“We're not just about building subdivisions. We can also do good things for the world”: Private Developers and Active Transportation Implementation in the Region of Waterloo

by

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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

Since the mid-19th century, Canada's population has become more urbanized as Canadians choose to live in one of its major urban centres, such as the Region of Waterloo. As this trend continues into the 21st century, increased demands have been placed on urban transportation infrastructure and services. Development patterns in Canadian cities have been predominately car-oriented creating negative health impacts for citizens and hindering climate action goals. Active transportation, such as walking and bicycling, has been promoted as a way to improve public health and reduce greenhouse gas emissions.

Support for active transportation planning exists in current provincial, regional, and local planning policies. Private developers are an important part of transforming these policies into the built environment. However, previous research has shown that translating policies to practice has encountered barriers including processes that have not evolved to meet demands. Additionally, the role of private developers in implementing active transportation policies and collaboration methods between the public and private sectors remains a gap in current research. The purpose of this study was to explore the role private developers play in achieving the goals of the Region of Waterloo's active transportation plans. An explanatory qualitative study design was chosen to explore the current planning framework and gather information through the use of document analysis and 17 key informant interviews from both the public and private sectors.

The results show that there are four main barriers for private developers in achieving active transportation goals: excessive vehicle parking requirements, the lack of measures of success, the integration of active transportation initiatives into policy, and the limited methods of collaboration between the public and private sectors. This study presents recommendations to reduce or remove these barriers that can be applied by the Region of Waterloo and/or private

developers to facilitate improved implementation of active transportation plans. Although focused on the Region of Waterloo, this research can be applied by planners in other Ontario municipalities to improve active transportation networks and contributes to the body of knowledge on the relationship between the public and private sectors in planning.

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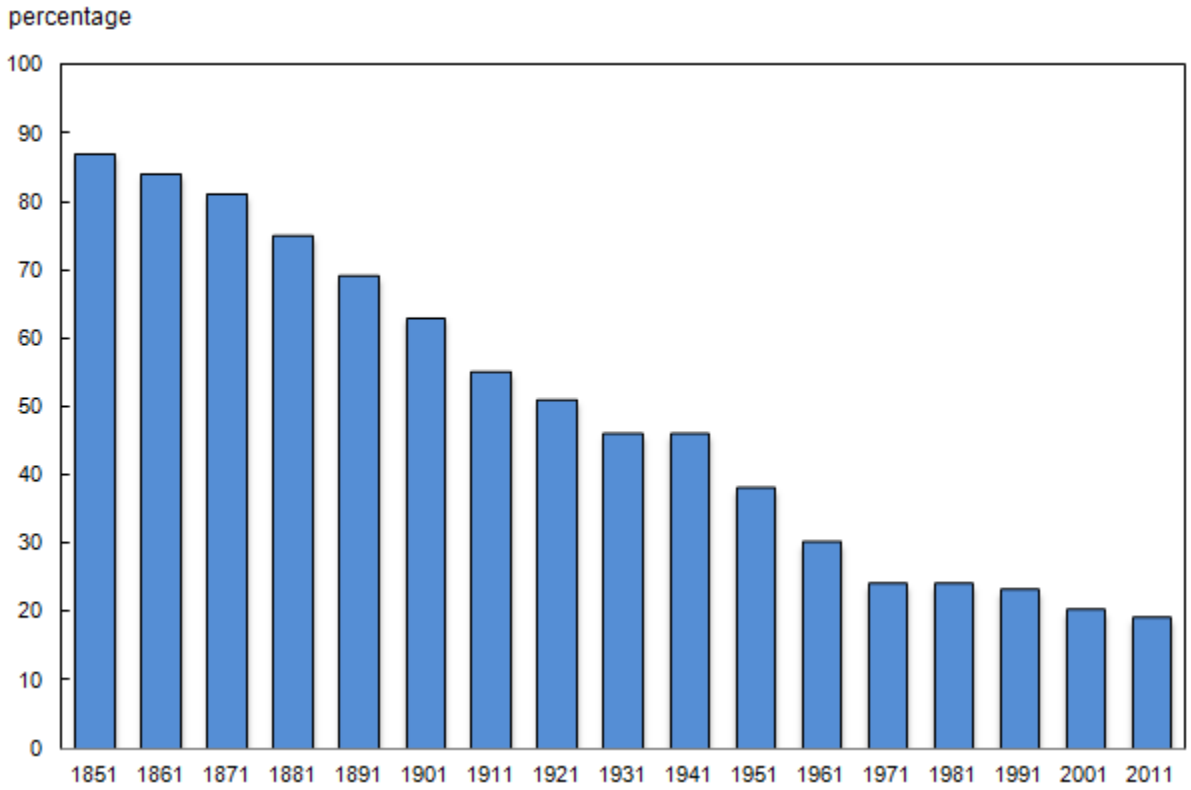
Chapter 1: Introduction

1.1 Background

Canada's 2021 census revealed that 73.7% of Canadians now live in one of its large urban centres with a population of 100,000 or more people (Statistics Canada, 2022). The proportion of Canadians living in rural areas has steadily declined since the mid-19th century, as shown in Figure 1, and the continued urbanization of Canada increases demands on infrastructure, transportation, and other services (Statistics Canada, 2022). Urbanization in Canada has largely been car-oriented and the associated development patterns have led to several issues including urban sprawl and increased greenhouse gas emissions, as well as negatively affecting wealth generation, public health, public transit use, and neighbourhood walkability (Filion, 2007; Macdonald et al., 2021; Grant, 2009). The use of active transportation (i.e., human-powered mobility, such as walking and bicycling) has numerous benefits including the reduction of health problems and non-communicable diseases, low environmental impacts, improved mental health, and reduced greenhouse gas emissions (Clark & Scott, 2016; Larsen et al., 2019; Frank et al., 2022; Williams et al., 2018; Chan & Farber, 2020; Masoud et al., 2015; Klicnik & Dogra, 2019). The provision of active transportation is a key facet of the United Nations (UN) Sustainable Development Goals highlighting its importance in making cities resilient and sustainable for current and future generations (UN, 2015). In Ontario, active transportation first appeared in the 2014 edition of the Provincial Policy Statement (PPS) under the *Planning Act* thereby firmly establishing its importance in the future development of Ontario municipalities.

Figure 1

Proportion of the population living in rural areas, Canada, 1851 to 2011 (Statistics Canada, 2018)



As all municipalities in Ontario are required to conform to the PPS, active transportation policies exist in the Region of Waterloo's Official Plan (2015) and its Transportation Master Plan, *Moving Forward* (2019). However, translating higher-level policies into practice has encountered barriers including street planning, development, and engineering and construction processes that have not evolved to effectively meet active transportation demands (Hess & Lea, 2014). Complex interactions between different levels of government (i.e., lower- and upper-tier municipalities), capital budgeting processes, and the financing, design, and construction of roadways all interact to create environments that continue to prioritize automobiles despite policy and intention (Hess & Lea, 2014). With limited budgets, Ontario municipalities must

balance priorities and competing interests that may result in funding for active transportation infrastructure being reallocated to other areas (Nagorsky et al., 2016).

Private developers are a crucial part of urbanization in Ontario as they, rather than municipalities, transform concepts and plans into built neighbourhoods, towns, and cities (Coiacetto, 2000). Municipalities and private developers are often viewed as having a negative relationship despite abundant collaboration between the two sectors to the point of co-dependence (Moore, 2012; Adams et al., 2012; Leffers, 2018). While previous research has explored the barriers to active transportation implementation, a gap persists in studying the role private developers play in its implementation and municipalities' collaboration with the private sector (Heinmiller & Pirak, 2017; Leffers & Wekerle, 2020; Leffers, 2018; Rosen, 2017; Sorensen & Hess, 2015; Moore, 2012).

1.2 Implications for Planning

Planning is a multidisciplinary field with numerous areas and specializations that interact regularly creating complexity and wicked problems in our cities (Doak & Karadimitriou, 2007). Viewing the city as a system, active transportation is an element of that system with unique circumstances due to its interactions with private developers and other stakeholders (Blumberg, 1971). As municipalities seek to address climate change and sustainable development, combined with the COVID-19 pandemic and increased demands for active transportation infrastructure, there is an opportunity to explore interactions with private developers in implementing active transportation. An increased understanding of the role of private developers within the Region of Waterloo provides data for planning practitioners to modify current processes and highlights this research's significance to enduring questions within the planning discipline.

1.3 Research Question

This study will explore the role private developers play in achieving the goals of the Region of Waterloo's active transportation plans. To address this overarching research question, the following three research objectives were developed:

1. To understand policies that guide active transportation planning in the Region of Waterloo.
2. To identify barriers for private developers in achieving active transportation goals.
3. To explore the reduction or removal of barriers by the Region and/or private developers to facilitate improved implementation of active transportation plans.

1.4 Study Significance

This study is significant for two primary reasons. Firstly, much of the literature on both private developers and active transportation ignores the use of qualitative data and focuses on raw quantitative data, such as usage rates for bicycling lanes (Moore, 2015; Galway et al., 2021). The literature is also mainly focused on the development process and industry practices rather than the processes of socio-spatial interaction and networking within the built environment and the planning discipline (Moore, 2015). Secondly, one-third of Canadian cities are midsized (50,000 to 500,000 people), such as the Region of Waterloo, but there is a lack of research on active transportation impacts in many of these communities (Galway et al., 2021). With these midsized cities accounting for most of Canada's population growth, combined with increased demands for active transportation, understanding the role private developers play in active transportation implementation will enable planning practitioners to effectively prepare for future trends (Statistics Canada, 2022).

1.5 Organization

This thesis is organized into six chapters. Chapter One, the Introduction, provides a high-level overview of the issues that shaped this thesis and introduced the research question. Chapter Two, the Review of Literature, synthesizes the academic literature related to the research topic and identifies gaps that led to the development of the research question. Chapter Three, Research Methods, details the study site, research design, and the different research phases to answer the research question. Chapter Four, Results, presents the findings of qualitative key informant interviews and the analysis of relevant policy documents. Chapter Five, Discussion, interprets the results and presents key findings and limitations of the research study. Lastly, Chapter Six, Recommendations and Conclusion, presents recommendations that can be applied by practitioners to assist in the removal or reduction of barriers to active transportation implementation.

Chapter 2: Review of Literature

2.1 Introduction

The review of literature outlines the search strategy used to identify and synthesize academic literature related to the research topic. The chapter is divided into five sections beginning with the search and analysis strategy and then followed by the key topics that were identified for further exploration: smart growth, active transportation implementation, and development collaboration with the planning system. Each topic is individually discussed below including the main concepts, agreements or disagreements within the literature, and any inconsistencies, gaps, or limitations found. The chapter concludes with a rationale for further research and the literature examined will help inform the current state of practice before completing the qualitative key informant interview phase of this research study.

2.2 Search and Analysis Strategy

To create an effective search strategy, the research question was first explored from a broad perspective to gather a sense of the current state of the literature. Initial searches were conducted focusing on active transportation within Ontario and the Region of Waterloo, as well as private developers and their role in Ontario planning. From this initial search, the research question was then isolated into three overarching concepts that overlapped in multiple sources: planning in Ontario, active transportation implementation, and private developers. These three concepts were then further refined into search terms that helped inform the main concepts and were relevant for further analysis. The compiled list of search terms is shown below in Table 1.

Table 1

Search Terms for Each Concept

Planning in Ontario	Active Transportation	Private Developers
• Ontario planning • Ontario land-use • Smart growth • New urbanism • Mixed-use • Intensification • Densification • Advocacy coalitions • Inter-actor trust • Planning Act • Provincial Policy Statement • Growth Plan	• Bike lanes • Walkable cities • Walkability • Walkability index • Complete streets • Transit-Oriented Development • Public transit • Multi-modal • Sustainable development • First/last mile	• Homebuilders • Land developers • Condominium developers • Housing • Housing developers • Real estate • Plans of subdivision • Public-Private Partnerships • Development culture • Land speculation • Suburbs • Residential • Construction • Collaboration • Intersectoral Collaboration

The databases used in the search included Scopus, JSTOR, Directory of Open Access Journals (DOAJ), Web of Science, and Google Scholar. Using Google search and associated Google Books provided a general overview of certain topics that allowed for further refinement in the research databases. To generate specific search results in the databases, Boolean operators (AND, OR, and NOT) were used in the search statement. Literature that applied to the research topic was then consolidated into a table for organization and future reference. Active transportation was the topic that returned the greatest number of articles from the databases with 29 total. Key search statements including Ontario, the Greater Golden Horseshoe (GGH), and the Greater Toronto and Hamilton Area (GTHA) allowed a refinement of the search results to an Ontario context, but there was a shortage of literature that focused on the Region of Waterloo. This was particularly evident when exploring planning's relationship with private developers as

there was less literature on that topic. Additionally, the term "developer" was often too broad and needed refinement to other terms such as "homebuilders" and "housing developers." However, while this reveals a potential gap in the academic literature, there were some examples found that discuss conditions in a United Kingdom planning context or that were very specific to a certain case involving private developers within Ontario. It is reasonable to deduce that, despite this gap in the literature, there are likely several similarities that can be extrapolated to a Region of Waterloo context. Additionally, this presents an opportunity to explore new methodologies that can help inform the current planning paradigm.

2.3 Smart Growth

To target the first research objective and gain a comprehensive understanding of how current policy guides active transportation planning in Ontario, there is the requirement to establish the overarching framework from the literature. While active transportation planning in Ontario is multi-faceted, the concept of smart growth emerged early in the 21st century and plays a critical role in shaping land use development throughout the province.

In the late 1990s, Ontario residents within the GTHA began to raise concerns about traffic congestion, quality of life, and economic development that were a result of the North American car-oriented development trends of the latter half of the 20th century (Filion, 2007; Filion et al, 2015). This was not a concern exclusive to Ontario with several American cities exploring or adopting "no-growth" policies in the 1980s and 1990s to address the environmental, traffic, and financial issues created by contemporary car-oriented development (Downs, 1992). The concept of "smart growth" emerged in the United States as an alternative to "no-growth" policies and focussed on addressing urban sprawl and the reliance on automobiles (Filion, 2007; Filion & McSpurren, 2007). Smart growth consisted of several measures to tackle urban

development and transportation issues including limiting outward development (urban sprawl), encouraging mixed-use development, intensifying the development of pre-existing urban areas (intensification), developing or enhancing public transit systems, discouraging car use, and adopting land use patterns that encouraged public transit use and walkability (Filion, 2007; Macdonald et al., 2021; Grant, 2009). Smart growth measures have additional benefits including affordability by redistributing the costs and benefits of land development (Macdonald et al., 2021), the preservation of heritage and natural features by reducing outward development of urban sprawl (Scott, 2007), and improving public health due to increased activity because of walkable neighbourhoods and improving air quality from reduced emissions (Filion, 2007; Scott, 2007).

The Ontario provincial government under Progressive Conservative Premier Mike Harris established several regional panels in 2002 to explore smart growth as a planning solution to the high amounts of vehicle congestion and its potential impact on the province's economic growth, but these regional panels were disbanded upon the election of Liberal Premier Dalton McGuinty after the October 2003 election (Filion, 2007). This new government applied a different approach to land use planning and embraced smart growth with the passing of the *Greenbelt Act* in 2005 creating Ontario's Greenbelt, the world's largest permanently protected greenbelt at that time. Although relatively new compared to other greenbelts developed elsewhere in Europe and North America, Ontario's Greenbelt was reinforced by one of the strongest legal frameworks and supportive community organizations (Carter-Whitney & Esakin, 2010). The *Greenbelt Act* was accompanied by the Greenbelt Plan (2005) which guided managing multiple issues such as agriculture, environmental protection and conservation, and infrastructure development (Macdonald et al., 2021). Developed in parallel to the *Greenbelt Act* was the *Places to Grow Act*

and its associated Growth Plan for the Greater Golden Horseshoe (the Growth Plan) released in 2006 which captured smart growth principles in provincial policy (Eidelman, 2010; Filion, 2007; Macdonald et al., 2021; Pond, 2009). Notably was the designation of several Urban Growth Centres (UGCs), including Uptown Waterloo, Downtown Kitchener, and Downtown Cambridge within the Region of Waterloo, intended to help create urban environments conducive to active transportation and public transit use while accommodating growth in a mixed-use and compact environment (Filion, 2007; MMAH, 2020). The GGH was established in policy as a new land use boundary as opposed to the nebulous terms of GTA or GTHA. This created a new regional approach to land use that moved beyond geopolitical regions and created a multi- and cross-jurisdictional planning framework firmly rooted in policy. The concept of regionalism recognizes that individual places have relationships and connections that require cross-jurisdictional boundaries and require collaborative cross-jurisdictional solutions to land use, transportation, the economy, the environment, and equity (Wekerle & Abbruzzese, 2010).

The literature observed agreed on the main goals of the smart growth movement and its attempt to deliver a more sustainable method of land use planning that is more compact and less reliant on the automobile (Filion, 2007; Filion et al, 2015; Macdonald et al., 2021; Grant, 2009; Scott, 2007; Wekerle & Abbruzzese, 2010; Langlois, 2010; Filion & McSpurren, 2007). However, despite the altruistic land use goals of the smart growth movement, there are several disagreements found within the literature that question its efficacy and its use within the Ontario context. The implementation of the *Places to Grow Act* and the Growth Plan created a top-down approach to land use planning that sought to break political stalemates, reduce complexity, and create a system that is more effective and flexible (Macdonald et al., 2021; Wekerle & Abbruzzese, 2010). However, Scott (2007) argues that when regional planning frameworks, like

the Growth Plan in Ontario, are viewed from the "ground level" they have unclear mechanisms to accomplish their goals and appear as "more rhetoric than reality" (p. 18). Scott (2007) expands on this highlighting the challenges to smart growth that are found in the current economic structure which still prioritizes the financing of low-density suburban development. Additionally, smart growth's prioritization of intensification in high-density urban areas has resulted in "urban villages" that are highly lucrative for developers. Both of these market-driven development patterns have made the provision of affordable housing and social inclusion goals of smart growth difficult to achieve (Scott, 2007). These market pressures are coupled with neighbourhood resistance to change, particularly when increasing densities along transit corridors, that present constant challenges to smart growth agendas (Scott, 2007). Macdonald et al. (2021) recognize that the GGH regional approach to smart growth pursues more ambitious policy goals than previous plans and requires significant stakeholder involvement in policy implementation. However, smart growth policies challenge deeply entrenched development practices that require balancing competing stakeholders, the influence of market pressures, and growth coalitions that are not taken into account sufficiently by many of its proponents (Macdonald et al., 2021).

Downs (2005) synthesizes the smart growth literature and lists its six most common principles combined with three less-commonly advocated principles as shown in Table 2. However, Downs (2005) is quick to emphasize that different groups in society will emphasize different aspects of smart growth depending on their perspective. As a result, not everyone agrees on all of the principles of smart growth and it has instead become "whatever form of growth I like best" (Downs, 2005, p.368). Hawkins (2014) outlines how smart growth advocates highlight the fiscally and environmentally unsustainable land use patterns associated with sprawl,

but that there is little analysis or discussion on the costs, implied trade-offs, or consumer desire for smart growth urban form. Despite any disagreements on the exact principles of smart growth, it is necessary to understand its overall concepts as they are applied to the Ontario context.

Table 2

Principles of smart growth (Downs, 2005)

Most-common principles of smart growth	Limiting outward extension of new development in order to make settlements more compact and preserve open spaces. This can be done via urban growth boundaries or utility districts.
	Raising residential densities in both new-growth areas and existing neighbourhoods.
	Providing for more mixed land uses and pedestrian-friendly layouts to minimize the use of cars on short trips.
	Loading the public costs of new development onto its consumers via impact fees rather than having those costs paid by the community in general.
	Emphasizing public transit to reduce the use of private vehicles.
	Revitalizing older existing neighbourhoods.
Less-common principles of smart growth	Creating more affordable housing.
	Reducing obstacles to developer entitlement.
	Adopting more diverse regulations concerning aesthetics, street layouts, and design.

The most prominent gap in the literature is the influence of smart growth within the Region of Waterloo. Other Ontario municipalities' relationship with smart growth is explored including Hamilton (Behan et al., 2008), Markham (Grant, 2009; Langlois, 2010), Toronto (Filion & McSpurrren, 2007; Filion et al., 2015; Hess & Sorensen, 2015; Wekerle & Abbruzzese, 2010), and Windsor (Khan et al., 2016), but the Region and its lower-tier municipalities remain absent from the literature. While the study of the Region of Waterloo and

smart growth is important to understand the planning system, the impacts of smart growth principles are outside the scope of this research. Additionally, given the regional approach to planning with the designation of the GGH and the Growth Plan, it is likely that smart growth studies from elsewhere in the GGH apply to a Waterloo context. Despite none of the literature examining smart growth in the Region of Waterloo, it is important to note that the Region introduced the Regional Growth Management Strategy (RGMS) in 2003 which incorporated many principles of smart growth. The RGMS was a trailblazer to the Greenbelt Plan and Growth Plan and provided guidance on future growth, delineated a clear urban/rural boundary to protect farmland and reduce urban sprawl, encouraged more transportation choices, and protected natural heritage features (Region of Waterloo, 2003).

There are several examples in the literature about the gaps and limitations of a smart growth approach. Grant (2009) highlights the difficulty of translating smart growth from theory to practice and identifies several key barriers to implementation:

- Institutional barriers: Without municipal council support or approval, planners lack the institutional tools to achieve smart growth visions.
- Political barriers: Links between municipal council members and developers can hinder smart growth development coupled with council beliefs that provincial or federal fiscal support is needed.
- Economic barriers: Developers argued that market logic shapes planning and consumer preferences are difficult to manipulate.
- Socio-cultural barriers: Local character of a place and the regional context of suburbs made the transition to urban smart growth communities difficult to achieve.

Filion et al. (2015) also highlight smart growth gaps in the provincial Growth Plan with one research respondent explaining that:

> I think the focus on smart growth in the Growth Plan is unfortunately misplaced because [it is] focussing on a numbers game. Smart growth is a lot more than numbers. It is about community design, preservation of agricultural lands, environmental issues and all of these things, creating livable and healthy communities, etc. (p. 213)

Another respondent expresses their frustration about failed attempts to share knowledge with provincial authorities:

> The Province said they would come out and meet with individual municipalities to talk about smart growth. We all submitted position papers to them. They've ignored the papers and have refused to meet with us. (p. 213)

The most vocal detractor of smart growth and its limitations is delivered by Downs (2005) who argues that the pressure to implement smart growth comes from three different groups: nongovernment environmentalists, urban planners and other local public officials, and innovative private real estate developers. However, most notably these groups do not include significant numbers of ordinary citizens and "most pressures to adopt smart growth policies do not come from the citizenry at large but from one or more of these special interest groups" (Downs, 2005, p. 368). Since the three smart growth proponent groups are quite small compared to the general population, they must persuade the regular citizens to agree with their views that may not be widely praised or as readily accepted by the public (Downs, 2005). Implementing smart growth principles also face several obstacles, as outlined in Table 3. While smart growth and its impacts are not the primary objectives of this research, a hierarchical structure like land use planning

requires knowledge of the driving concepts as they inform how sub-sets like active transportation plans are integrated with private development.

Table 3

Obstacles to smart growth implementation (Downs, 2005)

Obstacle	Description
Redistributing benefits and costs of development	Smart growth policies differ from the sprawl-related development processes long-dominant in North America and will alter the benefit structure embodied in the status quo. Landowners of far-outlying parcels will have reduced opportunity to "capture" future subdivisions, while close-in sites will capitalize on high-density projects.
Shifting power and authority from local to regional levels	Several smart growth principles require government action at a regional or provincial level, shifting decision-making away from local governments.
Increasing residential density	Homeowners express concern that additional housing units from densification risk lowering their home's desirability and value, and therefore oppose smart growth implementation.
Raising house prices	Since smart growth prevents "leapfrog" subdivisions on far-out inexpensive land, higher density on land still usable for housing is normally accompanied by higher land prices per gross acre.
Failing to reduce traffic congestion	Population increases from densification will overcome any improvements in traffic congestion from new public transit facilities.
Increasing the "red tape" of new development	Inward-oriented compact development typically requires more steps to complete projects as larger cities tend to have more detailed and onerous permitting processes compared to suburbs.
Restricting profits for owners of outlying lands	Compact growth from smart growth restricts the ability of farmers and outlying landowners to take advantage of profits from further sprawl development.
Replacing "disjointed incrementalism" with regional planning	Previous unplanned, decentralized land use planning processes are replaced with a single overall plan to direct future population growth

	which meets opposition from local citizens for being “socialistic” in nature.

2.4 Active Transportation Implementation

While the literature on active transportation is extensive, understanding the barriers to active transportation implementation is critical to fulfilling the second research objective and is the primary focus of the review of the literature.

Active transportation is defined in the PPS as “human-powered travel, including but not limited to, walking, cycling, inline skating and travel with the use of mobility aids, including motorized wheelchairs and other power-assisted devices moving at a comparable speed” (MMAH, 2020, p. 39). This definition provided in Ontario policy is consistent with definitions in the literature that classify active transportation as some variation of human-powered travel or mobility, with the major focus remaining on walking and cycling. As municipalities attempt to address smart growth principles and create environmentally sustainable communities, increasing the prevalence of active transportation is seen as an alternative to auto-oriented planning and can share a greater portion of the transport burden (Larsen et al., 2019; Eldeeb et al., 2021; Chan & Farber, 2020; Ledsham et al., 2017). There is a multitude of literature on the impacts and benefits of active transportation including the reduction of health problems and non-communicable diseases, such as diabetes, heart disease, and obesity (Clark & Scott, 2016; Larsen et al., 2019; Frank et al., 2022; Williams et al., 2018), its benefits on post-secondary academic success (Taylor & Mitra, 2021), the low environmental impact and reduced greenhouse gas emissions (Chan & Farber, 2020; Masoud et al., 2015), and the reduction of social isolation (Klicnik & Dogra, 2019). The type and quantity of active transportation infrastructure can vary from no sidewalks or bicycle lanes present to complete streets that account for all modes of travel.

