to neighbourhood, class and income. The inability of low-income individuals to be politically represented further perpetuates the lack of transportation infrastructure in needed neighbourhoods. Consequently, planning decisions have been successful in creating adequate transportation hubs linking home, work and play. Such "path dependencies" are further reinforced by the movement of governments towards public-private partnerships in the delivery of transit capital and service improvements. Under this model, economic or "value for money" considerations take precedence over social factors or the "public good" (Siemiatycki, 2011), reinforcing transit injustice.

Young and Keil (2014) describe a landscape termed the "in-between city" – neither suburb nor downtown – similar to the postwar suburbs, which have been largely ignored by transportation infrastructure. These deprived spaces have a lack of employment, an abundance of social housing, underfunded educational institutions and disinvestment. The in-between city is a prime example of the influence of the elite class and their position of power and contribute to the growing social inequities (McFarlane & Rutherford, 2008). The city's agenda to promote itself

globally through the restructuring of public transit still has neoliberal values which rule out low-income individuals as recipients of adequate transportation systems. The policy problem in promoting public transit is that for people living in areas lacking in public infrastructure, policies that are geared towards privatized modes of travel (e.g. cars) are more politically popular (Walks, 2008, 2014).

TO Prosperity - Toronto's 20-year poverty reduction strategy revealed that Toronto has the highest rate of child poverty, more working poor and the largest inequality gap of any city in the country. In this report, transit equity was an issue and the two suggested recommendations were to make transit more affordable for low-income residents and improve transit services in the former postwar suburbs. Focusing on transit service improvements, four actions have been added to the municipality's agenda to make Toronto a more connected city. The action plan for 2015-2018 are the following:

- Work with the Province to harmonize service and fares across public transit systems in the Greater Toronto and Hamilton Area
- Restore previous service cuts that disproportionately impact the inner suburbs where demand warrants
- Increase reliability across bus, subway, and LRT modes
- Consider the needs of low-income neighbourhoods and inner suburbs in capital and service planning

Toronto's first poverty reduction strategy has recognized that a pathway to prosperity is needed to empower residents in the inner suburbs and improve the overall quality of life. As mobility plays a significant role in accessibility, allowing people to overcome social and spatial barriers.

Conclusion

The withdrawal of the provincial government in the funding of transit investment has caused the Greater Toronto and Hamilton Area to become underserved by transit agencies. The process of neoliberalism creates cutbacks on social services that low-income individuals desperately depend on. The reduction and elimination of transit routes coupled with the halt in infrastructure investment constructs barriers to economic and social prosperity which disproportionally effect low-income individuals whom have limited access to private automobile. Hulchanski's (2010) Three Cities illustrated the varied levels of transit access within the City of Toronto and revealed that the in-between cities were the most transit starved. With the least amount of subway stations serving these neighbourhoods, low-income individuals experience longer commutes than any other population. TO Prosperity has developed an action plan to address transit inequities within the City to improve the quality of life for effected individuals. In the next chapter, using Toronto case studies I will discuss the necessary incorporation of social equity in transportation planning to alleviate transit inequalities.

CHAPTER 2 – Equity and Transportation Planning

Transportation systems have a direct and significant impact on the lives and livelihood of all residents of the Greater Toronto and Hamilton Area. The type of transportation system available affects an individual's choice regarding different modes of transit. Transportation planning is defined as the practice of "improving coordination between land use and transportation system planning; providing cooperative interaction between planning, design, and operation of transportation services; maintaining a balance between transportation-related energy use, clean air and water, and encouraging alternative modes of transportation that will enhance efficiency while providing high levels of mobility and safety" (Institute of Transportation Engineers, 2015). Transportation planning plays a role in shaping human interaction, economic mobility, and sustainability (Bullard, 2004). Planning is a complex process that involves many participants and should address the needs of society, it is then imperative that social equity is incorporated in transportation planning to ensure that all people regardless of their abilities or socio-economic status by removing structural obstacles from the fair distribution of goods and services by the regional transportation system (Hertel, Keil, & Collens, 2016). This chapter will examine the literature relevant to the role of social equity within transportation planning practice and discourse. I will present an argument that the 'in-between' cities are not prioritized from transit planning which creates unequal access to education by way of fare, service and infrastructure using Toronto case studies.

As cities continue to grow, the emerging issue of transit equity has affected every major city in the world. Toronto has developed as a global city yet the metropolis continues to suffer from a lack of transit investment. As the population increases, the city of Toronto continues to expand to the peripheries creating transit inequities throughout the region. The Greater Toronto and Hamilton Area continues to fall behind in transit investments, the issue of mobility inequities worsens over time.

According to the Ministry of Finance, Ontario's population is projected to grow by 31.3 per cent, or over 4.2 million, over the next 28 years, from an estimated 13.5 million on July 1, 2013 to almost 17.8 million by July 1, 2041. As the fastest growing region of the province, the Greater Toronto Area (GTA) is expected to increase its population by almost 3.0 million, or 45.8 per cent, to reach over 9.4 million by 2041 making it the residence of 52.9 per cent of the provincial population (Ministry of Finance, 2014). This massive influx of people in the Greater Toronto and Hamilton Area (GTHA) would further exhaust the current transit network and for this reason, the many municipalities that make up the GTHA have taken initiatives to increase transit services and infrastructures in order to entice commuters to take public transit. The Regional Transportation Plan is also known as *The Big Move: Transforming Transportation in the Greater Toronto and Hamilton Area* introduces the efforts being made within the GTHA by Metrolinx is an attempt to merge the gap between growth in population and investment in the transportation system in order to achieve transit equity.

Defining Transit Equity

Many scholars have noted the need for social equity to be included in public transit planning. Garrett and Taylor (1999) recognized that there has been an unequal distribution of transit infrastructure in the United States of America. The duo argues that low-income neighborhoods that serve transit dependents are starved of adequate transit service as transit policy focuses on the recapturing of lost markets through expanding infrastructure into the suburbs. The socially inequitable provision of public transit was born out of the insufficient attention to the economic and political structures that are responsible for the patterns of uneven urban development (Garrett and Taylor, 1999). Norman Krumholz (1982, p. 163) defined transit equity as an effort to provide more "choices to those…residents who have few, if any choices." His notion of equity planning is to counteract what is perceived to be the unfairness and exploitative nature of the urban development process, a process that excluded the poor from the suburbs and concentrated them in declining inner-city areas; and a key factor in the process off isolating the poor is the lack of adequate public transportation.

Similarly, in Toronto, transit investments such as the Union-Person Express and the Eglinton Crosstown Light Rail Transit have been concentrated in areas west of Yonge Street and leave transit dependents east of Yonge Street starving for transit service as demonstrated by the ill-planned one stop Scarborough subway station. The previously mentioned argument by Garrett and Taylor not only applies to the United States of America but also Canada. For example, the "in-between" cities of Toronto experience a lack of transit access which compounds social and economic situations.

Since inequity is manifested in both conceptual and empirical forms, the experiences of

individuals and groups are different across the Greater Toronto and Hamilton Area. It is important to note that there are two different types of inequity which pertain to this Major Paper: individual bias and systematic inequity. Individual bias describes the negative beliefs about a specific group held by individual persons and systematic inequalities are the unequal outcomes built into our institution that will produce inequality. Within transit planning, inequity within individual bias can be described as transit fares and one's individual inability to afford the cost of transit on an on-going basis. The absence of rapid transit within a particular neighbourhood demonstrates systematic inequity in transit planning. Referring to Litman (2014) equity refers to the distribution of impacts (benefits and costs) and whether the distribution is considered fair and appropriate. Demonstrating that just transit planning decision can create equitable impacts in society.

Transit access is crucial for Canadians to reach places of employment, education, recreation, and necessary amenities such as health care and food. In 2010, there were 496,665 persons or 19% of the population with an after-tax income below Statistics Canada's Low Income Measure (City of Toronto, September 2013). Low-income groups are more reliant upon transit than other groups and are at risk of economic and social exclusion when transit is inequitable. The main issue of transit equity is that transportation planning reflects the matters of racism, economic status, class relations and geographic segregation. As transit equity begins to address environmental, political and economic concerns, urban planning can become a tool for fairness.

The 'In-Between' Cities of Toronto

> "The infrastructure is a reflection of our social and historical evolution. It is a symbol of what we are collectively, and its forms and functions sharpen our understanding of the

similarities and differences among regions, groups and cultures

(Herman and Ausubel, 1988, p. 1)." *Cities and Their Vital Systems*

Toronto's regional transit network contributes to its global competitiveness by way of the splintered urban environment. The divisions in urban transportation evolve from political and economic power, which link elite nodes by establishing different levels of access and privilege of infrastructure 'bypassing,' with uneven development, marginalization and exclusion (Graham and Marvin, 2001; Young and Keil, 2010). Therefore, transit experiences vary significantly because of social biases that have been designed into urban infrastructure.

Transportation is an important tool for economic and social prosperity. Neighbourhoods that are underserved by transit have the worst connectivity to the rest of the city and bars people from jobs, schools and services. The polarization of transportation infrastructure in Toronto has been described as: "In class, ethnic, and gender terms, the region's transportation infrastructure is getting increasingly sorted out as highly uneven and potentially unjust: high end, production-oriented supra-regional transportation networks – the airport, the partially privatized highway system – on one hand and a crumbling public transit system on the other (Boudreau, Keil & Young, 2009, p.181)." The inner suburbs which have been called *Zwischenstadt* or the 'in between' city have lacked infrastructure as the landscape is situated between the city centre and the outer suburbs, often forgotten. These inner urban spaces lacking in the corresponding powers and governance capacities, or suffering from the fiscal effects of urban austerity, might be deprived of essential investments in social and physical infrastructure (Jonas, 2015).

Often characterized as an 'in-between' city, the neighbourhood of Jane and Finch which borders York University has been plagued with poor transit infrastructure. Jane and Finch has been identified as a Neighbourhood Improvement Area by the City of Toronto, which means it has fallen below the Neighbourhood Equity Score and requires special attention. "Neighbourhood Improvement Areas are specially-selected and designated neighbourhoods in the City of Toronto found to have inequities on several indicators of well-being (City of Toronto, 2014)." 23.4% of its population are low-income earners, 13% of the population are unemployed and only 34% have attained post-secondary education (City of Toronto, 2011). A network of buses operates in this neighbourhood with the promise of the Finch West Light Rail Transit line which will increase the mobility of residents that have lifelong experiences of long commute times and unreliable bus service.

Similar to Jane and Finch, many neighbourhoods in Scarborough such as Malvern and Kingston-Galloway have been identified as Neighbourhood Improvement Areas where 21.2% and 29.8% of its population are low-income earners, respectively. The residents in the mentioned neighbourhoods have attained only 49% and 46% in post-secondary education while 13% and 14% are the reported unemployment rates. Scarborough has been served by a vast bus network, two subway stations and a rapid transit line which have not been enough to support the mobility of Scarborough residents. The long-needed transit infrastructure has been studied by urbanists, urban planners and councilors to determine the needs of this vast city. Light Rail Transit and subway station were among the popular infrastructure options. The one stop subway station won the vote amongst city councillors and would remove the deteriorating Scarborough Rapid Transit line in return for a subway station at Scarborough Town Center. Councillors have boosted that this

move would enable better mobility of Scarborough residents although at a Panel Discussion: *Better Transit for Scarborough.* Scarborough East Councillor Paul Ainslie and Scarborough Centre Councillor Glenn De Baeremaeker have opposing views regarding the one-stop Scarborough subway station, Ainslie does not believe that a subway would believe transit to Scarborough residents in the most cost-effective way. His beliefs were backed by the residents that attended the Panel Discussion, mentioning that Light Rail Transit would service the residents in the southern eastern to northern eastern parts of Scarborough and mentioned that Scarborough residents need transit that is within Scarborough not more transit to bring people downtown as that is not where they need to go.

