Whose Lane is it Anyway? The Negligence Towards Cyclists within in a Mid-sized City

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.

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Abstract

Urban cycling has been gaining momentum for decades, yet the need to upgrade infrastructure to accommodate cycling has never been greater. Urban development in North America continues to privilege car usage, despite growing threats of climate change and resource depletion. To better adapt to these challenges, cities are responding by encouraging alternate modes of transportation through bike-friendly design and planning which reduces an individual's carbon footprint. Nevertheless, the politics of approving such initiatives remain contentious, even though evidence reveals bikeable cities are beneficial in a variety of ways.

Therefore, the purpose of this study was to expose how seemingly bike-friendly policies serves to disadvantage urban cyclists and further privilege car culture. Concentrating on cyclists' experiences in the Region of Waterloo, this study engaged with local cyclists directly to understand how regional initiatives and policies aimed at improving cycling left cyclists feeling devalued and under-resourced. Informed by a critical urban lens, this qualitative study collected 16 participants stories through semi-structured interviews to address the following research questions: How do cyclists experience so-called bike-friendly policies and infrastructure in the Region of Waterloo?; how do cyclists' lived experiences reflect their right to the city?; and (3) how do bike-friendly policies and infrastructure privilege car culture? Five themes were identified from the data collected and consist of: (1) identification as a cyclist; (2) rationale for riding; (3) riding in a car-centric city; (4) lived experience with so called "bicycle-friendly" infrastructure and (5) the representation of politics of Waterloo cycling. The discussion of findings prompted five themes to help better synthesize cyclists' experiences: Identity, tangibilize the intangible, build it *well* and they will come, (4) keeping up with the culture shift, and changing minds to changing modes. This research brings to light narratives from cyclists

lives that provoke further research on the topic of cycling to broadening our understanding and how to influence positive change through practice.

Keywords: City Cycling, Analysis of Narrative, Urban Planning

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Chapter One: Introduction

I fly out the door with my keys in one hand, lock it up, strap on my helmet and head to the side gate to unlock my bike. Seconds later, I roll down my driveway like a bird taking flight and speed off onto the road. I welcome the pleasant sensation of the wind in my hair and the sun's warm rays on my skin. It's a beautiful day. I reach the main road and make a right turn. I head uphill at a steady pace, leaving enough space between me and the sewage grates at the road's edge. A large truck barrels by alarmingly on my left shoulder. With no warning, a bus hurries past me before I reach the oncoming bus stop. I thrust my arm out to indicate a left turn while more cars hustle past me at speeds that far surpass my own. I change into the left lane peddling as fast as I can to improve my vulnerable situation. I wait for oncoming traffic to clear and then turn left onto another side street. The street is calm, but I dodge its pot holes as if avoiding landmines and turn onto a road with sharrows, designs aimed deliberately to keep cyclists safer. The drivers behind me get aggravated as I signal to turn left at the light. One honks his horn out of frustration, accelerates, zooms past my right shoulder, crosses the solid white line in-front of me and slams on the breaks to turn left at the stoplight only meters away from me. I turn left onto the next busy street, excited to hang right into a bike lane reserved for me and my fellow bikers. I straddle the lane, negotiating the debris littered across it and the cars zooming past. All that separates me from the cars is a single painted line. I turn right over a set of train tracks, gripping my handle bars tightly so the rails don't throw me off track. I turn right onto a cycling and pedestrian trail. Phew, no more cars in sight. I sound my bell at groups of pedestrians as I swerve in-between them like trying to move through a school of fish. I dismount my bike and carry it down a set of stairs before getting back into the saddle. I turn left into the university. The few bike racks available to me are jam packed with other bikes. I try my luck around the building to find a safe place to lock it. Success. I lock my bike, take off my helmet, and walk into the building where I work. Just another bike commute to school.

1.1 Background

Urban cycling has been gaining momentum for decades (Silverberg, 2011; Krizek & Johnson, 2006), yet the need to upgrade infrastructure to accommodate cycling has never been greater. Urban development in North America continues to privilege car usage, despite growing threats of climate change and resource depletion (Rees & Wackernagel, 2008). To better adapt to these challenges, cities are responding by encouraging alternate modes of transportation through bike-friendly design and planning which reduces an individual's carbon footprint (Rees & Wackernagel, 2008). Simple initiatives such as widening and separating cycling paths,

maintaining trails and roads for cyclists (e.g., snow removal), changing the design of intersections for greater safety, and reducing the space for cars on high volume roads are simple solutions to encourage more biking (Nielsen, Skov-Petersen & Agervig Carstensen, 2013). Nevertheless, the politics of approving such initiatives remain surprisingly contentious, even though evidence reveals bikeable cities are beneficial in a variety of ways (Buehler & Pucher, 2012).

First, cycling is a form of physical activity which contributes to an individual's overall health and therefore serves as a form of chronic disease prevention (Buehler, Pucher, Merom & Bauman, 2011; Pucher, Buehler, Bassett & Dannenberg, 2010; Woodcock et al., 2009). Its health-related benefits have the potential to decrease health care costs (Cavill, Kahlmeier, Rutter, Racioppi & Oja, 2008). An increase in bicycle use on bicycle-friendly roads makes streets safer by slowing down traffic, resulting in fewer car injuries (Duany, Speck, & Lydon 2010).

Second, environmental benefits are associated with city-cycling. By increasing the number of cyclists on the road and decreasing the amount of cars driving, the reduction in emissions significantly improves (Pucher, Buehler & Seinen, 2011). Jacobsen (2003) found motorists drive safer when there are more cyclists and pedestrians on the streets, therein making the environment safer and more livable for residents and visitors.

Third, cycling contributes to the local economy. Streets with more cyclists on them and infrastructure truly catered towards cyclists slow down the speed of all transportation, thus making it easier to stop at businesses and spend money (Duany, Speck, & Lydon, 2010; Drennen, 2003). Neighbourhoods deemed more bicycle-friendly have higher property values, which increases economic value and prosperity (Drennen, 2003; Duany, Speck, & Lydon 2010).

Fourth, cycling empowers people to resist or reconsider car use (Furness, 2006). The rise of cycling culture has been called "Bicycle Revolution Cantastoria" because citizens interact and participate with others on their bikes, which helps them find social happiness (Silverberg, 2011, p.12). Currently, in cities where cycling is normalized, cycling culture is defined as a "Way of Life" and is simply what people do (Aldred & Jungnickel, 2014, p.2). This bike-friendly culture helps foster a convivial community by helping to create social groups that participate in their community and the environment in which they live (Lawson, 2005).

Amazingly, even when faced with the multitude of benefits associated with city cycling, cities continue to privilege cars by prioritizing car-centric policies and planning. Cycling becomes afterthought, an effort to appease a minority of urban residents. Though cycling is a popular leisure choice for urban residents, it is regarded as an activity that appeals to only a small minority of the population (Statistics Canada, 2005; Kaplan & Prato, 2016). This discrepancy is reflected in the largely political discourse associated with *active transportation* and *active recreation*. Active transportation, though perceived as important, is deemed too scarce to warrant attention. By contrast, active recreation, though sizeable in its scope of participants, is believed to be too trivial to warrant attention.

Even where cycling master plans exist and cities strive toward a bicycle-friendly environment, car culture dominates public decision-making (Furness, 2010). Counterintuitively, so-called bike-friendly policies may even further privilege cars and neglect the needs of cyclists. The normalization of car culture—that is, the social and physical environment where driving is the most prevalent mode of transportation used and planned for—results in so-called cycle-friendly policies that effectively cater to drivers (Pelzer, 2010). Removing cyclists from car lanes, for example, helps drivers avoid hitting cyclists, but fails to protect or help cyclists move

more freely on the roads. Special lanes for cyclists remove the cyclist as an obstacle for the driver, yet provide minimal change to the cyclist's safety. The idea that bike-friendly policies actually disadvantage cyclists, however, has received little, if any, attention in the literature, which is perhaps not surprising because research on urban cycling rarely adopts a critical lens (Horton, 2007; Koglin & Rye, 2014). That is, research rarely exposes how car culture and its dominant discourse further pervades through so-called bike-friendly policies. Urban cycling research, moreover, tends to depend on quantitative data collection (i.e., recording the number of cyclist on roads) (Pucher, 2005), thereby limiting analysis to neighbourhood environmental characteristics relevant to cycling to inform policy (Saelens, Sallis & Frank, 2003). Qualitative research on the subject is less common, yet provides information about the social environment in which people cycle and how cultural norms influence individual behaviour (Handy, Van Wee & Kroesen, 2014). This project addressed these gaps in the literature.

1.2 Purpose

With these gaps in mind, the purpose of this study was to expose how seemingly bike-friendly policies served to disadvantage urban cyclists and further privilege car culture. Concentrating on cyclists' experiences in the Region of Waterloo, this study engaged with local cyclists directly to understand how regional initiatives and policies aimed at improving cycling left cyclists feeling devalued and under-resourced. In so doing, this research examined positive and negative experiences that cyclists had with cycling infrastructure and the lack thereof to help inform cycling policy.

1.3 Research Questions

Accordingly, the questions that guided this research were:

1. How do cyclists experience so-called bike-friendly policies and infrastructure in the Region of Waterloo?
2. How do cyclists' lived experiences reflect their right to the city?
3. How do bike-friendly policies and infrastructure privilege car culture?

1.4 Significance of the Research

This research project contributes to the literature on urban cycling by providing a critical perspective on city cycling from cyclists' point of view. It also helps guide needed policies and practices aimed at accommodating cyclists within cities. By using a critical urban lens, this research exposes policies that seemingly cater to cyclists, yet privilege drivers, and offers direction for change. Ultimately, the goal of this research was to enhance the social impact of research on cycling by making accessible information and mobilization outside of academia. Critical reflection and mobilization of knowledge were focused on to further the research on city cycling and make a social impact (Glover, 2015).

Chapter Two: Literature Review

This chapter contains an overview of relevant academic literature on city cycling. The literature is captured within the following sections: (1) city cycling barriers, (2) dominance of cars, (3) negligence towards cyclists, (4) production of cycling space, (5) advocacy and the right to the city, and (6) influencing bike policy. The review that follows offers background relevant to this study and shapes the theoretical lens of my research. I begin by focusing on cycling barriers.