Separate dedicated active transportation infrastructure (e.g., separate bicycle lanes with a physical barrier) is preferable as it is safer, more comfortable for the user, and correlated to a significant increase in usage of up to 257% as noted in one study (Ling et al., 2020).

Despite the benefits of active transportation for both cities and their residents, several barriers to implementation currently exist. The built environment and urban design are often cited as the primary element influencing active transportation (Williams et al, 2018; Clark & Scott 2016; Frank et al., 2022; Frank et al, 2019), but Eldeeb et al. (2021) argue that factors that influence transportation mode choice are broad and identify four main categories:

- Socioeconomic and demographic characteristics.
- Trip and travel mode characteristics.
- Spatial and built environment aspects.
- Attitudinal and psychological factors.

Clark and Scott (2016) find five key themes that serve as barriers to walking in a community including the built environment, the social environment, meteorology, safety, and topography. Other specific research has also been conducted on barriers to active transportation including safety (Masoud et al., 2015; Ling et al., 2020; Manning et al., 2018), human behaviour (Dean et al., 2020), balancing budget priorities (Nagorsky, 2016), time spent in a neighbourhood (Chum et al., 2019), and politicization (Wilson & Mitra, 2020).

The literature examined was unanimous in agreement that active transportation provides health benefits to individuals, offers economic and environmental benefits, and can help achieve smart growth planning principles. However, there remains disagreement on the factor critical to achieving active transportation success and the focus placed by planners on certain aspects of active transportation. Eldeeb et al. (2021) and their research on transportation mode choice in

Hamilton, Ontario, are critical of the emphasis planners place on the built environment. They note that, while there is a positive relationship between sidewalk and bicycle lane density and choosing walking or cycling as a travel mode respectively, these aspects of the built environment are not equally efficacious in different areas of Hamilton (Eldeeb et al., 2021). Larsen et al. (2010) also challenge the 400m standard used by planners for walking catchment areas and found that median walking distances are closer to 650m and can reach upwards of 800m depending on trip purpose. Dean et al. (2020) highlight how planners focus on walkability as a function of land use mix, density, and street networks, but ignore the human factors, such as sensory experiences and desire for interaction, that are critical in shaping decisions to walk. Lastly, the development of new forms of mobility has challenged how active transportation is viewed. Electric bikes and scooters (e-bikes and e-scooters) have emerged as low-cost and more environmentally sustainable alternatives to automobiles, but questions remain in the literature and policy on where they fit within active transportation and the larger multi-modal transit network (Edge et al., 2018).

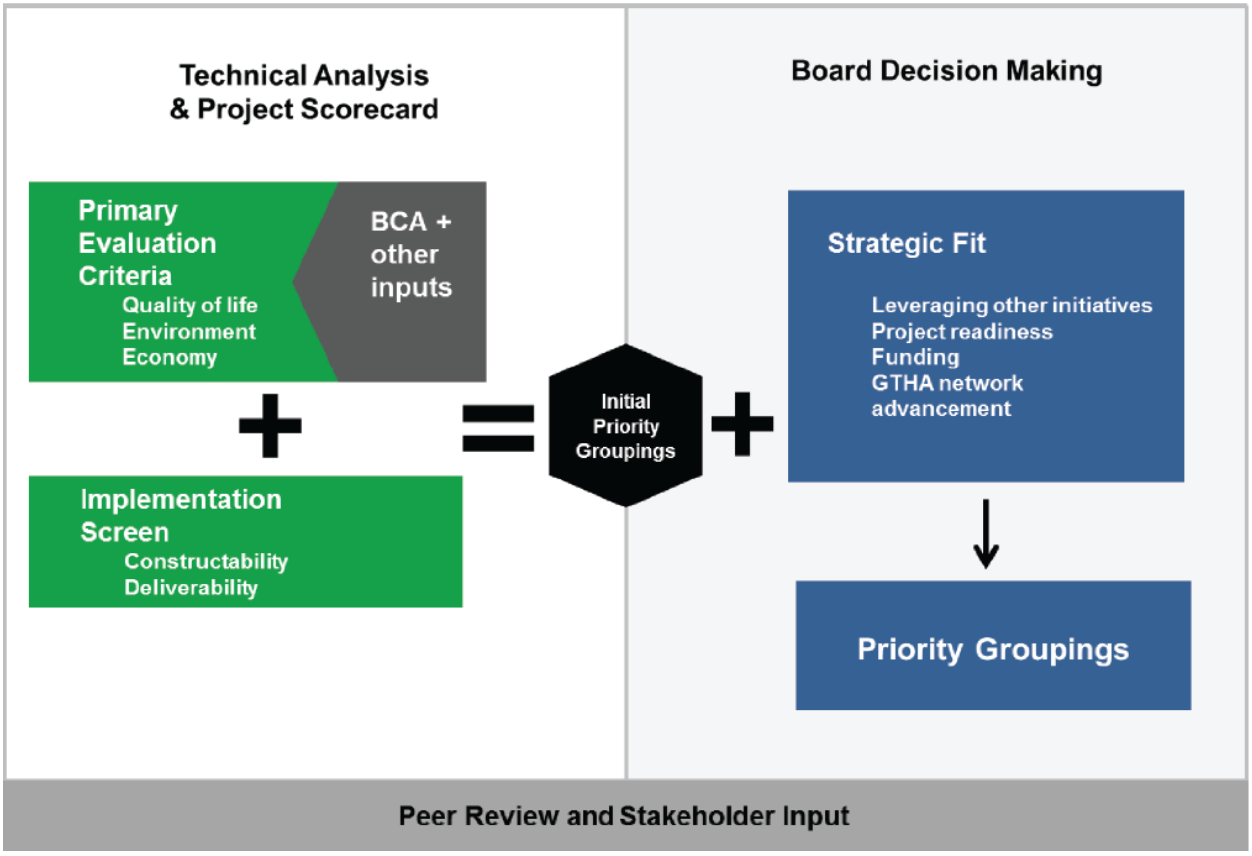
Notably, there was not a gap in the literature about the Region of Waterloo and several examples explored active transportation within the Region including adult walking behaviour (Dean et al., 2020), walkable neighbourhoods (Frank et al., 2019), gentrification and displacement (Doucet, 2021), and e-bikes (Edge et al., 2018). Numerous graduate-level theses focus on the Region of Waterloo and its lower-tier municipalities including social demographics and sustainable transportation in uptown Waterloo (Chase, 2015), pedestrian activity and snow clearance in Waterloo (Shinoda, 2019), and bicycle-transit integration in Kitchener-Waterloo (Lin, 2021). However, one critical gap in active transportation planning that is relevant to the research is presented by Nagorsky et al. (2016) on the issue of transit project prioritization. With

limited budgets to draw from, municipalities must weigh different priorities among competing interests including infrastructure (e.g., roads and sewers), parks and recreation, and active transportation.

To weigh different municipal priorities Metrolinx, the Ontario agency responsible for transportation planning in the GTHA, developed a project prioritization framework to guide transportation project programming and implementation, as well as to provide technical evidence, robustness, and credibility to municipal decision-making (Nagorsky et al., 2016). This prioritization framework consists of two stages: the technical analysis stage and the board decision-making stage as shown in Figure 2. The technical analysis includes primary evaluation criteria that measure the project's contribution toward delivering desired policy objectives and an implementation screen that assesses deliverability and constructability (Nagorsky et al., 2016). The outcome is a set of initial priority groupings that are transferred to the board decision-making stage where the Metrolinx board of directors can review the groupings and provide strategic guidance for final recommendations to the Province (Nagorsky et al., 2016).

Figure 2

Metrolinx prioritization framework structure (Nagorsky et al., 2016)



As municipalities shift focus towards multimodal systems and active transportation, the Metrolinx prioritization framework leaves a gap as it can only be applied to transit projects (Nagorsky et al., 2016). When examining cycling as part of active transportation, Galway et al. (2021) reveal midsize cities and qualitative data collection as additional gaps in active transportation planning. Galway et al. (2021) outline that approximately one-third of Canadian cities are midsize (50,000 to 500,000 people), but there is a lack of research on cycling impacts in these communities. Additionally, there remains a need to examine the determinants of cycling using qualitative data collection focusing on the lived experience of cyclists rather than raw quantitative numbers (Galway et al., 2021). These lived experiences assist in revealing cyclist perceptions of safety, efficiency and convenience, and their enjoyment and overall experience of

bicycle facilities thereby informing future policy-making by providing the ground truth (Galway et al., 2021).

An additional gap in active transportation planning is its relationship with transit-oriented development (TOD). The concept of TOD was introduced by Calthorpe (1993) who described it as a mixed-use community within an average 2000-foot walking distance of a transit stop and core commercial area. TOD provided an alternative to traditional development by mixing housing, services, and employment in a walkable environment that facilitates pedestrian and transit access, while also encouraging densification and redevelopment along transit corridors within existing neighbourhoods (Calthorpe, 1993). TOD is sometimes referred to as transit-supportive development and is defined in current Ontario policy:

> In regard to land use patterns, means development that makes transit viable, optimizes investments in transit infrastructure, and improves the quality of the experience of using transit. It often refers to compact, mixed-use development that has a high level of employment and residential densities, including air rights development, in proximity to transit stations, corridors and associated elements within the transportation system. (MMAH, 2020, p. 52)

Active transportation is not a panacea for decreasing automobile dependency in cities and achieving smart growth planning principles, but instead must be developed in conjunction with the use of public transit and TOD (Chan & Farber, 2019; Akbari et al., 2018; Eldeeb et al., 2021; Higgins & Kanaroglou, 2016). Active transportation also presents an opportunity to address the First- and Last-Mile problem that influences residents' use of public transit systems and is an alternative to park-and-ride facilities at commuter rail stations (Knowles et al., 2020; Chan & Farber, 2019). It is clear from the literature that there remains a gap between active

transportation and TOD, and that synchronization between both concepts is required to ensure the implementation of smart growth principles.

Active transportation and its implementation are not without limitations, with Larsen et al. (2010) identifying that there is too much focus on active transportation supporting a second transit mode (i.e., public transit) rather than active transportation as a sole mode for other trip purposes. This is echoed by Dean et al. (2020) and their examination of the human factors surrounding walkability. Compact and dense settlement patterns are often cited as a principle of smart growth, but Ledsham et al. (2017) highlight that increased population density had a negative impact on bicycling. Additionally, Doucet (2021) discovered that there are hidden aspects of active transportation and TOD including displacement of residents that were absent from official statistics and policy debates, while Moos et al. (2018) revealed that mixed-use development touted by active transportation and smart growth advocates can have negative impacts on housing affordability. Hess and Lea (2014) provide a detailed examination of the barriers to active transportation implementation in Ontario revealing that, despite high-level policies encouraging active transportation, institutionalized barriers continue to exist including automobile-oriented roadway design, conflicts with other government policies, complex interactions between different levels of government, and capital budgeting processes.

2.5 Development Collaboration within the Planning System

To fulfill the second and third research objectives, and understand the relationship between active transportation and developers, there is the requirement to explore how the current planning system in Ontario interacts and collaborates with the development industry. While the focus of the research remains on active transportation, it is first necessary to synthesize the high-level concepts of development, the interactions between multiple levels of government, and the

various private sector actors that help achieve development goals within the Province and Region.

Development is defined in the PPS as "the creation of a new lot, a change in land use, or the construction of buildings and structures requiring approval under the *Planning Act*" (MMAH, 2020, p. 42). The PPS recognizes that the wise management of land use requires achieving efficient development patterns and avoiding significant or sensitive resources and areas to meet the full range of current and future needs of Ontario's residents (MMAH, 2020). The Province's approach to land use and development is similar to the United Nations (UN) Sustainable Development Goals (SDGs) which seek to achieve sustainable development in three dimensions – economic, social, and environmental – that meet the needs of the present generation without compromising the ability of future generations to meet their own needs (UN, 1987; UN 2015). There are a total of 17 SDGs ranging from poverty reduction to climate action, as well as several that cut across all of the SDGs (e.g., gender equality) (UN, 2015). Although the SDGs are broad and interdependent, they provide a global lens for local action on land use planning issues in the Region of Waterloo. Goal 11, "make cities inclusive, safe, resilient and sustainable" (UN, 2015, p. 26), is particularly relevant to this research study and its target that:

> By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons. (UN, 2015, p. 26)

The UN (2013) highlights the important role of cities in achieving the SDGs and that "cities are where the battle for sustainable development will be won or lost. Yet…it is critical to pay attention to rural areas…The most pressing issue is not urban versus rural, but how to foster a

local, geographic approach" (p. 17). This local approach is defined as localization and is the process of defining, implementing, and monitoring strategies at the local level for achieving global, national, and subnational SDGs and targets (UN Development Group, 2015). Similar to localization is the use of policy mobility for the development of urban planning policy in which policies from one place are shared, transferred, adapted, and implemented in another place (McLean & Borén, 2015). Policy mobility enables cities to create localized versions of urban policy based on globally circulated ideas (Borén et al., 2020). Implementation of the SDGs requires an integrated and systematic planning approach that can be achieved through vertical coordination with national and state or regional governments, horizontal coordination across departments or ministries and different policy areas, and territorial coordination between local governments (Tremblay et al., 2021; Kanuri et al., 2016).

The relationship between planners and private developers is succinctly summarised by Coiacetto (2000): "Planners do not build cities and towns. Rather, they are built by private sector interests, developers in particular" (p. 353). Despite this declaration, planners can shape urban development through a detailed understanding of the perspectives, actions, and strategies of developers thereby influencing their actions (Coiacetto, 2000). Public planners and private development interests are often viewed as having an antagonistic relationship framed as a dichotomy, with the public sector seen as being concerned with longer-term, responsible aims, whereas the private sector is only focused on short-term profit gains (Moore, 2012; Adams et al., 2012). Coiacetto (2000) comments that the planning literature lacks an understanding of private developer perspectives and tends to treat the development industry as an identical whole. Moore (2012) consolidates the common specification of actor types and roles in the development process, shown below in Table 4, revealing the diversity in the development process:

Table 4

Actor Types and Roles in the Development Process

Private Roles	Industry-based	Developers, builders, contractors, labourers, investors, trade associations and federations
	Consultancy-based	Planners, designers, architects, marketers
	Advocacy-based	Watchdog organizations and individuals monitoring processes and outcomes of development activities
Public Roles	Central- and local-government-related	Planners, engineers, building inspectors, policymakers, elected politicians, appeal bodies

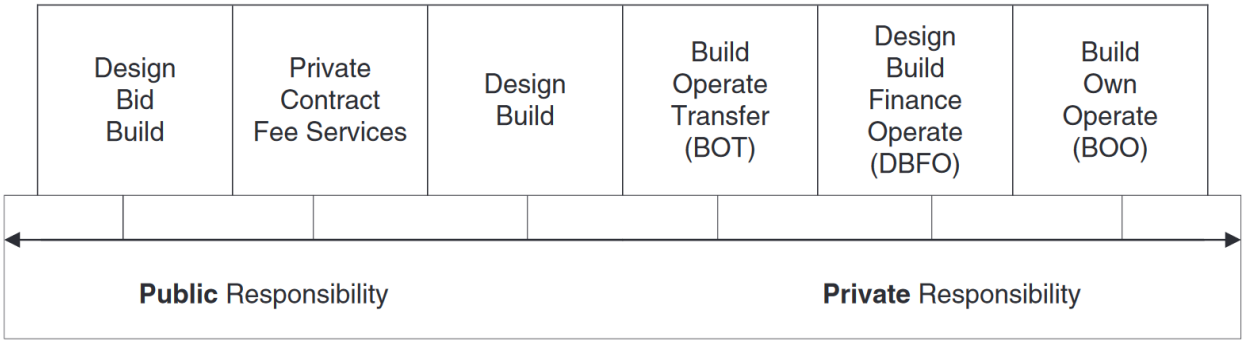
Moore (2012) expands further on the relationship between private developers and public planners explaining that it has developed into a form of hybridity as the boundaries between the two have become blurred. This hybridity is exemplified by public-private partnerships (PPPs or P3s) that are increasingly used by different levels of government in Ontario to deliver public infrastructure and facilities (Van Den Hurk & Siemiatycki, 2018; Roberts & Siemiatycki, 2015). PPPs rose to prominence in the 1980s and 1990s as a response to increased public spending, combined with demands for tax cuts, which placed pressure on governments to reduce spending and pursue austerity policies (Birch & Siemiatycki, 2016). As a result, governments have turned to the private sector to access new sources of financing and as a way to encourage improved efficiency and accountability (Birch & Siemiatycki, 2016).

There are multiple ways that the public and private sectors can partner to deliver a project and these can be classified on a continuum ranging from greater public responsibility to greater private responsibility, as shown in Figure 3. Previously, most public infrastructure projects were delivered with the design-bid-build approach in which the public agency designed the project,

opened the project to bidders from the private sector to build, and then operated the project with public-sector employees (Siemiatycki, 2006). Through this approach, governments raised capital through debt or bond issues and repaid the project through user fees and tax revenues (Siemiatycki, 2006). However, since the 1990s the design-build-finance-operate (DBFO) approach has risen to prominence as a method to reduce public spending and leverage private sector innovation. In this method, the private sector selected projects based on potential profits and then designed, financed, owned, and operated the new infrastructure generating revenue through user fees or public subsidies (Siemiatycki, 2006). PPPs are seen as a way to make decision-making more accountable, produce technological innovation, and reduce the potential for construction-cost escalations (Siemiatycki, 2006). Prominent PPP transit projects include the Region of Waterloo's ION light rail transit (LRT) developed in partnership with GrandLinq, Toronto's Eglinton Crosstown LRT developed in partnership with Crosslinx Transit Solutions GP, and the City of Ottawa's Confederation Line LRT developed in partnership with the Rideau Transit Group (Canadian Council for Public-Private Partnerships, n.d.).

Figure 3

Typology of public-private partnerships (United States Department of Transportation, 2005, as cited in Siemiatycki, 2006)



PPPs are not without criticism, however, in particular that PPPs have been used to build infrastructure that promotes automobile dependence in cities: “Between 1984 and 2009, 70% of all urban transportation PPPs delivered globally have been roads, bridges, and tunnels, compared with just 30% of projects being urban and commuter rail lines” (Siemiatycki, 2011, p. 1715). The use of PPPs for urban transit systems can see competing public and private transit services that may reduce ridership on PPP transit projects (Siemiatycki & Friedman, 2012). As a result, the private sector PPP operator may seek concessions from governments, such as outlawing the provision of competing services by publicly operated transit agencies, which can lead to community backlash (Siemiatycki & Friedman, 2012). PPPs can contribute to uneven patterns of development as they concentrate infrastructure investment in the largest, wealthiest, and most powerful cities, regions, or neighbourhoods, while less affluent areas are neglected due to lower political prioritization and relative lack of economic value (Siemiatycki, 2011). Additionally, business associations and private developers can shape the political decision-making process to concentrate infrastructure in high-growth areas thereby creating a fragmented active transportation network and acting contrary to policy (Mayers, 2022). Siemiatycki (2015) synthesizes many of the concerns surrounding PPPs in a Canadian context including if they deliver value for money, their ability to provide meaningful stakeholder engagement in the project delivery process, their inability to achieve architectural or design excellence, and their conflation with privatization and the associated opposition from community groups or labour organizations. Despite the criticisms, of the 51 Ontario PPP projects in 2016, 96% were on-budget and 73% were completed on time (Hussain & Siemiatycki, 2018).

In the Ontario context, developers and builders create the built environment within a regulatory framework established by federal, provincial, and municipal governments. Previously,

federal interest was predominately concentrated on protecting environmental quality (Grant, 2009). However, 2017 saw the launch of the National Housing Strategy addressing affordable housing concerns, followed by the National Active Transportation Strategy in 2021 promoting active transportation country-wide, demonstrating a shift in focus by the federal government (Government of Canada, 2017; Infrastructure Canada, 2021). Provincial and municipal planning legislation sets out the building process that conforms to official plans, zoning, and other applicable guidelines, as well as how negotiations with developers and the public will proceed (Grant, 2009). With municipal council approval and permits in hand, developers can proceed with construction concluding a process that involves a complex interplay of provincial policy, municipal politics and regulations, and market preferences (Grant, 2009). While planners promote active transportation as a key aspect of achieving smart growth principles, developers counter that the market has its own unique logic (i.e., they predominantly operate under an economic rather than social framework) and that consumer preferences are difficult to control (Grant, 2009). However, Leffers and Wekerle (2020) argue that developers are powerful economic and political actors that are treated with privileged interests over other actors in Ontario's land use planning system. Heinmiller and Pirak (2017) examine how developers often opposed land use restrictions and sought to avoid unwanted, potentially costly, government regulation and red tape that might affect their profits. During instances of disagreement between the various parties and stakeholders in Ontario's planning system, the Ontario Land Tribunal (OLT), formerly known as the Ontario Municipal Board (OMB) and subsequently the Local Planning Appeal Tribunal (LPAT), provides a third-party arbitration process that decides appeals and matters related to land use planning as well as environmental and natural features, heritage protection, land valuation, land compensation, and municipal finance (OLT, n.d.).

The literature examined agreed that private developers are a critical part of the planning process and are essential in transforming plans and conceptualizations of the built environment into reality. However, as the development industry is heterogenous, there were significant disagreements on the motivations and goals of developers within the planning process. Grant (2009), Leffers and Wekerle (2020), and Heinmiller and Pirak (2017) all provide a negative perspective of private developers in line with the dichotomy framed by Moore (2012). These negatives are echoed by several authors who argue that the planning process created a powerful oligopoly of large housing developers (Sorensen and Hess, 2015), that there is developer resistance to building sustainable homes (Singh et al., 2019), power dynamics and the ability of developers to shape planning and land use change (Leffers, 2018), and the power of developers in influencing then-OMB adjudication (Webber & Hernandez, 2016). Purcell (2009) is particularly critical of private developers arguing that current planning methodologies are fully entrenched in neoliberalism. Proponents of neoliberalism claim that society functions better under a state-directed capitalist structure that increases the role of the private sector and, as a form of planning, has benefitted capital rather than citizens (Purcell, 2009). The creation of planning policy using policy mobility also faces criticism due to failed promises of quick and easy policy solutions and the perception of local elites allying with global elites to create an oligarchic distribution of public policy that is combined with flawed governance structures providing ineffective support for municipalities (Lauermann & Vogelpohl, 2019; McLean & Borén, 2015).

The negative views of private developers were countered by several authors including Rosen (2017) who argues that developers are highly diverse and have differing motivations, an idea supported by Coiacetto (2000), and Leffers (2018) maintains that municipalities and

developers are co-dependent on each other. Leffers (2018) is supported by Moore (2012) who argues that the simplistic dichotomy describing private developers and public planners ignores the complexity of development processes, sets the two sides at odds, and overlooks incidents where the stereotypical traits of either side are swapped, as demonstrated by the public interest in competitive markets and private interests in policy formation and regulation. Adams and Tiesdell (2010) disagree that planners are innocent in processes and excluded from the free market, but that they are market actors themselves and are intrinsically involved in land and property markets by shaping, regulating, and stimulating markets. The innocence of public planners is further challenged by Moos et al. (2018) on the topic of housing affordability and mixed-use, and by Mele (2019) on the use of racialization by planners to justify social and spatial change.

Within the literature, there is a considerable amount of research on planning's relationship with private developers in Ontario, but a gap remains between active transportation implementation and its relationship with private developers (Van Den Hurk & Siemiatycki, 2018; Moos et al., 2018; Heinmiller & Pirak, 2017; Leffers & Wekerle, 2020; Parsons & Harris, 2020; Singh et al., 2019; Leffers, 2018; Webber & Hernandez, 2016; Rosen, 2017; Sorensen & Hess, 2015; Charney, 2017; Moore, 2010; Moore, 2012; Grant, 2009). Additionally, there are gaps and limitations with the use of PPPs to deliver active transportation infrastructure projects. PPPs have been most commonly used to deliver large public infrastructure projects such as airports, hospitals, bridges, highways, and transit lines (Himmel & Siemiatycki, 2017; Hussain & Siemiatycki, 2018; Siemiatycki, 2013; Sroka, 2021; Rahman et al., 2019; Nugent, 2015; Siemiatycki & Friedman, 2012; Siemiatycki, 2006). The use of PPPs for active transportation has been limited to certain public health education initiatives (Simon et al., 2017), bicycle-metro integration (Cai & Lian, 2021), and bicycle sharing programs (Wang et al., 2020) rather than for

the construction of active transportation facilities. There are also opportunities to use PPPs to achieve the SDGs as the private sector can take on more debt, have potential sources of financing that local governments are unable to access, and provide attractive investment opportunities due to economies of scale (Kanuri et al., 2016).

Despite the extensive literature on planning and private developers, limitations remain within the current planning processes. Doak and Karadimitriou (2007) identify the weaknesses of using a holistic approach to land development and that current planning frameworks are inadequate at addressing the shifting markets and the different aims and objectives of various development actors. Land use planning is a complex system involving developers, planners, landowners, investors, community groups, and various other actors. As such, it requires a systems theory-based approach that allows for dynamic interpretation and which can accommodate transitions between different spatial and temporal boundaries (Doak & Karadimitriou, 2007). Systems theory's relation to planning emerged with the development of the concept of the city as a system. Blumberg (1971) asserts that planners categorize cities into four elements:

- Physical structures: The actual land uses within the core and outlying regions.
- Functional elements: The social and economic environment with emphasis on the living population.
- The transportation environment's elements: How things and people are moved from one area to another.
- Services: Water, sewage, electricity and other facilities or utilities that support the city.