Transportation planning debates in Toronto have been centered on mode choice – subway or LRT. Capital intensive projects that service the bourgeois neighbourhoods are prioritized over projects that service transit dependent communities such as the Eglinton East LRT or the Malvern LRT demonstrating that transit inequities lead to social exclusions.

Transit Equity in the Greater Toronto and Hamilton Area

Mass transportation in the Greater Toronto and Hamilton Area struggles between the dilemma of satisfying new urban growth demands and serving the needs of deprived areas with limited mobility options as cities continue to expand and attract global investment (Jonas, 2015). The incorporation of social equity into transportation planning discourse and practice is a multifaceted undertaking that becomes tangled in social, economic and political frameworks and deprioritized in planning legislation.

Decision-makers use tools and data to evaluate major transportation infrastructure investment. Transit planning is performed within an economic framework which includes cost-benefit analysis. The use of finances and ridership to determine transit evaluation and land use patterns demonstrates the focus of the transit agency on the overall financial benefit of an investment with little effort put toward create equitable solutions for marginalized commuters. Metrolinx (2017) uses a Business Case Analysis which considers the following: transportation user benefits compared to the financial impact; good value for tax-payer dollars; environmental, economic and social benefits of the various alternatives; the impacts that a project has on communities; and alignment with the current policy objectives. Such analyses include not only the economic benefits but the social and environmental benefits and impacts on communities.

Moreover, the use of ridership-related data along with revenues situates transportation planning within an economic framework and demonstrates the prioritization of operating budgets and revenue over social equity. The Toronto Transit Commission (TTC) tracks the number of riders on its system and monitors average weekly ridership by month, annual passenger rides (peak and non-peak), monthly ridership totals and revenues from ridership. “The TTC’s current ridership trends are seen as mainly attributable to slower-than-anticipated employment growth, declining Metropass sales, and delayed achievement of new ridership from service enhancements” (CP24, Jan 2017). As the TTC continues to satisfy new urban growth demands by providing new TTC service and ignoring the deprived areas that are plagued with limited mobility, the transit provider will continue to miss its ridership target. "Ridership is the heartbeat of the entire system. When you cut service to the system to respond to falling ridership demand, it is further weakened”

(Councillor Carroll, Mar 2016). Additionally, the continued lower ridership experienced by the TTC will stall transit infrastructure expansion that is much needed in order to make up the deficit. Financial restrictions due to inadequate funding mechanisms within the governance structure had a direct impact on the performance and adaptability of the current post-suburban public transit regime (Mettke, 2015). The current evaluation tools used to make decisions on infrastructure investment highlight disruptive transit service which unevenly effect transit dependents more so than downtown commuters and thus create transit inequity.

The regional authorities in the Greater Toronto and Hamilton Area (GTHA) have the opportunity and ability to implement public transit in an equitable way in order to bind urban space together seamlessly. But transit agencies have shown more concern with increasing ridership levels from new service rather than serving those in the most need – due to age, poverty, disabilities or students – must depend on public transit. In the following section, I will look at the initiatives made by various transit authorities throughout the GTHA to address transit inequities.

Metrolinx

Metrolinx is the Province of Ontario's strategy to sustainable transportation and better transit. On August 24, 2006 the legislation governing the *Greater Toronto Transportation Authority Act* was passed (Government of Ontario 2006, 2831). The objectives of the Agency were stated as follows:

1. "to provide leadership in the co-ordination, planning, financing and development of an integrated, multi-modal transportation network that conforms with transportation polices of growth plans prepared and approved under the Places to Grow Act, 2005 applicable in the regional transportation area and complies with other provincial transportation policies

and plans applicable in the regional transportation area; and"

2. "to act as the central procurement agency for the procurement of local transit system vehicles, equipment, technologies and facilities and related supplies and services on behalf of Ontario municipalities."
3. "to be responsible for the operation of the GO Transit system and the provision of other transit services."

(Source: Greater Toronto Transportation Authority Act, 2006, S.O. 2006, c. 16)

Metrolinx represents the invested provincial interest in regional planning and governance in the Greater Toronto and Hamilton Area. The resultant growth management strategies look to realize the infrastructural integration and smart and sustainable urbanization deemed necessary to support Toronto's regional economic engine (Addie 2013; Macdonald and Keil, 2012).

A policy plan by Metrolinx called The Big Move was adopted to address the insufficient investment in transit. "We plan to build over 1,200 kilometres of rapid transit — more than triple what exists now – so that over 80 per cent of residents in the region will live within two kilometers of rapid transit, with an emphasis on areas with large senior and low-income populations which rely on transit to get around daily" (Metrolinx, 2008, p.1). The Big Move seeks to address transit equity in the areas of network – being where the routes and lines go – and service – access to stations and the frequency/quality of the trip (Hertel, Keil, & Collens, 2016, p. 4). This Regional Transportation Plan aims to create a connected transit network that will match the supply with the demand in the Greater Toronto and Hamilton Area (GTHA) that will provide greater access and economic prosperity. The Big Move stated one of its challenges is the lack of options in areas of

higher social need:

"There are many people in the GTHA who cannot afford to own a car and many more who stretch their available resources to do so. As energy costs increase, the potential for social exclusion grows, as more people are unable to afford to participate in activities due to the high cost of travel. Access to frequent, fast and affordable transit is therefore crucial for equity and social cohesion. As illustrated in Appendix B, there are several pockets of concentrated social need in the GTHA. The transportation system needs to improve the mobility options for people in these areas, connecting at-risk, vulnerable and disadvantaged communities to the jobs, social services, and health care facilities which can improve people's lives (pg. 8)."

The Regional Transportation Plan also identified social equity goals and objectives that will be achieved within 25 years. Metrolinx has noted these goals and objectives are intended to provide guidance for decision-making and planning at all levels.

GOALS	OBJECTIVES
Transportation Choices: People will have a wide range of options available to them for getting around regardless of age, means or ability, including walking, cycling, public transit and automobiles.	○ Increased transportation options for accessing a range of destinations ○ Improved accessibility for seniors, children and individuals with special needs and at all income levels ○ Decreased need for travel, particularly over long distances and at rush hour
Comfort and Convenience: There will be a strong emphasis on the traveller. Getting around will be more convenient with coordinated information, facilities, operations and pricing; more comfort and less crowding; and the highest standard of customer service across the system. Uncertainty regarding travel times and delays will be reduced.	○ Improved transportation experience and travel time reliability ○ Faster, more frequent and less crowded transit ○ Improved information, including real- time information, available to people to plan their trips ○ Region-wide integrated fare structure and collection, and schedule coordination

Interconnectedness: The GTHA transportation system will be well-connected to surrounding regions, the rest of Canada and the world.	○ Improved connections and service within the GTHA and to/from regional, provincial, and international terminals and facilities

The acknowledgement of equity issues by Metrolinx begins an important discussion on the ways in which these concerns can be addressed. The following chapter, *The Relationship of Transportation and Education,* will discuss the unevenness of student fare structures within various municipalities. Metrolinx was created to improve the coordination and integration of all mode of transportation in the Greater Toronto and Hamilton Area (Metrolinx, 2017). The regional transit authority lacks the ability to regulate and enforce transit fares in order to ensure transit agencies offer options for affordability for the general public and students but rather makes suggestions in an attempt to even create similar fare structures and costs.

The electrification of the GO train service will eventually lead to faster and more frequent service for suburban commuters across the region. "Ontario is on track to electrify and expand the rail network, and bring more two-way, all-day service to commuters and families by increasing the number of weekly trips from about 1,500 to nearly 6,000 by 2025" (Ministry of Transportation, 2017). Although, the Big Move identifies social equity measures within its goals and objectives privileged infrastructures and spatial networks will maintain their dominance. Metrolinx pursued a development strategy intended to integrate the region's urban fabric, but enacts this vision through the establishment of privileged network components and growth nodes that concentrate capital and develops in uneven, disjointed spatial arrangements (Addie, 2017).

Toronto Transit Commission

The Toronto Transit Commission (TTC) was once referred to as the Toronto Transportation Commission and provided public transit in Metro Toronto by private investors. In 1954, ownership and jurisdiction was acquired by the City of Toronto became the sole provider of transit. The adoption of the Fair Pass Program by City Council, the governing body of the Toronto Transit Commission, demonstrates the commitment made by *TO Prosperity: Toronto Poverty Reduction Strategy* to make public transit more affordable to low-income individuals. The program will roll out in a multiphase implementation to provide subsidized transit fares to individuals on Ontario Disability Support Program and Ontario Works, residents receiving housing supports or child care fee subsidy whose household income fall under the Low-Income Measure +15 percent eligibility threshold and to all other Toronto residents living with an income below the Low-Income Measure +15 percent threshold (City of Toronto, 2016). The discount under the Fair Pass Program would provide a 33% discount off the adult single TTC Presto fare and 21% discount off the adult monthly pass. Drawing from the approved *Toward a Policy Framework for Toronto Transit Fare Equity,* the City of Toronto address equity from the aspects of fare and service.

A survey was conducted by the City of Toronto in 2016 to understand the transit fare experiences of low-income residents to identify the best fare discount. A total of 4,503 low-income residents participated in the survey. The survey was carried out throughout various locations in the city of Toronto and online. The responses to the survey assisted City staff as they developed the Fair Pass Program.

Please review the list of five (5) options to make transit more affordable. Please select the first and second option that would most help you.

Discount on the cost of the monthly TTC pass.	2171
Discount on the cost of the single fare.	1791
Unlimited stops for up to two hours on a single fare in any direction.	1621
Fares based on distance: short trips in your area are cheaper than trips across the city.	481
Discount on the cost of off-peak hours trips (Before 7am, from 9am to 4pm, and after 7pm).	475
Total Responses	6538*

* The total number of responses is larger than in previous questions because respondents were asked to select two options, in no particular order.
(Source: Transit Fare Equity Community Engagement Report, City of Toronto, 2016)

The survey revealed that 33.2% found that discounts on the cost of the monthly TTC pass would make transit more available, while 27.4% preferred a discount on the cost of single fares. It was revealed in the survey that only 25.9% of residents purchased monthly metro passes while 37.1% of residents purchased tokens. The inability for residents to purchase monthly metro passes could be one of two explanations: (1) residents cannot afford to make that payment for the monthly pass all at once and purchase tokens to spread out the cost or (2) residents do not travel on the TTC enough during the month to warrant a monthly pass. In the best interest of social equity, the TTC will provide a higher discount on single adult fares (33%) than that of adult monthly passes (21%) to ensure that limitation on discounts does not create further economic barriers to the incorporation of social equity in transit planning.

Please review the list of five (5) ways to make it easier to access transit discounts. Please select the first and second choice that would most help you.