2.1 City Cycling Barriers

Though most cities do support multiple modes of transportation—at least, to a certain extent—the car dominates overwhelmingly as the preferred option for everyday mobility (Duany, Speck & Lydon, 2010). Its dominance has enormous implications for how cities are planned, built, and experienced (Loukopoulos et al., 2005). Car usage has become normalized across North America, thereby resulting in continued investment in car-oriented infrastructure and discouraging other forms of transportation (Aldred & Jungnickel, 2014). Growing recognition of the negative implications of automobile usage for health, the environment, economy, and community is causing pause for concern, however (Duany, Speck & Lydon, 2010). Among other cultural critics, Kunstler (2012) argues "happy motoring"—the cultural tendency to drive cars for pleasure and with no concern for its negative externalities—is no longer sustainable due to the negative impacts associated with it. Kuhnimof, Tobias, Zumkeller, and Chlond (2013) suggest travel demands and demographic changes within the developed world have affected the use of cars, resulting in the "peak car hypothesis" whereby people are driving less (p. 325). Even so, the amount of infrastructure catered towards the car remains the same, although the trend in travel behavior seems to be changing (Newman & Kenworthy, 2011). Cities that plan and build infrastructure for cycling are shifting in the right direction, but

alternatives to the car need to be promoted and incentivized to induce change (Shaw & Docherty, 2013).

Though car usage may be stagnating and slowly declining, car ownership within a city has become a part of a normal lifestyle for those living within a city, and most people are car dependent for their economic well-being and access employment opportunities (Brueckner, 2001; Wirth, 1938). Cities are growing at such an accelerated rate that the sustainability of urban growth warrants attention (Jacobs, 1961). Urban sprawl, the expansion of urban areas into low density areas, was the answer to accommodate the growing number of people in the city and centralization of industry in the previous century, but cities can no longer rely on cheap fuel and land to sustain this way of life (Kunstler, 2012). Once the price of fuel rises as a product of demand, auto-dependent landscapes will have to devote greater income to fuel costs, leaving little money for other leisure or social activities (Condon, 2012). In addition to sustainability, city councils and policymakers are increasingly giving consideration to the livability of a city (Florida, 2002). Consequently, advocates of active transportation—non-motorized transport—argue that more sustainable, more livable infrastructure that accommodates dense populations requires greater attention be given to walking and cycling (Loukopoulos et al., 2005; Sallis, Frank, Saelens & Kraft, 2004).

2.1.1 Cultural Dominance of Cars

Although there are several benefits to city cycling, the cultural dominance of cars continues to prevail. The prevalence of cars within North America is not as simple as citizens wanting to drive a car, but rather the result of historical and current governments priorities to encourage the widespread use and reliance on them (Pucher, Komanoff & Schimek, 1999). North America's reliance on the automobile is and was intentional (Newman & Kenworthy, 1999). The

free market economy enabled the large automotive industry to control the market and induce car demand by lobbying against other modes of transportation (Jenkins, Gove, Forte & Frye, 2010). General Motors advertised and sold the public a lifestyle of "The American dream of freedom on wheels" and advocated for cars and literally "paved the road" whereby infrastructure investment committed to car use helped create the $25 billion Federal Aid Highway Act of 1956 (Jenkins et al, 2010, p.13).

The ideology of policymakers influences discourse within society (Yee, 1996). By privileging car usage, the economy relies on the growth of the auto sector and its related industries (Rodriugues, 2014). Within the United States, the "Big-Three" automakers—General Motors, Ford, and Chrysler—have a "Too Big to Fail" mentality (Rodrigues, 2014, p.3). Charles Erwin, President of General Motors throughout World War II, stated "What is good for General Motors is good for the United States of America and vice-versa" (Rodrigues, 2014, p.1), because its economic health had implications for the larger American economy. Once the 2008 recession hit, the Obama Administration bailed out the "Big Three" for 17.4 billion dollars (Rodrigues, 2014, p.3), therein further underscoring government commitment to the automobile industry and correspondingly car usage.

The United States government's support for the auto industry had further detrimental effects on our spatial form and planning of future cities (Bento, Cropper & Mobarak, 2005). By building large highways and road systems, suburban development is privileged over other forms of transportation (Bento, Cropper & Mobarak, 2005). Cervero and Hansen (2002) found a strong relationship between investment in roads and travel demand, whereby the stronger the investments in roads, the more demand there is for driving, thereby resulting in less support for transit and active modes of transportation (Cervero & Hansen, 2002; Bento, Cropper & Mobarak,

2005). The growth of low-density suburbs is driven by a growth in automobile ownership (Cervero & Hansen, 2002; Bento, Cropper & Mobarak, 2005).

Litman, (2002) suggests there are three determinants of car dependency. First, people want good choices for transportation, yet when living in automobile dependent city, there are few alternatives (Litman, 2002). Second, people want to choose the most efficient and cheapest way to transport themselves, yet most of the public transit is publicly provided, runs infrequently and remains costly (Litman, 2002). As a result, in suburbs, cars are the most efficient and cheapest way of travelling long distances for the amount of time spent (Litman, 2002). Third, cost-based pricing sells cars. That is, the consumer incurs the cost of the vehicle, insurance and gas, whereas government incurs other (major) costs (e.g., infrastructure) to support the consumer's choice (Litman, 2002). These are referred to as positive and negative externalities. By using cost-based pricing, car companies make as much profit as needed to cover their costs, yet leave the remaining costs to consumers (who leave even larger costs to government) (Litman, 2002).

Arguably, car culture has been advanced within North America to encourage greater autonomy of mobility (Furness, 2010). According to Featherstone (2004), however, the automobile is not as autonomous and self-directed as the name suggests. The car is merely a combination of mechanical parts, which allows for autonomous speed (Kent, 2013). Featherstone argues that walking is more autonomous movement because the body can, within reason, walk wherever it chooses without traffic and mechanics constraints. Featherstone also suggests that the car illustrates the production and reproduction of the car's dominance in society. According to Urry (2008), the word automobility is a cultural process that must be reinforced by infrastructure, road building, maintenance, traffic, parking, legal systems, and the way that citizens interact with the cars in society. Automobility, in other words, is socialized, and the car

is the symbol for mobility, capitalism, consumerism, and is sustained by the cultural reinforcement of car culture (Kent, 2013).

2.1.2 Negligence towards Cyclists

Though literature suggests there is an increase in the number of cyclists on the road, as well as master plans calling for more cycling-friendly infrastructure, cyclists' needs are still not being met (Furness, 2010). Car dominance has been sustained by restraint to encourage active transportation (Furness, 2010). Bicycles are branded pejoratively by the automotive industry as children's toys or a "poor man's" mode of transportation (Furness, 2006). Though it may be government's role to serve the needs of all its citizens, some groups' needs remain unmet and/or ignored because of their lack of power/influence (Stewart, Parry & Glover, 2008).

Even so, Helman, Buttress, Newman and Hutchins (2010) suggest that "driver logic" inhibits the possibility of truly sharing the road and explains how there needs to be proper infrastructure designed for cycling. Under "driver logic", car drivers believe bikes do not belong on the road, the space should not be taken away from the drivers, and cyclists should ride somewhere else (Helman et al, 2010). Even when a cyclist decides to maneuver through traffic or tries to stay within the bike paths, poor infrastructure inhibits a conducive and safe space for the cyclist (Helman et al, 2010). For example, cyclists are forced to rejoin traffic when the bike lane ends suddenly, when the side of the roads are poorly maintained, and when parked cars require moving around (Helman et al, 2010). In some situations, bike lanes are poorly planned and cause a sudden infringement upon the drivers rather than stating outright that the whole lane is for the cyclist and it must be shared (Helman et al, 2010). Therefore, the trivialization of cyclists on roads reinforces the negligence towards cyclists and hinders cyclists ability to be taken seriously as a mode of transportation.

2.2 Production of Cycling Space and The Right to The City

Within an urban context, the planning for cycling tends to be subjected to abstraction with roads and bike lanes presented as neutral, yet utilitarian spaces devoid of any relevant meaning. Master plans, blueprints, and maps obscure the power dynamics at play. Inspired by Iveson (2013), connection between Lefebvre's (1991) work on the production of space and 1996 [1967] notion of "The Right to the City" provides a relevant analytic framework for exposing this abstraction and problematizes the notion that space is objective and needs to be appropriated. First, Lefebvre conceptualized a spatial triad that represents the interplay of three "moments" in social space in which space is socially constructed. The first moment, *perceived space*, refers to the intended application of spatial forms and characteristics of a space. These perceptions shape usage of the space and validate certain practices and routines. Applied within the context of city-cycling, roads are *perceived* as exclusive spaces for cars, whereas sidewalks are perceived as spaces for pedestrians. Deviations from this perception are regarded as deviant. The second moment, *conceived space*, refers to planned social space—that is, the intended purposes for which the space was created—which demonstrates the knowledge and power within a city (Soja, 1996). For example, roads are designed with signs and codes of conduct for cyclists such as "bike-friendly" lanes. These spaces are tokenistic, however, insofar as they only give the appearance that cyclists' needs are being addressed (Meyer, 2014). The cycling lane creates boundaries around the cyclist's movements and therefore limits his or her mobility. The third moment, *lived space*, refers to how people experience and participate in the space and therein create meaning from it. In this moment, individuals can challenge the space and create counter-narratives in resistance to the physical and conceptual expectations of the space (Lefebvre, 1991). For example, cyclists may deviate from using designated bike lanes and wander

intentionally into car-only lanes or pedestrian paths in areas of the city where they feel the roads are unsafe. Their behaviour challenges the perceived and conceived uses of those spaces, thereby opening up the possibility of resistance and potentially change (Blickstein, 2010). Hence, Leferbvre's model exposes the social construction of space, reflecting how cyclists perceive, conceive and live within the city.

Second, Lefebvre's "Right to the City" was founded upon radical democratic urban politics whereby citizens assert their right to the city (Lefebvre, 1991). Citizens within a city claim this right by occupying public space (Iveson, 2013). By appropriating space, individuals are able to shape and reshape the process of urbanization (Harvey, 2008). The city is designed for the society that lives within it, and citizens should be able to participate and make a difference in the decision-making process (Lefebvre, 1996). For city cycling, cyclists claim their right to the city by being more than token participants in the planning of the city and by appropriating space for their own usage (Furness, 2010).