Private developers have a role in shaping all of these elements, and Blumberg argues that planners have been looking at urban areas as these four parts rather than as an integrated whole

and proposes combining them into an overall structure of the city viewed as a system (Blumberg, 1971). It is recognized that a piecemeal approach to planning is ineffective and that systems theory can help address issues that emerge, but there are disagreements on what is the specific conceptual framework for applying systems theory to planning leaving it as an area for future research (Cooper et al., 1971; Faludi, 1973; Coelho & Ruth, 2006).

Moore (2015) is also critical of much of the literature on private developers and that it ignores the use and treatment of qualitative interviews. They argue that research interviews are key qualitative data that is overlooked and that studies are focused on typifying the development process and prescribing industry "best practices" rather than the processes of socio-spatial interaction and networking within the built environment (Moore, 2015). Related to the processes of socio-spatial interaction and networking is intersectoral collaboration, a method typically used between planning and public health agencies combined with representatives from the private sector, volunteer groups, and non-profit organizations, to improve the health of populations (Public Health Agency of Canada [PHAC], 2016). Intersectoral collaboration can include cooperative initiatives, alliances, coalitions, or partnerships to find common ground and a "win-win" scenario (PHAC, 2016). The field of planning has used intersectoral collaboration for health impact assessments (Gamache et al., 2020), stormwater management (Pierre et al., 2019), health equity (Northridge & Freeman, 2011), and obesity programs (Fazli et al., 2017), but there are limited examples of intersectoral collaboration on active transportation issues except for Brüchert et al. (2021) that explore active mobility and healthy aging. This gap in the literature on intersectoral collaboration in active transportation planning could signal its use as a way to address barriers revealed during qualitative key informant interviews.

2.6 Rationale for Further Research

While there have been numerous examinations of the barriers to active transportation implementation, these studies have not explored private developers and their role in creating or reducing these barriers and have neglected the role of collaborative partnerships, such as PPPs, to improve implementation. These past studies have overlooked private developers and their role in active transportation implementation and a gap remains in the literature, thereby justifying further research (Farthing, 2016). The research question will fill this gap by exploring the role private developers play in achieving the goals of the Region of Waterloo's active transportation plans. An increased understanding of private developers' role within the Region of Waterloo will generate a pragmatic approach for planning practitioners to remove identified barriers, thereby boosting efficiency in the planning system.

2.7 Chapter Summary

This review of literature has highlighted how smart growth has shaped the current planning paradigm, summarized active transportation principles and barriers to its implementation, and outlined development collaboration within the current planning system. Through exploration of the key literature, gaps in the studies' methodology were discovered that helped shape the direction of this research study. The following chapter will outline the research methods used to complete this study and fill the gap in the literature.

Chapter 3: Research Methods

3.1 Introduction

This study explored the role private developers play in achieving the goals of the Region of Waterloo's active transportation plans. It was guided by the following three research objectives:

1. To understand policies that guide active transportation planning in the Region of Waterloo.
2. To identify barriers for private developers in achieving active transportation goals.
3. To explore the reduction or removal of barriers by the Region and/or private developers to facilitate improved implementation of active transportation plans.

An explanatory qualitative study design was chosen to explore the current planning framework and gather information on the three research objectives through the use of document analysis and key informant interviews. The following chapter details the research methods used for this study through an overview of the following areas: 1) research site, 2) research design, 3) research perspectives, 4) methodology and methods, 5) research phases, and 6) measures of rigour.

3.2 Research Site

To contextualize this research study, it is necessary to describe the research site and its surrounding environs in the Canadian Province of Ontario. The Region of Waterloo is located West of Toronto as part of the Greater Golden Horseshoe (GGH) policy area, as shown in Figure 4. Established in 1973, the Region is one of the fastest-growing areas in the Province with a population of just over 500,000 that is expected to grow to 729,000 by 2031 (Region of Waterloo, 2015). The Region of Waterloo presents a unique context for this research as it blends urban and rural centres with the urban cities of Kitchener, Waterloo, and Cambridge, and the

rural Townships of North Dumfries, Wellesley, Wilmot, and Woolwich as shown in Figure 5. The Region also presents a unique policy context, discussed later in this chapter, due to its role as an upper-tier municipality under the current planning system and its ability to shape land use in its lower-tier cities and rural townships.

Figure 4

Regional Context of the Region of Waterloo (Region of Waterloo, 2015)

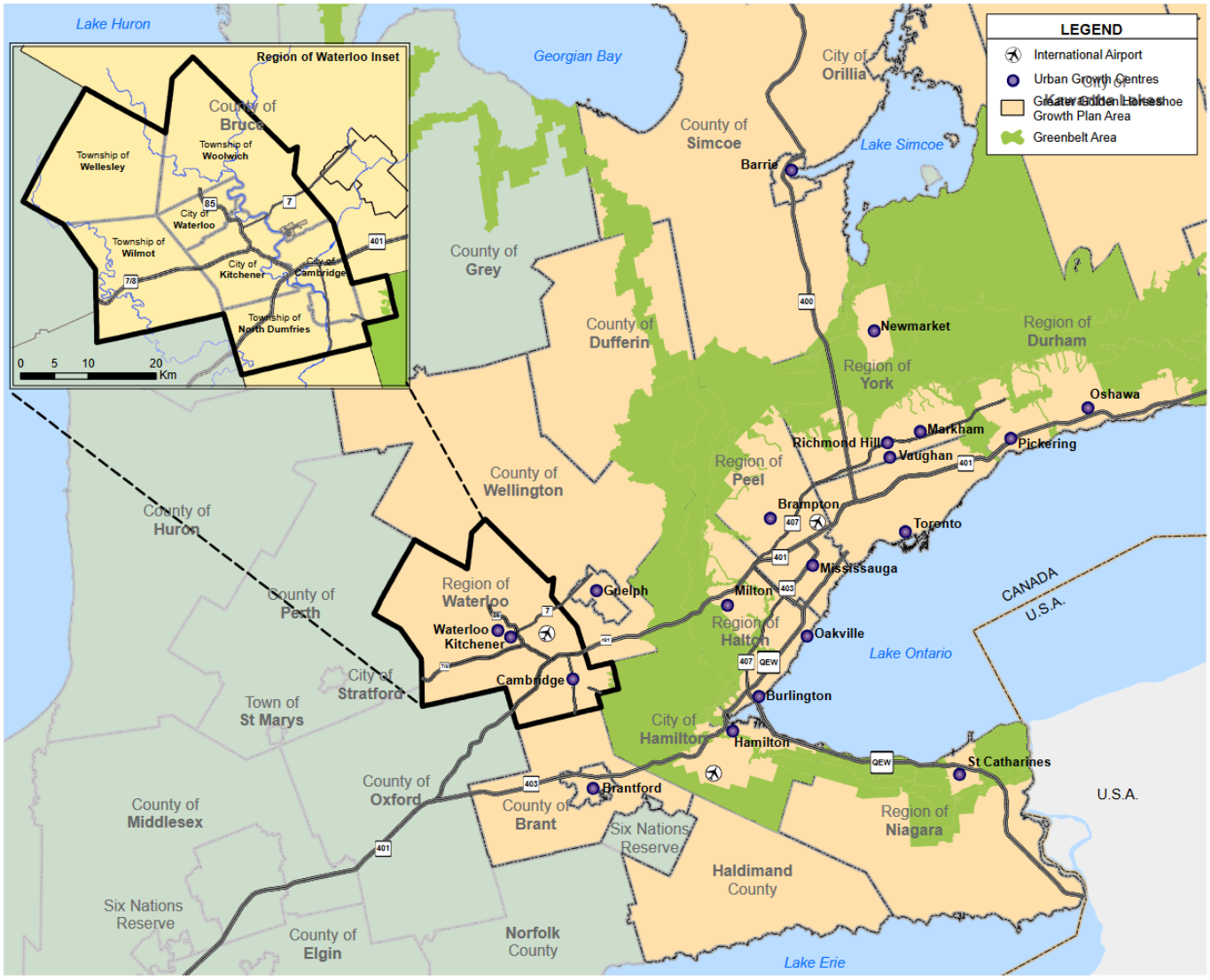
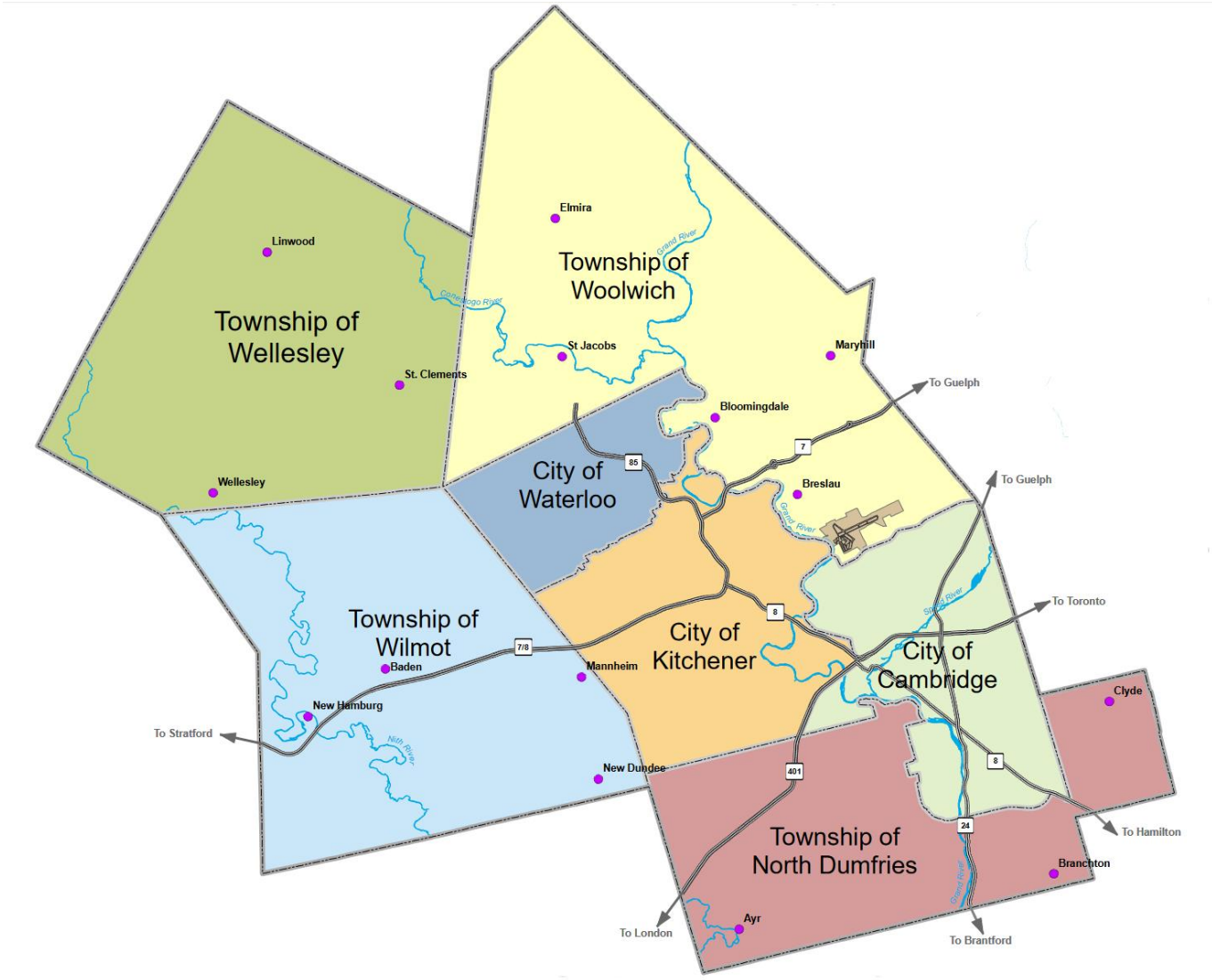


Figure 5

Region of Waterloo Area Municipalities (Region of Waterloo, 2015)



3.3 Research Design

To understand the research process used for this study it is necessary to identify the different types of research questions that can be applied. Farthing (2016) describes two main types of research questions: descriptive and explanatory:

- Descriptive research questions or ‘what’ questions seek answers which describe a situation or event or a pattern of behaviour or a set of practices.

- Explanatory research questions or ‘why’ questions seek explanations or understandings of a situation, event, behaviour, practice or policy or they seek predictions, assessments of the consequences of situations, events, behaviours, practices or policies. (p. 43)

This research is focused on exploring the implementation of active transportation plans by private developers, exploring interrelationships, and understanding barriers to implementation. It is not sufficient to simply describe the situation and the current state of practice. Rather, this research seeks to understand the current situation and behaviours, as well as the policies and consequences of current practices, with the desired end state being recommendations about policy or practice. The review of literature completed in the previous chapter revealed that there are gaps in our understanding of the role private developers play in active transportation implementation and, as such, an explanatory approach is most appropriate for this research.

3.2.1 Inductive and Deductive Approaches

There are two approaches to the exploration and explanation of data: inductive and deductive. Greener (2011) describes inductive research as starting “without clearly defined hypotheses or propositions that the researcher is trying to examine” while deductive research “because it is based on testing existing theories, will tend to include these elements” (p. 3). A clear illustration of the two different approaches is provided by Farthing (2016) and shown in Figures 6 and 7.

Figure 6

Inductive Approach

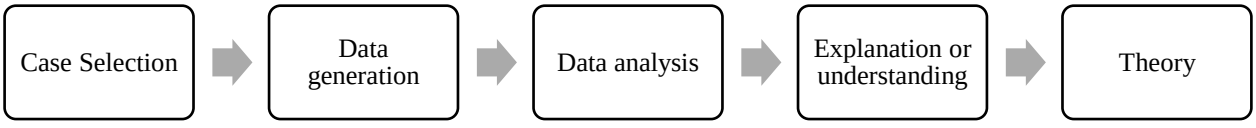
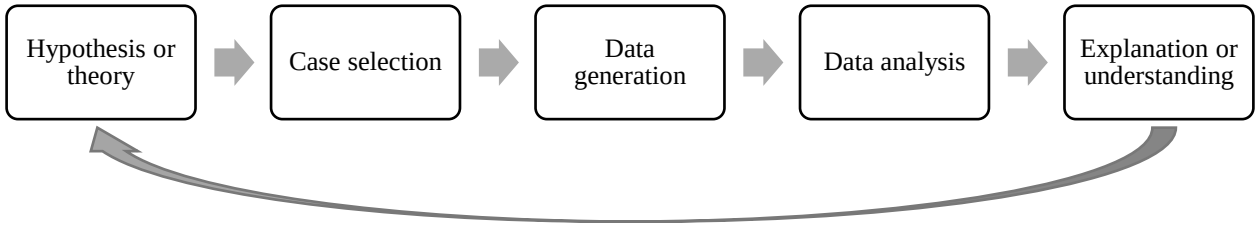


Figure 7

Deductive Approach



Greener (2011) expands on the two approaches describing inductive research as "that which tries to work from data (usually primary data) to build theory – it is a 'bottom up' approach to generating theoretical insight" while deductive research is "that which, on the other hand, tests theory through the use of (usually) quantitative data" (p. 3). As this research is beginning with a broader question in mind about the implementation of active transportation plans and does not have a specific hypothesis to test, an inductive approach is most appropriate (Farthing, 2016).

3.3 Research Perspectives

While typically more associated with philosophical discussion than research methods, it is necessary to discuss ontology, epistemology, and methodology and the underlying influence they have on research methods (Farthing, 2016; Greener, 2011). Grix (2002) describes these standard terms and concepts as the tools of the trade with specific purposes. Employing them correctly in the right order requires an understanding of what they mean, what they are meant to do, and how and when to apply them (Grix, 2002). Grix (2002) expands on this claiming that clear and transparent knowledge of ontological and epistemological assumptions that underpin research is necessary in order:

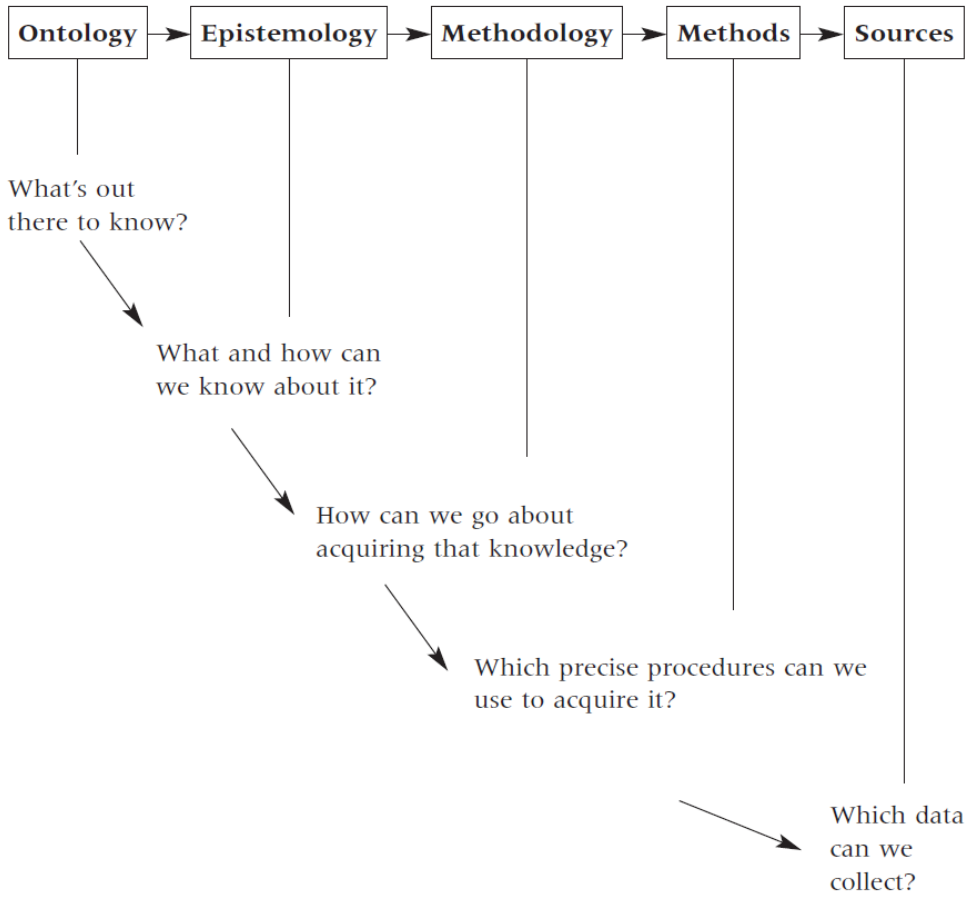
- To understand the interrelationship of the key components of research (including methodology and methods).

- To avoid confusion when discussing theoretical debates and approaches to social phenomena.
- To be able to recognize others', and defend our own, positions. (p. 176)

Greener (2011) recognizes that researchers do not necessarily need to know these philosophical assumptions to produce good research but argues that your chances of accomplishing good research increase with a thorough understanding of them. In particular, being aware of the key debates in research philosophy will enable more informed choices about research methods (Greener, 2011). Figure 8 below outlines the interrelationship between the building blocks of research and how each is linked in a logical sequence. This research study applies a qualitative strategy focused on the Region of Waterloo and the choice of this methodology is detailed in the subsequent sections of this chapter.

Figure 8

The interrelationship between the building blocks of research (Adapted from Hay, 2002, p. 64 as cited in Grix, 2002)



3.3.1 Ontology

Grix (2002) discusses how "ontology is the starting point of all research, after which one's epistemological and methodological positions logically follow" (p. 177). At its most base level, ontology is the nature of what sorts of things are thought to exist (Farthing, 2016). Exploring questions from an ontological perspective requires thinking about whether the world exists independently of your perceptions (Greener, 2011). Blaikie (2000) describes ontological claims as those:

> That are made about the nature of social reality, claims about what exists, what it looks like, what units make it up and how these units interact with each other. In short, ontological assumptions are concerned with what we believe constitutes social reality. (p. 8, as cited in Grix 2002)

Bryman (2001) categorizes ontological positions within the perspectives of objectivism or constructivism. Objectivism is an "ontological position that asserts that social phenomena and their meanings have an existence that is independent of social actors" while constructivism "asserts that social phenomena and their meanings are continually being accomplished by social actors. It implies that social phenomena and categories are not only produced through social interaction but that they are in a constant state of revision" (Bryman, 2001, pp. 16-18, as cited in Grix, 2002). The planning process in Ontario involves social actors at every level and stage and is in a constant state of flux as legislation and policy are revised regularly. Therefore, applying a constructivist approach is more appropriate for this research study. Additionally, understanding ontology is essential for this research study as the Ontario planning system is explored and whether the reality of active transportation implementation is a result of policies that are applied objectively, or if it is based on how public and private sector planners experience and interpret those policies.

3.3.2 Epistemology

Epistemology is concerned with the theory of knowledge, with what knowledge is, and what counts as good knowledge (Grix, 2002; Greener, 2011). Blaikie (2000) describes epistemology as "the possible ways of gaining knowledge of social reality, whatever it is understood to be. In short, claims about how what is assumed to exist can be known" (p. 8, as cited in Grix, 2002). Knowledge is not static, and epistemology is focused on the knowledge-

gathering process and the development of new models or theories that are improved (Grix, 2002). Bryman (2002) categorizes epistemological positions as either positivism or interpretivism, with positivism being "an epistemological position that advocates the application of the methods of the natural sciences to the study of social reality and beyond" and interpretivism as "predicated upon the view that a strategy is required that respects the differences between people and the objects of the natural sciences and therefore requires the social scientist to grasp the subjective meaning of social action" (pp. 12-13, as cited in Grix, 2002). Farthing (2016) simplifies positivism as a perspective that sees no distinction between the methods of studying the natural and social worlds and is therefore a scientific approach that is equally applicable to both. Interpretivism is an alternative to positivism arguing that there is a distinctiveness to the social world and people interacting with the social world possess consciousness and introspection and can interact with their surroundings (Farthing, 2016). As such, researchers must account for the ways that people understand and give meaning to their actions rather than making assumptions from their interpretations (Farthing, 2016). This research does not attempt to uncover an objective definition of how the planning system works and an interpretivist approach is more appropriate as it will explore the subjectivity of how private sector planners navigate the planning system, how they interact with active transportation barriers, and how their beliefs and experiences shape their interactions.

3.4 Methodology and Methods

Farthing (2016) describes methodology as "discussions of how research is done, or should be done, and to the critical analysis of methods of research" (p. 25). This is similar to Grix's (2002) definition that methodology is "concerned with the logic of scientific inquiry; in particular with investigating the potentialities and limitations of particular techniques or

procedures" (p. 179) and Greener's (2011) definition that it "studies methods to work out what we can usefully say about them, and explores their philosophy, application and usage" (p. 5). Both Grix (2002) and Greener (2011) emphasize that it is critical not to conflate methodology with methods as the latter are "the techniques or procedures used to collate and analyze data (Blaikie, 2000, p. 8, as cited in Grix, 2002). While methodology is linked to methods and often (incorrectly) used interchangeably, it is concerned with the logic, potentialities, and limitations of methods and does not comprise the research methods themselves (Grix, 2002).

3.4.1 Qualitative, Quantitative, and Mixed-methods Approaches

There is a typical bifurcation of research and data into two categories: qualitative and quantitative. Farthing (2016) succinctly defines each category respectively as data which is in the form of words and data which is in the form of numbers. Quantitative research is typically concerned with techniques that analyze numbers, such as calculating averages and probabilities or exploring numerical relationships (Greener, 2011). Quantitative methods can be checked for statistical robustness and can be powerful tools when searching for a specific answer through measurement (Greener, 2011; Grix, 2002). Qualitative data is made up of words, images, or anything that is not in numeric form and can be useful to capture the natural perceptions of research participants in their own words without requiring them to fit into categories or scales (i.e., from 1 to 5) designed by the researchers (Greener, 2011; Farthing, 2016). Mixed-methods approaches combine both qualitative and quantitative research to mitigate the drawbacks of each but can be complicated, produces different types of results, and do not always lead to better research (Greener, 2011).

This research does not seek to explore numerical measurements of active transportation implementation but rather seeks to describe issues, processes, and routines related to active

transportation in the planning system and analyze and understand the subjective and collective experiences in line with an interpretivist approach (Flick, 2018). Flick (2018) defines the aims of qualitative research as:

> To provide materials for an empirical analysis of a phenomenon that a study is about…for example, a problem or process that is not adequately understood yet and is worth being analyzed, described, compared, or explained. Second, to decide about which aspect of this problem or process shall be the focus – some people's experiences with the phenomenon, the unfolding practice related to it, the public perceptions linked to it and the like. (p. 7)

The nature of this research places it firmly in the qualitative camp due to the explanatory research question and inductive approach combined with the aims described by Flick (2018). Selecting a qualitative research methodology dovetails to the choice of a specific research method of data collection and analysis as outlined by Grix (2002).