Being able to apply for the discount when you apply for other programs and benefits.	1011
Being able to use a broader range of documents as proof of income.	478
Being able to buy discounted fares in many locations across the city	1198
Being able to use discounts for any TTC fare type (e.g. monthly pass, single fare)	2063
Being able to use the discount on all TTC services (bus, streetcar, subway, and Wheel-Trans)	1712
Total Responses	6462*

* Total Responses reflect the two choices selected by individuals without any preference.
(Source: Transit Fare Equity Community Engagement Report, City of Toronto, 2016)

Hamilton Street Railway

The City of Hamilton built and operated a horsecar service in 1874 to mobilize the residents of Hamilton. Since the horse drawn cars, Hamilton Street Railway now operates buses as well as a Trans-cab service for out of route areas such as Stoney Creek and Glanbrook.

The City of Hamilton has adopted the Affordable Transit Pass program as a solution to reduce the transit inequities experienced on the Hamilton Street Railway. This program allows eligible residents (ages 18-64) to purchase an Adult Monthly Transit Pass for half price. The stipulations for eligibility include individuals receiving assistance from Ontario Works and Ontario Disability Support Program, or a working individual whose family income falls below the 2006 Statistics Canada Low-Income Cut-Off.

York Region Transit

York Region Transit (YRT) was created by the regional government in 2001, which amalgamated Vaughan Transit, Markham Transit, Richmond Hill Transit, Aurora Transit and Newmarket Transit authorities. VIVA is the regional rapid transit network which moves commuters

between York Region municipalities by dedicated transit lanes built along major corridors. YRT is committed to connecting residents within the York Region to the Greater Toronto and Hamilton Region through rapid transit services.

York Region Transit is currently developing a fare strategy to achieve the recommendations from industry best practice and peer comparison, a 45 percent revenue-to-costs ratio. The strategy will promote fare equity across all age groups and provide for fare discounts based on ability to pay. Recognizing that affordability is an issue affecting all ages, the strategy will explore the benefits of providing fares based on one's ability to pay versus discounts by age group. Options to be considered will include the implementation of a U-pass for post-secondary students, a pass for people living with low income, and a fare to increase service utilization during non-rush hour periods. The current fare categories will be reviewed and restructured.

Burlington Transit, Oakville Transit and Milton Transit (Halton Region)

In the Halton Region, the transit agencies that operate in Burlington, Oakville and Milton operate independently. Providing transit within the region, the Halton Regional Municipality has made an effort to address the affordability of transit for low-income individuals and created a subsidized pass for low income transit (SPLIT) to be used on Burlington Transit, Oakville Transit, and Milton Transit. The split pass discounts a monthly bus pass as well as single fare tickets for low income students, adults and seniors for travel within Burlington, Milton and Oakville. The program works with individuals receiving assistance from Ontario Works and Ontario Disability Support Program, it also covers private and government sponsored refuges to cover 50% of the cost of an adult monthly bus pass, over 50% of the monthly bus pass for seniors and high school students

and 50% of the cost of single fare tickets. “SPLIT makes the cost of public transit affordable for many students, families and older adults in our community,” said Halton Regional Chair Gary Carr. “By expanding the transit options to include ActiVan and taxi scrip programs, we are supporting our partners at the Town of Halton Hills and the school boards to make their programs available to more people who need it. This is an important step in making subsidized transit more affordable and accessible across the region (Halton Region, May 2017).”

Conclusion

The literature presented in this chapter demonstrates the importance of the social equity within transportation planning. As the GTHA continues to emerge as a global city region, the economic aspirations of policy makers and planners need to include infrastructure investments not only to combat transit inequities but to become competitive in the global market. Addressing fare inequities has begun in all municipalities and regions as shown in the above survey of transit providers and will continue to provide a solution to transit fares for persons with low income. The next chapter will analysis the key findings from a focus group I conducted with students and will determine if these findings are countered or reinforced in the literature, within the Toronto context.

CHAPTER 3 – The Relationship of Transportation and Education

Introduction

Transportation is the lifeline of cities and has economic, social and political benefits. Transport has influenced the life of the people by promoting culture and co-operation, which relates people to one another. Transportation and transit have become inseparable parts of the urban fabric that not only define the economic, social and political life of the city but determine how we get to destinations. They affect the choices we make about the places we want to go.

Public transportation as we know it today has shaped cities since the end of the 19th century and has influenced the mobility of populations. Particularly, student populations are affected by the types of transportation that is available or unavailable. Since the earliest stages of education, primary and secondary schools have often been located within local neighbourhoods and have allowed for students and parents to walk or cycle to school. But many students in secondary and post-secondary institutions are faced with decisions on what mode of transportation they would choose to get to school as the institutions where they are enrolled might be outside of their immediate spatial vicinity. The locations of post-secondary institutions can make the difference when potential students are making their decision on where they will commence their academic studies. The association between education and transportation is an important beginning to this major paper as it demonstrates how critical it is to the success of the institutions as well as the potential students it seeks to serve. The inability of educational institutions and regional transportation systems to provide transit to students during all hours of the day creates an educational barrier and demonstrates the unequal access to education. Transit

is a key contributor to the success of students – it saves time and money as well as provides valuable life lessons and instills independence and confidence. Transportation to educational facilities entails a broad set of practices from walking to driving, I am particularly interested in public transit. This chapter will look at the progressive relationship of transportation at all levels of education beginning with elementary school and concluding with post-secondary institutions. This will be revisited later on in this paper along with relevant data from StudentMoveTO, a multi-institutional survey that was conducted by four universities in Toronto to study student mobility.

Elementary School

Elementary school is the first educational institution where children usually commence compulsory schooling. It is imperative that students receive an elementary education in order to lay the foundation for higher education and financial stability. Accordingly, the Education Act has outlined compulsory attendance under section 21 stating "every person who attains the age of six years on or before the first school day in September in any year shall attend an elementary or secondary school on every school day from the first school day in September in that year until the person attains the age of 18 years." In accordance to this law, Ontario school boards often enter into agreements with developers to agree to purchase a school site that is designated in a plan of subdivision. The *Planning Act* has urged developers to consider school sites in subdivision plans and states in section 24 "in considering a draft plan of subdivision, regard shall be had, among other matters, to the health, safety, convenience, accessibility for persons with disabilities and welfare of the present and future inhabitants of the municipality and to […] the adequacy of school sites." Land use planning has allowed for incorporation of elementary schools in local

neighbourhoods and solved the potential issues of travelling to school.

A report by Smart Commute, a program for Metrolinx, entitled *School Travel in the GTHA* examined travel trends in active school travel (AST) across the Greater Toronto and Hamilton Area, which is comprised of the cities of Toronto and Hamilton and the regions of Durham, Halton, Peel, and York (Metrolinx, 2015). The report compared the travel trends of 11-13 year olds which would describe elementary school students and 14-17 year olds which would refer to secondary school students from data collected from Transportation Tomorrow Survey (TTS), a cross-sectional travel survey conducted every five years in the City of Toronto and the surrounding region. It was identified that students used five different modes of transit when getting to school: walk, cycling, public transit, school bus, automobile. Although designated school blocks are included in new housing subdivision plans, students are still using varied modes of transportation to get to school that are comparable to 1983. Travelling to school by modes of public transit, bike and school bus have been fairly consistent but drastic changes to walking and automobile have changed the mobility of elementary school students. According to *School Travel in the GTHA: A Report on Trends* in 1986, over 50% of students were walking to and from school while in 2011 only 39.0% of students walked to school and 45.6% walked home from school. There has been a 16.5% and 11.9% decrease in student walking to school and from school respectively. In addition, in 1986 only 11.6% of students were driven to school and in 2011 that number nearly tripled to 30.8%. There was a slight decrease in the number of students that were picked up from school by car, 7.8% in 1986 and 21.7% in 2011. When travelling to school, distance is the biggest factor that influences the mode of transportation chosen. Research indicated that the distances between schools and homes haven't increased over time, more children are being driven short distances to

school (Metrolinx, 2015). This indicates that auto dependency has played a major role in students' mobility as they become part of their parent's work commute.

High School

The second educational institution where elementary school students continue their compulsory education is in high schools. Often referred to as secondary schools or collegiate institutes, this stage of education is to prepare students between the ages of 14-17 for post-secondary school and entering the workforce. At this stage of schooling, students have more autonomy over their transportation decisions in comparison to elementary school students. In Ontario, at the age of 16 students can obtain a driver's license and have the ability to drive to school this will contribute significantly to the choice of transit mode. When comparing the transit modes used by high school students, taking public transit is more popular while walking and travelling by school bus decreases. According to *School Travel in the GTHA: A Report on Trends* in 2011, 28.0% of high school students walked to school, 21.6% of high school students took public transit to school, 13.7% of high school students take school bus to school and 35.1% of high school students are driven to school. The changes in student mobility are influenced by the increased distances between high schools and homes as well as the ability of students to drive themselves to school. There has been an 11.0% decrease in student walking to school and a 10.6% decrease in travelling by school bus while there was a 17.1% increase in public transit. Figure 5 illustrates the ways in which school trips were made by mode of transit from 1986 to 2011. The research conducted by the Transportation Tomorrow Survey demonstrates that with time active transportation has become a less popular mode of getting to and from school, whereas

automobility has become more dominant. These changes have been contributing factors to the congestion and gridlock issues that have surfaced over the past few decades.

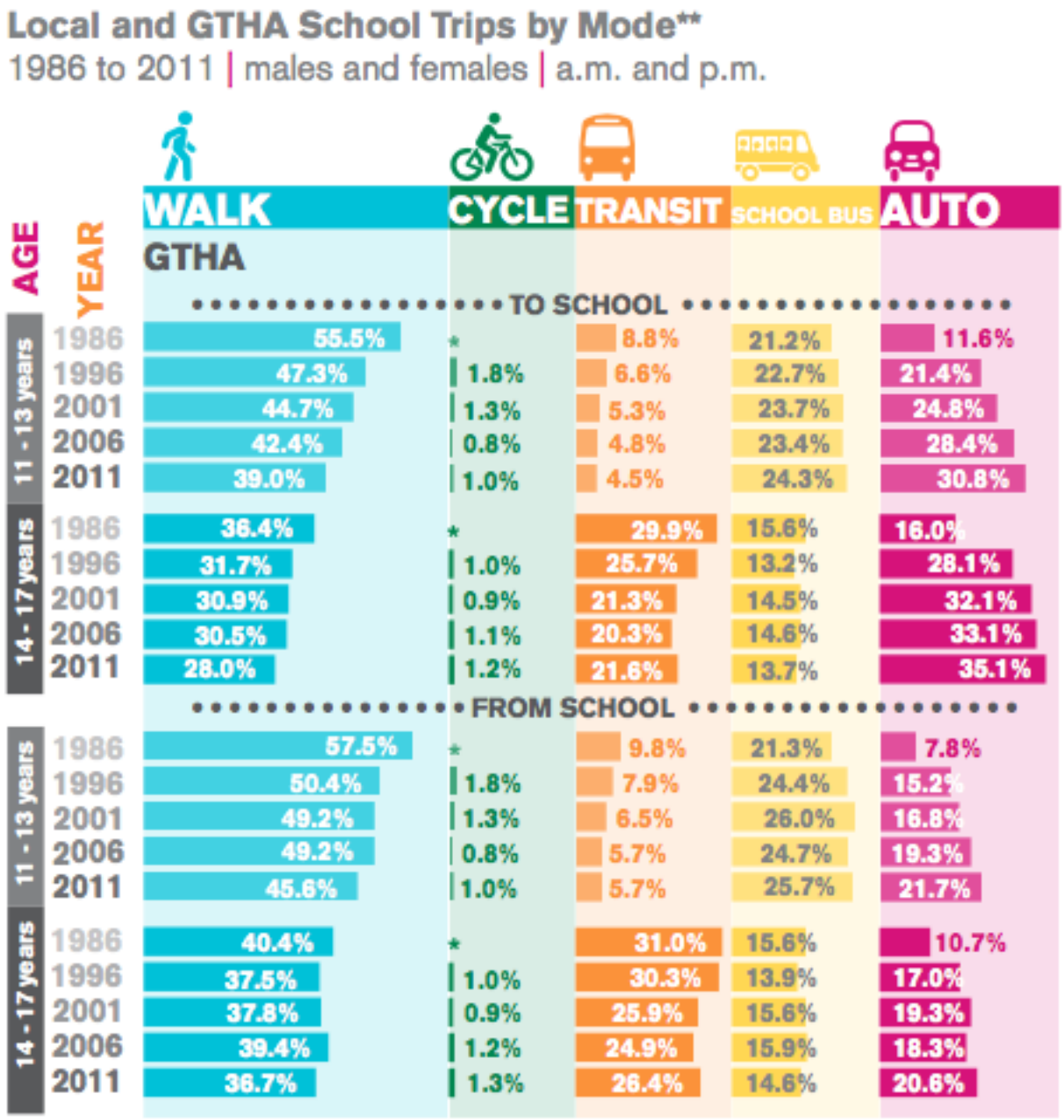

Figure 5. Local Toronto and GTHA school trips by mode from 1986 to 2011 (Source: Smart Commute)