The visual representation of the spatial triad and "The Right to The City" (as seen in figure 1) is used to reflect the abstraction involved in the moments of perceived, conceived and lived space. The bike that appears in the figure is used to depict the cyclists' lived experience from their vantage point, whereby the meaning is made. Upon utilizing the bike on the road, the cyclist appropriates their right to the city. Cyclists both intentionally and unintentionally

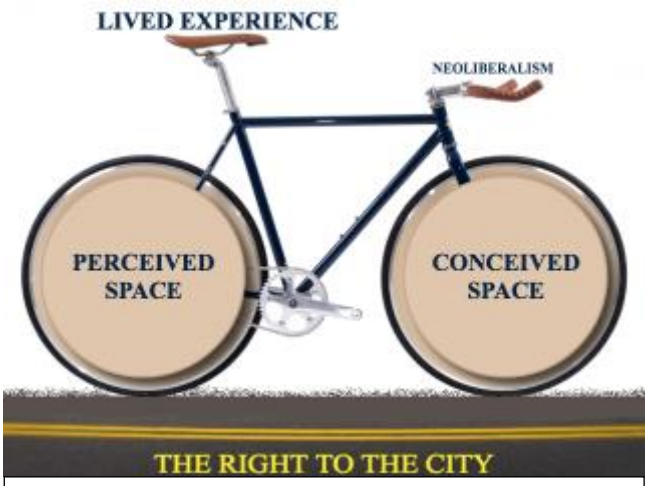

Figure 1. Cycling Space Model. Adapted Spatial Triad and The Right to The City (Lefebvre, 1991; Iveson, 2013)

challenge the dominant discourse of North American society and propose a different way to live within our cities (Furness, 2010). For example, groups such as Critical Mass advocate and appropriate their right to the city aiming to change the way in which space is produced (Iveson, 2013; Furness, 2010). Thus, the meaning of space is not objective and is a social construct whereby cyclists are suppressed and aim to appropriate their space and fight for their "Right to The City".

2.3 Research Questions

Based on the literature reviewed, this thesis was aimed at exposing the dominant car discourse and to uncovered how cyclists are suppressed within cities. The experiences of cyclists on the roads were gathered to uncover how "cycle friendly" policies catered towards cars and how cyclists were not properly accommodated for. The questions asked consist of:

1. How do cyclists experience so-called bike-friendly policies and infrastructure in the Region of Waterloo?
2. How do cyclists' lived experiences reflect their right to the city?
3. How do bike-friendly policies and infrastructure privilege car culture?

Chapter Three: Methods

3.1 Introduction

This qualitative study was designed to help better understand and expose the negligence towards city cyclists. This chapter consists of an overview of the theoretical perspective and methodology used in this study. The methods used to collect data including the selection site, procedures, analysis, knowledge mobilization and ensuring credibility will be discussed. My role as the researcher and positionality within the study will be examined.

3.1 Theoretical Perspective

To expose how seemingly bike-friendly policies serve to disadvantage urban cyclists and further privilege car culture, I adopted a critical social science approach to my research. Broadly conceived, critical social science is "explanatory social science" and combines the political beliefs within a society and the actions that are done through in order to expose the contradictions within society and inspire change (Schwandt, 2007, p. 54). It challenges instrumental and technical reasoning whereby objective and numerical data are the main source of knowledge and hold the power of human reason and self-reflexivity as the priority (Schwandt, 2007). Critical social science requires self-reflexivity because of the researcher is not considered to be value-free or neutral throughout the course of the research (Schwandt, 2007). More specifically, given the focus of my research, I adopted critical urban theory, which enabled me to better understand the urban setting and challenge dominant discourse(s) associated with it (Brenner, Marcuse & Mayer, 2012). Utilizing critical urban theory was a useful way to understand the ways certain groups within a city have been suppressed by dominant groups and why certain phenomena may exist in certain cities (Brenner, Marcuse & Mayer, 2012). Critical, here, means to give criticism of the government's policy, emphasize the unmet needs of a

citizens and exposes the possibilities for change (Brenner, Marcuse & Mayer, 2012). Critical urban theory challenges the dominant discourse, specifically, for constructing a "growth-first" approach to urban development so that social agendas are addressed only after growth and are regarded in opposition of economic development (Brenner, Marcuse & Mayer, 2012). Cyclists' needs, under this discourse, are not prioritized because the economic gain associated with such accommodations are insufficient to warrant attention. Accordingly, critical urban theory served as a relevant framework for interrogating urban space and the investments cities made in social programs and agendas associated with cycling (Brenner, Marcuse & Mayer, 2012; Brenner & Theodore, 2002). Critical urban theory advances more democratic, socially just, and sustainable forms of urbanization, which are often suppressed through dominant institutions, practices, and ideologies (Brenner, Marcuse & Mayer, 2012).

By using critical urban theory, Lefebvre's spatial triad and right to the city as my theoretical framework (see chapter two), I challenged the urban form and exposed experiences whereby cyclists are suppressed and the power structures at play (Brenner, Marcuse & Mayer, 2012). Critical urban theory was used to challenge the dominant car culture discourse, and question the production of space and cyclists' rights to the city. The research exposed how cars are privileged even where bikes are seemingly accommodated, yet still suppressed by the dominant discourse.

Considering all interpretations of the world around us are different, this study employed a human social constructivist paradigm. This paradigm considers the interpretive nature of the individual social experience. Interpretive research examines the actors and actions of individuals, how each person actively produces the social world around them and aims to illuminate the influence of culture upon them (Crotty, 1998). Interpretive research was appropriate for this

study because each cyclist had their own experiences and created meaning from the world around them differently.

3.2 Methodology

This study employed qualitative analysis of narrative as defined by Clandinin (2006). Accordingly, it focuses on lived experiences as a storied phenomenon. Analysis of narrative is used to study individual experiences and aims to understand the construction of these stories (Clandinin, 2006). Narratives have the ability to reach many people because of the relatability of stories and therefore is advantageous in the analysis, representation and dissemination of research (Creswell, 2012). Analysis of narrative was a suitable methodology for collecting individual experiences because stories collected hold meaning to the individual and can be used to expose inequalities or power dynamics. Analysis of narrative is usually seen in critical qualitative research because the individual experience is a reflection of the culture in which they live and gives insight into how individuals are influenced by the culture around them (Denzin & Lincoln, 2008). Narratives can be applied to critiquing and challenging discourse within a city by telling the individual stories that may not be the general cultural norm (Berbary, 2016). Studying the individual experiences of cyclists is necessary to understanding the lived experiences of cyclists with the aim to expose the counter-narrative (Aldred & Jungnickel, 2014). A counter-narrative is the story told which is unlike that of the typical story. For example, the typical story within North American society is that of the car driver, rather than the cyclist who is a minority on the roads. Analysis of narrative is conducive to critical urban theory as the collection of counter-narratives aids in exposing the dominant car discourse for suppressing cyclists and challenging the status quo.

This study employed testimonio as the main method to collecting data. Testimonio provided insight into the individuals' life history such as the experience as a cyclist from birth until present, life story using a specific topic to guide the inquiry and oral history which is a specific event (Spector-Mersel, 2010). Testimonio was an appropriate way to collect contextualized data to expose negligence towards cyclists within the car-dominant discourse. In so doing, testimonio challenges the overarching narrative and existing social structures (Spector-Mersel, 2010). Testimonio is a collaboration of life history, which is a story driven by what participants themselves think is relevant, life story which is either a specific event or experience that the story is being told about, and oral history which gathers the individual stories from a series of events that an individual may have experienced and is used (Spector-Mersel, 2010).

3.3 Method(s)

This section covers the selection site criteria, procedures that were employed, analysis, representation of data, ensuring credibility and the role of myself as the researcher through a reflexivity statement. Data collection commenced November 2016 and ended December 2016. All of the data gathered from participants was collected with explicit permission from the participants and in full compliance with ORE (The Office of Research Ethics) guidelines.

3.3.1 Selection Site

The selection site for this study was the Region of Waterloo because it is a mid-sized Region where master plans, cycling committees and cycle friendly policies purportedly exist, yet the dominant discourse of cars reigns supreme. The Region of Waterloo is located in Southern Ontario, 1,369 square kilometers in size, with the population of 507,096 (Statistics Canada, 2011). The region consists of the cities of Kitchener, Cambridge and Waterloo, and the townships of Wellesley, Woolwich, Wilmot and North Dumfries. Each city is responsible for the

day to day lives of the residents within the city, including recreational and leisure programs and maintaining city roads, parks and facilities (City of Waterloo, 2016). The region is responsible for services such as public transit, police and public health (City of Waterloo, 2016). The region is approximately 120 kilometers away from The City of Toronto which is the most densely populated city in Canada and the fourth most populated city in North America. Due to the proximity to the City of Toronto, the Region of Waterloo attracts many people specifically for its growing technology hub and education industry with two universities and a college. Waterloo is one of the fastest growing regions within Southwestern Ontario, and by 2031, the region is expected to grow to 729,00 in population (Region of Waterloo. 2016).

Cycling infrastructure decisions within the Region of Waterloo are made by Regional council and advised by an active transportation committee that makes recommendations to the council on the topic (Region of Waterloo, 2017). The Region of Waterloo was recognized as a Silver Bicycle Friendly Community by the Share the Road Coalition, and the city states that "most of the city is accessible by bike" (City of Waterloo, 2016). The award for being a Silver Bicycle Friendly Community recognition is evaluated based upon the Share the Road Coalition's "5 E's". First, the city must have sufficient engineering and physical infrastructure to support cyclists (Share the Road Cycling Coalition, 2017). Second, education programs should be in place to ensure safety for cyclists and fellow road users (Share the Road Cycling Coalition, 2017). Third, there should be methods of encouragement whereby cycling is incentivized through promotion. Fourth, there should be enforcement of equitable laws and programs to ensure road users are held accountable (Share the Road Cycling Coalition, 2017). Fifth, there should be a presence of an evaluation and planning that demonstrate a commitment to measure and plan for cyclists (Share the Road Cycling Coalition, 2017). The Share the Road Coalition is

one of the most utilized programs to recognizing and developing bicycle friendly communities in Ontario. However, all the programs are significantly funded by the Canadian Automobile Association. Moreover, the Chair of the Share the Road Cycling Coalition Board, John Scott, is a production team leader for Chrystler Canada (Share the Road Cycling Coalition, 2017). Considering that the chair of the Board who decides what is considered bicycle-friendly and the Canadian Car Association is funding the Coalition, it calls into question the priorities of the Share the Road Cycling Coalition.