3.4.2 Qualitative Methods

Farthing (2016) maintains that there is no simple answer to which method or methods should be chosen for data generation and that the decision requires understanding and balancing a range of issues before making a decision, as illustrated in Figure 9. Despite consideration of these four issues, Farthing (2016) argues that the methods of data collection in qualitative research are limited to interviews and questionnaires, observation and ethnography, and the use of documents. This is supported by Flick (2018) who outlines the three approaches:

- We can start from individuals' (or group members') knowledge and experiences about an issue and the world surrounding them and collect our data by talking to people. Then the

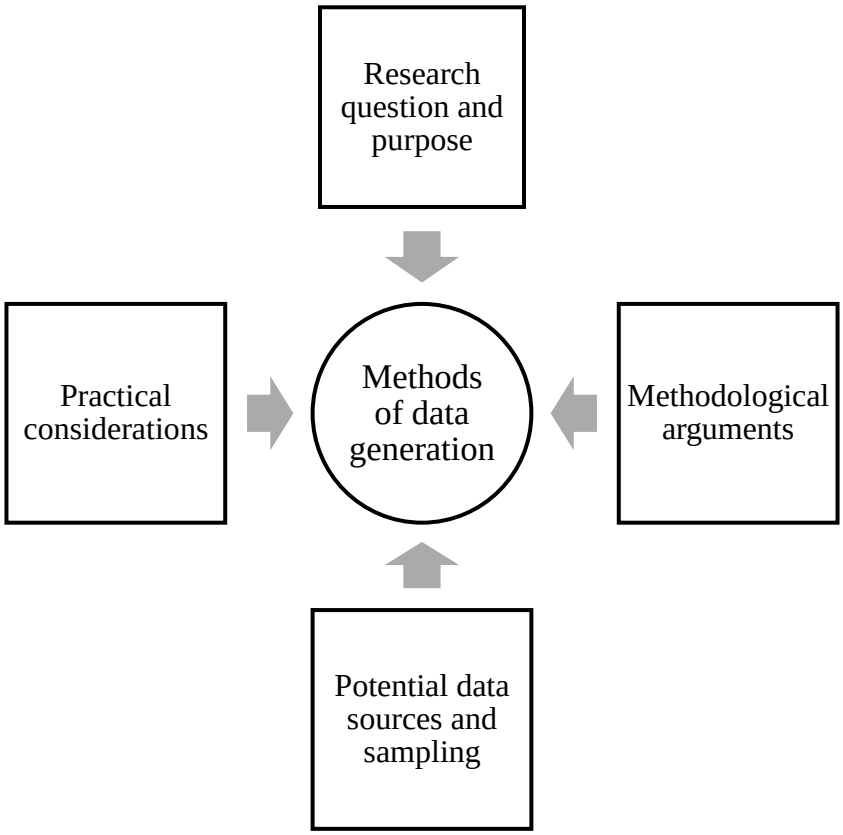
participants' reflexivity and ability to report and relate what they experience and know is the researchers' starting point for analyzing social phenomena.

- We can start from the common, shared or conflicting practices linked to a phenomenon or process and collect our data by walking to people and observe what they do and what the context of this doing is like. Then the participants' activities and abilities to do meaningful things in everyday or professional practices are the researchers' starting points for analyzing social phenomena.
- We can start from the traces left behind by people, their practices or social processes, and analyze these traces. Then the traces left behind by people consciously or without being aware of this are the researchers' starting point for analyzing social phenomena, and subjects are not necessarily involved as participants in the research. (p. 8)

Flick (2018) summarizes these three approaches respectively as "talking to people in interviews, walking to people in ethnographies, and tracing people's lives by analyzing documents" (p. 8). It is unfeasible to use observation and ethnography in this research study as many of the interactions between public and private sector planners occur in private or privileged settings. Analysis of documents will be completed to set the foundation of the research study, but interviews will be the primary method used to gather knowledge on the experiences of private developers and how they interact with active transportation plans.

Figure 9

Influences on the choice of methods of data generation (Farthing, 2016, p. 125)



3.4.3 Interviews and Questionnaires

Interviews and questionnaires are both methods that pose questions to respondents (the data sources) about facts, behaviours, beliefs, and attitudes (Farthing, 2016). In an interview, the interviewer asks the questions and records the answers, but for a questionnaire, the questions are sent in advance, they are answered by the respondent, and the answers are recorded by the respondent (Farthing, 2016). Interviews can range from the tightly structured of a standardized survey in which questions are asked in a specific order using the same format, to semi-structured in which the organization of topics is less tightly formatted, to unstructured where interviews are loosely formatted and topics are participant-driven (Roulston & Choi, 2018). Semi-structured interviews require researchers to identify topics about which they want to ask questions of

individual participants combined with follow-up questions, also referred to as probes, relative to what interviewees have already said (Roulston & Choi, 2018). The literature review revealed there is a gap in the research and, as a result, an open-ended research question was developed. This open-ended research question excludes questionnaires due to their rigidity and the inability to permit probes about certain topics. As such, semi-structured one-on-one interviews are most appropriate to explore the experiences and understanding of the implementation of active transportation plans by private developers and allow for flexibility by both the interviewer and respondent (Farthing, 2016). There remain limitations and critiques of using interviews, particularly by those that argue for the value of using naturally occurring data rather than data generated by interviews, but they remain a primary element of research methods (Roulston & Choi, 2018).

3.4.4 Documents

Documents can be both paper-based and digital texts including both written elements alongside extra-textual elements, such as images, photographs, graphs, and diagrams, that are embedded in documents (Rapley & Rees, 2018). A literature review will use documents, such as journal articles and books, to synthesize the state of knowledge on a topic and to justify the research, but this is different from the use of documents for generating data about the social world (Farthing, 2016). Rapley and Rees (2018) describe three distinct categories of documents:

- Docile documents to enable the analysis of documents as texts in their own right.
- Documents gathered alongside other forms of fieldwork to support a range of types of analytic work.
- Documents in action to inform more naturalistic or ethnographic work on situated document use (p. 378).

They expand on these three categories and describe how analytic work on and with documents can be divided into two areas: “work that focuses on the actual textual and extra-textual content of documents; and work that focuses on some aspect of the use, role and function of documents in everyday and organizational settings” (Rapley & Rees, 2018, p. 378). The first area of analysis is focused on a document in its own right and views its content as static and immutable forgoing empirical study of how people create, read, refer to, or use the document, while the second area of analysis is predominantly observational and seeks to understand how the documents are active agents in everyday life (Rapley & Rees, 2018). This research is primarily focused on the second area of analysis as, while there is an interest in the objectives and policies outlined in planning documents, the greater interest lies with why particular active transportation policies are developed, the social processes by which active transportation plans are produced and implemented, and who is involved throughout the different stages (Farthing, 2016).

Qualitative analysis of documents is also related to the research method of content analysis in which researchers collect relevant documents, establish a coding frame, and then apply that coding frame to the documents by counting the frequency of particular words, phrases, or themes (Rapley & Rees, 2018). This is a systematic approach that enables descriptive and statistical findings to be established, but it predefines analysis and isolates words and phrases from their immediate and broader context (Rapley & Rees, 2018). It is not sufficient to simply regurgitate policy in this research, but rather to contextualize it within the social processes of planning through a constructivist ontological approach. This is reinforced by Rapley and Rees (2018) who conclude that: “documents shape, and are reflexively shaped by, our perceptions, interactions, institutions, policies and society. They are central in the production, reproduction and transformation of our contemporary landscapes. As such, they deserve a more sustained and

systematic analytic focus" (p. 389). The method for analyzing interviews and documents will be discussed later in this chapter, but it was necessary to first describe the types of methods and how they are used in qualitative research.

3.5 Research Phases

The explanatory research question and the inductive approach to this research study require a phased process to fulfill the research objectives. Phase 1 involved developing inclusion and exclusion criteria for the policy documents relevant to the research study. This facilitated an understanding of current policy and planning practice and set the foundation for completing all three research objectives. Building on the knowledge of current policy, Phase 2 consisted of key informant interviews to understand the processes involved with active transportation planning and to identify the barriers for private developers. Lastly, Phase 3 consisted of data analysis to assess the barriers identified in Phase 2 and relate them to current policy and practice identified in Phase 1. The outputs from Phase 3 are the various methods to reduce or remove the barriers to active transportation implementation explored in later chapters. Before commencing the research phases, this study was reviewed and received ethics clearance through the University of Waterloo Research Ethics Board (REB 44030).

3.5.1 Phase 1: Policy Documents

The abundance of digital documents can create difficulties in research as the sheer number of sources can overwhelm the investigator. As such, a decision is required to select the documents that will be of value to the research question (Rapley & Rees, 2018). Scott (1990, as cited in Rapley & Rees, 2018) outlines four criteria to consider when assessing whether a document should be included:

- Authenticity: The legitimacy of the document. Is it actually what it claims to be?

- Credibility: Relates to the content and the extent to which the material can be trusted.
- Meaning: Surface meaning (being able to understand the document) and/or deeper meaning (the discourses within the text and that are understood through analytical techniques) (MacDonald & Tipton, 1993, as cited in Rapley & Rees, 2018).
- Representativeness: How well your sample of documents reflects the broader body of possible documents tied to this issue, alongside how typical a specific document is, given the broader context of documents within your archive (p. 385).

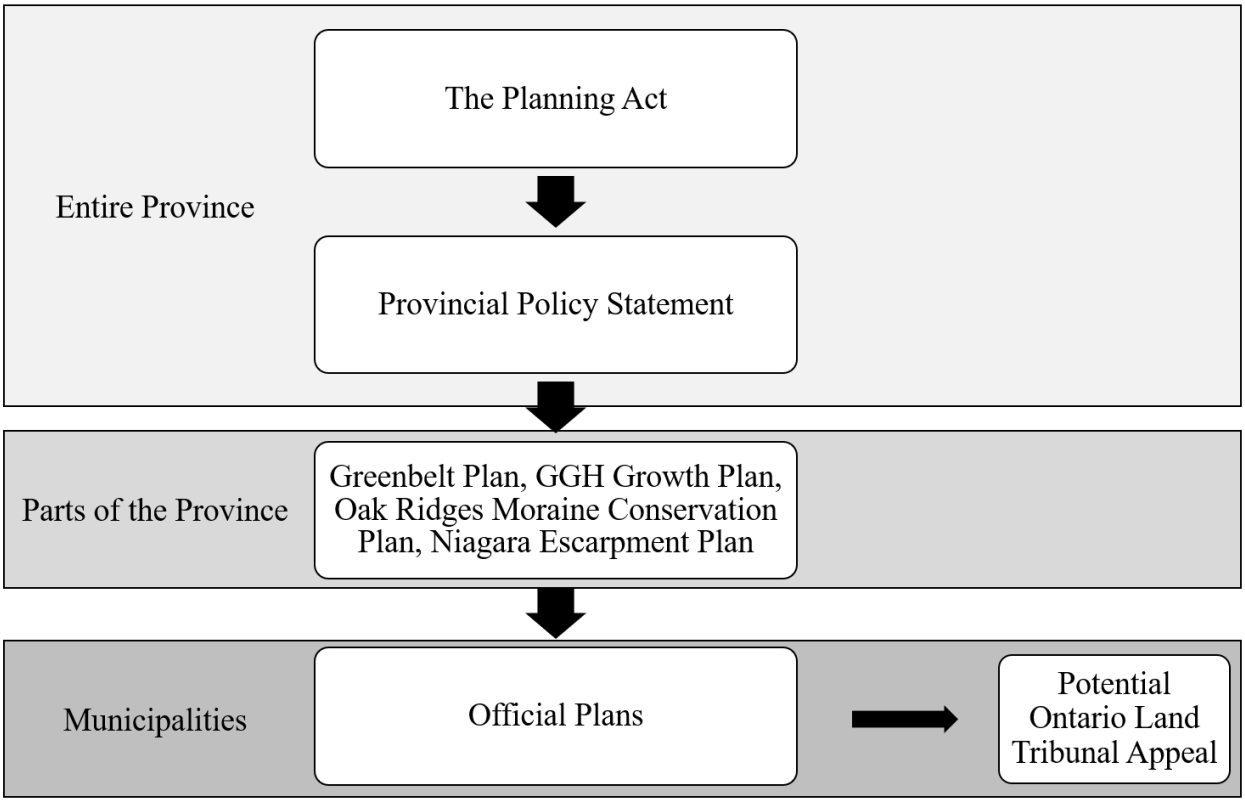
There is a wealth of legislation and policy at all levels of government that can potentially impact how active transportation is planned and implemented, and it is necessary to specify what documents will be included or excluded before commencing analysis. This will ensure a targeted approach and reduce the risk of duplicating efforts throughout the research.

Ontario's land use planning system applies a top-down approach, as shown in Figure 10, with the *Planning Act* serving as the capstone document. The *Planning Act* is a vital piece of provincial legislation that sets out the ground rules for land use planning in Ontario. It also provides the basis for municipalities to prepare official plans and planning policies that will guide future development. As such, the *Planning Act* is the *de jure* paramount planning legislation from which all other planning policies are derived creating a top-down planning system in Ontario. Under the Planning Act, the Ministry of Municipal Affairs and Housing (MMAH) issues provincial policy statements – most recently the Provincial Policy Statement (PPS) 2020 – that guide matters of provincial interest and all municipalities are required to conform to the PPS. Although issued under the *Places to Grow Act*, A Place to Grow: Growth Plan for the Greater Golden Horseshoe (the Growth Plan) is also administered by the MMAH and has significant impacts on the Region of Waterloo as it falls within the designated area of the

Growth Plan. The *Planning Act*, the PPS 2020, and the Growth Plan are three provincial-level documents essential for analysis as part of the research plan.

Figure 10

Ontario's Land Use Planning System (adapted from Macdonald et al., 2021)



In 2006, under the *Metrolinx Act*, the Province created the Crown agency Metrolinx to manage, plan, and implement a multimodal transportation network in the Greater Toronto and Hamilton Area (GTHA). In 2018 Metrolinx released the 2041 Regional Transportation Plan (RTP) to guide the continuing development of the transportation system in the GTHA. Although the Region of Waterloo is outside the GTHA, GO Transit services stations within the Region and potentially shape regional transportation plans, requiring integration with the larger transportation network. The Ministry of Transportation Ontario (MTO) is also developing a long-term multimodal transportation plan for 2051 for the GGH that will affect the Region, and

the 2041 RTP will likely shape its development. As such, the 2041 RTP is included in the analysis to ensure synchronization between the Region and the larger GGH.

The current organization of municipalities as dictated by the *Municipal Act* includes lower-tier, upper-tier, and single-tier municipalities. In the Region of Waterloo's case, the Region is the upper-tier municipality with seven lower-tier municipalities below it. Each of these lower-tier municipalities has its Official Plan that conforms to the Regional Official Plan as required under the *Planning Act*. Under their Official Plans, municipalities will typically issue Transportation Master Plans (TMPs) to focus on transportation planning in more detail than what would be covered by their Official Plans. As part of the content analysis, the TMPs and Official Plans for the Region as well as the cities of Kitchener, Cambridge, and Waterloo will be included. However, the Official Plans of the rural townships within the Region will be excluded due to their low population and their inclusion within the larger Regional TMP.

Other provincial legislation, such as the *Ontario Heritage Act* or the *Environmental Assessment Act*, is likely to affect the development of active transportation at some point in the process. However, these and similar pieces of legislation are excluded from analysis as, while they may influence active transportation planning, they do not prescribe the planning framework which is nested within the *Planning Act* and Official Plans/TMPs. However, these policies will be explored in more detail if key informant interviews comment that they have a significant impact on the implementation of active transportation.

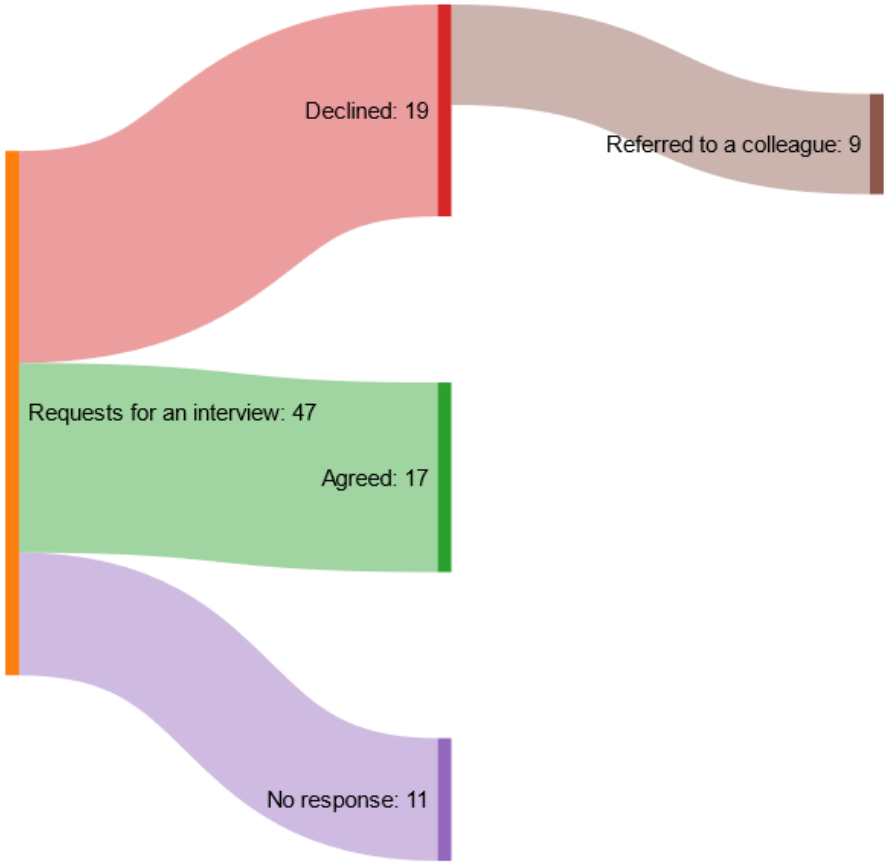
3.5.2 Phase 2: Key Informant Interviews

As detailed earlier in this chapter, semi-structured one-on-one interviews are most appropriate to explore the implementation of active transportation plans by private developers as they can disclose private or sensitive discussions that are not captured in public forums. Key

informants related to the research question include public planners, including transportation, development, and corridor planners, from the various municipalities in the Region, private planners from development corporations or consultancies, and transportation engineers from both public and private organizations. Judgemental (also known as purposive) sampling was first used to explicitly target key informants that are involved with active transportation planning and implementation (Farthing, 2016). These key informants were identified from municipal websites and public documents, including planning justification reports, plans of subdivision or condominium, and council minutes, that identified private developers operating within the Region. Each key informant was contacted via a recruitment email and information letter inviting them to participate in the research. Snowball sampling was also used in which, after first contact was made by the researcher, key informants passed on contact information to other individuals that might be interested in the research or were more appropriate respondents (Farthing, 2016). A total of 47 individuals – 30 public and 17 private – were invited to participate in the research. Of these, 17 agreed to participate of which eight were public and nine were private. Figure 11 illustrates the response rate from potential interviewees. Reasons for declining included those that felt it was outside their area of expertise or did not have the time available, but several respondents did forward the invitation to their colleagues that were more appropriate for the research study.

Figure 11

Response to requests for interviews



After confirming a mutually-agreeable time, respondents who agreed to participate in the research received a Microsoft Teams invitation and a copy of the semi-structured interview questions included in Appendix A. Consent to participate in the research was confirmed by the respondent and the meeting was then recorded and transcribed through Microsoft Team's integral function, ranging from approximately 20 minutes to 57 minutes in length. In the days following their interview, each participant received an appreciation letter thanking them for their participation. If direct quotes were used in the results chapter, the participant was contacted to confirm the accuracy of the transcription.

3.5.3 Phase 3: Data Analysis of Policy Documents and Key Informant Interviews

Upon consolidation of relevant policy documents and completion of all qualitative interviews, data analysis commenced. As previously discussed, policy documents were not simply copied verbatim and presented in this research but rather compared and contrasted in the results chapter with what was identified in the key informant interviews. There are several data analysis methods available that were explored for their use in this research, including the Grounded Theory Method, discourse analysis, and narrative analysis. The Grounded Theory Method was initially studied as an option, but it was rejected due to its complexity and the ongoing scholastic debate between its original co-founders on the exact process (Urquhart, 2013). The Framework Method was ultimately chosen as it is most applicable to the constructivist, interpretivist, and inductive nature of this research. The Framework Method sits within the broader group of analysis methods referred to as thematic analysis in which commonalities and differences in qualitative data are identified before focusing on relationships between different parts of the data through descriptive and/or explanatory conclusions clustered around themes (Gale et al., 2013). Originally developed in the 1980s for large-scale policy research, it is now increasingly being used in medical and health research among other fields that explore qualitative data (Gale et al., 2013). Unlike other data analysis methods, the Framework Method is not aligned with a specific epistemological, philosophical, or theoretical approach thereby providing a flexible option that can be adapted to several different research areas that aim to generate themes from data (Gale et al., 2013).

The Framework Method provides a systematic model for managing and mapping data and is highly applicable to the analysis of interview data as it generates themes by making comparisons within and between separate interviews (Gale et al., 2013). Before describing the

steps of the Framework Method, Gale et al., (2013) outline key terms so practitioners may understand the process:

- Code: A descriptive or conceptual label that is assigned to excerpts of raw data in a process called ‘coding’.
- Categories: During the analysis process, codes are grouped into clusters around similar and interrelated ideas or concepts. While categories are closely and explicitly linked to the raw data, developing categories is a way to start the process of abstraction of the data (i.e., towards the general rather than the specific or anecdotal).
- Analytical framework: A set of codes organized into categories that have been jointly developed by researchers involved in the analysis that can be used to manage and organize the data. The framework creates a new structure for the data (rather than the full original accounts given by participants) that is helpful to summarize/reduce the data in a way that can support answering the research questions.
- Themes: Interpretive concepts or propositions that describe or explain aspects of the data, which are the final output of the analysis of the whole dataset. (p. 1-2)

The defining feature of the Framework Method is the matrix output of rows (cases, such as interviews), columns (codes), and ‘cells’ of summarized data providing a way in which the researcher can systematically analyze it by case and by code (Gale et al., 2013). An example of the Framework Method matrix output is included in Appendix B. Gale et al. (2013) summarize the benefits of this matrix:

> The views of each research participant remain connected to other aspects of their account within the matrix so that the context of the individual’s views is not lost. Comparing and contrasting data is vital to qualitative analysis and the ability to compare with ease data

> *across* cases as well as *within* individual cases is built into the structure and process of the Framework Method. (p. 2)

This matrix structure is one of several benefits of the Framework Method as it provides an easily accessible visualization of the data that facilitates pattern recognition and draws attention to contradictory or missing data (Gale et al., 2013).

However, the Framework Method is not without its drawbacks. The systematic approach and matrix format (i.e., the 'spreadsheet look') risk researchers attempting to quantify qualitative data (e.g., "13 out of 20 participants said X") (Gale et al., 2013, p. 6). Gale et al. (2013) argue that these types of statements are meaningless as qualitative research is designed to understand social phenomena and not to be representative of the wider population. The Framework Method is also time-consuming and resource-intensive, in particular for multi-disciplinary research teams, as researchers are required to learn how to code, index, and chart data while maintaining an objective lens (Gale et al., 2013).

The exact procedure for completing the Framework Method is outlined by Gale et al. (2013, p. 4-5) and consists of seven steps:

1. Transcription: A good quality audio recording and, ideally, a verbatim transcription of the interview is needed. The process of transcription is a good opportunity to become immersed in the data and is encouraged for new researchers.
2. Familiarisation with the interview: Becoming familiar with the whole interview using the audio recording and/or transcript and any contextual or reflective notes that were recorded by the interviewer is a vital stage in interpretation. It can also be helpful to re-listen to all or parts of the audio recording.

3. Coding: After familiarization, the researcher carefully reads the transcript line by line, applying a paraphrase or label (a ‘code’) that describes what they have interpreted in the passage as important. Coding aims to classify all of the data so that it can be compared systematically with other parts of the data set.
4. Developing a working analytical framework: After coding the first few transcripts, a set of codes should be agreed upon to apply to all subsequent transcripts. Codes can be grouped into categories, which are then clearly defined. This forms a working analytical framework.
5. Applying the analytical framework: The working analytical framework is then applied by indexing subsequent transcripts using the existing categories and codes. Computer-Assisted Qualitative Data Analysis Software (CAQDAS) is particularly useful at this stage because it can speed up the process and ensures that, at later stages, data is easily retrievable.
6. Charting data into the framework matrix: A spreadsheet is used to generate a matrix and the data are ‘charted’ into the matrix. Charting involves summarizing the data by category from each transcript. Good charting requires an ability to strike a balance between reducing the data on the one hand and retaining the original meanings and ‘feel’ of the interviewees’ words on the other. The chart should include references to interesting or illustrative quotations.
7. Interpreting the data: Gradually, characteristics of and differences between the data are identified, perhaps generating typologies, interrogating theoretical concepts (either prior concepts or ones emerging from the data) or mapping connections between categories to explore relationships and/or causality.

3.6 Measures of Rigour

The qualitative research process captures context-dependent sites and situations but requires robust evaluation to ensure that qualitative evidence or findings gain widespread acceptance (Baxter & Eyles, 1997). When designing qualitative research an important aspect to account for is the notion of 'rigour' in interview analysis. In other words, it is the "process of critical appraisal to determine whether or not a study is worthy of attention" (Baxter & Eyles, 1997). Baxter and Eyles (1997) argue that rigour is "particularly important for assessing qualitative research which has relatively few standardized procedures for evaluation and whose practitioners are encouraged to be flexible and to utilize novel methodological and analytical procedures" (p. 506). Lincoln and Guba (1985, as cited in Baxter & Eyles, 1997) establish a set of criteria for qualitative rigour consisting of credibility, transferability, dependability, and confirmability. Fulfilling these criteria ensures the validity of the research and that the researcher completed their due diligence throughout all phases.