Post-Secondary School

Higher education that take place in universities and colleges attracts thousands of high school students and mature adult students. These education institutions equip students with the theoretical and practical learning skills that can be applied directly to the preferred program of interest and the workforce. In 2016, in the Greater Toronto and Hamilton Area, there were 240,265 students enrolled in six universities (Government of Ontario, 2017) while 110,677 students were registered in seven colleges (Government of Ontario, 2017). Over 350,000 students travel throughout the Greater Toronto and Hamilton Area to pursue higher learning and rely heavily on transit to get to campus. Unlike the beginning of a student's educational journey when transit is the responsibility of the school board and parents, once students reach post-secondary institutions this responsibility becomes downloaded to students. With not many students able to afford private cars, public transit becomes the primary accessible mode of transit. The spatial locations of colleges and universities are spread across the province and force students to travel further distances to get onto campus, these distances put pressure on the need for transportation infrastructure to ensure that students can get to and from campuses during all hours. When a school lacks adequate infrastructure and services, transportation becomes a barrier to educational and economic success. The seven colleges and six universities in the Greater Toronto and Hamilton Area are all well served by public transit. GO Transit, Toronto Transit Commission, Brampton Transit (ZUM), Hamilton Street Railway (HSR), York Region Transit Authority and VIVA, Mississauga Transit (MiWay), Oakville Transit and Durham Region Transit (DRT) all have the responsibility of getting student from home to class every day.

Transit Access

The existing transit network provides many travel options to help riders get from origin to destination. In the Greater Toronto and Hamilton Area, the regional network is vast and lacks adequate infrastructure for a large geographical area which causes commuters to experience long travel times, connectivity issues and access barriers. Access to transportation is significant to the success of students as well as the educational institutions. Schools are making an effort to have an ongoing dialogue with regional and local municipalities in order to ensure student transit needs are met. As a commuter school, York University has effectively transformed into a transit hub which makes connections to many transit agencies and awaits the opening of the York University subway station. York University has set an example for other commuter schools by demonstrating the need for various transit operators to operate within campuses and cross municipal boundaries in order to get students on campus without experiencing connectivity issues.

Figure 6. GTHA Universities along rapid transit lines (Source: Justine Nortey, using Goggle Maps)

Post-secondary schools such as Ryerson University, OCAD University and University of Toronto – St. George Campus that are located in the core of Toronto have access to existing TTC stations as well as the Union Station GO station which students utilize to get onto campus. Suburban universities are more challenging for student commuters as access is usually limited to buses, which results in longer commute times and multiple transfers. McMaster University connects students with a GO Bus Terminal that has six routes and the Hamilton Street Railway (HSR) with is Hamilton's municipal transit system that provides service to McMaster from Ancaster, Dundas and Stoney Creek, as well from the lower and "mountain" areas of Hamilton (McMaster University, 2015). University of Ontario Institute of Technology located in Oshawa,

Ontario connects students with a GO Bus Terminal that services two bus routes and Durham Region Transit with seven bus routes in its North campus – one of which operates as a campus connect, making connections between Trent University (satellite campus), and Durham College – Whitby campus. University of Ontario Institute of Technology's downtown campus is serviced by the Oshawa GO Bus terminal. University of Toronto – Scarborough also has a GO Bus Terminal that operates a sole route. Three TTC bus routes, one of which is a rocket bus from Kennedy Station as well as the Durham Region Transit Pulse 900 that operates between Oshawa and University of Toronto – Scarborough. Moreover, University of Toronto – Mississauga connects students with MiWay service that offers four bus routes and Brampton Transit offering a new express bus transit route between the Brampton Gateway Terminal and UTM from September 2016-April 2017 as a ridership trial. The above-mentioned institutions have ensured that campuses can be accessed by way of public transit in order to make suitable connections to the existing transit network.

Transit Costs

The cost of transit on students affects their ability to access transit. The inability for students to pay fares creates a barrier to their educational opportunities and in turn economic prosperity. The research conducted demonstrates that there is an unevenness in the price that students are paying for transit because of municipal jurisdictions, transit systems and their agreement or lack thereof with educational institutions.

The Toronto Transit Commission offers a Post-Secondary Monthly Metropass to students enrolled in a full-time degree or diploma program in a recognized Post-Secondary institution or a Private Career College located within the City of Toronto. With this pass, a monthly saving of

$29.50 on the usual adult Metropass. Students at York University, Ryerson University, OCAD University and University of Toronto – St. George and Scarborough Campuses can take advantage of these savings. (source: TTC) Additionally, GO Transit offers full-time Canadian university and college students discounts of approximately 10% to 30% on the adult monthly passes with a valid identification. The GO Student ID card allows travel at a discounted rate for the period of full-time study and must be renewed each new school year.

Selected suburban post-secondary schools have gone into agreements with transit authorities to provide university passes for students. Often referred to as U-Pass, this student transit pass allows unlimited fare-free rides within a municipality. Schools such as McMaster University, University of Toronto – Mississauga and University of Ontario Institute of Technology have all entered into such agreements with the Hamilton Street Railway Transit System, Mississauga Transit and Durham Region Transit respectively in order to provide cost effective transit to students which is built into full-time tuition fees.

For example, student unions from University of Ontario Institute of Technology and Durham College located in Oshawa, Ontario worked with Durham Region Transit to provide an economical transit option for students. As of September 1, 2016 the U-Pass costs $120 during an academic term (September 1 till April 30) for registered full-time students. The value of the U-Pass has provided an immense financial benefit to students whom may already be underfinanced. Using University of Ontario Institute of Technology as an example, students save $816 per year as the cost of an adult monthly pass is $117 a month. These types of savings incentivize taking public transit and has resulted in Durham Region Transit reporting over 1.8 million U-Pass rides per year. (Source: UOIT)

The broad success of the U-Pass is directly related to the larger dialogue of fare integration which has been identified in Metrolinx's *Big Move*. This plan has identified ten strategies in which it would like to implement, one of which is an integrated transit fare system. The challenge for Metrolinx is to maneuver between the 10 different fare structures in which the various transit agencies within the GTHA use. Without an integrated fare system, travelers crossing the region have to pay multiple fares for a single trip. An integrated transit fare system enables travelers to cross municipal boundaries or transfer between transit modes or operators without fare duplication (Metrolinx, 2008). The PRESTO fare card program was introduced by Metrolinx in 2010. All transit systems in the GTHA currently participate in the PRESTO program, with some stations and transit vehicles outstanding (Metrolinx, 2008). This program is the first step towards fare integration and the outstanding participation from all transit agencies demonstrates dedication to provide a better transit experience beginning with integrated fare structures, co- fare arrangements, and transit pass subsidies.

In addition to implementing an integrated transit fare system, Metrolinx is working toward the expansion of the U-Pass program to more university and college campuses within the GTHA. With a continuation of U-Pass programs at Durham College, UOIT, Trent University (Oshawa), McMaster University, Mohawk College, and University of Toronto-Mississauga. This strategy also seeks to introduce of a U-Pass Program at Sheridan College as well as expand the U-Pass program to Summer students and part-time students at the University of Toronto-Mississauga. By expanding a pass for students to travel free within the municipality, the region is providing a pathway to education that removes the financial obligation of transportation that contributes to

the affordability of education students creating equal access to education regardless of income level.

Active Transportation: Cycling

Moreover, active transportation is considered a worthwhile form of transit within post-secondary student transportation discourse. The City of Toronto has addressed the need to facilitate more desirable travel patterns and encourage more sustainable travel behavior within the Toronto Official Plan. This 20-year plan outlines the long-term vision, objectives and policies of the City with respect to safe and sustainable growth and development; the conservation of natural and cultural heritage; and the provision of the necessary infrastructure (WSP|MMM Group, 2016). Some of the key objectives, goals and policies in the Plan are as follows:

- Encouraging cycling as a preferred, more efficient mode for making local trips and reducing car dependency;
- Supporting transit by creating cycling linkages to transit stations;
- Fostering safer and more attractive conditions for cycling; and,
- Promoting cycling as a healthier clean-air alternative to other modes of travel.

In an interview, Dewan Karim, Senior Transportation Planner at the City of Toronto, mentioned that the typical student commute takes place in the off-peak periods which is between 10 a.m. to 3:30 pm and after 7 p.m. It is during these times that transit agencies provide low service and usually eliminate or reduce of express routes. Karim stresses the importance of mixed transit modes on university and college campuses, one of which would be cycling. Cycling is an excellent

way for students making short trips off campus or within campus. Universities such as University of Toronto – St. George, Ryerson University and OCAD University can take advantage of the biking infrastructure provided by the City of Toronto such as designated bicycle lanes, off-road bike and multi-use paths and signed shared roadways while schools provide indoor and/or outdoor bicycle racks, bike lockers and affordable repairs. Suburban Universities also provide bike sharing programs which are free to students, staff and faculty. University of Toronto – Scarborough and Mississauga, University of Ontario Institute of Technology and McMaster University bicycle sharing programs promote sustainability and active transportation within the campuses. Public bicycle systems can have numerous benefits for a city and its inhabitants, ranging from the reduction of congestion and emissions, to promoting healthy living through cycling and providing residents and visitors with an active mobility option (WSP|MMM Group, 2016).

York University lacks the infrastructure to make cycling a viable transportation option within campus. With the university offering the bare minimum – bicycle racks, York has missed a significant part of transit discourse by not participating in bicycle programs that facilitate transit equity amongst students. Bike Share Toronto has studied potential satellite zones that represent larger contiguous areas of higher potential. The results of the analysis identified four main potential Satellite networks, one of which was York University and it also appears to be the most promising. Universities and college campuses are attractions and points of interest which would correlate to increased ridership and York University will soon be in close proximity to a rapid transit station. Equity and affordability are one of the most attractive features to the university. With York University bordering the “in-between” neighbourhood of Jane and Finch it is important for the school to support equitable transit options in order to create access to community members.