According to the City of Waterloo Transportation Master Plan in 2011, cycling within Waterloo is not safe, bikers and cars are not at ease with one another and there needs to be more bike trails. The Region of Waterloo Master Plan in 2011 refers to public consultation whereby representatives sought advice from the public on transportation issues. During several public input meetings, residents were generally supportive of active transportation and wanted improvements to infrastructure to be done faster. Despite to input from public consultation, the notes from this meeting concluded by indicating "Many recognized that the automobile will remain the main mode of transportation in the future and change will take time and financial commitment" (Region of Waterloo, 2011, p. 14). Although the Master plan states that automobiles will remain the main mode, the general consensus from the Public Information Centre that gathered information from the Waterloo Region population on the best strategic transportation solution to solve existing and future transportation problems indicated no need to optimize the road for cars. The priorities indicated were to first provide higher quality public transit, cycling and walking services, manage travel demands to reduce the need to travel, and to create higher density and mixed use developments that are more transit, cycling and walking friendly. Despite being mentioned 159 times within the Master Plan, the resources dedicated to

understanding the transit needs of residents, the Region of Waterloo only aimed for a target increase in walking and cycling as a mode share from the current 8% to 12% by 2031 (Region of Waterloo, 2011, p. 16). The transportation Master Plan continues to privilege the automobile and is exemplified when the document states "The Regional Transportation Master Plan was designed to build on progress already achieved in transit, walking and cycling, while recognizing that travel by automobile will still be an essential component of the community's future mobility needs. By supporting the continued shift in travel behaviour, the new plan can expect to manage growing automobile congestion" (Region of Waterloo, 2011, p. 8). For these reasons, the Region of Waterloo represented an excellent site for the study.

3.3.2 Procedures

The procedures used in this study are pragmatic and aimed to answer the research questions at hand. First, I used purposeful sampling to find participants who are congruent with my research purpose and questions (Patton, 1999). In so doing, I interviewed 16 participants. All participants were cyclists with stories about their experiences cycling within the city, which made them relevant to my study aims and yielded sufficient data to expose how "bicycle-friendly" policies continue to suppress cyclists. To recruit these participants, I purposefully contacted bike-related organizations within the Region of Waterloo, namely the University of Waterloo Cycling Club, the Waterloo Cycling Club, King Street Cycles and Community Access Bikeshare. I met with representatives of each organization to discuss the study and determined if they had any potential participants relevant to the study. Once the availability of participants was confirmed, I recruited them. After interviewing participants, I asked if they knew any other potential participants to whom they could pass my name and contact information. This process is

referred to as snowball sampling (Patton, 2002). I posted advertisements on their social media pages to build awareness of my study.

Once participants had consented to an interview, I met with them face-to-face and discussed their experiences using a semi-structured interview guide (see appendix A). I recorded the interviews, gave each interviewee a pseudonym, transcribed the interviews, and made initial notes on each interview. I kept a written journal before and after each interview and made additional notes from each transcription for reflexive purposes because, as the qualitative researcher, I use my own interpretive skills to understand the data I am collecting (Patton, 1999). The experiences cycling within a city and social positions that I have undoubtedly had an influence on the collection and analysis of the data and is important to consider for reflexive purposes (Patton, 1999). Within social research, I aimed to be reflexive throughout the process as a continuous mode of self-analysis and awareness to ensure the trustworthiness and rigor of the research (Pillow, 2003). Self-reflective journals are an appropriate mode of facilitating the examination of my own personal assumptions and subjectivities and help create transparency throughout the research process to allow the reader to understand how the research was situated throughout the study (Ortlipp, 2008). I kept a journal throughout the interview process specifically to help me understand how my own biases influence the conversation and convey my journaled data within the results section (Ortlipp, 2008). The journaled data are included throughout the findings section in text boxes relating to the interviews and my thoughts throughout the interview process.

3.3.3 Analysis and Representation

Narratives are windows into the mind of individuals and representations of the culture in which storytellers live (Cortazzi, 2014). I analyzed the individual narratives by using analysis of

narrative, as narratives will help me answer my research questions (Riessman, 2005). The data were analyzed in a practical manner whereby I read through the initial transcripts to identify discrete themes, showing overlap and similarities in the stories, and major themes were identified. The research questions, Lefebvre's spatial triad and the right to the city and a priori critical urban theory was used to identify repetition and tensions at play. I asked questions in regard to how cyclists perceived and conceived the space for cyclists, their lived experience, and asked questions that interrogate the right to the city and expose power structures. Through analysis, the tensions, and discrepancies were addressed in the themes.

3.3.4 Knowledge Mobilization

Knowledge mobilization is the process of transferring knowledge from the study to those who influence decision-making, community groups and other stakeholders (Levin, 2008). I was committed to using knowledge mobilization because I did this research to aid in creating change and to transfer of knowledge to those who find it useful was important to me (Levin, 2008). After creating themes based on participants experiences, I plan to disseminate these data in a meaningful way. Considering Marcuse's (2009) which aims to expose, propose and politicize to make change in a city, I aimed to address the first stage to expose the negligence towards cyclists in a way that is most effective for creating change. Accordingly, I created an infographic that incorporated the suggestions for change that I identified through my research findings. This infographic will be sent to decision makers such as city planning officials and to cycling advocates within the city. I created the infographic because it is a useful tool to engage audiences and can easily be shared with others on various social media outlets (Hanson & Haridakis, 2008). In creating the infographic, I hope to expose cyclists needs and hope to spark some initiatives for change.

3.4 Role of the Researcher and Reflexivity Statement

I am deeply connected to this study because I am an advocate for cycling and truly think that cycling must be studied and be given priority within a city. I have been an avid urban cyclist for my whole life, starting at an early age when I grew up in the suburbs of Toronto, Ontario. I would often go through park trails with friends and bike to school, yet I grew up in an area where the norm was to wait until you got your license to drive everywhere. It was not until I travelled to places around the world that are so densely populated, such as Amsterdam, London, Berlin, Melbourne and New York, that made me realize that owning a car, never mind driving one, seemed to be a nuisance. I have visited a wide variety of urban areas that all treat cycling differently. I have seen and experienced first-hand how certain policies and master plans can translate to a better cycling environment. From cycle ways and trails, to weekly group rides, I have learnt how cycling can be the norm rather than driving a car.

These experiences have made me gain respect for cycling in a city. My own subjective role throughout the research process was important to consider and be open about because I was the mode of data production, analysis and provide my own interpretation (Pillow, 2003). As a qualitative researcher, I connected with the research participants interpersonally and then used my own interpretive skills to understand and analyze the data I collected. I used the journal data to contemplate how my own biases, understandings, and interactions with participants guided my interpretation to help me understand the influence I had on the research process (Patton, 1999). I recorded the nonverbal communication that took place within the interview, and how the interview may have been guided by the rapport with the interviewee to enhance the research process (Birks, Chapman & Francis, 2008). I was transparent about my role as the researcher throughout the research process. As a subjective researcher, my own reflexive notes enabled me

to reflect on the process of research and data collection. I have included text boxes throughout my findings to show my experience with the interviews, my thoughts about the interview and how I came to understand the participants' experiences. Throughout this research, I have included specific moments within the journaled data that sparked my interest and challenged my preconceived notions about city cycling. These results prompted my critical perception of how my influence as a qualitative researcher influenced the data collection process.

3.5 Conclusion

To conclude, this study examined how cycling-friendly policies serve to disadvantage the urban cyclist and further car culture. The literature review illustrated gaps in the literature and the need for an in-depth exploration of cyclists lived experiences with city cycling. The theoretical perspective, methodology and procedures used in this study helped collect the most applicable data for answering the research questions, and exposed the negligence towards cyclists within The Region of Waterloo. My role as the researcher was to guide the data collection, analysis and findings. These findings provided a critique of the ways in which cyclists are seemingly accommodated and guide subsequent research on the topic of city cycling.

Chapter Four: Findings

4.1 Introduction

As a reminder, the overarching purpose of this study was to expose how cyclists are suppressed within a car-centric city and how so-called "bicycle-friendly" infrastructure serves to further disadvantage cyclists. Analysis of narrative was used to gather cyclists' in-depth and contextualized experiences of cycling within the Region of Waterloo. A total of sixteen participants across the region were interviewed. In this chapter, I will address my findings in two separate sections. The first section is organized into five themes identified from the interview transcripts. The five themes consist of (1) identification as a cyclist, (2) rationale for riding, (3) riding in a car-centric city, (4) lived experience with so called "bicycle-friendly" infrastructure, and (5) the representation of politics of Waterloo cycling. The second section utilizes the "Cycling Space Model" to connect aspects of participants' perceived, conceived, and lived experience within the city space and how they assert their right to the city.

December 22nd, 2016
I have completed sixteen interviews thus far and I think it may be time to stop. Although the participants have great stories to tell, I don't seem to be hearing anything novel anymore. Even though everyone has their own individual and contextualized stories, the "story of cycling in Waterloo" seems to be the same: just terrible. However, there is something that keeps bringing all of these participants back to it, including myself. If cycling is so terrible, then why do we do it? Are the benefits we experience that great that we will risk our lives on a daily basis and fight for our rights to be on the road? It appears so.

4.1 Themes Identified

4.1.1 Identification as a Cyclist

The first theme "Identification as a cyclist" was identified because the participants were asked if they were a recreational or a commuter cyclist. Although six of the participants identified as a recreational cyclist and eight of the participants identified as a commuter, they preferred terms such as "utilitarian cyclist", "urban cyclist", "transport cyclist" and "defensive cyclist". These descriptors contradict the categorization of cyclists as seen throughout the literature and suggest that cyclists define themselves through other identities. Keera, a professional engineer, mother of two young children, recently moved to Kitchener from a surrounding suburb and sold one of the family cars to become a one-car household. She differentiated herself from a commuter:

November 16th, 2016
Keera was such an inspiration. She's a professional engineer and mother who structures her whole family's lives around cycling. I have been grappling with the pressure of cultural norms and what it means to "settle down" as a woman. Keera didn't move out from the inner city to a surrounding suburb and buy a minivan like my parents did and what I'd be expected to do. Instead she did the opposite! She had kids, moved to the inner city and sold one of their cars. I guess it can be done! Though the expectations for motherhood and family life are still very typical, it is great to see that they are changing and I'm not the only one with this mindset.