3.6.1 Credibility

Credibility is "the most important principle for guiding qualitative studies" and is the authentic representation of experiences (Baxter & Eyles, 1997). As there is no single reality, credibility is based on the assumption that there are multiple realities constructed by us and that confirmation is not required from respondents, but rather that they comment on the plausibility of their interpretations (Baxter & Eyles, 1997). It is the goal of the researcher to adequately represent the realities of the different respondents so that the consumer of the research comprehends their experiences (Baxter & Eyles, 1997). Several strategies exist to satisfy credibility, but the two main approaches used in this research were judgemental (purposive) sampling and triangulation. Purposive sampling targets 'information-rich cases' until

‘redundancy’ or ‘saturation’ – in which no new themes or constructs emerge – are met and does not risk credibility from a low sample size (Baxter & Eyles, 1997). As research participants were identified using judgemental/purposive sampling, the credibility of the research is enhanced. Triangulation is another powerful tool for strengthening credibility and consists of four major types: the use of multiple sources, methods, investigators, and theories (Denzin, 1978, as cited in Baxter & Eyles, 1997). Source triangulation was the method used in this research as multiple policy documents from various levels of government were examined, including the PPS and the Region of Waterloo TMP. This was combined with both public and private sector participants during the key informant interviews that offered a diversity of perspectives that provided similar findings, thus strengthening credibility (Knafl & Breitmayer 1989; Krefting, 1990, as cited in Baxter & Eyles, 1997). Other factors can influence credibility, such as interview rapport and the researcher’s age, gender, ethnicity, and other outward appearances that can affect how respondents react (Baxter & Eyles, 1997). However, this was mitigated using virtual interview methods that reduced the importance of physical presence and appearance.

3.6.2 Transferability

Transferability is the degree to which research findings fit within contexts outside the study similar to generalizability or external validity (Baxter & Eyles, 1997). Qualitative researchers are typically unconcerned with transferability as they seek to analyze phenomena that are largely bound to the time, people, and setting of the particular study (Baxter & Eyles, 1997). However, these experiences may be common to a larger group or setting and can be transferable beyond a single case. This is particularly relevant to this research study as, while focused on the Region of Waterloo, the hierarchal nature of land use planning in Ontario establishes similar conditions in other regions and municipalities in which the Region of Waterloo context can be

applied. A detailed description of the research design, as outlined in this chapter, is a strategy to satisfy transferability by providing sufficient detail for the reader to understand the degree to which the research can be applied to other contexts (Baxter & Eyles, 1997).

3.6.3 Dependability

Dependability is the minimization of instabilities or idiosyncrasies in the research design. While it involves the consistency with which the same research design can be matched with the same phenomena (i.e., repetition) over time, it is more concerned with accurately documenting the research context (Baxter & Eyles, 1997). Dependability is often threatened by poorly defined analytical constructs and premises, and premature closure. If analytical constructs are poorly defined it may result in variable interpretation by both researchers and participants, thereby skewing results, while premature closure occurs when the researcher finalizes results sooner than the available data justifies (Baxter & Eyles, 1997). Specifying an analytical process, such as the Framework Method, helps create and maintain consistent approaches throughout the research study and assists in reinforcing dependability. Using low-inference descriptors and mechanically recorded data (i.e., recorded Microsoft Teams meetings) is also used to satisfy dependability as the interpretations can be authenticated by others (Baxter & Eyles, 1997). These are combined with another strategy, the inquiry audit, that checks the status of the research and is achieved through the advisor/committee–student relationship in graduate-level programs (Baxter & Eyles, 1997).

3.6.4 Confirmability

Confirmability is focused on the research investigator and the interpretations. While related to objectivity, confirmability is "the degree to which findings are determined by the respondents and conditions of the inquiry and not by the biases, motivations, interests or perspectives of the inquirer" (Lincoln & Guba, 1985, p. 290, as cited in Baxter & Eyles, 1997). It is not sufficient that a researcher remains objective and leaves the data undisturbed but must account for their interests and motivations by showing how they have affected interpretations (Baxter & Eyles, 1997). Similar to dependability, confirmability was achieved through an inquiry audit and by retaining raw data, data reduction and analysis products, and data reconstruction and synthesis products (Baxter & Eyles, 1997). Confirmability was also achieved by outlining the audit process, including how decisions were made regarding the determination of credibility, transferability, and dependability summarized in the previous sections (Baxter & Eyles, 1997). Lastly, confirmability was achieved through member checking whereby quotes were shared with the research participants to ensure their sentiments were accurately captured.

3.7 Chapter Summary

To address the research question and associated objectives, an explanatory qualitative study design was selected. Using document analysis, the policies that guide active transportation planning in the Region of Waterloo were explored to contextualize the current state of practice. This was followed by qualitative key informant interviews to identify barriers for private developers in achieving active transportation goals. To analyze the data, the Framework Method was chosen, and the following chapter will outline the results of this analysis.

Chapter 4: Results

> *Get developers more – not necessarily more involved – but more get the two sides to be close together in communicating to help each other out because I think we all know what's good. We all know what good planning is or what good city building is for the most part. But if we're not both working towards the same goal or both in agreement on this is what needs to be done to get to that goal, and it's hard to do that…Honestly, I hadn't really considered developers as advocates of active transportation before. So this, it's a good perspective shift to be like 'we're not just about building subdivisions. We can also do good things for the world' or whatever as there seems to be a very antagonistic relationship between developers and the city of 'we want to do these things' and 'we want to break the rules' and the cities as the defender of those rules and of all things good.* (Private Development Planner 2)

4.1 Introduction

The results of the 17 qualitative key informant interviews and the analysis of relevant policy documents are presented in this chapter thereby meeting the second research objective. The above quote summarizes the importance of this research study and highlights three of the four predominant barriers to active transportation implementation that were identified through the application of the Framework Method. Private Development Planner 2 speaks about collaboration ("there seems to be a very antagonistic relationship between developers and the city"), measuring active transportation success ("we all know what good planning is or what good city building is"), and integrating active transportation initiatives into policy ("But if we're not both working towards the same goal or both in agreement on this is what needs to be done to get to that goal, and it's hard to do that"). The fourth barrier not mentioned by Private Development Planner 2 involves vehicle parking.

At this phase of the research, the respondents to the request for participation are redefined as participants and assigned a corresponding number, as shown in Table 5, with their role also included to contextualize their perspective when commenting on active transportation implementation. This chapter is organized into four sections that each describe a predominant

barrier to active transportation implementation: (1) excessive vehicle parking requirements, (2) the lack of measures of success, (3) the need to integrate active transportation initiatives into policy, (4) and the limited methods of collaboration between the public and private sectors

Table 5

Interview Participants

Respondent Number	Role	Participant Number
Respondent 1	Municipal Transportation Planner	Municipal Transportation Planner 1
Respondent 5	Municipal Planner	Municipal Planner 1
Respondent 7	Municipal Planner	Municipal Planner 2
Respondent 9	Private Planner	Private Planner 1
Respondent 11	Private Planner	Private Planner 2
Respondent 12	Private Planner	Private Planner 3
Respondent 21	Municipal Transportation Planner	Municipal Transportation Planner 2
Respondent 22	Municipal Transportation Planner	Municipal Transportation Planner 3
Respondent 28	Municipal Planner	Municipal Planner 3
Respondent 31	Private Transportation Planner	Private Transportation Planner 1
Respondent 32	Municipal Transportation Planner	Municipal Transportation Planner 4
Respondent 35	Private Transportation Planner	Private Transportation Planner 2
Respondent 36	Private Development Planner	Private Development Planner 1
Respondent 37	Private Development Planner	Private Development Planner 2
Respondent 38	Municipal Transportation Planner	Municipal Transportation Planner 5
Respondent 46	Private Development Planner	Private Development Planner 3
Respondent 47	Private Planner	Private Planner 4

4.2 Excessive Vehicle Parking Requirements

The first major barrier to the implementation of active transportation that emerged from the data was the issue of vehicle parking. Participants felt that the abundance of vehicle parking in urban municipalities encouraged automobile usage instead of active transportation modes and drew resources away from active transportation initiatives, thereby serving as a barrier to implementation. Private Planner 2 explains that when they present development projects at public meetings, parking is a “constant, constant, whenever we go to meetings, people are constantly worried about parking” and if there is enough of it at the project site. They expand on

this by highlighting their interactions with the public and municipalities when representing private developers:

> I would say that that's probably one of the biggest conflicts or potential obstacles that we have is that, even if you go in representing a developer who's asking for reduced parking space, it's the first comment you'll get from the public. And generally, the first comment that you'll get from Council as well. Is this enough parking? Where are people going to park when there's overflow parking? I don't think there's a mind shift yet that not everyone wants cars. (Private Planner 2)

However, there was no singular parking issue identified, and instead, the participants spoke of several sub-issues under the larger parking framework that served as barriers from both public and private sector perspectives. Each of the sub-issues is examined in detail below revealing that there were some commonalities found but that there were also several different perspectives indicating that there are still disagreements on the effects of parking on active transportation implementation.

4.2.1 Minimum Parking Requirements

Many of the participants raised the issue of minimum parking requirements for new developments, such as one parking space per unit within an apartment building. These minimum parking requirements are routinely established and enforced through zoning bylaws of the various municipalities, and the participants argued that these requirements draw land and resources away from active transportation initiatives. From a municipality's perspective, Municipal Planner 2 noted that "I think even in Waterloo our parking rates are pretty high and we're kind of still a bit auto-oriented" resulting in the City of Waterloo encouraging the use of the automobile over other transportation modes. Municipal Transportation Planner 3 summarizes

how minimum parking requirements encourage the use of automobiles and that if these minimums were reduced or removed other transportation modes would be chosen instead:

> Currently, our bylaws define the minimum number of parking that the developer must provide. Practically, we are forcing developers to provide a certain number of parking spaces. However, if they would put up a downtown building, a condo building with a smaller number of parking spaces or no parking at all, that would be great. Those moving into that condo building would not be driving, they would walk, cycle, or take transit. And you don't need parking for them, but our bylaws do not allow that to happen.

Issues of minimum parking requirements were not exclusive to high-density urban areas, and Private Development Planner 1 provides an example in a low-density subdivision:

> There's a development in Cambridge that we're working on right now and...it's not necessarily a flaw in the active transportation, it's more of an issue of where it's situated and the zoning requirements that call for specific parking rates and the most economic way to provide this is to have the parking at-grade. This takes up a lot of space and, as a result, you can't have as many buildings on the property because half of the ground is covered in parking. As a result of zoning policy, location, and the lack of active transportation infrastructure available you have to have all of these parking spots. Residents are always going to have a car.

This replacement of the developable area with parking has several effects, including reducing the space available for active transportation infrastructure (e.g., sidewalks, bicycle lanes) and affecting the developer’s profit margins by reducing the number of units available for sale on the site.

Within Ontario's land use planning system zoning bylaws, including parking requirement bylaws, are the domain of the lower-tier municipalities. The City of Waterloo divides the municipality into six parking zones (A through F) that assign different parking requirements depending on the building type in the corresponding parking zone. The City of Waterloo has nine main residential zones and one residential mixed-use zone. The City also has four transit station area mixed-use zones and an uptown mixed-used zone that are included in its commercial zoning categories. Table 6 consolidates the multiple different zones and displays the range of minimum parking spaces required. It is unclear what the City of Waterloo's rationale is for the difference in parking requirements as their methodology for determining parking zones and parking requirements is not explained.

Table 6

Minimum and Maximum Parking Requirements in the City of Waterloo (City of Waterloo, 2021)

Zone	Minimum Parking Requirements	Maximum Parking Requirements
Residential	1 to 2 spaces per dwelling unit	
Residential Mixed-Use (6 to 25 storeys)	0.7 to 1.25 spaces per dwelling unit	
Station Area Mixed-Use	0.75 to 1.25 spaces per dwelling unit	1.65 spaces per dwelling unit
Uptown Mixed-Use (6 to 25 storeys)	0.7 spaces per dwelling unit	

The City of Cambridge has 16 residential zones but does not universally assign parking spaces per dwelling unit. Instead, parking spaces required for detached, semi-detached, row houses, and duplexes are one parking space for the first four bedrooms in the dwelling unit, plus one space for each additional two bedrooms (City of Cambridge, 2012). Additionally, despite the higher density, apartments are still required to provide one space per dwelling unit (City of Cambridge, 2012).

In the City of Kitchener, two zoning bylaws currently exist: Zoning bylaw 85-1 and Zoning bylaw 2019-051. Since 80% of Kitchener's properties fall within Zoning bylaw 2019-051 and it is gradually replacing Zoning bylaw 85-1, Zoning bylaw 2019-051 will be the focus for examination in this research study. In Kitchener, minimum parking is assigned depending on three zones: Urban Growth Centre (UGC), Mixed Use (MIX), and all other zones as shown in Table 7. The City of Kitchener is the only municipality in the Region that has a zone (UGC) with no minimum parking requirements.

Table 7

Minimum and Maximum Parking Requirements in the City of Kitchener (Zoning bylaw 2019-051)

Use		UGC	MIX	All Other Zones
Multiple Residential Building	Minimum parking spaces	No minimum	0.9 per dwelling unit	1.0 per dwelling unit
	Minimum visitor parking spaces	0 per dwelling unit	0.1 per dwelling unit only where 5 or more dwelling units are on a lot	5-80 dwelling units: 0.15 per dwelling unit OR 81+ dwelling units: 0.1 per dwelling unit
	Maximum parking spaces (including visitor)	1 per dwelling unit	1.3 per dwelling unit	1.4 per dwelling unit
Single-detached, semi-detached, townhouse	Minimum parking spaces	N/A	N/A	1 per dwelling unit

The private sector participants were not necessarily against providing parking as part of new developments but expressed their dissatisfaction with the lack of flexibility in many of the policies. They believe that mandating parking requirements can be counterproductive to

municipal active transportation goals and that the consumer (i.e., the resident) should be allowed to make their own decisions on whether or not they buy or rent a property that supplies parking. This issue of flexibility and removing choices from the consumer was expressed by Private Development Planner 3:

> But I get back to this aspect of parking. I think the parking has to be flexible in terms of how many parking stalls you need per unit depending on where it is. Some people don't want a car, some people only want 600 square feet of space, some people want double that, so you have to be genuine in your research and project the best you can.

The notion of flexibility was also raised by Private Planner 2 and that there are other options rather than simply removing parking requirements: “I think there are other opportunities for things to be explored. You know, maybe we provide electrical vehicle parking because that's not a requirement in the bylaw right now. Maybe it's something that people consider.” Private Planner 2 continued, proposing a unique alternative option whereby developers provided “transit passes as part of proposed development, that they're actually incorporated as part of the package, that you buy those types of things” to encourage active transportation and transit use.

From a public sector perspective, Municipal Transportation Planner 1 cited Transportation Demand Management (TDM) as a potential solution to offer a range of options for the developers and one that has been effective in their municipality’s situation:

> We have TDM and Parking Reduction worksheets. So if a developer comes in asking for a parking reduction, we can go through the worksheet and see what we would accept in turn for things like additional bicycle parking. If we’re supporting a parking reduction we want to see that the site is designed with higher-quality active transportation amenities.

Municipal Planner 1 echoed the requirement for sufficient analysis by both developers and municipalities before simply removing all parking requirements: “I think there's a certain reliance and using it as a cool technique and how they can reduce their parking without having the justification to say what's appropriate.” They expanded on this by advocating for flexibility in how parking decisions are made:

> I think there is a need for parking, but also a need to make sure we're using land efficiently and not providing too much parking. So providing the required amount for a very specific development I think is very appropriate and doing the work to determine what that requirement is. (Municipal Planner 1)

The minimum parking requirements set by the lower-tier municipalities in the Region vary greatly and are context-specific. While minimum parking requirements were primarily raised as a barrier by the private sector participants, they are established and controlled by the municipalities and therefore require municipal intervention to implement any changes.

4.2.2 Costs of Parking

Although minimum parking requirements are not a new policy measure, several participants noted that constructing parking increased overall costs for development making it less attractive to build in areas with higher minimums. This has led to many developers requesting reductions in minimum parking requirements to save costs. As Municipal Transportation Planner 2 explains from the municipality’s perspective: “developers are really catching on to this thing this like, wow, we can build apartments and we don't have to build so much parking, they're liking it because of the price tag.” Municipal Planner 1 explains the link between active transportation and transit-oriented development and notes how developers “are aware and actively using the transit-oriented development piece to justify why their development

may not need to have sufficient parking." This suggests that certain private developers are making a determined effort to encourage active transportation and transit use over the use of automobiles. However, Private Transportation Planner 1 believes that some developers are more concerned with costs rather than encouraging active transportation:

> The big reason why they want to get it [parking requirements] to a T is so that they can save money on parking. That's usually the impetus in many cases for some sort of TDM [Transportation Demand Management] plan is they want to reduce parking standards.

Private Planner 4 captures the sentiment of the development community in stating "the cost of above-ground parking is quite extensive" and that "an easy low-hanging fruit is you remove parking minimums, right? By doing so you can, in effect, make it a bit more attractive to develop certain areas." It can also make the development of active transportation infrastructure more palatable as a replacement for parking as noted by Private Development Planner 2: "Just the fact that parking is expensive. And if we don't have to build six levels of underground then why would we, right, if we can build bike lockers instead."

The costs of parking are closely related to minimum parking requirements and serves as a barrier for private developers who seek to control additional expenses during development projects.

4.2.3 Impact on Active Transportation Initiatives

Participants were quick to link the impacts of parking, in particular reduced parking requirements, to active transportation initiatives. By mandating parking requirements, Municipal Transportation Planner 2 notes that municipalities are, in essence, encouraging car usage: "so if you build two parking spots for every apartment, well, people are going to [think] I can get two cars." They expand on the benefits that reducing parking requirements can have on active

transportation and how developers have “jumped on board to the reduced parking because to me, you have 0.85 spots per unit, that means that somebody in that building is not going to have a car, and that's the best thing [for active transportation]” (Municipal Transportation Planner 2). From a private developer perspective, Private Development Planner 3 made it clear that any reduction in minimum parking requirements is a success for active transportation as this will result in overall less car ownership by residents:

> Parking requirements, for example, reduce significantly from the 1.0 or 1.25 [spots] that we know about per unit. So let's just say it became 0.5, 0.6, whatever, depending on location. I think that's a huge achievement.

Private Development Planner 2 emphasized that developers see parking requirement reductions as a way to benefit residents and consumers by providing additional active transportation resources in-lieu of vehicle parking: “I think that we're seeing lots of that in K-W [Kitchener-Waterloo], at least, developers wanting fewer parking spaces or offering extra bike parking as a public benefit kind of thing.” Private Transportation Planner 1 draws a clear link between the reduction in parking requirements in municipalities and the increased usage of active transportation:

> There's been quite a bit of evolution in the parking standards side of it in the last, again, five to ten years. Municipalities are seriously dropping their number quite a bit…it used to be one and a half to two spaces per unit, and some are, in apartments, are dropping them down to half a space type of thing. I've seen ones that they've tried for 0.3, 0.25 [spaces per unit]. Active transportation plays a part of that, right? If they can show that they can get people out of cars, they're not going to need cars, then they're going to be willing to pay for active travel.

Some private developers, however, questioned if academic research supported a correlation between reductions in minimum parking requirements and increased active transportation use. Private Planner 2 emphasized that the situation is more complex than a simple one-for-one exchange and there remain other opportunities for increasing active transportation:

> Generally speaking, in Kitchener you have one space per unit requirement, and we see reductions of that all the time down to 0.7, 0.75 spaces per unit. The City also has, in my opinion, a pretty healthy requirement in terms of bicycle parking…So I don't think that there is the Yin to the Yang that providing less vehicular parking is going to provide more bicycle parking.

Although Private Planner 2 is likely correct in stating that the situation is more complex than parking requirements alone, the data suggest that such requirements do remain a significant barrier for many private developers who assert that the abundance of vehicle parking is harming active transportation initiatives.

Overall, it is clear from the participants that policies and regulations concerning vehicle parking remain a significant barrier to active transportation implementation in the Region. While this barrier is multi-faceted, it is in large part a result of mandatory minimum parking requirements for development projects that encourage residents to drive rather than use active transportation. Although private developers are most affected by the issue of vehicle parking and were the most vocal about the issue, several public sector participants did recognize that their respective municipality's policies were the root cause of this barrier.

4.3 The Lack of Measures of Success

The lack of measures of success emerged from the data as the second major barrier to active transportation implementation for practitioners seeking to justify active transportation

initiatives to municipal decision-makers. It was predominately private sector participants who expressed frustration with the current methods for measuring success used by municipalities as they believed the tools are insufficient to illustrate an accurate picture of active transportation implementation. These measurement tools depend on how a municipality monitors and evaluates its active transportation plan and can include methods such as determining the availability of active transportation facilities and calculating the percentage of mode share (i.e., what percentage of residents are using active transportation). "Success" is also context-specific and should be defined by a municipality in its TMP and assessed through monitoring and evaluation tools.

This deficiency in the measurement tools available also exists in the larger planning practice as both public and private sector participants revealed that there is no readily-available industry standard to measure success that can be drawn upon when developing active transportation initiatives. Private Development Planner 2 exemplified this point, explaining the barrier from a private developer perspective:

> A lot of the time we focus on, you know, unit density or number of units available, frontage, parking. Basically, units and parking are the two stats that we put on every plan. And then after that, we don't really have a good like, how do you measure biodiversity? How do you measure walkability? How do you measure sustainability or these things that we know are good but are not so concrete or so quantifiable?

Private Development Planner 2 also described the gap in current practices for measuring active transportation success and why this gap creates difficulty justifying active transportation initiatives to the public and decision-makers:

> So if you have any good ideas for how to measure good walkability, because I can say that a site is walkable in an urban design brief or in a planning report but I don't have a way of proving that other than just my own creative language kind of thing, right? So, yeah, that's something that I think might be needed [to justify the initiative].

Many of the participants explained that measuring success required a multi-faceted approach and, as noted below, several identified some methods and procedures currently in place or areas that required further development.

4.3.1 Current Performance Indicators in the Region

Although there is no widely adopted methodology to measure active transportation success, public sector participants indicated that there are current practices used by the Region and its municipalities that provide an assessment of active transportation initiatives. Municipal Transportation Planner 1 explained that:

> We have key performance indicators that we have as part of our TMP [Transportation Master Plan] and our Cycling Master Plan. So we can go through that annually and measure how many kilometres we're adding or any new programs, and if we're actually hitting the milestones we're supposed to in those plans.

Municipal Transportation Planner 1 went on to explain that they also use a worksheet and checklist to "analyze new developments against the TDM and Parking Reduction worksheet. We look at things like walkability and proximity to transit, and give them a score."

The City of Kitchener is unique in the Region by establishing detailed scoring criteria for its complete streets that assesses pedestrians, cycling, transit, motorized vehicles, sustainability, and a sense of place (City of Kitchener, 2019). Municipal Transportation Planner 4's municipality follows a similar method for assessing complete streets:

> For complete streets, we have a scorecard that we use which helps us evaluate how complete the street is from a design standpoint. Are there street trees? Are there wide boulevards or are there wide sidewalks? Is the road narrowed? Are there bike lanes or other facilities that are safe and protected? In terms of data, we can evaluate things like cut-through traffic, speed, and volume, and we can track increases in bike ridership.

Complete streets are a method to integrate automobile use with active transportation, and changes to physical infrastructure can influence behaviour thereby increasing active transportation use and are a means to integrate automobile use with active transportation. The scorecard provides a simple way to compare before and after scenarios and identify opportunities to improve the street's score. Several participants spoke about separated cycling infrastructure being preferable due to safety concerns and the City of Kitchener takes that into account with separate infrastructure being assigned a higher score as shown in Figure 12.

Figure 12

Cycling Criteria for Assessing Complete Streets in the City of Kitchener

0	1	2	3	4	5
No dedicated cycling facility is present	1.5 - 1.8 m painted bike lane	1.8 m painted bike lane with 0.3 - 1.5 m painted buffer	≥ 3.0 m multi-use path	1.5 m cycle track or 2.1 m separated bike lane	2.2 - 3.5 m separated bike lane or 1.6 - 1.8 m cycle track

To measure active transportation success, the Region of Waterloo's TMP establishes performance measures to monitor the plan and the effectiveness of its associated policies and programs as shown in Figure 13. However, the TMP does not prescribe a clear timeline for plan monitoring, nor does it assign related action items for performance measures or link them to the TMP's overarching goals. The three large lower-tier municipalities in the Region – Kitchener,

Cambridge, and Waterloo – all have similar performance indicators in their TMPs, but use non-prescriptive language ("should", "could", "may") to describe data collection and monitoring plans. Private Development Planner 2 expresses how private developers are dissatisfied with many of the performance indicators used by the municipalities and the Region noting that they potentially explore factors in isolation: "You can get into mode share, or you can get into kilometres of lane or whatever built, but does that paint the whole picture or is there a relation? Is there a causal relationship between those things?"

Figure 13

Performance Measures for the Region of Waterloo TMP Monitoring

Performance Measures
% of congested regional roads (high volume-to-capacity ratio, v/c)
% of uncongested regional roads (low v/c)
Total cumulative vehicle delay
Transit mode share
Active transportation mode share
Average trip length
% of households within 1 km of high-quality cycling facilities
% of regional roads with on-road cycling facilities
% of regional roads with physically separated active transportation facilities
% of households within 500 m of frequent transit routes
Transit vehicle-hours per capita
Qualitative assessment of transit trip speed and reliability
Total cumulative vehicle delay on primary transit routes
% of possible home-to-work trips taking less than 45 min. by transit
Qualitative assessment of inter-city travel improvements
Qualitative assessment of Regional attractiveness to prospective residents and workers
Annual socio-economic benefit of public transit travel
Annual user cost of public transit travel
Average annual capital cost of public transit
Average annual operating cost of public transit
New lane-km of vehicle/transit lanes
Auto driver mode share
Annual economic benefit of reduced mortality due to active transportation activity
Qualitative assessment of travel safety
Qualitative assessment of transportation network resilience

One public practitioner mentioned using electronic counting of riders or users to provide the raw data for the performance measures and to effectively monitor active transportation success:

> I think it's an important before and after measure. When you do it at a facility to be able to say, 'look, when we added this type of facility this happened' so I think it's definitely part of how to measure [success]. (Municipal Transportation Planner 2)

However, Municipal Transportation Planner 1 explains that there is still often a gap in linking counts to measuring success and that counts can be used in isolation by municipalities:

> We do cyclist and pedestrian counts on an annual basis, we just haven't really got to a spot where we're actively presenting this information to the public, but it is a goal we are working towards.