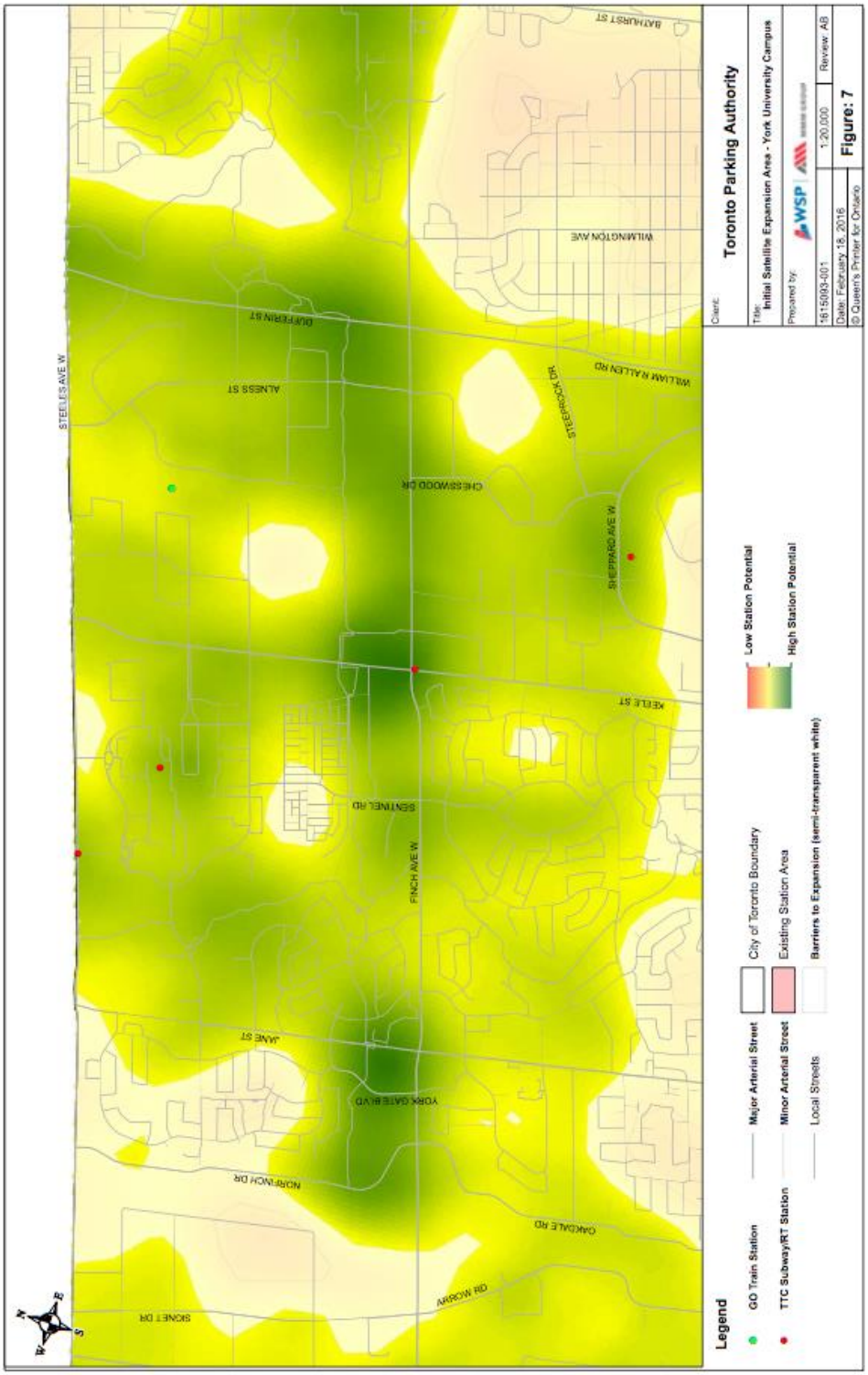

Figure 7. The Potential of Bike Share at the York University Keele Campus Area
Source: WSP/MMM Group, 2016

The benefits of public bike systems can include:

- A public bicycle system can help communities attract and retain residents
- Public bicycle systems represent an important opportunity to provide practical and more affordable transportation options to individuals who choose not to own a motor vehicle, as well as support lower income communities, which may have low automobile ownership rates and high transit dependency.
- The cost of cycling or ability to own a bicycle may be prohibitive to some. A public bicycle system offers opportunities for people to cycle who may otherwise not have had the opportunity to do so due to a lack of access to a bicycle, or the availability of secure bicycle parking.
- The annual Bike Share Toronto membership equates to $7.50 per month, making it one of the most cost-effective means of moving about within the Bike Share Toronto area of coverage.

(Source: WSP|MMM Group, 2016)

A university's commitment to ensuring that student's transit needs are met should include various modes of transit – not just the prevalent forms. Suburban schools have a challenge to provide transit infrastructure where urban schools can take advantage of the infrastructure that is already provided in the urban space. Toronto's commitment to providing more cycling infrastructure will help change the culture of cycling within the city and provide safe, affordable transportation options. On campus, providing adequate cycling infrastructure ensures that students are able to

explore active transit modes and provides equitable options for students and community members while creating a sense of community between universities and their neighbours.

CONCLUSION

Transportation is a multi-faceted function that not only serves in the mobility of people but has the ability to enhance the quality of life by building communities and restoring community life. Transportation can be a pathway or a barrier to economic, social and political prosperity by addressing the livability concerns of communities. As a major key to the success of students, transit agencies and educational intuitions have a responsibility to serve post-secondary students just as they have done with elementary and high school students. All universities and colleges within the GTHA are serviced by local transit agencies and/or the regional transit authority that allow for connections to the larger regional transit network. Unfortunately, there is inequality in the financial commitment students need to make to commute to school. Programs such as the U-Pass provides students with unlimited transportation within the municipality for heavily discounted cost that is included in tuition costs. Finally, post-secondary transit discourse should not be limited to the modes of automobile and public transit, it is important that schools provide adequate infrastructure to make cycling a conceivable transit option. Participating universities and colleges in bike sharing programs have demonstrated that creating a bike network on campus creates convenient connections and cohesiveness that bring communities together and helps them grow and become safer and more attractive. This chapter demonstrated the importance of the intersection of transportation infrastructure and educational institutions. There needs to be a strong relationship and dialogue between the two in order for students at all stages to be

successful and alleviate any and all barriers that there may be in the act of commuting to and from school.

CHAPTER 4 – Choosing School or Choosing Transit Route

Introduction

The relationships of transportation and educational institutions are multifold and inherently embedded in the spatial structures of the urbanized landscape. Although transportation systems potentially generate social, economic and educational benefits that can reduce social exclusion, in reality they don't always do. Equitable access is required in order to enrich socially deprived areas in the Greater Toronto and Hamilton Area. This should apply particularly to transportation to and from educational institutions. Unfortunately, as it stands, students that reside in the "in-between" city often experience long commute times, poor connectivity, rising fares, and little to no access to the rapid transit network and hence experience barriers to education and employment.

In this chapter, I rely on mainly two sources of data, one is quantitative, one is qualitative. 1) The quantitative source involves data from a survey of travel behaviour among students from the four Toronto universities. StudentMoveTO is a collaboration between Ryerson University, York University, University of Toronto, and OCAD University to analyze commuting patterns of their students. Researchers sent out an invitation to participate in a voluntary survey via email to the schools' 185,000 students. The survey received 15,226 complete responses, with an overall response rate of 8.3%. StudentMoveTO provided detailed data about where students live and travel throughout the day, as well as what factors influence how they schedule work, studies, and daily activities. A total of 3208 students recorded commuting trips in their travel diaries and the data provided by StudentMoveTO will illustrate the average commute times, preferred mode

choice and mode change motivations from all seven campuses of these four universities; Ontario College of Art and Design (OCAD), Ryerson University, York University – Glendon and Keele campuses and the University of Toronto – St. George, Scarborough, and Mississauga campuses.

2) The qualitative source involved a focus group I conducted in June 2017 with ten Grade 12 students that reside in the "in-between" city of Black Creek. This neighbourhood borders York University to the West and has been identified by the City of Toronto as the Black Creek Neighbourhood Improvement Area (NIA). Neighbourhood Improvement Areas are 31 neighbourhoods identified as falling below the Neighbourhood Equity Score and require special attention. The Black Creek Neighbourhood has been characterised by its large population in Low-Income (LIM-AT) standing at 28% in comparison to the City of Toronto at 19%, the highest postsecondary educational attainment for the population between 25 years to 65 years is 41% versus 69% in the City of Toronto. It is important to understand the educational barriers for students in this neighbourhood in order to contribute to the dialogue of equity and transportation planning. The focus group set out to determine transit barriers and challenges in post-secondary school selection.

The composition of the focus group consisted of seven female students and three male students. The participants attend James Cardinal McGuigan Secondary School from the Toronto Catholic District School Board located in Toronto, Ontario, St. Joan of Ark Secondary School from the York Catholic District School Board located in Maple, Ontario. St. Marguerite d'Youville Secondary School from the Dufferin-Peel Catholic District School Board located in Brampton, Ontario. The

varying high schools demonstrate the unique travel patterns of these high school students, contributing valuably to the dialogue of transit access and equity from the perspective of high school students that will soon become postsecondary school students. The focus group was conducted once in June 2017 and the fixed questions were prepared in advance to guide the flow of dialogue but participants were encouraged to discuss related information. Participants responded in person through in-depth conversation, I also recognized that there would be dominant participants that would control the conversation and provided my email in order to ensure all voices were heard and further comments could be communicated with the research team.

Key Findings

Public Transit Usage and Dependence

Let us first look at the StudentMoveTO findings. The survey classified commuting modes into eight distinct classes as auto drive, auto passenger, local transit with walk access, park and ride, kiss and ride, bike and ride, walk, and bike. The following tables have been arranged in descending order to illustrate the most popular modes of transportation amongst all four universities as well as the mobility tools ownership information.

Mode Share	Percentage (%)
Local Transit with Walk Access	48.57
Walk	22.54
Kiss and Ride	7.86
Bike	6.95
Auto Drive	5.52
Auto Passenger	5.33
Park and Ride	3.02
Bike and Ride	0.22

Table 1. Mode share percentage information
(Source: Hasnine *et la.,* 2017)

Mobility Tools	Percentage (%)
Bike	49%
Local transit pass	42%
Presto card	32%
Car	14%

Table 2. Mobility tool ownership information
(Source: Hasnine *et la.,* 2017)

The dataset revealed that almost half of the StudentMoveTO survey respondents are dependent upon public transit (48.57%) which corresponds to the high local transit pass ownership (42%). Walking has a high share (22.54%) which is suitable for students that live near the university. Presto card ownership (32%) gives an illustration of how many suburban students are commuting into Toronto as this payment card allows for seamless payment of transit fares at regional transit station and select local transit agencies.