> I'm a transportation cyclist. A commuter is somebody who bikes from one place to another and then leaves their bike there all day and then bikes from that place to the first place they came…I bike…to playgrounds and I bike to the community center, and I bike to home schooling activities and I bike...to meet my husband for lunch at work. And we don't bike just recreationally which would be just going for a bike ride, we hardly ever do that. But we bike almost everywhere almost every day.

Other participants had sold their cars too, and took pride in living as a one-car or carless family. Accordingly, cycling became a significant aspect on their lives, an identity for their family, and an influence on their day-to-day activities. However, trying to be a "bike-centric" family in a

"car-centric" city, proved to be a treacherous task. Karl, a fifty-four-year-old cyclist, father of two, restaurant manager and living in Waterloo explained that:

> Commuting is a part of my life…my son and I biked to and from the game, weather permitting. If the weather's not great, we're not going to the game because biking's our option...If my wife's working that day…whatever we do revolves…I try to make our family bike centric. It's easier said than done, it's easier for my son than my daughter and my wife.

Similarly, Tom, a middle-aged academic who has lived in Waterloo Region for fifteen years and an advocate for cycling, explained how reactional and commuting cycling combined for him because each ride had an aspect of recreation, even when he commuted to and from work. He stated:

November 17th, 2016
My interview with Tom made me think about how developing policies for cycling infrastructure and funding are at the crux of the cycling problems. If we develop infrastructure that makes cycling and driving conducive so that they don't conflict.

> I enjoy riding fast, but I also enjoy riding long distances…I like to set new challenges and do things that are difficult in terms of distance for me or climbing or other things that are, sort of finding a challenge and trying to meet it in terms of recreational cycling…the two things go together for sure. I made the commitment to commute to work via bike all year round…sold our car in 2005 and have been a one car family ever since.

As explained, the identification of cyclists into two separate categories is quite limiting in regard to representing cyclists' identity by destination or lack thereof. Moreover, cyclists identified themselves through the type of cycling behaviour exhibited on the roads. Mark, a twenty-five-year-old German PhD student studying environmental engineering who came to Canada as an international student five years

November 1st, 2016
I think I identify a lot with Mark. Although I'm not a German exchange student, when I was on exchange in Australia I bought a bike and rode it everywhere. All of the Aussies I met thought I was crazy for cycling everywhere, but it was just so efficient and fun. When I heard Mark say he considered himself a "crazy cyclist" I felt my adrenaline starting to pump because it made me think about the times I fly down hills or curve around corners that I am so cool and may be "crazy" for doing it.

ago considered himself a “crazy cyclist” because he grew up dodging in and out of traffic, going fast and making his own path through the city. In contrast, Karl considered himself a “defensive cyclist” and explained:

> As a biker, the defensive driving aspect of things is absolutely crucial…you can't let them be wrong at your expense…I thought I had rights…or maybe I have rights, but not being able to defend my rights didn't seem like a good strategy.

Similarly, Alex, a forty-year-old academic, president of a large cycling club, father of two, car driver, avid cyclist and leader within the community, said:

> I do a lot of this defensive kind of cycling. I'm looking at everybody and I'm waving and thumbs up, it's almost annoying. It's like gregarious cyclist, "Hey, I'm here, I'm here!"…I make that display in the same way that I'm actually painting my bike [bright green] to display my[self]...it's like plumage! Here I am, stay out of my way!

November 8th, 2016
I was speaking about my thesis with Alex and he doesn’t understand how qualitative work can be taken seriously for making high order decisions for cycling. Even though he is a big advocate for cycling, I often wonder this myself sometimes. If quantitative work is the only thing taken seriously at council, then how are we meant to advocate with sixteen people’s voices? The way I see it, quantitative work makes overarching, blanket statements that generalize populations. Yes, this may be necessary to create budgets, yet they are missing out on the contextual intricacies of what it means to cycle in a city. Unless work is done to explore this, we will never know the ways in which we can develop or lead in transportation.

Although the participants generally identified as cyclists, some participants explicitly categorized themselves through their behaviour on the road, such as “crazy cyclist” or “defensive cyclist”. This further categorization warrants attention, as the current categorizations of cyclists may not be sufficient to make informed planning decisions. Another commonality amongst the participants was how cycling had become an integral part of their lives, defined a part of their identity, and gave them a sense of pride. Similarly, all participants had a rationale for why they decided to cycle originally, how it affected their lives, and why they continued to do so.

4.1.2 Rationale to Ride

The second theme "rationale to ride" was identified because all of the participants expressed individual reasons why they decided to ride a bike originally and why they continued to ride within the city, though it was not accommodating at times. The majority of the participants said they cycled because they perceived it as a form of freedom. This freedom translated to other realms of their lives such as their connection with their own bodies and their community. For example, Alex explained his first experience on his bike:

> Freedom…the first time that we were given the freedom to sort of act responsibly…they felt the wind in their hair, sun on their face and the ground was moving underneath their feet and they had this feeling of freedom and happiness.

Six of the participants said the freedom of mobility enabled them to explore their community and feel more connected to it. Some had said cycling became a means of local engagement for them because they experienced something that brought them closer to their community and enabled them to know their neighbours. For example, Tom mentioned:

November 8th, 2016
Freedom. One of the intangible benefits that is hard to explain. When Alex mentioned freedom, I could feel the wind was in my hair and see the ground moving beneath my feet as if I was on my bike right then and there. There is something so powerful about this feeling.

> You don't know your community unless you have walked through it or cycled through it…you are isolated from your community. Some of the most important aspects of it are invisible to you when all you do is drive through it…You actually get a sense of…how people are living and what the character of the place is…When it's nice weather and it's summer, you can smell what people are cooking in their backyard…when it's thundering and pouring rain and lightning or wind or snow or whatever, there's very much a kind of solidarity.

Likewise, Lily, a mother of one toddler, an architect who works from home and an avid cyclist, explained her experience riding her bike with her toddler. She explained how it allowed her to spend quality time with her daughter as well as connect with others in the community. She

illustrated “I really like the connectedness of it. That you see and you smell and you talk to people and you get exercise”.

November 1st, 2016
Today I met Lily. She has travelled to so many places for work and cycled in almost all of them. She mentioned a site called “8-80 cities”. This concept is where you build cities for young children and the elderly. Everyone else is accommodated for in-between. She explained how it’s important for her because she bikes around with her toddler all the time and safety is of the highest importance to her. Why haven’t I seen this concept before? I’m glad to have met her to hear about it. It seems so simple, but I think it can have a huge impact on the way in which people view their city and its development.

Amongst the benefits of freedom and connectedness within a community, participants stated that cycling was their way of living a healthy lifestyle. Overwhelmingly, cycling was a way for them to be physically active. However, their definition of a healthy lifestyle was more nuanced and did not solely rely on their physical fitness. For example, Fern, a 30-year-old mother and wife who moved to Waterloo with her family six years ago from Bangladesh, explained how driving caused her too much stress and that cycling relaxed her. She described her morning rides as her “morning coffee” because it prepared her for the day ahead by clearing her mind and relaxing before her work began. Moreover, Tom noted how cycling is more than exercise and how he and the body are one: “I never feel more embodied than when I’m cycling. I love the feeling of being in touch with my body as a machine.” Derek, a middle aged man who had been cycling for forty years, explained cycling as a form of mindfulness that he used to control his mental health issues:

> It’s this metronome of your legs pedaling because the more perfectly round you pedal the more efficiently your pedaling. So you’re concentrating on that sound of your breath and it’s just like one big giant metronome…you start to notice this endorphin rush, the beauty of the rocks and the plants and the trees and the sky…you’re all together.

November 11th, 2016
Oh boy. That was emotionally draining. When Derek was explaining his mental health issues I tried my best to be understanding. Throughout the interviews thus far I could empathize with participants about their experiences on the road, but I have not done any research on depression or bi-polar disorders. I was so surprised that he opened up to me about these issues, but I am glad he did. I had never thought about the mental health benefits of cycling. He explained that his bike gives him freedom, but freedom pending feeling safe on the road. I worry that the state of cycling in Waterloo is not good enough for him to do the one activity that makes his mental health better.

For most participants, cycling served as method for contributing towards the sustainability of the environment and lowering the amount of fuel emissions. Pamela, a young professional planner in the City of Kitchener said:

> I think that's so important because we can't live in a society where most people drive…70% of people drive…a lot of them drive on their own. That's a lot of cars…As an individual you feel like there's not much you can do but I think…we can all do our part.

November 11th, 2016
Pamela's view about cycling as a social and environmental issue made me think more about the ways in which car culture reinforces inequities within society. For example, without proper cycling infrastructure she said that she doesn't feel safe and she rides on the sidewalk which is even worse for her safety and illegal. She also mentioned how those within lower socioeconomic classes don't have a means of efficient and cheap transportation and cycling is an effective mode for those with less money. I think that having cars as the dominant mode suppresses other modes and those without the means to get drivers license, practice, own a car, pay for insurance and gas don't get access to efficient transportation.

In addition to the benefits of freedom, community engagement, healthy lifestyles and the environment, participants said that cycling was a cost-effective method of transportation. Some participants found cycling was a better method of transportation in some situations because the travel time of getting their car, sitting in traffic, parking and walking from their parking spot took more, if not the same time than if they were to bike. For others, after making the decision to become a one car family, they found they had a lot more discretionary money. Driving was not an option for everyone because they did not have enough money or did not want to pay for the car, insurance, gas, parking or the maintenance. Darwin, a man in his late twenties who

considered himself to be a "utilitarian cyclist" and sat on the Waterloo Region Active Transportation Committee, explained that the city tries to hide the "true cost of driving" to incentivize the car as a mode of transportation rather than others. He highlighted:

> Almost all of your costs are sunk…you pay maintenance, but that's fairly invisible and you pay for gas…every other cost is sunk. You already bought the roads, you already bought the car and that's like 90% of the costs.