Overall, the public sector participants revealed that there are several methods used by the Region and municipalities to measure success, but one private sector participant was explicit that the current practices failed to account for additional factors. Rider or user data was also noted by public practitioners as being critical in measuring the success of active transportation initiatives from a municipal perspective, but gaps remain in the application of such data, thereby creating a barrier to effective implementation.

4.3.2 Level of Service

Level of service is a methodology to assess the automobile volume to capacity ratio of a road and traffic flow at an intersection with a corresponding letter grade – A through F – depending on the calculated result (Institute of Transportation Engineers, 2008). However, level of service is used exclusively for automobiles and fails to account for active transportation modes. Private Transportation Planner 1 summarizes the use of level of service by transportation planners and engineers:

> Up until recently, there was no good measure of active transportation quality of service. The automobile side we've long had measures of vehicle level of service. You know A-B-

> C-D-E-F volume-to-capacity ratios. We had that stuff analyzed up the gazoo, but didn't have an equivalent one for walking, cycling, transit.

Level of service uses letter grades so that they can be easily understood by members of the public who may not have the associated technical expertise (Institute of Transportation Engineers, 2008). However, the lack of a level of service for active transportation makes it difficult for practitioners to measure and communicate the efficiency of an active transportation initiative. When discussing using a level of service tool for active transportation by private practitioners, Private Planner 3 believes "if they had an actual one for active transportation planners to refer to, I think that would be very useful for sure." This is supported by Private Transportation Planner 1 who describes the difficulty in justifying the benefits of active transportation initiatives without an established quantification method:

> And that's really been the challenge, right? Like you haven't been able to quantify difference...when we would do a transportation impact study, we could analyze that route traffic volumes 10 ways 'til Tuesday and have a system that we can communicate to practitioners and the public...we could quantify the level of service from the vehicle side when we couldn't do the same thing up from an active transportation side. So that's why when we do those sorts of transportation impact assessments, we weren't able to quantify what the benefit would be or so it was more a waving of hands. You know, we'll do this, this, this, this, and this and it'll be better, right? There was no way to quantify it.

During the interviews, three of the participants, one public and two private, spoke about the City of Ottawa being one of the first municipalities to introduce a method to measure the level of service for other transportation modes known as the multimodal level of service. The City of Ottawa defines the multimodal level of service as "a set of discrete quantitative measures

used to describe the convenience and comfort experienced by all roadway users over a particular roadway segment or at a particular intersection" (IBI Group, 2015). This multimodal level of service framework provides a method to evaluate the level of service for pedestrians, cycling, transit, transport trucks, and automobiles and allows for comparison between modes using similar performance metrics (IBI Group, 2015).

However, two of the private sector participants raised shortcomings with Ottawa's adoption of the multimodal level of service framework. Private Development Planner 1 indicated that "the variables and the metrics that are used within [Ottawa's multimodal level of service] are not very concrete from my understanding. So it's limited in its ability." Private Transportation Planner 2 expanded on this, highlighting how it did not receive widespread adoption:

> I think it has failed [in Ottawa] because it's not really used…it's only certain people that actually ever use it or refer to it and not everyone really understands it or cares or really has bought into this whole idea of expanding some of these engineering metrics to other users.

Ottawa's multimodal level of service is a potential tool that could be implemented by the Region, but the data suggests Ottawa suffers a barrier to adoption due to its methods of collaboration between the public and private sectors. This collaboration barrier is similar to what the Region of Waterloo faces in the implementation of its active transportation initiatives.

Private Transportation Planner 1 identified an additional multimodal level of service guideline developed by the Ontario Traffic Council (OTC) as a tool that could potentially influence the Region of Waterloo's active transportation initiatives:

> Just recently, the Ontario Traffic Council released a multimodal level of service guide for Ontario, so I anticipate that that's going to be another sort of tool that's going to enable municipalities to better quantify their decisions around active transportation.

From a developer perspective, Private Transportation Planner 1 further explained that municipalities are often hesitant to embrace new practices without a widely adopted standard as they risk opposition from the community and potential litigation: “municipalities are always reluctant to get into things that could potentially expose them to liability. So having reference documents or industry-standard practices that give them something to rely upon helps sort of mitigate that [liability] to a certain extent.” The OTC’s guidelines are intended to assuage this reluctance of municipalities, so that they apply the guidelines to transportation infrastructure operated by single, lower, and upper-tier municipalities throughout Ontario regardless of size or land use context, or use the guidelines as a foundation to create their own analysis methodology (Ontario Traffic Council [OTC], 2022). The OTC is explicit that its guidelines do not replace detailed design guidance, but instead act as a supplement in the planning, functional design, and operating phases of infrastructure (OTC, 2022). The OTC’s guidelines integrate the level of service for five modes:

- Pedestrians, including assisted mobility.
- Bicycles, including micromobility (e.g., scooters) and bike-sharing.
- Transit, including surface light rail and trams.
- Trucks, including delivery service vehicles.
- Cars, including ride-sharing and car-sharing.

The OTC guidelines help identify design or operational elements that can be modified to improve user experience and achieve municipal goals. They do so by providing two broad steps in their methodology (OTC, 2022):

- Setting Targets: Provides a framework for practitioners to establish context-sensitive performance targets for each mode that align with policy goals. Understanding the context in which transportation projects occur – such as land use, climate change, and equity – is important to inform the design and operational reviews.
- Measuring Performance: Provides a series of measures and metrics that allow practitioners to assess the performance of each mode and identify design and operational decisions needed to meet established targets.

The OTC's approach establishes six grades (A to F) to rate the level of service and indicates that the majority of scenarios should result in scores approaching the middle of the range for each gradation as grade A is unlikely to occur in a balanced scenario but rather ones that favour a certain mode (OTC, 2022). This is supported from a municipal perspective by Municipal Transportation Planner 3 who explains that any grade that a multimodal level of service methodology provides is only a part of the larger picture:

> The multimodal level service in itself won't tell you what is the best design. It is the policy which has to drive the decision of trade-offs. The multimodal level of service is just providing you [with] a good measurement for individual modes of travel; this is how we are measuring the level of service for pedestrians or this is how we are going to measure it for bicycles. But there is no one single number which will tell you what is the best solution. The best solution is driven by policy which is based on political and public input.

The OTC guidelines are written in a clear and concise format that is easily understood by the reader, and they provide an additional electronic tool to quickly calculate the grade for each mode with a user-friendly interface.

Overall, private sector participants were enthusiastic about adopting a method to measure the level of service as it provides them with a clear way to measure the success of an active transportation initiative, thereby removing this barrier to implementation.

4.4 Integrating Active Transportation Initiatives into Policy

The third major barrier to active transportation implementation that emerged from the data was the methods by which municipalities integrate initiatives into policy. From a private developer perspective, the municipalities must detail what they intend to achieve from active transportation initiatives and embed it within Official Plan policies. Failing to do this runs the risk of resistance or confusion from private developers which creates a barrier to effective implementation:

> As I said, you know, look at the development charge on a single-family unit out here in Waterloo Region. You'll have the municipal charge and the regional charge and you'll probably, and I can't even remember what the numbers are because they're always increasing, you're probably into like 50 to $60,000 right off the bat [costs for the developer]. And then there are fees. Then there's Parkland dedication, etc. So if a municipality is saying, Mr. Developer, we want you to do some active transportation. What are they expecting?... It has to be defined. What is it that will actually enhance active transportation? (Private Development Planner 3)

Private Planner 2 explains that it is predominantly the public sector and municipalities that are pushing for active transportation change, thereby highlighting the need to integrate initiatives into policy:

> I think for most of the part it's been something that's been dictated to us by the municipalities and the regulations, although we're starting to see some developers turning towards embracing the notion of providing alternative transportation modes and active transportation access and all that kind of stuff. But it's, I would say 90% of it is driven by the requirements of the municipality.

To guide the implementation of the Region's TMP four overarching goals are identified (Region of Waterloo, 2019):

1. Promote travel choice.
2. Foster a strong economy.
3. Support sustainable development.
4. Optimize the transportation system.

The TMP also includes five strategies with various actions, but these are recognized in the TMP as being broad and effectively serve as additional goals. As discussed previously, performance measures to monitor the plan and the effectiveness of its associated policies and programs are included, but they are not linked to the TMP's goals. Additionally, the TMP does not include any corresponding objectives and the only target is a percentage of mode share targets for 2031 and 2041.

Some private sector participants emphasized that it is important to include active transportation plans and urban design guidelines in legislation (i.e., the Official Plan or zoning bylaws) as failing to do so may provide the developers with the legal basis to challenge any

implementation measures. Including urban design guidelines in Official Plans makes them mandatory requirements within the statutory framework of the *Planning Act*, but guidelines that are not embedded instead serve as suggestions from the municipality. This is explained by Private Development Planner 2: "Kitchener has complete street guidelines and urban design guidelines, but they're guidelines. They're not requirements, they're not standards, they're not law." In contrast, Private Planner 4 spoke in favour of the City of Kitchener's complete street guidelines approach and the impact that the City's efforts have in promoting active transportation:

> One is complete streets guidelines and really Kitchener is a great example of a municipality that has those and they're allowed to hold those up now to developers and to themselves when they're doing reconstruction or building new roads and saying 'this is what we need or want to see.'

While Private Development Planner 2 raises an important consideration about urban design guidelines and their enforceability, the cities of Kitchener, Waterloo, and Cambridge do specify in their Official Plans that any development must be consistent with their respective municipal guidelines as a condition of approval.

To improve active transportation integration into policy, Private Transportation Planner 2 points to the City of Ottawa which requires all its streets to be included in its bicycle network:

> [Ottawa] recently approved a new Official Plan and they're going through a transportation master plan update as well…One of the things that's really interesting in that plan is that they have said every single street in the urban area is going to be part of the bike network. Normally when we do an active transportation plan, we go through and we painstakingly try to figure out which are the most appropriate streets…and we come

> up with a network of certain streets that will have bike facilities on them. But the City of Ottawa decided no, every single street will [have bicycle facilities]…I think that's a really interesting way of approaching it rather than saying 'this street is for bikes, not this street'…To say every street should be made for bikes I think is a great idea and a great approach.

Conversely, Private Development Planner 3 cautions against simply transferring policies from one municipality to another, highlighting the importance of developing context-specific policies and design guidelines: "municipalities, they'll claim, you know, they've reviewed best practices. Well, what are best practices? Whatever other municipalities are doing, whether it's right, wrong, or indifferent. It might not be right, but everybody's doing it. So it's the best practice."

Public participants agreed with the private sector participants that integration with policies is the most effective way to ensure the implementation of active transportation initiatives. This is highlighted by Municipal Planner 2 who explains that:

> Once it's in the Official Plan and then it's not really up for debate. It's there. You have to convey the land or you have to build the connection or what have you. You have to implement what's there in the OP [Official Plan].

Municipal Planner 2 continues by explaining that the Official Plan and processes under the *Planning Act* provide the municipality with the ability to implement active transportation initiatives: "I think we have opportunities through site plan [approval] to have private developers implement certain things that we've identified in the Official Plan, then we have the authority to require it to be implemented." Municipal Planner 1 provided a case where requirements for active transportation were clearly expressed in policy, thereby providing the municipality with the legal basis to ensure implementation from private developers:

> Another example would be the Northdale neighbourhood in Waterloo. When it was planned out, it was intentionally planned that there be specific pedestrian connections between blocks within that neighbourhood, and at this time the neighbourhood is being developed on a site-by-site basis. We've been able to go back to that plan. Say we've said back in 2012 [in the plan] that there's going to be a walkway here, so you need to provide us a walkway. And the developer says, 'OK, yeah, this isn't something you're just pulling out of the hat. We do need to provide that walkway'...So having the policies and the real intentional direction to make things happen, even though they won't happen overnight, knowing that we're headed in the right direction, I think, has been really the key.

The Region of Waterloo and the cities of Kitchener, Waterloo, and Cambridge all have active transportation requirements integrated into their Official Plan policies, as well as requirements to implement their respective TMPs, thereby articulating and justifying their requirements to private developers.

Some public practitioners identified limitations with integrating active transportation initiatives into policies as well as limitations with the policies themselves. Municipal Transportation Planner 5 explains constraints from the Region's perspective in enforcing active transportation initiatives contained in the Regional Official Plan:

> The problem we run into is the Region's Official Plan. The policy doesn't have any real teeth. Whereas the cities when, for example, they're reviewing a site plan in the Planning Act, Section 41 enables the local municipality to have dozens of opportunities for conditions of approval. Some of them relate more directly to transportation. The Region does not under Section 41. When we deal with the site plan, there are only seven things we can ask for.

From a public sector perspective, the policy integration barrier is in part attributable to limitations imposed on the Region by Section 41 of the *Planning Act*. The lower-tier municipalities in the Region are granted significant power to impose requirements on site plan approval for developments, but the *Planning Act* restricts the Region from imposing site plan requirements unless the lands abut roads that are under the jurisdiction of the Region. The Region has created Context Sensitive Regional Transportation Corridor Design Guidelines (Corridor Design Guidelines) that direct the development and redevelopment of these regional roads and are heavily focused on the implementation of complete streets and active transportation initiatives. These guidelines are also integrated into the Regional Official Plan to ensure that they are policy within the statutory framework of the *Planning Act*.

At first glance, the data suggest that from the Region's perspective this restriction in the *Planning Act* would create a significant barrier for the Region to implement active transportation initiatives under its TMP. However, an examination of the Regional Official Plan reveals that there are multiple roads under the jurisdiction of the Region, as shown in Figure 14, thereby permitting the implementation of the Region's Corridor Design Guidelines and active transportation initiatives within the built-up areas of lower-tier municipalities. Additionally, Figure 15 shows the existing and planned cycling routes within the Region indicating that there are still major gaps in the existing cycling routes and the implementation of active transportation initiatives.

Figure 14

Existing, Planned, and Proposed Roads and Corridors (Region of Waterloo, 2015)

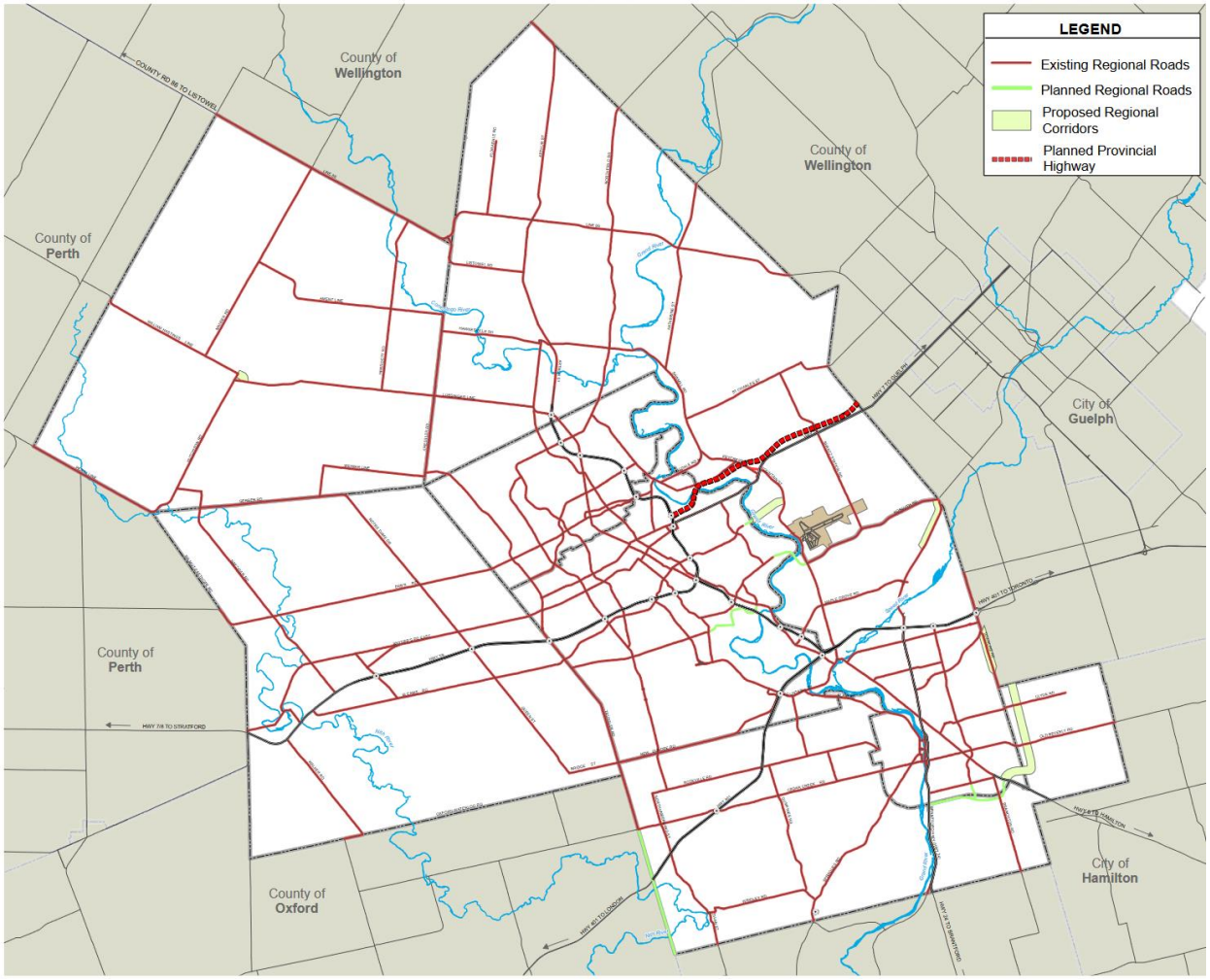
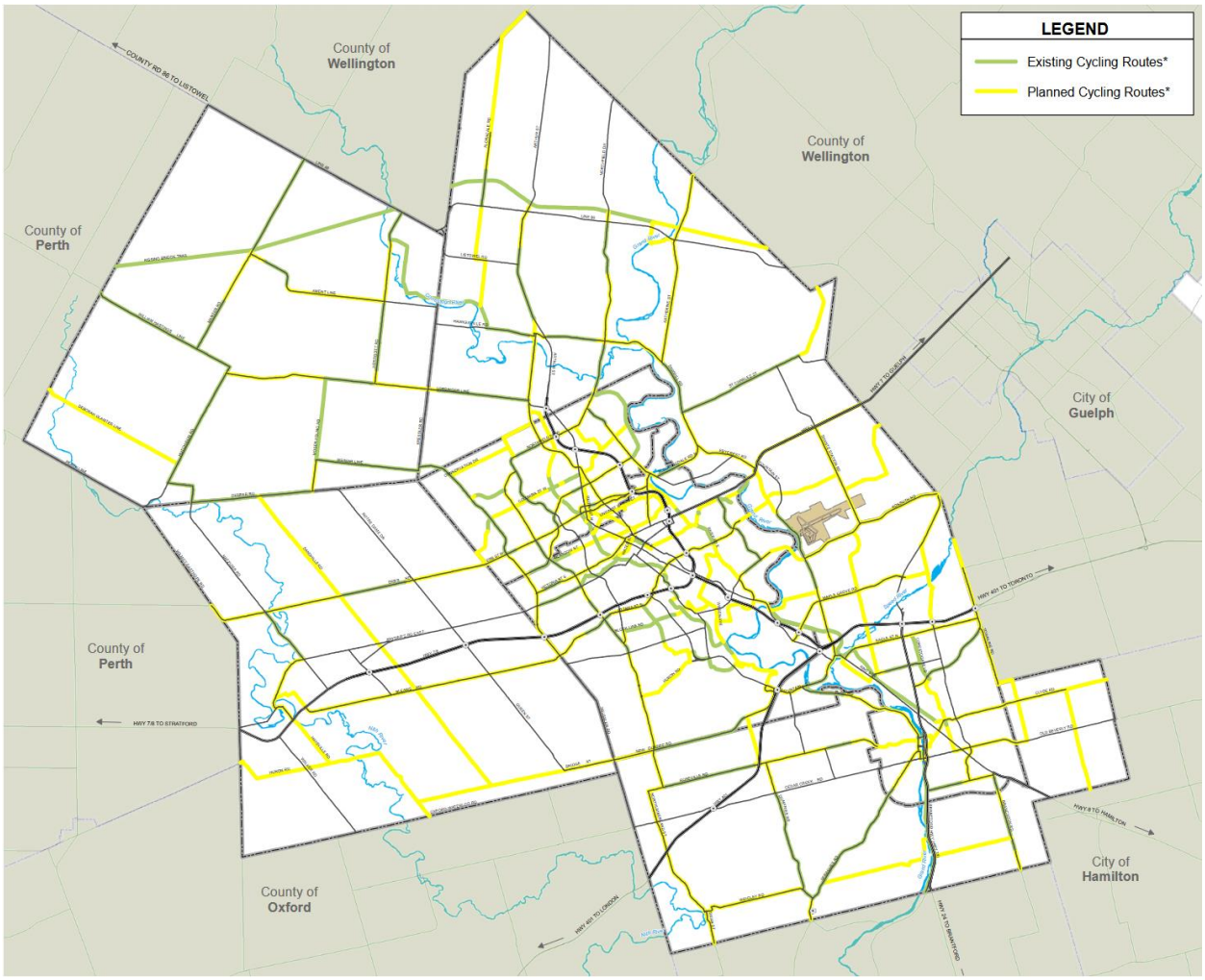


Figure 15

Existing and Planned Regional Cycling Routes (Region of Waterloo, 2015)



While most participants were supportive of embedding active transportation initiatives into policy, one participant was adamant that this would reduce flexibility and create restrictive policies in Official Plans:

> Why does it have to be embedded in a policy when, in my view, policies should be more flexible than they are? You've got a zoning bylaw. A zoning bylaw can be as tight as you make it so you can govern all those things we're talking about in the zoning bylaw, but why would you do it in a zoning bylaw and an Official Plan? And then every time you

> want to move or become more flexible, you have to amend the plan…And one of my colleagues that used to be a chief planner for the City of Toronto always claimed that the best Official Plans are ones that never need amending. When they [a private developer] become more regulated it stops thinking. (Private Development Planner 3)

Private Development Planner 3 addresses their concerns regarding flexibility by proposing a solution in which municipalities provide a range of options in their policies that would allow private developers to meet the municipality's active transportation goals:

> I think that what you have to do, from a policy perspective, you have to provide a balance of options, not just sort of shut it down and say, 'well, we're not going to expand the urban area boundary. We're going to increase the downtown area, the intensification, from 55% of the development to 60%.' Well, what does that mean? What does it cost? Who's going to build it? What does it mean in terms of active transportation that we've just been talking with? No one can talk that language. They just sort of put it forward, they don't understand the implications of the policy that they're trying to put in place other than it becomes a numbers game or we can put all the population increase we expect within the existing urban area boundary because we're going to go up [in height]. What are the implications of that? They don't deal with that. That's not being dealt with through these processes. It's just allocating numbers to areas within a city and it doesn't deal with initiatives like you're talking about.

This suggests that at least some private developers remain unconvinced by the Region's TMP and that the Region's goals, objectives, and targets must be clearly articulated and coordinated with a balance of options. This will ensure that private developers understand and incorporate the active transportation initiatives the Region is seeking to implement.

Overall, both private and public practitioners agreed that failing to embed active transportation initiatives into official policy would serve as a barrier to effective implementation. Private practitioners were predominately concerned with policies being explicit in what was required so that their developments could be approved more quickly, as well as providing a flexible range of options to react to changing situations. Public practitioners were cognizant that failing to embed active transportation initiatives into policy would weaken justification and provide private developers opportunities to challenge initiatives. While the *Planning Act* limits the Region's ability to influence active transportation initiatives through the site plan approval process, there are still ample opportunities for the Region to implement its Corridor Design Guidelines and fill gaps in its active transportation network.

4.5 Limited Methods of Collaboration Between the Public and Private Sectors

The fourth major barrier to active transportation implementation that emerged from the data concerned the limited methods of collaboration between the public and private sectors. The issue of collaboration was not isolated to a single phase of the planning process but cut across multiple different barrier themes previously identified by the participants, including parking and embedding active transportation initiatives into policy. Participants described issues with horizontal collaboration, vertical collaboration, and external collaboration that are defined in Table 8. These three sub-barriers are examined in more detail from the perspective of both public and private participants.

Table 8

Definition of Different Collaboration Categories (Adapted from Kanuri et al., 2016)

Horizontal Collaboration	Vertical Collaboration	External Collaboration
Between different divisions within an organization (e.g., land use department, engineering department).	Between different levels of government (e.g., municipal, provincial).	Relationships between the private sector and public sector as well as community engagement.