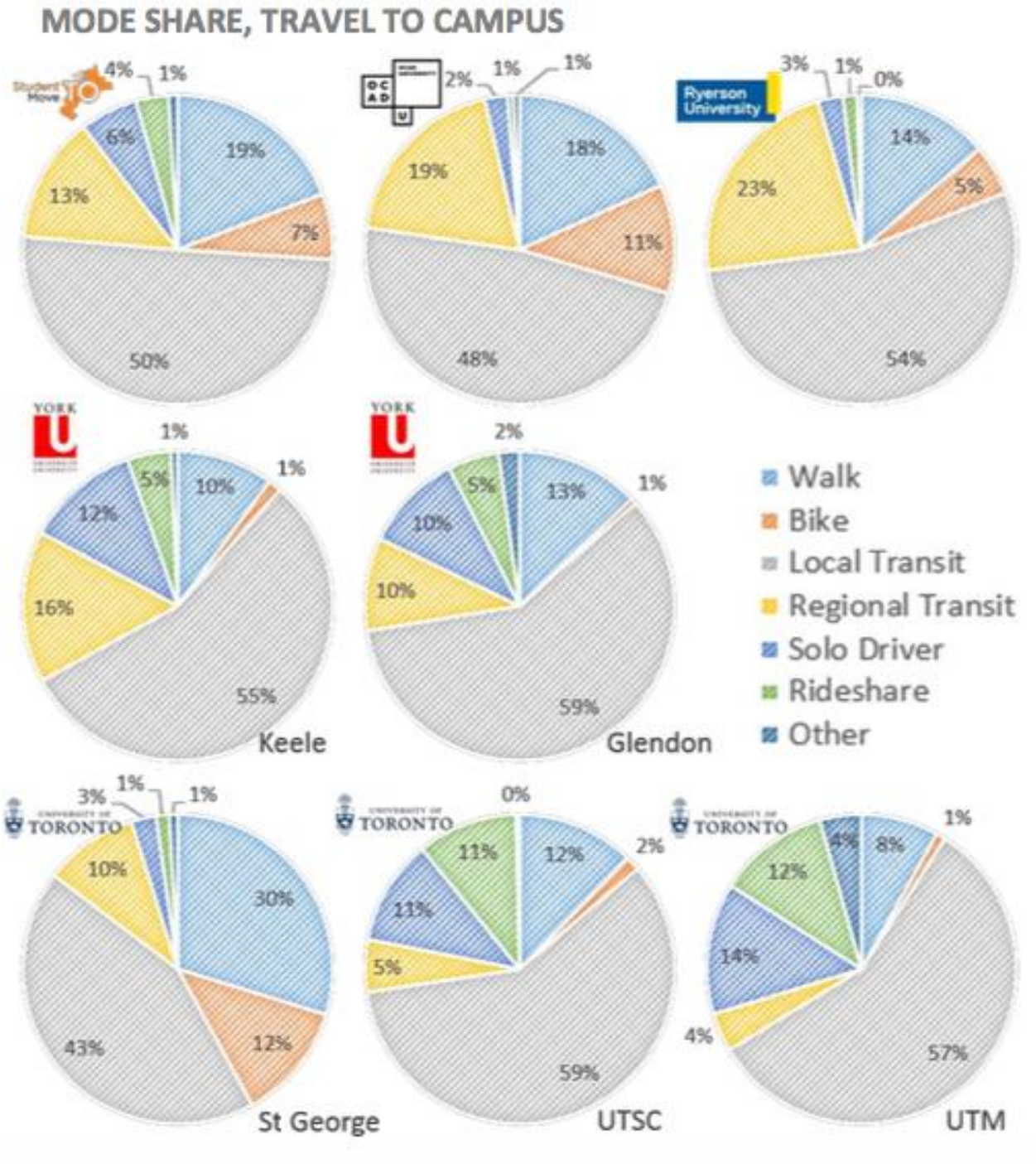

Figure 8. Chart of Mode Share of travel by campus
(Source: StudentMoveTO, 2016)

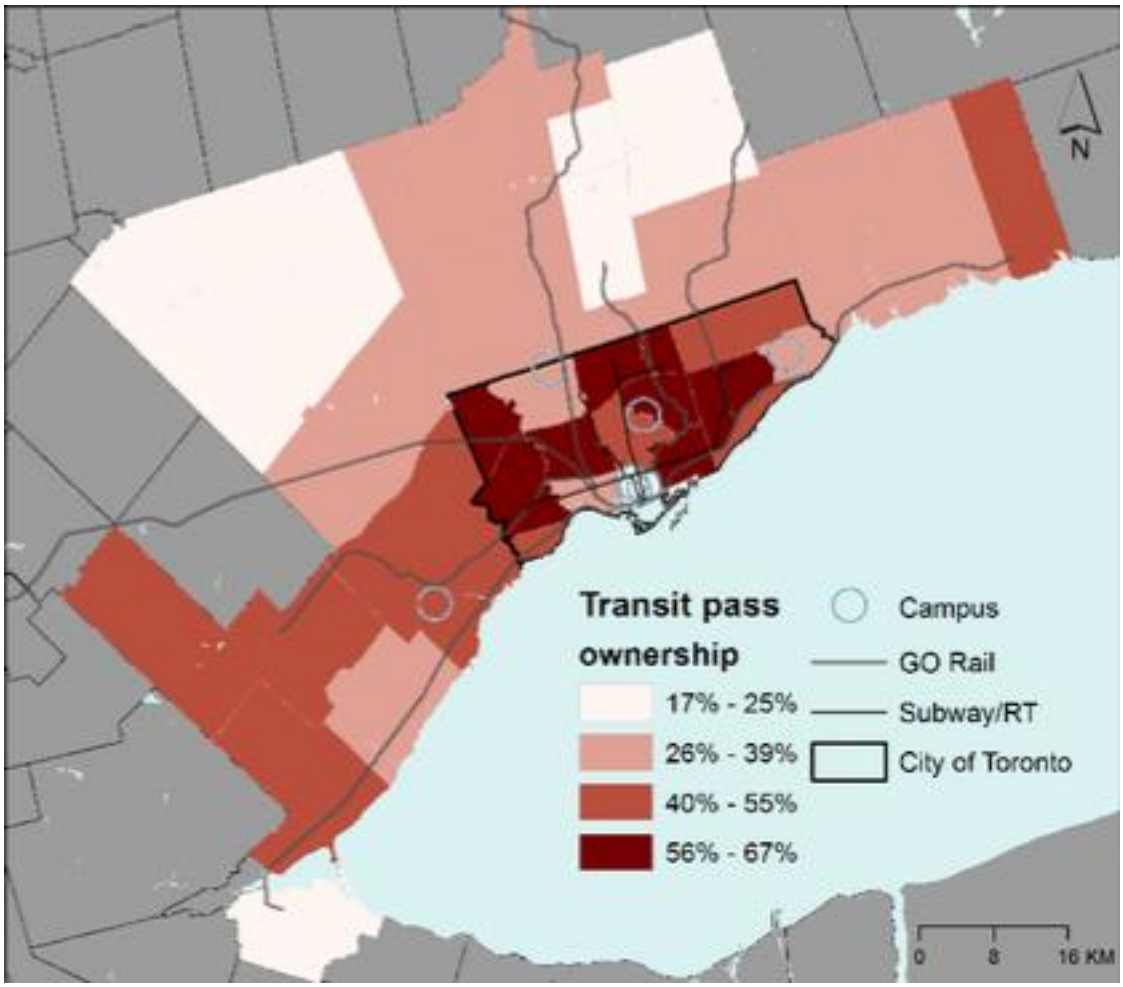

Figure 9. Map of the distribution of transit pass ownership within the GTHA (Source: StudentMoveTO, 2016)

Moreover, the focus group participants indicated that they were all dependent upon public transit for all their individual transportation needs when walking was not a viable option. Rashan Fortune said "Transit is extremely important because that's my way of transporting from destination to destination. It's a huge factor currently in my life." Chelsea Boadu said "Transit is very important in my decision making because there are no available cars for me to commute with. Therefore, transit is my main form of transportation." When asked of other commuting modes such as cycling, participants said that cycling was for leisure and had not thought of it when getting to places because downtown was the place that cycling was acceptable. This could have been because of

the lack of transit infrastructure in the Black Creek neighbourhood. The mobility of these secondary school students relates to the level of access available and shapes their overall transit experience. Six of the focus group participants mentioned that they had no access to a car and four participants that did have a household car said that access times were limited. The focus group respondents' accounts are all in keeping with the findings of Hess and Farrow (2011) relating to the dependence on transit and the costliness of transit.

Housing and Transportation

Household location and access to transit have a strong link that determines who can live there and the potential value the community. Provided options for transit for neighbourhoods means that everyone does not have to depend on a private automobile. In this section, I analyze the effects of housing location on a student's commute.

> "Accessibility to a rapid transit network in terms of distance between home and the nearest subway station in Toronto plays a decisive role in increasing attraction of private car among the post-secondary students in Toronto. It is clear that with increasing home to nearest subway station distance, the only positive utility of car as the only mobility tool increases, but the dis-utility of all other single as well as composite mobility tools decreases."
>
> (Habib *et la.,* 2017)

The StudentMoveTO data revealed that commuting distance has a strong influence on a student's travel to campus and as travel time increases, students may group courses together or avoid early mornings and late nights to reduce the burden of traveling (see Figure 11). For students living with their parents the choice of housing was outside of their control, StudentMoveTO reported that 20.7% of respondents fell into this category when asked the reason for their recent move. The most popular reason for moving was the cost of housing, 24.1%, and in keeping with this 59% said a change in household location would motivate them to change their main mode of transportation. "There are significant differences between universities however, with University of Toronto students living closest to campus on average (12 km), while OCAD University students live the farthest (22 km). Overall, 1 in 4 students live 20 km or more from school (StudentMoveTO, 2016)." The StudentMoveTO data revealed that, York University students commute an average of 18 km to their main campus, with 16.5% of York respondents living 25 km or more from school. York University students also have among the longest average commute times, with 41% spending 2 hours or more per day traveling to and from campus (StudentMoveTO, 2016). The subway extension of the Yonge-University Line to York University's Keele campus, which is due for completion in December 2017, will likely have a positive effect on student's campus commute and change the home locations that students choose. The close proximity of rapid transit to post-secondary schools shortens transit commute trips for students making school choices more competitive.