November 9th, 2016
Darwin had made me think a lot about both small and big things that can be done to change the face of cycling. The small things include the "low hanging fruit" like connecting trails, painting down lanes or wayfinding that can make the cycling network better. The bigger things that can be done is to illuminate the true cost of driving. If we are to have the individual pay for the true cost of driving, they might re-think their decision. To me, this seems like a drastic measure, and only hurts the individual. I do think that in creating policies and funding infrastructure however, that the cost of cycling infrastructure should not be an issue. At all. Infrastructure for cars are just a natural occurrence. Expanding lanes and sending millions of dollars never seems to get as much flack as building one kilometer of segregated bike lane.

Darwin also considers himself to be a "utilitarian" cyclist rather than commuter or recreational. This makes a lot of sense considering he does his errands, goes to work and visits friends on his bike and happens to be having fun whilst doing so.

Contrary to previous generations or the assumptions of transportation within the city, not everyone wants to own a car. Mark stated "I do not want to own a car. I see no point in doing that…I can go anywhere I want [with a bike]". This attitude calls into question our view of city transportation planning and that cycling should be made a larger priority than ever before. Considering that all the cyclists have a meaningful rationale for cycling and they derive many benefits from doing so, city planning should keep up accordingly to accommodate for cost-effective, healthy, environmentally friendly and community engaging forms of transportation. However, the contrary is true, and cyclists are suppressed by the dominant discourse of car-culture. This car-centricity is not conducive for city cycling and some participants deal with extreme situations when doing so.

4.1.3 Riding in a Car-Centric City

Riding in a car-centric city can be very intimidating and often deter those who intend to cycle from participating. Three of the participants explained how riding their bikes on the road can be intimidating at times and that they must overcome their fears by getting out on the road again. Derek explained how one close call with a big pick-up truck scared him so much that he began to shake and lost control of his bike even though he had been riding in cities for forty years. Alex said with strong conviction, “To be involved in something where you’re really never sure if you’re going to come home alive is a strange thing”. Fern mentioned how she had to convince her son to get back on his bike after almost crashing into a truck. She explained:

> My son was going on his bike and the car did a three way turn and he was backing [up], it was a big truck [and the] stupid guy didn't see where he was going. My son just went [and] slammed the break and he fell on his front yard and [the driver] was like "are you ok buddy?" I'm like "No, did you see him come?" he's like "I think I saw something"…hold on, but the something is an eight-year-old boy…since then my son's like "Do we have to take the bike. Can we not take the bike?" and I'm like "no, we're going to take the bike. We're not going to let other experiences stop us from taking the bike.

Riding in a car-centric city can be hard for other reasons such as the blurred line between the rights that cyclists have on paper and the cultural rights on the road. Seven of the participants mentioned how claiming their rights on the road and their ability to use the space was not worth risking their lives. For example, Pamela stated “Even if it was legal, if a driver hits me, it doesn’t matter

November 17th, 2016
Do I have a sign on my back that says “I’m an advocate for cycling! Come kill me”? Over the past few days I have nearly gotten killed by a car on two separate occasions. First, I was biking along a straight road with a speed limit of 30km/hr where the car cut in-front of me to pick up a pedestrian. I put my arms up to show my discontent and through the window I saw him yelling at me as if the thirty seconds to keep me safe was too much of an inconvenience for him. Second, I was in a bike lane along University Avenue and a car turned right, cutting me off, making me jump up onto the curb and slam my hand onto the roof of his car. From the look on his face he seemed so sorry, but why don’t I have a segregated bike lane where he either can’t cross or can see me coming? I guess nothing matters and it’s every person for him or herself.

after that…I'll be dead". Karl explained that no matter the rights of cyclists, if you do not want to risk your life, you must concede to drivers:

> Look at the driving that goes on in any city…It's reckless…All the time they're on the phone, trying to hide it…looking around trying to have a conversation, running red lights, not using indicators, rolling through stop signs, not looking both ways…as a biker, the defensive driving aspect of things is absolutely crucial...You can't…let them be wrong at your expense…if they're gonna be wrong, you can be frustrated with it, but you're going to have to concede, which is something that for the first couple of years I wasn't careful about. I thought I had rights…or maybe I have rights, but not being able to defend my rights didn't seem like a good strategy.

Thirteen of the cyclists mentioned how the car-centrism is a cultural problem and will take a lot of time to change. Derek explained how the culture has "This pervasive mentality. I don't ride. Bicycles are toys". In that light, Fern said the culture pushes people towards their mode of transport: "A lot of people are not going to consider the bike. Instead they're going to go ahead and buy a second car!" Despite the push towards a more progressive and sustainable city, the cultural change has proven to be a difficult one to manage. Lily explained how Waterloo Region has grown with the same mentality of the suburban landscape that she grew up in:

> It turns into a total Scarboroughitis. It's really sad actually, having grown up in a seventies suburb that's just sort of continuing. It's like really? It was really crappy. It doesn't make good neighbourhoods, it doesn't make good culture, like why are we still doing this? It's very sad to me.

Alex drew upon how the lack of prioritization for cycling is culturally pervasive. In other words, if cycling were to be our predominant mode of transportation or interest, we would be prioritizing in over cars. He asserted:

> We go every Tuesday where we adopt the road and we train…get stopped by the police, get hit by people and the rest of it…[it] was the 2011 provincial championship route….We have Olympic people, we have the national time trial champion…who [all] use that as their training ground…If people viewed cycling like hockey, you know, there would be banners all around there…that is an amazing stretch of road and it's produced so many great Canadian cyclists…but what you have out there is "cyclists must ride single file" signs…seemingly cycling friendly policies…and killing people.

The car culture is so prevalent that car drivers often yell at cyclists on the road to communicate their thoughts about biking. All of the participants have had cars honk at them when they were just minding their own business and trying their best to share the road. Clark, a fifty-seven year old cyclist who had lived in The City of Waterloo since 1982 and spent the last twenty-five years preparing for triathlons and training, experienced cars honking at him, calling him profanities when he was not impeding in the cars way at all. Keera was riding her large cargo bike around the city with her two kids in the front and made a left turn into her driveway when a car stopped beside her, rolled down its window, and said "Well that's a death trap waiting to happen". Tom explained how, in his experience, it doesn't matter the mode of transportation; what matters is going over the speed limit. He predicated that "People are not mad because you're making them go under the speed limit, but because you're stopping them from going over it".

Even in a collision, participants expressed how the drivers are rarely seen to be at fault or charged. In Alex's experience, cyclists are often seen to be at fault, even if the driver was outwardly malicious. He illustrated:

> Three weeks ago…we had a group that went…a car came up behind them, went past them, went in front of them, slammed on the brakes and the group all slammed on the brakes, fell, and they all crashed. The guy comes out and starts screaming expletives. Everyone was laying on the ground and he got back in the car to take off. So [he] fail to remain…He caused an accident, failed to remain, one guy jumped up and started hitting on the car "You gotta stop! You gotta stop! We're calling the police! You caused an accident here!" He drove off…Police came, license [recorded], nothing has happened and the police said at the end of the day, you didn't hit the car so there really wasn't a collision. And we said but…he caused the accident! He's charging those cyclists with hitting his car and the officer is sympathetic and said the driver's a really nice guy and you hit his car. So we have approximately four or five thousand dollars worth of bikes broken…two guys including senior guys with the city and other people…out of commission of work…To have no charges laid and to have reverse charges laid because we tried to stop him from [taking off].

In Paul's experience, after a collision with a car when cycling with his friends, it was very difficult to deal with the driver's insurance company because his bike was only covered under property insurance and the driver's insurance would only cover the cost of his bodily harm:

> [We were] coming back from Conestoga lake…in the evening, all lit up like Christmas trees and a guy had fell asleep at the wheel and ran into the back of our group hitting three of us…he was drifting off and then he cranked the wheel to the left to stop running into people and he went off the left-hand shoulder into the ditch and rolled his pick-up …he ran into the back of us going 80[kilometers an hour] so I don't know how we all walked away but...I hurt my knee a bit, went to physio for a while. Another guy had a concussion and hurt his shoulder a little, but, and the bikes…didn't fair too well...that was a nightmare to deal with his insurance…they were insured by the Mennonites brotherhoods automobile assistance plan and tracking them down was very difficult and with no fault insurance…you're supposed to go through your insurer, but our insurers won't cover our bikes and stuff like that. It's under property insurance. So, once we got a hold of them, we were able to settle.

Pamela indicated how even when cyclists' do get into a collision, the car-centric culture automatically blames the cyclist for the accident. She said:

> There's a lot of issue with blaming, really victim blaming…putting all the onus on the cyclist to…wear bright clothes and well you know, if your coming from work and you don't always have bright clothes on you, you do as much as you can. We still have a right to be on the road even if you're not wearing bright clothes…cyclists should do as much as they can…following the rules of the road, but I think blaming cyclists for accidents is something that needs to change.

Tom explained the extent to which he thought victim blaming was prevalent in the region when he asserted:

> When I get killed by a driver driving backwards, blindfold, high on meth…smoking crack with a beer in one hand, a cell phone in the other…the Waterloo record will breathlessly report on whether I was wearing a freaking helmet at the time.

Darwin thought either mode should not be blamed, but rather the problem was the infrastructure and planning. He outlined:

> I follow the rules…I get blamed for cyclists' not following the rules and then people you know, they pass too close and I say "Why did you pass that close?" and they say "Because cyclists always break the rules"…I'll stop at a stop a sign…I stop momentarily

> and continue…I'm a skilled enough cyclist to do that…I think that a lot of our infrastructure is poorly designed that way…A lot of our stop signs should probably be yield signs. The only reason they're stop signs is because nobody yields at yield signs just like nobody stops at stop signs…I think, for cars or for cyclists, it's an inappropriate design and…I don't necessarily blame people for not following the rules when the rules are bad.

Although collisions or "close calls" were experienced, most of the participants said a very high percentage of drivers treated them with respect and gave them enough space on the road. Notwithstanding the positive experiences on the road, the small amount of negative experiences and overarching car culture set the tone for how people behaved on the roads. Some of the participants saw the car centricity as doing more harm than good because we consistently support transportation around ourselves rather than for the public or collective good. Tom expressed how transportation centered around the self allows people to keep to themselves and ignore the people around them:

> People don't like having the splendid isolation of their motor vehicle driving experience disrupted by the unpleasant realization that they actually are still interacting with other human beings.