4.5.1 Horizontal Collaboration

Horizontal collaboration is focused on how individual organizations integrate active transportation into their planning, particularly their internal processes and lateral communication methods. In public municipalities, this related to the methods of collaboration between multiple departments, such as transportation, land use planning, public health, and emergency services. In the private sector, this concerned the methods of collaboration between different teams and sub-teams that are involved in a specific development project, such as the land use team, development team, and transit team. However, Private Planner 3 notes that not all private developers will include every team on a project and the number of teams participating will depend on the nature of a specific project and the number of staff a developer employs: “having the expertise of an active transportation planner is always helpful, but it's not a requirement. The developer often won't want to pay for those additional conversations.” Private Transportation Planner 2 notes that, although an active transportation planner is not always required, private developers are beginning to understand that planning processes are changing and that active transportation has become a critical part of development projects:

> I think it's getting better, I think people are understanding, hey, we used to have this process, we did it this way and we made sure we talked to this person, this person, and

that was good before. But now there are other people you need to talk to and things you have to think about including active transportation. (Private Transportation Planner 2)

While the data suggests that private developers understand the importance of horizontal collaboration, many of the private sector participants were critical of how municipalities approached horizontal collaboration and that ineffective collaboration hinders active transportation implementation:

> Different departments have different mandates. And although they all say they're singing from the same song sheet, the traffic operations people have a different mandate than the active transportation people, [they] have a different mandate from the landscaping people, [they] have a different mandate from the planning people and they all have to bring their respective opinions to the table. And you have to have really good leadership to be able to negotiate amongst the various [departments], recognize what the trade-offs are and negotiate amongst them. Or what's going to happen is the strongest voice at the table is going to win out. The traffic operations people, they maybe have the biggest budget or they can take up the biggest hammer and put it down and say 'nope, well that's great, but we have to do this here.' (Private Transportation Planner 1)

Private Transportation Planner 2 explains how this lack of horizontal collaboration in municipalities can result in missed opportunities during infrastructure projects and serve as a barrier to the municipality's active transportation initiatives:

> You might want to have people in the room who are thinking about capital projects long-term. City projects have replacing a water main, or maybe there's a sidewalk that is up for renewal because it's 90 years old or something like that. And why not use that as an opportunity to upgrade the active transportation infrastructure? And something like that

> sounds obvious, but it's not something that happens everywhere. I know there are many cases...where they'll rebuild the street exactly as it looked. When they go and do a water main project and you're just shaking your head and thinking 'well, couldn't you just make that sidewalk a little wider too while you're at it,' so it's something that I think is important to have different people internally talk to each other.

Despite several private sector participants criticizing municipalities, Private Transportation Planner 2 noted success in a case where effective horizontal collaboration achieved buy-in from the various departments in a municipality during a consultation on active transportation:

> We recently did a project, a design guideline on bike-related infrastructure. And I think what was successful is that we got all the important people in the room, we got the traffic signals people there, we got the winter maintenance people there, the people in charge of accessibility…and got everyone in there and got them to understand why we were doing it and how. Yeah, OK, maybe there's going to be some loss of efficiency for your traffic signal, but overall it's going to be a good thing and getting everybody to buy into it and realizing, 'OK, yeah this makes sense. We will change our policy to allow this.' So everyone kind of working towards the same goal, right? You're not working at cross purposes where they have their policy, we have our policy and they're always kind of fighting each other out, you know? So I found that to be successful, this trying to get everyone together.

The public participants agreed that there is a need for horizontal collaboration within their municipalities and Municipal Planner 2 admits that "we as staff need to do a good job of flagging things at pre-consultation meetings, whether it's for a zone change, a subdivision site

plan application.” Municipal Planner 2 continues and explains that they have had some success in increasing horizontal collaboration during the site plan approval process by including active transportation planners in discussions:

> There's a manager of active transportation and they work with a group that oversees the planning and the implementation of all of our active transportation projects. We do involve them in the site plan process. That's fairly recent that we have a person from transportation on the site plan committee and one of their roles is to flag where property is near, or I should say is adjacent, to a planned project and we want to see what that developer's role might be in implementing all or a portion of something that's been planned because we can really get a lot done through the site plan approval process.

Municipal Transportation Planner 4 describes how their municipality changed procedures that helped improve horizontal collaboration by having “all the site plan managers meet monthly to talk through site plan and development related issues, and discuss the application process. Application durations are tracked to see if things are going over their time expected limits."

The data suggest that modifications to internal municipal processes can have significant impacts on horizontal collaboration and active transportation implementation. Closely related to integrating active transportation initiatives into policy, Municipal Planner 3 explains that horizontal collaboration needs to be improved to achieve success and satisfaction amongst user groups and link initiatives to larger municipal goals such as climate action plans:

> We have to make sure, as we get this Transportation Master Plan, we incorporate it with the larger Official Plan. We can sync, pull everything together and say here is what we are looking for as a community. How is this community going to grow to make that work? So there's no sense doing an Active Transportation Plan and planning, I don't

know, bicycle features nobody's going to use or that's not going to benefit people. You're going to have to make sure it's going to work and it's going to tie together, that you're going to have a plan that's functional. Are you connecting these cycling routes maybe to a downtown area where there's a destination? To go to the grocery shop and go to the pharmacy? Go to their doctor or to get to school? That kind of thing, you have to tie them all together and have that overall plan work together and climate actions are part of that.

Overall, the participants agreed that the planning process is continuously evolving, and the lack of horizontal collaboration serves as a barrier for both private and public practitioners alike. Both sectors were keen to work towards solutions that increased horizontal collaboration, and some public practitioners have already found success from slight changes to their internal planning processes.

4.5.2 Vertical Collaboration

Vertical collaboration issues relate to coordination between the multiple levels of governance that are present within Ontario's planning framework. In the Region of Waterloo, these levels of government are the lower-tier municipalities (Cities of Kitchener, Waterloo, and Cambridge, as well as the townships of North Dumfries, Wellesley, Wilmot, and Woolwich), the upper-tier municipality (the Region of Waterloo), and the Province. It is a requirement for lower-tier planning policies to be consistent with regional policies, and both must be consistent with provincial policies, but the potential barrier relating to vertical collaboration is focused on the synchronization of active transportation implementation and infrastructure development between the different levels of government. Private Development Planner 1 explains this barrier in the City of Kitchener:

> It's the lack of complete active transportation networks. I've also looked at the City of Kitchener's cycling network and they are really improving it, and there are good things coming from it, but it's a little bit disjointed. A lot of the routes are really small. They'll go maybe four blocks down one street and then they end.

This suggests that the City of Kitchener and the Region failed to effectively synchronize their active transportation implementation resulting in gaps in the network. Several participants, both public and private sector, provided additional examples of poor vertical collaboration between the lower-tier municipalities and the Region.

Some participants recommended applying a systems theory lens to vertical collaboration that would link active transportation infrastructure with other development projects. Private Transportation Planner 2 provided an example of applying systems theory and connecting an infrastructure project with a higher-tier municipal plan:

> We're working on a different project for a very specific route to design that route for bikes. And what's interesting about it, it's actually being piggybacked on a water main project. So they're actually just looking to replace a water main on a particular street. They weren't going to do any changes to the curbs or anything like that, but because that street is also in the bike network, they thought, 'oh well, if we're going to replace the water main, we have to rip up the asphalt and everything anyway. Why don't we go and throw a bike lane down there and see how we can improve that for bikes at the same time?' So I think that's a really good example of how you might take a higher-level plan and then implement one of its priority projects quickly because it kind of aligns with another project that maybe would not normally have thought about bikes at all.

Private Planner 4 also advocates for a systems theory lens in vertical collaboration and that active transportation implementation needs to be coordinated with other aspects of infrastructure planning. They advocate that systems theory can be applied by including the appropriate staff at the different levels of government when conducting planning processes:

> We need to view it as part of the system and not just this thing we make. We just put it on the road and hope. We need to be very intentional. The cities and Region have really made strides in this around staffing and who's doing this work. Is it, you know, a traditional engineer who might not understand what needs to happen? The Region hired recently, a really fantastic active transportation engineer who knows what they're doing and so was able to bring that perspective to meetings and discussions and has already made a huge impact on infrastructure we're seeing. (Private Planner 4)

Although the Region of Waterloo's TMP does include consultation with the lower-tier municipalities during plan development, it is unclear how vertical collaboration is conducted throughout the implementation of the TMP or how infrastructure projects are synchronized between the Region and lower-tier municipalities. While the data suggest that vertical collaboration does occur to some degree, private sector participants were clear that the current methods of vertical collaboration were not sufficient for active transportation implementation.

4.5.3 External Collaboration

External collaboration includes the coordination between private developers and municipalities, their overall relationships, and their methods of interaction. Collaboration can occur during the development of public policy when municipalities request feedback from the development community or can occur during specific projects as the two sectors seek to achieve mutual goals. An important aspect of external collaboration is how both the private and public

sectors conduct community engagement and synchronize their plans with the wishes of the general public. Many of the private sector participants were critical of how municipalities approach collaboration and Private Development Planner 1 summarizes the relationship between the public and private sectors:

> I think that with a lot of planning problems that we're experiencing right now, we're seeing a huge disconnect between what the public planners at the municipal, even provincial, level are saying compared to what private developers are saying and their understanding of things. So I feel like there's definitely a lot more room for collaboration. And I do think that private developers play a part in that.

Private Planner 4 speaks about how mistrust between the public and private sectors can hinder collaboration between the two groups:

> We actually often villainize them [private developers], but it's not always bad. They play a key role in city-building and so if we can proactively understand trends and update policies and programs, kind of what you mentioned, I think that's that would help move the needle [on active transportation initiatives].

Private sector participants stressed the importance of communication between the two sectors and how mutual understanding reduces barriers. They were particularly critical of municipalities that lack transparency during the planning process, thereby increasing overall costs, causing friction, and creating a barrier to active transportation implementation:

- I think there's a role for developers [in active transportation implementation]. I think that they can be involved in that process. So it's transparent and they know what to expect when they're coming to develop…it's not something that's thrown on them at the eleventh hour like, ‘oh, by the way, that development you're going to do now we want you to build

a bike lane and bike racks'...I think it would be better to have that upfront and transparent so that the developer knows if I'm going to develop here I'm going to be responsible to add in this piece of infrastructure. (Private Transportation Planner 2)

- Don't make the demands crazy or give and take off something else. Don't just add add add. Because, you know, people think, 'oh well, you know you're getting more money for your home.' It's costing me more to build it. Labour, supplies, land, I mean come on. So you know they [the municipalities] don't get it. (Private Development Planner 3)
- Sometimes it's ambiguity right from the municipality. I can't think of how many times we've had to rewrite a transportation impact study after the fact when they said 'well, actually, we want you to do this.' Why didn't you tell us upfront, right? So that's another area of frustration. They [the developer] know going in that 'hey, this is what I got to do.' Then they work it into their pro forma or their development and I figure out you know, can they afford it. To get hit at the end with it, that's when it's more painful. (Private Transportation Planner 1)

While many of the private sector participants argued that developers were supportive of active transportation initiatives, public participants provided a different perspective on external collaboration with Municipal Transportation Planner 1 remarking that "I wouldn't say developers are keen or proactive on putting in any type of [active transportation] facilities." Municipal Planner 1 explains that private developers are uninterested in incorporating active transportation into their projects and view active transportation as:

> More of an afterthought. So developers are more saying this is the building, this is where putting our parking. I'm having to then ask for specific things like walkway connections between the parking and the building, or between the building and the street.

This viewpoint is supported by Municipal Planner 3 who describes their interactions with developers regarding active transportation initiatives:

> I don't generally see developers as advocates for some of this kind of stuff. Usually, they're more advocating for themselves because there a lot of developers are in and out right? They developed the site and that's all they're looking to do at that point in time…We're balancing the best design, they're balancing costs. Can they play a role? Like I said, yes they could. I usually don't see them coming to advocate, be an advocate for something unless they see there's a value to them, right? There's got to be an economic value to them on the design of their subdivision to make it work.

However, this comment does not consider developers that work in one geographic area for a long period and build a good rapport with the local municipality. Also, Municipal Transportation Planner 5 provides a different perspective explaining how they have "been working in development for 31 years now. Most developers, they want to do the right thing and they don't mind paying for it." Private Transportation Planner 1 explains how many private developers understand the importance of active transportation and how embracing these initiatives can benefit them, particularly for those that are focused on development in a single area:

> I think generally the developers that we work with in a lot of cases recognize that there is a benefit both to them and to the community of investing in active transportation. Maybe the less-enlightened ones are only concerned about the bottom line, but developers that are there for the long haul tend to be more willing to invest in those sorts of things.

Several public participants also noted positive relationships and that certain developers approached them to advocate for active transportation initiatives, specifically bicycle infrastructure, in their development projects.

Most participants, both public and private sector, acknowledged that there were gaps in external collaboration and suggested possible improvements. However, one participant argued that their current collaboration methods were sufficient:

> I think our system right now is good in terms of collaboration. We do collaborate as much as we can with them. Every so often we get together with the development community and sit down with them, say what needs to change. Is there anything we need to correct or look at or as we're going through Official Plan reviews and everything, make sure they're engaged in the conversation. So, we have that ongoing trust and that ongoing understanding of where each of us is coming from and it seems to work generally well. (Municipal Planner 3)

In contrast to this claim, several public participants acknowledged that they needed to change their municipal consultation processes and communicate issues and needs upfront with developers. To help improve collaboration and implementation, Private Development Planner 2 recommended involving the development community during discussions on active transportation initiatives:

> I think that the first idea that comes to mind is if you're going to do this, get some people from the development community because I know we have a few people in the office that are on committees at the city, and we're talking about affordable housing right now. And they're definitely asking our input as developers on that topic because we're the ones that are either going to build it or going to include it in our developments, to set aside units as affordable kind of thing. And so I think the city, in that sense, is very open to our feedback and knows that we're a key part of the solution.

While this example is focused on affordable housing, a similar process could be implemented in the Region in which private developers advise on active transportation implementation. Currently, the Region does have an Active Transportation Advisory Committee, but no members of the development community are included in its membership. Municipal Planner 2 believes that "developers have to continue to be involved in policy-making…To me, they're just as important as user groups." Municipal Planner 2 continued and argued that municipalities:

> …[r]eally need to spend time doing outreach to the development groups and we should be flagging where all the opportunities are in the community and listening to that group closely when we're doing master planning exercises…They know the community well, ask them where the opportunities are.

This notion of open communication between the two sectors was emphasized by Municipal Transportation Planner 4 who presented a unique initiative in which the City of Kitchener:

> …[u]nderwent a development review to improve processes. We opened up the doors to developers to ask them what's working, what isn't working, where the challenges are. This review was mainly focused on the development review process and our planning team and [resulted in] a lot of recommended improvements.

This approach by the City of Kitchener could be adapted and implemented by the Region and improve external collaboration with developers.

Overall, while participants were somewhat critical of the approach toward active transportation taken by their counterparts, either in the public or private sector, they were able to perform self-reflection and understood that there are actions that can be taken by both sides to improve external collaboration and reduce its impact as a barrier.

4.6 Summary

This chapter presents the results of the 17 qualitative key informant interviews and the analysis of relevant policy documents. The participants had much to say about active transportation initiatives within the Region and the multiple barriers to their effective implementation, which was indicative of the semi-structured interview format used in this research. However, there were four key barriers – excessive vehicle parking requirements, the lack of measures of success, the need to integrate active transportation initiatives into policy, and the limited methods of collaboration between the public and private sectors – that came to the forefront during the discussions. Opinions differed depending on whether the participant was a public or private sector practitioner, but there were several areas of agreement on the various barriers. This was particularly apparent on the issues of vehicle parking and the methods of collaboration in which both public and private sector participants acknowledged the shortcomings of current practices and the potential areas for improvement. These areas of agreement, combined with the other barriers revealed, provide a focus for further exploration and discussion in the following chapters.

Chapter 5: Discussion

5.1 Introduction

This study explored the role private developers play in achieving the goals of the Region of Waterloo's active transportation plans. It was guided by the following three research objectives:

1. To understand policies that guide active transportation planning in the Region of Waterloo.
2. To identify barriers for private developers in achieving active transportation goals.
3. To explore the reduction or removal of barriers by the Region and/or private developers to facilitate improved implementation of active transportation plans.

This chapter interprets the results of the qualitative key informant interviews and the analysis of relevant policy documents presented in the previous chapter. A broad summary of the key findings will be presented, and then their relation to the existing literature will be discussed. Lastly suggestions for future research will be presented followed by the limitations of this research study.

5.2 Summary of Key Findings

Analysis of the data indicates that municipal Official Plans and associated TMPs are the crucial legal tool to require private developers to implement active transportation initiatives and are the key enforcement mechanism for municipalities. While some participants indicated that certain private developers promote active transportation of their own accord, the majority were explicit that private developers are not convinced that the current active transportation policies in the Region are sufficient, thereby satisfying the first research objective.

To address the second research objective, participants noted several barriers to active transportation implementation and stated that improvements to the system are needed to achieve active transportation goals. While multiple barriers were identified by the participants, analysis of the data suggests four main barriers for private developers: excessive vehicle parking requirements, the lack of measures of success, the need to integrate active transportation initiatives into policy, and the limited methods of collaboration between the public and private sectors. These barriers were either land use policy-based, as part of municipal Official Plans or zoning bylaws, or process-based created by the structure of the current planning framework or from internal organizational processes. As noted in the results, participants were explicit that private developers would not implement initiatives unless there were legislative requirements in place. Therefore, these barriers are nested within the current land use planning system under Ontario's *Planning Act* granting the Region and its lower-tier municipalities the capacity to reduce or remove these barriers.

5.3 Excessive Vehicle Parking Requirements

As shown in the results, participants voiced multiple concerns regarding excessive minimum parking requirements within the Region of Waterloo. Both public and private sector participants agreed that minimum parking requirements were too high, but it was predominantly the private sector planners who raised issues about the impact of this on development project finances. Private sector planners felt that the use of minimum parking requirements increased development costs, thereby drawing away funds that could be allocated to active transportation initiatives instead, as well as depleting surface area that could be used for active transportation infrastructure. However, some public sector planners disagreed with this extrapolation and remained skeptical that the cost savings from less vehicle parking would be transferred to active

transportation initiatives. Overall, minimum parking requirements were viewed by both public and private sector planners as contradicting active transportation goals since the abundance of parking would encourage automobile use by residents.

5.3.1 Excessive Vehicle Parking Requirements and Smart Growth

The principles of smart growth include increasing residential density, limiting outward expansion, and reducing the use of automobiles by encouraging public transit and active transportation (Downs, 2005; Filion, 2007). The issue surrounding vehicle parking requirements was an unanticipated finding in this research study as it did not appear as a major topic in the review of the literature, suggesting that it was considered a minor factor in achieving active transportation success. However, there have been several publications linking vehicle parking requirements to the achievement of smart growth principles, including Wilson's (2015) *Parking Management for Smart Growth*. Smart growth developments can typically be served with less vehicle parking and changes to parking management and pricing strategies, such as on-street and shared parking, can increase parking availability without increasing supply (Forinash et al., 2003). The effects of minimum parking requirements on urban environments have been well-researched, most notably in Shoup's (2011) work *The High Cost of Free Parking* in which they document how these minimums encourage driving and automobile ownership, produce sprawl and low-density development, create social inequity, destroy dense urban environments, increase development costs, and complicate building reuse (Shoup, 2011, as cited in Hess, 2017). Additional literature has shown that minimum parking requirements increase construction costs for developers (Shoup, 2014), reduce the use of public transit (Millard-Ball et al., 2022), increase the price of housing (Gabbe & Pierce, 2017), and stifle economic output and growth (Gabbe et al., 2021).

5.3.2 Excessive Vehicle Parking Requirements and Active Transportation

Most important to this research study is the connection between minimum parking requirements and active transportation as some participants were skeptical that there was a relationship between the two. Much of the literature on smart growth explores the built environment and urban design as major barriers to active transportation implementation, but there is minimal discussion of vehicle parking requirements (Williams et al, 2018; Clark & Scott 2016; Frank et al., 2022; Frank et al, 2019). However, McCahill et al. (2016) consolidated parking and census data for nine cities in the United States between 1960 and 2000 and then applied the Bradford Hill criteria to measure causality. The nine criteria – strength, consistency, specificity, temporality, biological gradient, plausibility, coherence, experiment, and analogy – are intended to infer causality when an association already exists (McCahill et al., 2016). The relationship between parking provision (parking spaces per resident and employee) and automobile use (automobile mode share for workers) was considered for each year and a clear, consistent association was observed showing that an increase from 0.1 to 0.5 parking spaces per person increased automobile use by approximately 30% (McCahill et al., 2016).

5.3.3 Existing Policy Tools

Major transit station areas (MTSAs) (approximately 500 to an 800-metre radius of a transit station) are a significant policy tool available to the Region under the provincial Growth Plan. They permit the Region, in consultation with lower-tier municipalities, to designate MTSAs along a transit corridor that requires minimum density targets of residents and jobs per hectare (MMAH, 2020). Additionally, MTSAs allow for reduced parking requirements and the provision of active transportation infrastructure, but the Region of Waterloo is still undergoing their Official Plan Review and the boundaries of its major transit station areas have yet to be

established (MMAH, 2020; Region of Waterloo, 2015). It is important to note that, while MTSAs establish a precedent for the Region to reduce parking requirements and increase active transportation infrastructure, collaboration must occur between the various levels of governance to ensure continuity and synchronization of active transportation infrastructure.

Outside of MTSAs the Growth Plan also supports minimizing surface parking in favour of active transportation and transit-supportive built form to promote employment and economic growth, thereby providing a policy basis for the Region to require a reduction of minimum parking requirements (MMAH, 2020). Minimum parking requirements are established by municipal zoning bylaws and, therefore, remain within the purview of the Region's lower-tier municipalities unless it is on a regional road, a designated MTSA, or a higher-order transit corridor such as the ION LRT route. The Region can influence minimum parking requirements through its Official Plan and the current Regional Official Plan does contain provisions that encourage the lower-tier municipalities to reduce parking requirements. However, the Regional Official Plan only "encourages" the lower-tier municipalities to reduce parking requirements as part of a transportation demand management strategy (Region of Waterloo, 2015). The use of certain language in policies, such as "encourage" rather than "must" or "shall," could potentially affect the active transportation goals of the Region as private developers could use this ambiguous language as a way to avoid including active transportation infrastructure in their development projects. However, the City of Kitchener has already removed minimum parking requirements in its Urban Growth Centre zone thereby establishing a precedent for the remainder of the Region's lower-tier municipalities. Elsewhere in Canada, the City of Edmonton recently removed all their minimum parking requirements saving an estimated $7,000 to $60,000 per space, a cost they argue would be passed down to the rent or mortgage payers (Gibson, 2020). In

the United States, Seattle removed or reduced its minimum parking requirements resulting in 18,000 fewer parking spaces and saving an estimated $537 million (Gabbe et al., 2020), while Buffalo removed their minimum parking requirements city-wide and several developers took advantage of these changes by providing new developments that were previously precluded due to a large amount of surface area parking required (Hess & Rehler, 2021)

The literature is clear that minimum parking requirements will encourage automobile usage and negatively impact active transportation initiatives (Shoup, 2011, as cited in Hess, 2017; Shoup, 2014; Gabbe & Pierce, 2017; Gabbe et al., 2021; Millard-Ball et al., 2022). Opponents of the reduction or removal of minimum parking requirements argue that the absence of available parking will affect the marketability of their property, cause parking spillover into surrounding residential neighbourhoods, and recent improvements to public transit access have decreased demands for automobile use making removal of minimum parking requirements unnecessary (Forinash et al., 2003). However, the literature indicates that the benefits of removing minimum parking requirements outweigh any potential drawbacks (Forinash et al., 2003). Opponents can be assuaged that approximately 70% of private developers in areas with no parking requirements did include some parking in their development projects despite local policies not requiring it (Gabbe et al., 2020). The amount of discussion on minimum parking requirements from the participants, as well as the support from the literature, demonstrates that this is a significant barrier to the implementation of active transportation initiatives in the Region of Waterloo.

5.4 The Lack of Measuring Active Transportation Success

Currently, the Region's only method of measuring active transportation success is the use of performance indicators. The lack of methods to measure success was described by both public

and private sector participants as a barrier to implementation, but it was predominantly the private sector participants who believed that the absence of a quantification method made implementing initiatives difficult. Quantitative indicators and their associated results serve as the currency to justify initiatives to corporate decision-makers seeking to balance project costs. As such, the limited quantification methods available make justification more difficult for private sector planners that seek to implement initiatives in their development projects that were beyond the requirements of the Official Plan. The OTC's multimodal level of service guideline was raised multiple times by the participants as a potential tool to assist in measuring success and providing justification for active transportation initiatives. In contrast to the private sector participants, the public planners believed that the current performance indicators were sufficient to measure the success of the Region's active transportation initiatives. However, as noted in the results, the current performance indicators used by the Region are insufficient to measure success and are combined with a vague evaluation framework thereby creating a barrier to implementation.

5.4.1 Measuring Success in the Literature

Measuring active transportation success appeared infrequently during the review of the literature such as the assessment criteria for active transportation travel distances (Larsen et al., 2019), sidewalk and bicycle lane density impacts on active transportation (Eldeeb et al., 2021), bicycle lane implementation and cyclist-motor vehicle collisions (Ling et al., 2020), and neighbourhood walkability criteria for children (Williams et al., 2018). However, these studies typically explore the association between active transportation and a specific variable, such as the availability of bicycle lanes, or are limited to a very specific case study, such as at the neighbourhood level, rather than examining a method to assess the overall success of active

transportation initiatives. Hess and Lea (2014) do explore the use of level of service as a potential tool for measuring success, but they recognize that there were no methodologies for active transportation level of service at the time of publication. The identification by research participants of the lack of methods to measure success required a re-engagement with the literature for more-recently released publications. Rodriguez-Valencia et al. (2022) consolidate the literature on several current methods to measure active transportation success and propose an expanded framework that combines an active transportation level of service quantification with qualitative factors, such as comfort and satisfaction, that measure the quality of service. Their framework is then tested and proven in two separate case studies (Rodriguez-Valencia et al., 2022).