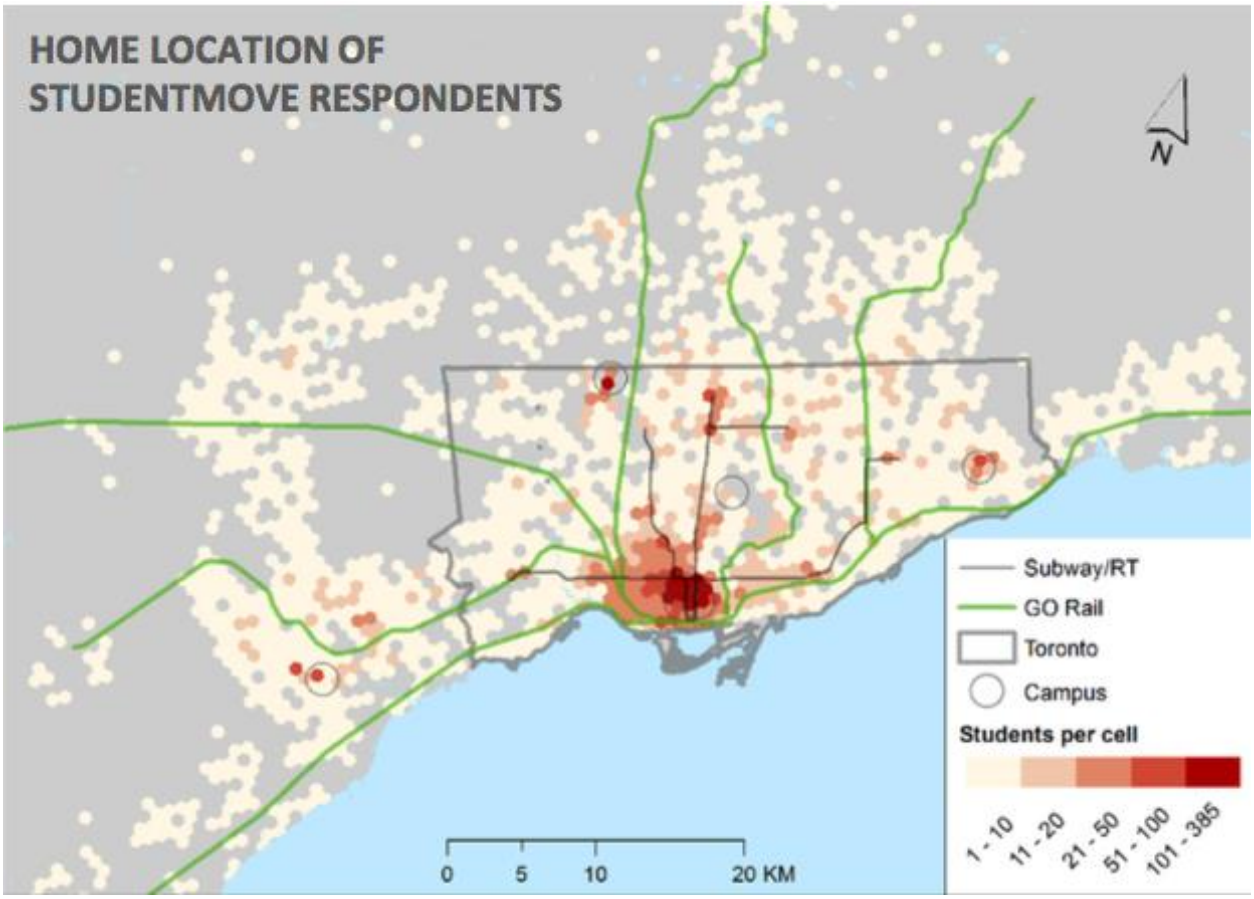

Figure 10. Map of the home locations of student respondents within the GTHA (Source: StudentMoveTO, 2016)

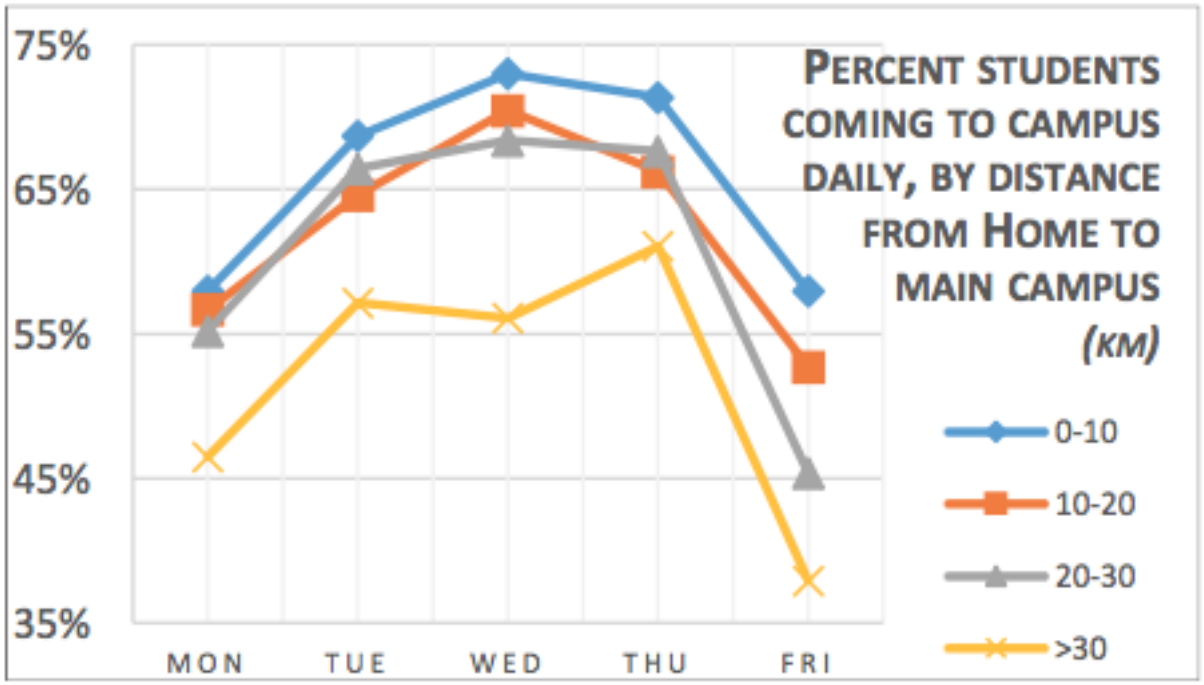

Figure 11. Graph of the percentage of students commuting to campus daily (Source: StudentMoveTO, 2016)

The high school focus group participants live in the Black Creek neighbourhood with no access to rapid transit. Students highlighted that long transit commutes would be a factor in not considering a specific school. As Ivy Amponsah put it: "I want to attend a school where transit isn't hard to find and it's easy to make connections from my home that will make my commute much easier and relieve stress in my university life." When asked how important transit is in the post-secondary school decision making process many students explained that preferred program with most important followed by the location of the school. Transit for many of the students wasn't something that was thought through by the students before this focus group. Half of the group of soon-to-be postsecondary school students mentioned that they would like to live on campus and therefore did not think about transit, overlooking perhaps that it still may be necessary to travel

off campus to purchase groceries, attend medical appointments and visit friends and family. Transit is not only a means of getting to and from school but contributes to holistic mobility.

Transit Costs

The StudentMoveTO survey did not address the specific costs associated with transportation but the survey did reveal that transit costs would motivate students to change their mode of transportation. 20% of survey respondents reported that If transit were to increase, they would change their mode of transportation. It is difficult to determine if the change would cause students to drive more often or use sustainable modes such as walking and cycling. Moreover, 21% of survey respondents said that if transit fare decreased it would motivate a change in transit mode. As previously mentioned, 49% of students had ownership of local transit passes regional fare integration may be an issue for students, or so it would appear given the significant decrease in the rate of transit pass ownership just outside the TTC-served City (StudentMoveTO, 2016). Based on the graph of the percentage of students commuting to campus daily, students commute the most between Tuesday to Thursday, this may be the reason that transit pass ownership is low. It may not be economically feasible for a student that commutes on three days to campus to purchase a monthly transit pass.

MODE CHANGE MOTIVATIONS	
Change in household location	**59%**
Improvements to transit	**26%**
Decreased transit costs	**21%**
Increased transit costs	**20%**
Worse congestion	15%
Decreased parking costs	15%
Nothing, Will not change	14%
Improved bike lanes	9%
To improve health	7%
Environmental concerns	6%
Roadwork disruptions	6%
Improved pedestrian environment	4%
Increased parking costs	3%
Added bike storage	3%

Table 3. Transit mode change motivations
(Source: StudentMoveTO, 2016)

The cost of transit for many of the high school focus group participants had an adverse bearing on my interviewees. As one participant put it: "I wouldn't want to spend almost $8 every day to go to school and come back home." The participants mentioned paying a double transit fare and regional bus fares as reasons for not applying to specific schools. Michelle Kissi emphasized the pressures that transit fares place on students: "As a student, making sure that transit fares suit your needs is very essential. Transit fares are an obstacle to many students as this results in not being able to afford the prices of the fare. Post-secondary school tuition is already an ongoing issue considering how pricey the tuition is. Transit fares add an extra weight to that ongoing crisis." Tuition was a particular concern for the focus group participants as they recognized the rising cost of post-secondary school would leave little room for transportation costs. Therefore, transit is a significant consideration in post-secondary selection for incoming post-secondary school students

as seven out of ten participants mentioned that their commute would be a factor in decision making.

Conclusion

The research findings of the in-depth focus group presented in this chapter illustrate the barriers and challenges faced by high school students in their post-secondary school selections. These students anticipated the awaiting issues of the lengthy commutes and the cost of transit when they become postsecondary school students, issues that they would not be able to escape unless they moved closer to the school campus or obtained a license and private automobile. The research findings from the StudentMoveTO data complimented the same issues that the focus group highlighted. The current lived experiences of Toronto university students demonstrate that commuting is burdened by issues of transit inequity as they relate to uneven infrastructure development, limited service levels and costly transit. The next chapter will take a comprehensive look at the progression of transit within the Greater Toronto and Hamilton Area and provide recommendations to further the inclusion of social equity within transit planning.

Chapter 5 – GTHA Transit: Where We Are Today and How Can We Improve

The state of transit investment within the Greater Toronto and Hamilton Area (GTHA) has taken great strides in recent years. The effect of neoliberalism has decreased transit investment in the GTHA since 1996 and the federal and provincial governments have begun to address the unevenness of infrastructure by promising to invest billions over the next decade to strengthen the Ontario communities. Metrolinx reported in 2008 that the current rapid transit network was 511 km and is expected to grow by 1242 km of new transit lines and improvements when the Regional Transportation Plan is implemented. The Regional Express Rail (GO Transit) will add 109 km to the planned network and would total 1395 km in transit infrastructure by 2033 (Metcalf Foundation, 2016). The much-needed investment in transit will create access, drive the economy, build communities and improve congestion. This chapter will discuss the Federal and Provincial Budgets for 2017 and what the funding means for the Greater Toronto and Hamilton Area, followed by planning strategies and recommendations which are based on the focus group findings and StudentMoveTO data presented in the previous chapter.

Federal Government

In support of public transit projects across the nation, the Federal Government has promised to invest $20.1 billion over 11 years in order to shorten commutes, lessen pollution, and strengthen economic growth. “This funding will make it possible for Canadian communities to build new urban transit networks and service extensions that will transform the way that Canadians live, move and work” (Government of Canada, 2017). This pledged investment in transit

promises to have a positive impact on the Greater Toronto and Hamilton Area as it is stated in the Minister's Letter to Ontario, the Public Transit stream allocation for Ontario is $8.34 billion, this amount includes $872.2 million for Ottawa Light Rail Transit 2. The Government of Canada is also investing more than $1.8 billion in the GO Transit Regional Express rail project in the Greater Golden Horseshoe Area through the New Building Canada Fund, a fund to support projects of national, regional and local significance that promote economic growth, job creation and productivity (Infrastructure Canada, 2016).

Provincial Government

The commitment of the provincial government of Ontario to invest in transit and transportation infrastructure reveals that decision making is made to support a global competitive economy. Over 10 years, approximately $84 billion is promised to be invested to building a world-class transit and transportation system (Ministry of Finance, 2017). In the GTHA, the improvements would be as follows:

- "Continuing transit projects across the GTHA, including the Eglinton Crosstown LRT, to run across Eglinton Avenue between Mount Dennis and Kennedy Station; the Hamilton Rapid Transit, a dedicated LRT line between McMaster University and the Queenston traffic circle; and Mississauga Transitway, from Winston Churchill Boulevard to Renforth Drive — and support for the planning of the Downtown Relief Line in Toronto."
- "Investing $13.5 billion through Moving Ontario Forward to enable faster and more frequent service on the GO rail network, through GO Regional Express Rail (RER), including the electrification of the Union Pearson Express. This is in addition to existing commitments

of $7.8 billion for state of good repair, optimization and expansion across the GO network. This total investment of $21.3 billion makes the GO capital program the largest commuter rail program in Canada. By leveraging the federal government's recent $1.9-billion commitment to support GO RER, the Province now has the ability to invest in even more priority projects."