Derek, who was very passionate about cycling as a mode of transportation and could not fathom the idea of driving because it made him too stressed. His sentiment illustrates how not everyone views cars in a positive light. In his view, "Cars are man's punishment for being an asshole". Tom also mentioned how "That infrastructure that was built with the promise of liberating us by making it possible to drive quickly…[does the opposite because] as soon as you get out of your car, it imprisons you."

Clearly, the car-centric culture within Waterloo Region reigns supreme, leaving the cyclist way the wayside and often in unsafe situations. The region has tried to alleviate some of the stress and risk of collision with cars, yet this further suppresses cyclists by removing them as

an obstacle for cars and placing them in certain types of infrastructure they would be better off without.

4.1.4 Lived Experience with "Bicycle-Friendly" Infrastructure

All the participants had both positive and negative experiences with the "bicycle-friendly" infrastructure. Eleven of the participants said they often felt unsafe cycling within the region and that the built infrastructure was ineffective even though it was intended to make cyclists safer. In these cases, the promise of "bicycle-friendly" infrastructure failed to deliver on the friendly aspect of the infrastructure and some participants would rather there be no bicycle-friendly infrastructure unless it were done properly. Alex said "I'd rather ride my bike on an airport runway in some parts of the Region." The most predominant criticism of the region in regard to cycling infrastructure is that it lacks connectivity. Nine of the participants mentioned how they would like to see all the cycling infrastructure connected and built to look like a web so that there is a way to get to any destination without putting one's self at risk. Thea described "They build all these bike lanes that go to nowhere". Tom outlined:

> "In this region, [it] often has to do not with the caliber of the bike specific infrastructure which is rare, [but] when they do put in bike specific infrastructure it often does more harm than good because it is limited…Successful bike successful infrastructure has to be systemic…If you build a short section of something that's supposed to be great for bikes, all you're doing is creating friction points at the entrance and the exit to it…You're honestly better off not to have it in my view than to do it half-assed like that."

Another aspect in which most the participants say "bicycle-friendly" infrastructure fails is in regard to multi-use trails. Even though participants said that it was a nice space if there were no other road users at the time, nine of the participants explain how having multiple users in one small space is sometimes impractical and they would rather not use it at all. For example, Tom highlighted:

> They're dangerous because they have multiple users. Many of those users are pedestrians who are not terribly attentive, people who are walking their dogs on 30 foot dental floss leashes designed to decapitate you, people walking their dogs with no leashes, toddlers zig zagging randomly across the surface. Which is great! I don't begrudge those people in use of the pathway. I think those should be primarily pedestrian pathways and the city should be designed for more people to get around by foot, but it does mean that as a multi-use pathway, and this is one of the things that I don't like about that infrastructure…it fails if it succeeds…Multi-use pathways if they succeed in driving up the modal share of cyclists and pedestrians, immediately fails because they throw together too many incompatible transportation types onto too small an area. So I prefer to ride on the road. Another thing that I don't like about multi-use pathways is that they're almost always indirect…Cities build roads to take people directly to where they want to go and then for people who have to work the hardest and take the longest to get places, they build these meandering…pathways, facilities that mostly go...from one park to another park instead of from where you live to where you work. It's a terrible design.

Sarah, a thirty-year-old student who was recently married and bought her first home in North Waterloo, expressed:

> I think that [multi-use trails are] tokenistic not just for bicycles, but I don't even know why it's there. Is it for joggers? Is it for strollers? It's so short that I can't figure out why it's there other than like Ooo, look at this great lane that leads to nowhere. It leads from like one persons backyard to like 10 backyards down that way and that's it. And then the multi-use lane runs out and becomes a sidewalk… I'm better off sticking to the street and sticking to the road and not getting on the multi-use trail even if I'm riding right next to it.

Tom explained how the intersections between each street on "bicycle-friendly" trails can be disadvantageous for cyclists: "Instead of riding in a bike lane with traffic, you're playing frogger on street after street trying to dash across…at commuting times where drivers have no obligation to stop".

Cyclists also had a hard time triggering lights and were dependent upon the presence of a car to proceed through an intersection. Eight of the participants explained how when at lights they often couldn't set off the signals to change the light to green. The trigger of the light is dependent upon a vehicle that may or may not come, and the cyclist is put in a difficult situation because it is both illegal to ride on the crosswalk and the sidewalk to push the pedestrian button,

it is unsafe to be moving in and out of traffic, and it is also illegal to treat the light as a stop or yield sign pending that there are no cars present. Even in bike lanes painted on the street, there are no bicycle specific lights or triggers where a cyclist does not have to confront a pedestrian or be on a sidewalk impeding traffic. Sarah said she treats situations like that as a yield when "A light that's just taking forever and forever and forever…arguably I'm more exposed waiting [to make a] left turn [even when] it's not even the left turn lane. I'm more expose by just standing there waiting for this light to finally turn green and I look around and there's no cars coming then ya...I've taken that risk before."

Most participants explained how their experience with the infrastructure is crucial to the behaviour and usage of that space. For example, a road built wide with a smooth surface with three lanes for cars and none for bikes tells a different story than a two-lane road with a bike lanes on either side, streetscaping, stores, and pedestrians. Sarah depicted how cars dangerously speed past her which makes her feel very unsafe, no matter if the speed limit is very low. She said cars "Can be more likely to speed through because they can because there's open space…and there's not a car directly in front of them to keep them from speeding [past]." Tom also illustrated:

> Infrastructure conveys a message and it's a much more powerful message than whatever you…sort of tack onto the side of the road for speed…it's a psychologically bankrupt idea that say oh well you know, people have to make good choices…no, people make the choices that infrastructure invites them to make. You build that infrastructure and then expect them to choose different, that's just bad planning.

November 17th, 2016
Wow. Tom said everything that I was thinking but wasn't sure how to put into words. I think he's right. Infrastructure seems to send a much more powerful message than any of the conceived space. People make choices without knowingly making them. Some drivers can't even remember their rides home because it is so monotonous and mindless. Never mind the constant checking of their pedometer or watching out for signs that say cyclists may be there.

4.1.5 Political View

Considering that car centric culture surrounds the decision-making process, bicycle-friendly infrastructure is clearly insufficient in the region. The current political climate sustains the infrastructure made for cars and cycling is not prioritized. All the participants explained how cycling reflected their political views and who they voted for within the region. Participants mainly wanted to see environmental sustainability, strengthening of community engagement and transportation equality as a priority within government. Ten of the participants explained how nothing is done to meet the needs of cyclists within the region. Tom delineated why that may be, highlighting "It's no one agency's lookout, so it ends up being sort of the eighth priority of different agencies that never get around to really coming up with a fixed solution to it…the gaps are always what define the system". Similarly, Alex clearly explains how some of the decisions that are made are not sufficient enough and says "You can't legislate common sense".

Granted, there needs to be a lot of infrastructure developments to make the city truly "bicycle-friendly", there can also be small investments that make a big difference to the connectivity of bike lanes and to make our current infrastructure better. To make these changes, there needs to be acceptance amongst a wide range of community groups and decision-makers. What lacks in this case is the political capital it would take to make decisions around contentious issues. Political leaders are held back from making change because of those who may not vote for them if they make decisions they do not agree with. Darwin depicted:

> You can make a big impact without spending very much money, even if you have to spend political capital instead…they say [cyclists] should only get as much money as is justified by their mode share and it's like, well we would be jumping for joy if we got that much money.

In this political climate, decision makers can make small changes, but the small changes are not aimed around connectivity, but rather bits of multi-use lanes and painted bike lanes with

poor connection to each other. As stated above, these "improvements" to the region are not done with much common sense or continuity for that matter. Alex explained how he saw the allocation of cycling infrastructure as if decision-makers were saying "We'll give you a little bit, but we won't go all out because that would take guts to change." Some of the participants also stated there are some councilors and officials who want to strive towards a cycle friendly city, but once a different group of people are elected who are car-centric, the progress stagnates or goes backwards. Drew stated:

> It seems as though there's no continuity of these [bike lanes]…each municipality has their own different little rules or laws and you can't…maintain this bike infrastructure…we get mayors that come in…it's like our bike lanes in Waterloo stop start, stop start, stop start…I won't vote for anybody who's ignorant to cyclists and what nut thinks that cars are the end all.

Evidently, the decisions made surrounding cycling are politically charged. There must be political capital, truly-bicycle friendly policies and infrastructure that are continuously brought to council and moved forward.

On the other hand, those who are making the policies and infrastructure decisions within the region are not necessarily cyclists themselves. Mark made clear "The people making the policies aren't the people who experience the policies." Cyclists are held to the same Highway Traffic Act and roads as cars. Nevertheless, cyclists' find these laws should not necessarily apply to them, and so they use the road in ways that best suit themselves. For example, all the participants say they will slow down and touch a foot to the ground at a stop sign, but if there are no cars or pedestrians and the road is clear, they will proceed without a full stop. Mark compared stopping on a bike to stopping as a car and says "Cyclists' feel it more than cars do. From a car, you push a pedal, you're gone…*they just feel it more in their wallet in terms of gas money and the environment…*which is cheap, which you don't feel". Keera articulated:

> I don't always come to a full complete stop at stop signs. I do at stop lights, and I never run red lights…I'm an engineer...if the average speed of a car that stops and then speeds up because cars…can decelerate so quickly and then accelerate without having to use personal energy…Cyclists can get very slow without fully stopping and definitely safely assess the situation. I'm really a proponent of the Idaho stop. I do try to always put a foot down on the ground even if I'm rolling through…to follow the rules of the road…I have [a] one hundred pound cargo bike with…seventy-five pounds of children plus myself on it so that's a lot of weight to be sopping and then getting up to speed every single cross road…I think that that's just silly. Especially on the trails…I use the Iron Horse trail actually…having to stop, I just don't because…I can't use the trail properly if that's the case. I might as well be using the roads.

Lily described stop signs as "stoppionale" and clearly stated that she rolls through a stop sign if there is no one there. All participants said when they ride anywhere within the region, they have to be assertive and claim their space because they are riding in a car-centric region. Whether going through stop signs, red lights, riding on the sidewalk or through parking lots, the participants perceived the road to be for cars and saw signage as a moot point because infrastructure is the driving force of people's behavior which affects cyclists' lived experiences.