5.4.2 Developing a New TMP Structure

When developing municipal plans, such as a Transportation Master Plan, it is necessary to outline the plan's goals, objectives, and targets. Seasons (2021) explains the difference and importance of the three:

> A goal is the desired end state for a planning exercise, such as a community with a sufficient supply of affordable housing. A goal is supported, or actualized, by an objective, which has both quantitative and temporal characteristics. A target makes the plan’s goals and objectives measurable, tangible, and precise. (p. 19)

Although goals are identified in the Region’s TMP, they do not include any corresponding objectives and the only target is a percentage of mode share targets for 2031 and 2041. Indicators, such as the performance measures used in the Region’s TMP, must be closely linked to the goals, objectives, and implementation strategy as they form the basis for monitoring and evaluating the plan (Seasons, 2021). While performance measures are essential, they focus on

program delivery issues while evaluation assesses the results, specifically the outputs, outcomes, and impacts of a program or plan (Seasons, 2021). The current structure of the Region's TMP is inadequate to operationalize active transportation implementation as its goals do not have corresponding objectives, it lacks specific targets, and consists solely of performance measures without an associated evaluation mechanism. Although the participants suggested a multimodal level of service framework to measure success, this only serves as a type of indicator that provides data that requires interpretation and contextualization to be effectively understood (Seasons, 2021). Including a multimodal level of service framework would be beneficial in measuring the success of the Region's active transportation initiatives, but significant modifications to the goals, objectives, and targets of the Region's TMP are required before an appropriate indicator method is chosen for monitoring and evaluation.

5.5 Misunderstanding of How Initiatives are Integrated into Policy

Participants agreed that active transportation initiatives had to be embedded into municipal policies (i.e., the Official Plan) to make them enforceable under the statutory framework of the *Planning Act*. The importance of integrating smart growth principles, including active transportation, into official policies is supported by the literature (Eidelman, 2010; Macdonald et al., 2021; Pond, 2009). Some private sector participants were skeptical if active transportation initiatives were effectively integrated into policy and remained critical of the nebulous nature of urban design guidelines. As shown in the results, this issue raised by some of the private sector participants was determined to be unfounded upon a review of municipal policies. The Region of Waterloo, as well as the cities of Kitchener, Waterloo, and Cambridge, includes the TMP as part of the Official Plan and, therefore, it does not serve as a barrier to implementation that the participants identified. The issue of how active transportation is

implemented, how success is defined, and how initiatives are evaluated is legitimate, but this barrier is due to how the TMP is structured and was discussed in the previous section. The issues surrounding the use of urban design guidelines to implement active transportation initiatives is due to how guidelines are integrated into municipal official policy. An Ontario Municipal Board (OMB) decision, the now-Ontario Land Tribunal (OLT), explains the relevance of guidelines in land use planning:

> The Board views guidelines as providing expression to a municipality's way of thinking when it comes to reading municipal policies in the assessment of general planning considerations and development applications widely. Guidelines cannot replace policy nor should they be elevated to the level of policy. They can serve, however, to give weight to policy considerations where they further delineate municipal areas and suggest how development should proceed in these areas. (2014, p. 7-8)

If the municipal Official Plan has not been amended to include urban design guidelines, then they are not policy within the statutory framework of the *Planning Act* and provide the basis for an appeal to the OLT by the applicant/appellant (Flynn-Guglietti, n.d.). However, in the case of the Region of Waterloo and its lower-tier municipalities, design guidelines have been integrated into their respective Official Plans thereby removing it as a potential barrier. While the structure and composition of these urban design guidelines may serve as a barrier to active transportation implementation, that is beyond the scope of this research study and is an area for future research. Although most private sector participants were conscious that design guidelines have been integrated into Official Plans, some were unaware suggesting that there is a communication gap between them and the municipality. This gap can be resolved through increased education and changes to the methods of collaboration between the two sectors.

5.6 Limited Methods of Collaboration Between the Public and Private Sectors

Collaboration is a cross-cutting issue that shaped the other barriers previously identified in the results and also served as an individual barrier with the sub-barriers of horizontal, vertical, and external collaboration. Both public and private sector participants recognized the need to improve collaboration horizontally, vertically, and externally, but the private sector participants were particularly critical of the collaboration shortcomings in the Region and its lower-tier municipalities. The private sector participants claimed that the municipalities need to improve collaboration internally and with their higher- or lower-tier municipal counterparts to better synchronize active transportation initiatives with other infrastructure developments. Additionally, the municipalities need to be more transparent about their expectations for active transportation initiatives which are closely linked with the limitations that were previously identified in the Region's TMP. The public planners interviewed acknowledged the need to improve their methods of external collaboration with private developers, along with their organization's horizontal collaboration methods, and some indicated several practices that have already been implemented including the City of Kitchener opening its internal processes to review by private developers. However, it is important to note that any methods of external collaboration with private developers must be within the scope of the Canadian Institute of Planners (CIP) Code of Professional Conduct and Statement of Values (CIP, 2016) and the Ontario Professional Planners Institute (OPPI) Professional Code of Practice (OPPI, n.d.) to ensure that the credibility of the profession is maintained.

5.6.1 Methods of Collaboration in the Literature

The methods of collaboration between the public and private sectors, and their associated effectiveness, are well-documented in the literature as a barrier to active transportation

implementation and support the claims of the research participants. The nomenclature in the literature varies between collaboration, coordination, and synchronization, but the terms are synonymous. The implementation of the UN's SDGs and other policy initiatives requires an integrated and systemic planning approach achieved through vertical, horizontal, and territorial coordination in municipalities (Tremblay et al., 2021; Kanuri et al., 2016; UN, 2013; Macdonald et al., 2021). Vertical collaboration between different levels of government is essential due to the multiple actors in planning's regulatory framework (Grant, 2009), and was found to be a significant barrier to active transportation implementation (Hess & Lea, 2014). Wilson and Mitra (2020) note that piggybacking active transportation infrastructure with public works projects is the most common strategy to achieve active transportation goals highlighting the importance of collaboration horizontally and vertically. The relationship between public planners and private developers is often viewed as antagonistic and is combined with the power of developers in shaping land use decisions, thereby stressing the importance of external collaboration between the two parties (Coiacetto, 2000; Moore, 2012; Adams et al., 2012; Leffers, 2018; Webber & Hernandez, 2016). However, it is evident from both the results and the literature that this relationship is inherently more complex than a simplistic dichotomy, reinforcing the need to increase our understanding of how collaboration is implemented and areas for potential improvement (Leffers, 2018; Moore, 2012).

5.6.2 Applying PPPs

One potential method to improve collaboration and achieve active transportation goals is through the application of PPPs. The literature provides numerous examples of PPPs being used to implement public infrastructure projects, such as public transit systems, but its use for active transportation has been limited to public health education, bicycle-metro integration, and bicycle

sharing programs and presents a gap in the literature (Simon et al., 2017; Cai & Lian, 2021; Wang et al., 2020). The literature suggests that PPPs could be used as a method of collaboration between the public and private sectors for active transportation initiatives and the Region of Waterloo provides an attractive investment opportunity to a private developer due to its economy of scale (Kanuri et al., 2016). PPPs are already implemented in the Region for the ION LRT, setting the precedent for its expansion into other sectors of regional governance, but it was not raised by the participants as a potential solution.

It is important to note that PPPs are not the sole solution for improving collaboration and implementing active transportation infrastructure. Rather, PPPs should be viewed as a potential solution that requires further exploration in the Region's context. Each PPP project is unique and highly dependent on its local context, and outcomes are difficult to generalize because "if you've seen one PPP, you've only seen one PPP" (Siemiatycki et al., 2022, p. 82). Failing to adapt PPPs to the Region of Waterloo context could result in competition between publicly-operated and privately-operated services, becoming counterintuitive to their intended use, and create uneven patterns of development thereby contributing to greater inequity (Siemiatycki & Friedman, 2012; Siemiatycki, 2011; Mayers, 2022). Successful PPPs depends on various factors including the structure of the PPP agreement, the type of asset being procured, the strength of regulations and institutions, the skills and knowledge of those involved, and the criteria used to evaluate success (Palcic et al., 2019). While PPPs can transfer risks to the private sector and deliver value for money, public control must be maintained over key planning functions to maximize public benefit (Siemiatycki & Friedman, 2012). Relying solely on private developers to implement active transportation infrastructure will inevitably result in a fragmented system (Siemiatycki, 2011; Mayers, 2022). Public control must be asserted through effective public policy that shapes

long-term land use development, combined with a robust evaluation and monitoring framework, as previously discussed in the examination of the Region's TMP (Siemiatycki & Friedman, 2012). Siemiatycki et al. (2022) note that, as the planning process continues to evolve and potentially move away from PPPs, the models that emerge will involve forms of public-private collaboration with PPP characteristics.

5.7 Opportunities for Future Research

The inductive approach applied in this research study and the associated results provide several opportunities for future research. Research participants were vocal about the barrier to active transportation caused by minimum parking requirements. Evidence in the literature indicates minimum parking requirements increase automobile usage, and future research could explore appropriate parking requirements for the Region of Waterloo and the causal link to active transportation. While this research revealed that the current method to implement and measure active transportation success in the Region is inadequate, further research could incorporate a quantitative aspect to the research design and explore applying the multimodal level of service framework to the Region of Waterloo. Linked to this could be additional research on urban design guidelines and their impact on active transportation. Lastly, a case study that explores the long-term relationship between a specific developer that has been completing work in one area for an extended period could provide insight into effective collaboration methods between the public and private sectors.

An additional area for future research would delve into the larger planning paradigm and explore the application of a systems theory lens to planning. Current planning methodologies have been criticized for representing the status quo rather than proposing reformatory planning ideas, and do not provide an effective counter to the hegemony of neoliberalization that promotes

private interests over the public good (Purcell, 2009). Systems theory was briefly mentioned by one of the research participants as a method to improve collaboration between the public and private sectors. Systems theory integrates multiple individual, and potentially independent, systems into a higher-level system generating a capability that is greater than the sum of its parts (Sousa-Poza et al., 2008). Cities interact with their surrounding environment within their socioeconomic and cultural context and systems theory can be applied to visualize cities broken down into systems and subsystems (Coelho & Ruth, 2006). A systems theory approach to land use planning has support from the literature and is already partially applied in Ontario's planning system through municipal Official Plans (Doak & Karadimitriou, 2007; Branch, 1970; Cooper et al., 1971). However, its application to collaboration methods with private developers is an under-researched area and future research could provide a systems theory-based planning process to improve collaboration and reduce collaboration as a barrier to active transportation implementation.

5.8 Limitations of the Research Study

The choice of a qualitative research design focused on the Region of Waterloo presented several limitations. Focusing on the Region of Waterloo as a single case restricted the barriers identified by the participants to the Region's context. Using more than one case would allow examination of how other municipalities react to active transportation barriers and compare strategies within and across the study sites. The qualitative design of this research enables transferability to other mid-sized Ontario cities under the same provincial policy framework, but using more than one case would refine the results and improve transferability. Additionally, adopting a mixed methods approach by including a quantitative aspect to this study, such as collecting data on an aspect of the Region's active transportation network, would have improved

the research as recommendations for quantitative improvements could be applied elsewhere. Introducing a quantitative aspect should be an area that future research incorporates when determining study design.

The study was also limited by the choice of participants. Several measures of rigour were applied as part of the research design and, to ensure accuracy, private sector participants were chosen based on those that completed development projects within the Region of Waterloo. However, the study did not explore the approaches between different developers, such as those that contracted active transportation studies to another organization or those that completed work using internal staff, and the results that these differences may have indicated. Additionally, several respondents from the private sector did not participate in the interviews. Their development projects may have been relevant to the research, but respondents may have declined due to the study's focus on active transportation. Some developers may have contemplated working in the Region, but opted not to due to the regulatory environment in place and were thus absent from the study. These factors may have caused data to disproportionately represent those with an interest in the research topic and additional perspectives may have produced different results.

Chapter 6: Recommendations and Conclusion

6.1 Introduction

The purpose of this research study, as outlined in Chapter One, was to explore the role private developers play in achieving the goals of the Region of Waterloo's active transportation plans. Previous chapters answered the first and second research objectives by exploring policies that guide active transportation planning in the Region of Waterloo and identifying barriers for private developers in achieving active transportation goals. The third and final research objective was to explore the reduction or removal of barriers to improve the implementation of active transportation plans which was partially answered in the previous discussion chapter. This chapter answers the remainder of the third research objective by providing recommendations to facilitate the reduction or removal of these barriers based on the findings previously identified. Lastly, it concludes with a summary of the research study and the key role active transportation plays within the Region of Waterloo.

6.2 Recommendations

The recommendations are categorized into either policy- or process-based measures to reduce or remove barriers to active transportation implementation, as well as recommendations for planning education that could enhance this research. Policy-based recommendations are changes that the Region and its lower-tier municipalities can make to provisions of their Official Plans, TMPs, and zoning bylaws. Process-based recommendations are changes that can be made to how policies are implemented as part of the planning process and changes to the methods of collaboration. Recommendations for planning education include changes to instruction and course offerings on planning at academic institutions.

6.2.1 Policy-Based Recommendations

The research participants stressed the importance of integrating active transportation initiatives into official policy as well as explicitly defining success and measures of success. While the Region and its lower-tier municipalities all embedded active transportation initiatives and their respective TMPs into their Official Plans, a major barrier is how the Region structures its TMP. While it is clear that private developers have some role to play in active transportation implementation, the literature notes that the conceptualization of an active transportation network cannot be solely left to private developers or else a municipality risks a fragmented system that promotes inequity (Siemiatycki, 2011; Mayers, 2022). Therefore, private developers must be guided and monitored by effective policies.

The Region of Waterloo's TMP states specific goals, but it lacks corresponding objectives and targets to meet these goals. While the TMP does include key performance indicators, these indicators are isolated and are not linked to the TMP's goals thereby impeding effective monitoring and evaluation of the TMP. As such, the TMP fails to articulate to private developers what the active transportation initiatives intend to achieve thereby serving as a barrier to effective implementation. To remove this barrier, the Region should amend their TMP to include objectives for each goal and corresponding targets to meet each objective. These targets can be based on the performance indicators that are outlined in the current TMP and will provide direction to private developers on what they should be striving for in their development projects. An example of an amended section of the TMP based on the current Goal 1: Promote Travel Choice is shown in Table 9 with a possible objective, target, and performance indicator. This proposed amendment is context-specific to the built-up areas identified in the Provincial Growth Plan and is in line with the plan monitoring and feedback method presented in the previous

chapter with support from the literature (Seasons, 2021). It is important to note that the Region of Waterloo has several diverse urban and rural areas, and any policy changes should be context-specific to ensure resources are allocated appropriately.

Table 9

A proposed amendment to the TMP

Goal	Objective	Target	Performance Indicator
Promote Travel Choice	Improve access to bicycle lanes within urban built-up areas	25% of households in the urban built-up area have a bicycle lane within 500m of their residence by 2035	Percentage of urban built-up area households with a bicycle lane within 500m of their residence

Minimum parking requirements were cited by the research participants as a major barrier to active transportation implementation as they increased costs and encouraged the use of automobiles by residents. This was supported by the literature that outlined the numerous issues caused by vehicle parking including the environmental impacts, encouragement of sprawl and low-density development, and the reduction in active transportation use. Unfortunately, minimum parking requirements fall within the jurisdiction of the lower-tier municipalities within their zoning bylaws and the Region cannot dictate zoning. However, there is support from provincial policy to reduce the amount of surface parking to support the use of active transportation and the Regional Official Plan already contains provisions encouraging parking reductions. Additionally, rather than using permissive language such as “encourage,” the Regional Official Plan should be amended to use prescriptive language mandating the reduction or removal of minimum parking requirements. Table 10 provides an example of an amended provision of the Regional Official Plan that outlines Transportation Demand Management policies. Since the lower-tier municipalities are required to conform to the Regional Official

Plan, this will see parking reductions eventually implemented in their zoning bylaws. The literature has shown that, even when minimum parking requirements are reduced or removed, it is likely that private developers will still include some parking in their projects. Reducing or removing minimum parking requirements will allow the consumer (i.e., residents) to choose whether or not they require a parking space rather than the municipality mandating this requirement and creating a barrier to active transportation implementation.

Table 10

A proposed amendment to the Regional Official Plan

Current Provision	Amended Provision
3.C.4: Area Municipalities are encouraged to provide reduced parking standards for development applications where the owner/applicant agrees to incorporate transportation demand management strategies as part of the proposed development.	Area Municipalities shall provide reduced parking standards for development applications.

6.2.2 Process-Based Recommendations

Closely linked to the policy-based amendments to the Region's TMP is the implementation of a method to measure success as part of the planning process. Research participants, in particular private sector planners, spoke about the difficulties in justifying active transportation initiatives without a way to quantitatively measure success and the barrier this posed. This gap is explored in the literature, as is the use of a level of service quantification measure as a tool to address this gap. Currently, there is no widely-adopted framework in the Province or Region for measuring active transportation success. However, the introduction in early 2022 of the OTC's multimodal level of service guidelines serves as a possible way to measure success and provide critical background information for decision-makers. The Region

should explore the implementation of the OTC's multimodal level of service guidelines as part of its active transportation planning process. These multimodal level of service guidelines can also be incorporated into the monitoring and evaluation framework of the Region's TMP to assist in the reduction of the policy-based barriers previously identified. Additionally, the monitoring and evaluation framework could be expanded by encouraging public participation, such as from community or neighbourhood organizations, to provide qualitative data and the lived experience of those that regularly use active transportation infrastructure.

Research participants spoke about the barriers to active transportation implementation caused by horizontal, vertical, and external collaboration. The issues caused by the varying methods and degrees of collaboration between the public and private sectors are well-documented in the literature. However, the key informant interviews revealed that the relationship between the public and private sectors is inherently more nuanced than the framing of collaboration as an "us-versus-them" dichotomy. A potential tool available to municipalities is the use of PPPs for infrastructure projects. While PPPs have not been utilized for active transportation projects, they have been applied for other infrastructure projects, including public transit infrastructure, in the Region. The Region should explore the use of PPPs for future active transportation initiatives to improve collaboration with private developers and reduce its role as a barrier to implementation. It is important to recall that there are multiple ways that the public and private sectors can partner to deliver a project and that PPPs exist on a spectrum in which the level of involvement from the private sector varies (Siemiatycki, 2006). Lastly, some participants spoke about changes that the City of Kitchener made to its municipal processes after incorporating feedback from consultation with developers. While this was specific to a Kitchener

context, the Region should explore the methods used by the City of Kitchener staff and potentially implement a similar practice to improve collaboration.

6.2.3 Recommendations for Planning Education

Academic institutions, such as the University of Waterloo and its associated School of Planning, provide the critical link between planning theory and professional practice. The results of this research highlighted the importance of collaboration between the public sector and private developers when implementing policies and regulations. Future course offerings should incorporate the study of the methods of public-private collaboration as well as the opportunities for PPPs in the urban environment. Currently, the University of Waterloo has two course offerings that could incorporate these changes: PLAN 320 Economic Analyses for Regional Planning at the undergraduate level and PLAN 602 Land Development Planning at the graduate level. Both of these courses examine the economics and financing of planning and development and are a natural fit for the incorporation of future modules on methods of collaboration.

6.3 Conclusion

Ontario cities are continually exploring methods to create healthier, livable, and environmentally-friendly urban environments for their residents. A critical piece to achieving this is the use of active transportation infrastructure to provide an alternative to car-oriented development patterns. Active transportation networks are conceptualized in municipal policy and plans, but municipal governments cannot achieve their goals alone and require collaboration with private developers to build active transportation infrastructure. The methods and level of collaboration vary, but collaboration must occur at some point in the planning process.

The Region of Waterloo's unique circumstances as a fast-growing urban centre in the Greater Golden Horseshoe places it in a position to achieve a robust active transportation

network. This study sought to explore the role private developers play in achieving the goals of the Region's active transportation plans. Utilizing qualitative interviews with both public and private sector planners allowed for the "ground truth" to be examined. In doing so, this research identified several key barriers to active transportation implementation that were created by either policy decisions or how planning processes were implemented and illustrated the nuances of collaboration beyond a simplistic dichotomy. Current and future planners must maintain a self-reflective approach to avoid situating their practice into this dichotomy and negatively impacting collaboration efforts.

This research contributes to a gap in the literature about how private developers interact with municipal active transportation plans and integrate with the larger planning system, as well as adds to the body of knowledge on the relationship between the public and private sectors in planning. While this research focuses on the Region of Waterloo, it provides data and recommendations that can be implemented by planners in other Ontario municipalities to boost the efficiency of the current planning system and improve active transportation networks, as well as guide future planning education and research.

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Appendices

Appendix A: Semi-Structured Interview Questions

The Integration of Private Developers in Municipal Active Transportation Plans: An Examination of the Region of Waterloo		
Purpose of checklist: To understand the barriers in active transportation implementation by private developers in the Region of Waterloo. This checklist will guide qualitative data collection on current active transportation efforts, successes and failures, and obstacles encountered.		
Construct	**Question**	**Probes**
Introduction - Consent. - Background.	Confirm verbal consent if written consent has not been given. Can you please describe your role in your current organization?	 - How long in the role? - Any previous roles that were similar at another organization?
Active Transportation and Transit-Oriented Development Concepts - Ensure standardization.	Great to hear about your relevant background. Before we dive into specific questions, I'd like to discuss some overarching concepts: What does active transportation mean to you? What does transit-oriented development mean to you? Does your organization use a different or unique definition for active transportation and transit-oriented development? Which of the two concepts are used more often in your work?	 - Provide definitions from PPS if unclear. - Are you aware of the difference in policy between transit-oriented development and transit-supportive development? - If so, do you believe the different definitions could lead to confusion? - Is it used by a particular group more often?
Active Transportation within their organization - Current state.	Focusing on your organization now, are you aware of:	

- Future plans.	Efforts that your organization has been taking or has taken to increase active transportation? A policy and implementation strategy over a given timescale? Can you tell me about a recent active transportation initiative that you found innovative or exciting? What has been the main driver of active transportation in your community/organization?	- Legislation, strategies, policies, design guidelines. - For developers: How do your site plans integrate active transportation? - 5 to 10-year review. - Has the strategy been successful in implementation? - Do you have a common practice or standard measure in place? Car/road level of service. Multi-modal level of service. - List specific regulations/plans as a prompt.
Obstacles and barriers - What is preventing effective implementation. - Measures of success.	Can you tell me about an example of an initiative that failed? Why do you think that was? What do you see as the primary barriers to increasing active transportation in your community?	- E.g., public backlash, removal of AT infrastructure. Example of Toronto removing bike lane on Jarvis St. - I've heard concerns about the costs associated with introducing AT and that serving as an obstacle. Do you find that to be the case? - PPS, Growth Plan. - Regional/local plans. - Are there other factors from the community (i.e., climate change plan)? Other ministries? That create barriers.

	What tools need to be used or created to remove these barriers? What does active transportation success look like to you?	- What needs to change to make it favourable? E.g., a different policy solution from somewhere else. - What do you feel is the most useful measure of success? E.g., traffic impact studies, usership studies. - Are there metrics/measures that need to be added?
Stakeholder involvement - Type of stakeholder. - Level of influence.	While stakeholders and the public are consulted during plan implementation… Do you think there is a role for developers in promoting active transportation in the Region? What does ideal collaboration look like to you? What could the municipality/region do to help you increase AT? Remove barrier, add incentives.	 - For Regional planners: Do private developers have more weight than other stakeholders?
Concerns about AT and TOD - Hesitations. - Strategies to overcome.	To conclude the interview… What are your biggest concerns with the implementation of active transportation plans? Is there somewhere in Ontario that is doing this right? Is there a particular example that inspires your practice?	 - Is it securing funding? Garnering public/private support? - Any inspiration from around the world?

Appendix B: Example Framework Method Matrix Output

Code	Description	Example
Design Guidelines	Urban design guidelines, complete street guidelines, corridor guidelines. Anything created by the municipality. What is the municipality specifically doing to promote AT?	"Kitchener has complete street guidelines and urban design guidelines, but they're guidelines, they're not requirements. They're not standards, they're not law…"
Zoning Bylaws	Parking, development charges. How do these encourage/discourage AT?	"In light of some of the changes that have come in locally with respect to zoning bylaws and stuff like that. They've seemed to really beef up some of their active transportation requirements and then a lot of the developments that I'm working on now is within existing urban areas."
Transportation Master Plans	How is the municipality planning for AT in their current policies? How does it interact with developers?	"So we have to make sure as we get this transportation master plan, we incorporate it in with the larger official plans. We can sync, pull everything together and say here is what we are looking for as a community. How is this community gonna grow to make that work?"
Official Plans	What is the municipality's overall intent? Are variables effectively imbedded into policy?	"Once it's in the official plan and then it's not really up for debate. It's there. You have to convey the land or you have to build the connection or what have you. You have to implement what's there in the OP."
Quantification	How is success measured? Are there specific metrics?	"We have key performance indicators that we have as part of our TMP and our Cycling Master Plan. So we can go through that annually and measure how many kilometres we're adding or any new programs, and if we're actually hitting the milestones we're supposed to in those plans."
Synchronization	How is AT synchronized between other departments (e.g., development)? What about between different levels of government?	"We as staff need to do a good job of flagging things at pre-consultation meetings, whether it's for zone change, a subdivision site plan application. This is one reason why we brought a transportation person onto the site plan committee because then they could say, you know, along this street we're planning a multi-use pathway just so you're aware."

Public Support	How is public support garnered? How is the public educated on AT-initiatives?	“I think getting the buy-in from people who aren't necessarily knowledgeable about active transportation or transportation planning and then reaching those people as well is definitely a barrier.”
Developer Relationships	How are developers integrated into the process? What is the status of interrelationships?	“I think that developers have to continue to be involved in policy-making. They can't just sort of miss those opportunities that are presented to them. To me, they're just as important as user groups.”