- "Increasing funding, starting in 2019, for local transit through an enhancement of the existing provincial gas tax program, doubling the municipal share from two to four cents per liter by 2021, to provide stable funding for municipalities so they can improve and expand their local transit systems and offer more travel options to commuters and families."

(Source: Ministry of Finance, 2017)

The 2017 Ontario Budget has great potential to transform the landscape of the Greater Toronto and Hamilton Area, as the economic engine of Ontario as adequate transportation and transit is necessary to maximize economic growth. The funding proposed from the Federal and Provincial government to maintain and expand the province's infrastructure projects demonstrate the global economic competition that the Greater Toronto and Hamilton Area (GTHA) partakes in to attract investment from transnational firms, to retain 'high-skilled' labour, and to lure high-spending tourists (Joy & Vogel, 2015). Throughout this Major Paper it has been mentioned that the lack of infrastructure investment has created transit deserts which have created inequities, the prosperity of the GTHA lies within the ability for different levels of government to provide stable funding to address the issues relating to infrastructure. "Many of the problems plaguing Toronto today

related to the continued struggle to maintain and provide adequate social and physical infrastructure in a context where responsibilities and demand outstrip revenue" (Joy & Vogel, 2015). The provincial, federal and municipal governments have committed a total of $39.3 billion in capital funding to build approximately 571 kilometers of new rapid transit across the GTHA although the capital funding gap of $28.8 billion to finish the building the rapid transit projects in The Big Move (Metcalf Foundation, 2016). The funding gap will be challenging to bridge, the pressure for the municipal government to cover the remaining costs may come in the form of taxation. *Are We There Yet?* A report from Metcalf Foundation have identified revenue tools that may be used to address the funding gap such as an increase to the HST dedicated to transportation, an increased gas tax dedication to transportation, a new parking space levy or broadly-based road pricing.

In 2015, the Province of Ontario announced its plan for High-Occupancy Toll (HOT) lanes on 16.5 kilometer of the Queen Elizabeth Way (QEW), in both directions, from Trafalgar Road in Oakville to Guelph Line in Burlington (Ministry of Transportation, 2017). This revenue tool is used to improve traffic flow and encourage ridesharing but also supports neoliberal policies by partial privatization of the highway. Existing HOV lanes generate approximately $25 million annually and Finance Minister Charles Sousa said that the HOT lanes could raise between $200 million and $300 million annually (Toronto Star or Kalinowski, 2013). New Democratic Party Leader Andrea Horwath calls HOT lanes "Lexus lanes," for the very rich. Critics of these so-called "Lexus lanes" regarded the plan as an environmental tax implementation which solely benefits individuals with higher

incomes. Revenue tools create transit inequities as the tolls associated with access cause low-income individuals to experience financial burden.

Transit Prosperity: Planning Strategies and Recommendations

The focus group findings and StudentMoveTO data revealed in the previous chapter, *Chapter 4 – Choosing School or Choose Route*, demonstrated that incoming and current postsecondary students use various modes of transit to commute to campus. Structural barriers such as the location of campus, limited transit service, and cost of public transit, can have considerable influence on their transit experiences. These impediments indicate the need to adapt social equity approaches to transit decision-making and planning. The findings demonstrated that public transit contributes greatly to the discourse of who has the "right to the city" (Lefebvre, 1996), which was described by Harvey (2008) as follows:

> "The right to the city is far more than the individual liberty to access urban resources: it is a right to change ourselves by changing the city. It is, moreover, a common rather than an individual right since this transformation inevitably depends upon the exercise of a collective power to reshape the processes of urbanization. The freedom to make and remake our cities and ourselves is, I want to argue, one of the most precious yet most neglected of our human rights."

It is imperative to question the economic and political privilege of certain social groups in Toronto, which control the city and account for uneven power and decision-making (Amar and

Teelucksingh, 2015). Transportation throughout the Greater Toronto and Hamilton Area (GTHA) requires a transformation to an equity approach that allows everyone to move throughout the City to access jobs, education, goods and service regardless of physical ability or socio-economic status. A systematic equity approach allows for considerations of transit regarding infrastructure distribution inequities. Furthermore, social equity would examine the structural barriers of low-income transit dependent users, many of whom are postsecondary students of the GTHA. Students have the right to claim space and play a vital role in transit decision-making, transportation planning needs a new direction lead by democracy.

The focus group findings point to similar recommendations made by the *TO Prosperity: Toronto Poverty Reduction Strategy*, for transit equity: "Make transit more affordable for low-income residents." and "Improve transit services in the inner suburbs." As student transit experiences differ, it is important to match the transit services with the needs of commuters. The concerns of the focus group participants circulated around the issue of cost. As StudentMoveTO (2016) reported, almost half of university students in Toronto did not work, demonstrating the financial constraints of many students, which results in careful considerations regarding transit affordability. If a student is required to pay a double fare for travelling across municipal boundaries, it may become a financial burden that could deter potential students from applying to a particular school. Income inequity is another form of injustice that restricts the ability of individuals to access affordable food, healthcare, education, employment and social supports (Sengupta et al, 2013). Fare integration is imperative for the growing GTHA as many students travel across this region from suburb to suburb on a daily basis to obtain an education. The creation of PRESTO has a promising potential to integrate transit agencies within the GTHA, thus improve

connectivity and providing great mobility.

As previously mentioned, the participants of the student focus group lived in the Black Creek neighbourhood, an area with limited access to rapid transit. There are areas that tend to have experience a complex mismatch in infrastructure investment, where some investments lead and others lag, exacerbating region- wide bottlenecks and system failures (Filion and Keil, 2016). Throughout this Major Paper, I have discussed the need for greater transportation infrastructure investment within the GTHA, it is important to understand that these investments will not guarantee an improvement in transit equity. Through an equity lens, systematic spatial inequities can be alleviated to address social marginalization of disadvantaged groups and geographies (Collens, 2016). If an equity lens is not applied to the decision-making process, transportation infrastructure will continue to be concentrated in the same affluent areas of City #1, while City #3 continues to exist as an automobile dependent area with limited rapid transit access.

The appearance of equity in the transit literature and practice by transit agencies in the Greater Toronto and Hamilton Area through discounts for students and low-income individuals, and a Regional Transportation Plan demonstrates the acknowledgement of experienced mobility issues. The burden of commuting has been a result of uneven infrastructure development, limited service levels and costly transit which requires addressing by way of social equity. “Planning and building transit with equity as a central goal will ensure that people in neighbourhoods poorly served by existing transit can enjoy greater access to services, jobs, and social opportunities (Metcalf Foundation, 2016).” Positioning equity at the forefront of transit planning would require cooperation between different levels of government – federal, provincial, and municipal – for the responsibility and impetus for policy and planning initiatives and the provision of infrastructure

and public services (Frisken, 2007; Sewell, 2009). The succession of educational institutions is contingent upon reliable, safe, and affordable transit systems that can create seamless connections throughout the Greater Toronto and Hamilton Area.

Conclusion

The purpose of this Major Paper is to contribute to the discourse of transit equity through an understanding of the historic and ongoing transportation processes that foster structural barriers in the transit experiences of postsecondary students and marginalized, low-income individuals. Racism, economic status, class relations, geographic segregation and neoliberal polices have altered the topography of the Greater Toronto and Hamilton Area. These processes hold specific social, economic and political implications for the region's landscapes, which impact student and low-income communities in uneven ways that fragment urban space.

The province of Ontario has taken over regional planning in the areas of land-use and transportation for the Greater Toronto Area under the current Liberal government and has rescaled the region to include the Greater Golden Horseshoe (Joy & Vogel, 2015). The coordination and implementation of transit modes within the region is the responsibility of Metrolinx and represents the Province of Ontario's pursuit of global economic competitiveness. The most politicized urban issues usually revolve around a conflict between the goals of growth and equity (Marcuse *et al.*, 2009). The focus on growth by way of transit infrastructure investment has been the focus of the provincial government rather than the inclusion of social equity which reflects the neoliberal capitalist ideology. The lack of authority by Metrolinx demonstrates a weak regional organization as it struggles to implement transit equity strategies throughout the Greater Toronto and Hamilton Area.

Using StudentMoveTO data and findings from a conducted focus group with high school students, I found that transit inequities impeded the commute of students by way of infrastructure, fares and service. The uneven distribution of transit infrastructure demonstrates

the political actors that influence transportation planning decisions. As Toronto becomes polarized, bourgeois neighbourhoods become prioritized with infrastructure investment while residents of the more working class 'in-between' city experience disinvestment and limited transit service. In the current neoliberal environment, infrastructure investment proposals are often framed within the lens of economic competitiveness (Collens, 2016). The emphasis on competitiveness fosters transit inequities as suburban areas of the city become neglected. Addressing inequity is imperative to provide greater access to residents of the city, especially those that live in "in-between" cities. This research contributes to our understanding of mobility and the ways in which uneven distribution patterns of transit infrastructure adversely affect students' daily commute. The introduction of strategies for transit inequity alleviation in transit policy demonstrates a planning shift that addresses the costliness of transit fares for low-income individuals and students.

The Greater Toronto and Hamilton Area needs new transportation infrastructure as well as maintenance of its aging infrastructure in order to alleviate systematic transit equity. It is not a matter of happenstance that economically disadvantaged neighborhoods have poorer access to transit. It is the responsibility of society to make the right decisions regarding transit by picking the options that assist more people – not "picking winners," which are already successful areas of the city. My colleague, Michael Collens, said during the Scarborough Panel Discussion that "transit infrastructure is about opening the door to opportunity." The 2017 Federal and Provincial budget announcements have begun to address issues of transit equity to underserviced areas in Toronto and create economic, social, and educational prosperity for students and marginalized, low-income individuals.

In order to adequately address the social aspect of transit equity, it is recommended that underserviced areas increase transit services based on demonstrated community needs. Issues of transit affordability also needs to be adopted in policy development to ensure that the mobility of low-income individuals isn't impeded. Regional municipalities such as Halton Region and York Region have demonstrated ways in which to offered a subsidized or discounted fare to individuals that receive Ontario Works, Ontario Disability or live with low income. Increasing service levels, providing discounts to specific individuals in need and increasing transit operating budgets are amongst some of the aforesaid transit equity recommendations provided in this paper.

Throughout this Major Paper I have explained the political effect of neoliberalism on transit, addressed the need for equity to be present within transportation planning, and demonstrated the significant intersection of transportation and education. These literature reviews were supported by the StudentMoveTO data and a focus group conducted with high school students to understand barriers and challenges associated with the post-secondary transit commute. Transportation planning within the GTHA can open up economic, social and education opportunities for all members of the public if social equity was incorporated into policy initiatives.

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APPENDIX A

INTERVIEWS

Interview with regional expert #1; personal communication, Toronto, Ontario, March 10, 2017

Interview with local expert; personal communication, Toronto, Ontario, March 14, 2017

Interview with local official # 1; personal communication, Toronto, Ontario, March 20, 2017

Interview with local official # 2; personal communication, Toronto, Ontario, April 3, 2017

Interview with local official # 3; personal communication, Toronto, Ontario, April 3, 2017

Interview with planning expert # 1; personal communication, Toronto, Ontario, April 18, 2017

Interview with local official # 4; personal communication, Toronto, Ontario, April 19, 2017

Interview with planning expert # 2; personal communication, Toronto, Ontario, April 19, 2017

Interview with regional expert #2; personal communication, Toronto, Ontario, April 25, 2017

Interview with regional expert #3; personal communication, Toronto, Ontario, April 27, 2017