4.2 Cycling Space Model

As mentioned above, this section discusses the "Cycling Space Model", connecting Lefebvre's spatial triad consisting of three "moments" of social space in regards to the perceived, conceived, and lived space of cycling within the Region of Waterloo.

The first moment, *perceived space*, refers to the intended use of spatial forms and characteristics of a space. These perceptions shape the way people use the space. Applied within the context of city-cycling, most of the participants perceived roads as an exclusive space for cars and regarded the spaces designed as "bicycle-friendly" as not conducive to cycling. Although there may be a bike lane on the road, most participants did not perceive the space as safe, especially if the condition of the road and the cars around them represented a threat to their safety. Darwin made a distinction between space that accommodates cyclists and space that is

truly bike-friendly: “Having a bike lane is an accommodation, but it’s not something that makes it pleasant or feel safe to cycle”. Similarly, Keera remarked:

> There aren't streets made for bikes, the only ones that are kind of made for bikes are the spur line and the iron horse trail [existing trails in the city] which aren't…every time I get to a cross roads, it's like oh, you're actually not welcome here [or] this isn't really designed for you.

The overbuilt design of streets contributes to this perception of road space. Tom explained how the infrastructure sends such a powerful message that dictates how people perceive the road space. He indicated “If you want a good cycling experience in an area, the infrastructure has to be what points the way…That is a real problem in this area, and I think in many areas especially in North America where you get often overbuilt facilities [where road space is built to improve mobility yet often means for wide roads that are smooth and straight and able to drive on at high speeds (Stamatiadis, Kirk, Hartman, & Pigman, 2010)].” Similarly, Pamela explained how big avenues, wide lanes congested with cars or when cars, and the speed of traffic indicate the space was meant for cars rather than bikes. Keera said she was baffled why some roads are four lanes, especially when they are in little neighbourhoods that main thoroughfares. She suggested roads ought to be narrowed to reduce speed, otherwise cyclists will not use them. Cyclists plainly perceived the so-called spaces for cycling in the city as car space, thereby reveal how perceived space is intertwined into the cyclists’ experience.

The second moment, *conceived space*, refers to planned social space and the intended purpose for which the space was created. Conceived space demonstrates the knowledge and power within the Region of Waterloo where roads include signs indicating that indicate the codes of conduct for cars and for cyclists. Although signs seem to delineate car and cycling space, participants found most signs were tokenistic and only gave the appearance that cyclists’ needs were being addressed.

Participants thought the signage on the street was often not obeyed. By contrast, they believed infrastructure was predominantly how cyclists decided their behaviour. Tom gave an example of a road near a school where every car seemingly speeds: "Long…beautifully paved, straight wide road, you could put a sign on it that says forty, but the infrastructure has a natural speed built into it." Similarly, Lily stated that motorists use the space the way they want to. No matter the signage is on the street, cars still dominate the space on the road. She indicated "It doesn't matter if you put lots of sharrows and put lots of cyclists on it, cars are still going to feel entitled."

Moreover, cyclists and cars are confronted with signage that is confusing, mainly because signs for cyclists assume the law was broken in the first place by either being on the sidewalk or being on a trail that leads up to a pedestrian intersection. For example, Thea articulated:

> [The] problem with that bike lane is…you get to cross at the crosswalk...we're not really supposed to be in crosswalks. In fact, there's another intersection where there's a lovely sign that say $110 fine for riding. That's right by my house...how am I supposed to get across here? So there's that and the drivers are confused to see a bike…in a crosswalk.

Pamela explained how she was confused by the immediate change from bike lanes to sharrows on some roads, confusion that only makes the situation worse than having no signage for bikes at all. She illustrated:

> Signage is confusing…Queen street is a perfect example where the bike lane turns into a sharrow…As a cyclist you're confused…Is this a sharrow or…am I supposed to take the whole lane or just the...I don't know. So people get really confused.

Clark observed signs that indicate to drivers to share the road with cyclists, yet deemed them useless because "You can't see it…you're looking for pedestrians and cars and everyone else". Similarly, Keera thought the signage that did exist was not visible and the infrastructure was much more likely to determine behavior. She expressed:

> [Signs for bike paths are] not very visible…I've been trying to pay attention to them as a driver and…it's not very clear that there's a path there. I think they need to have some kind of apron sticking out into the road.

Alex explained how he felt unsafe when cycling because the cycling infrastructure was made improperly. For example, he recalled a bike lane that was painted without enough room for him to fit into the lane itself. However, there were signs that said “bike lane” and “cyclists ride single file”. Even if Alex wanted to use the bike lane that was created supposedly for him, he couldn’t because it was too small. He used the road space as he normally would if there was not a bike lane. However, this made his cycling experience dangerous because it created animosity between him and the drivers who yelled at him to stay in his the bike lane. He spoke about a Halloween costume he saw that summed up his thoughts quite well” a man painted yellow whose shirt said "Paint, masquerading as bike infrastructure". The way cyclists perceived and conceived the space on the road framed their third “moment” of space, leading to their lived space.

The third moment, *lived space*, refers to how people experience and participate in the space and therein create meaning from it. In this moment, individuals can challenge the space as a form of resistance against the perceived and conceived expectations of the space. Most of the participants expressed how local urban space was car-centric and how it dictated both drivers and cyclists’ behaviour. Derek expressed strong feelings about how the space made him feel. He compared the experience of cycling to the American election:

> I'm American and I watch American politics and it's just anger…on top of anger on top of anger and you go out and you ride your bike and…people are just angry. They just really despise you. They just…really hate you…It's really hard to be hated like that especially when...you've got other stuff going on. It's really hard to…tolerate that kind of stress from being…just hated. It's nothing but name calling….That’s what trump did and this is what happens when they try to put a bike lane in…Immediately, it's this…race to the bottom where people just refuse to…open themselves up to the good that comes from riding a bike.

Participants also spoke about cycling on the sidewalk and how sometimes they do it even though they know it is illegal. Lily stated "Cyclists shouldn't be on the sidewalk but there needs to be a place where they can feel safe on the road or on a parallel road. Similarly, Karl explained:

> If I don't think it's safe, I'll try to avoid that route, but if that's the route I'm taking cause it's the practical route then I'll take sidewalks. I'll learn to use parking lots and back alleyways to avoid traffic areas…

For some cyclists, their experiences on the road clearly showed the cultural uses of the road space because cars ignored the conceived space and used it as they pleased. For example, Darwin had a school bus run him off the road as he was going downhill because cars were parked in the bike lane. He explained:

> Coming out from the light, I was in the traffic lane and I came down the hill and the bus started to overtake and I suspect…he was overtaking in the left turn lane…and when he was about two thirds to three quarters past me, I suspect somebody came over early to get into the left turn lane and he came right back over so I came back as well because I thought it was better to hit the parked cars than to get hit by the bus…I hit the parked cars…I was kind of banged up.

Alex expressed his thoughts on the state of cycling and how it affected his lived experience on the roads:

> It's a bit of a nightmare right now…without dedicated infrastructure you're told you have to behave like a vehicle, we train people to do that, the police tell us that, get off the sidewalks…you can't be a scofflaw which is true....but where do you go? Where do you go?...well there's a road for vehicles and we're classified as a vehicle and you better behave like one…you better behave like one…that is...not always easy.

Cyclists' lived space and experience was outlined by the perceived and conceived space which surrounded them on the roads. The spatial triad of the "Cycling space model" therefore reflects the discourse in which road space is socially constructed and is reproduced by infrastructure and signage that is not truly bicycle-friendly. A-midst experiencing space that is not conducive to cycling, some participants claimed their space on the road and indicated how we need to advocate for change within the city.

The Right to the City aspect of the model is where cyclists assert their rights on the road and appropriate space. The participants claimed their right to the city and used the space in a way they felt most comfortable. If the roads seemed unsafe or congested with traffic, they were avoided. In some situations, participants claimed their space by taking the whole lane and waiting for cars to go around them, or going through stop signs without stopping. For example, Karl indicated he would "take sidewalks…learn to use parking lots and back alleyways to avoid traffic areas." He used spaces that were not designed for cycling and in some cases illegal to ride on, but used them as his trail. He also stated:

> If you know your way around it can be safe, although it means cheating and using sidewalks and different types of pathways that may not have been meant for bikes but once you get to know the lay of the land, there's no easier way to get around in Waterloo.

Similarly, Keera would avoid roads that she thought were unsafe and claimed spaces that weren't made for cyclists. She mentioned:

> I go through a church parking lot to avoid most of Weber and then…I ride maybe half a block on Weber so that I can either turn onto Ontario street or on the next street to turn into the downtown community center parking lot and park there. I'm there a couple times a week usually…I try to be as legal as possible.

Others would ride in the center of a car lane rather than riding tight and to the right because there are often obstructions, pot holes or cars parked on the side of the street. Thea noted that when she went through a roundabout she would "Take the outer lane all the way around and make eye contact with every single driver, but I know a lot of people aren't very comfortable with that. I take lanes, that's the easiest way to get through it." Likewise, Darwin highlighted how he claimed the lane, yet understood how cyclists are often too intimidated to claim the whole lane as their space:

> I try to claim…the vehicle lane such as to block vehicles from trying to squeeze past. On major roads without bike lanes or basically any road without bike lanes, I will do the same thing with the same experience and try to ride right in the middle to make it known

> that you can't pass safely without getting into the other lane….I see some people ride at the curb and I think that, I feel like that's worse…some people feel safer there because they don't have angry drivers behind them and that's what I have to deal with.

Although cyclists perceived, conceived and lived space shaped their need to appropriate road space and claim their right to the city, the infrastructure and policies that influenced their experiences was driven by the dominant discourse. The space was constructed in such a way that often does not lend itself to short cycling trips and driving a car has been incentivized. Some participants thought the city had left the cyclist by the wayside insofar as roads were built for cars and cyclists were an afterthought. Once these roads were built, cars used them to drive the behaviour in which the road indicates. When cars or cyclists broke the law, the city seemed to promote education for drivers and cyclists rather than addressing the root cause of the problem. Tom clarified:

> The question of cycling not just in the city…for that matter, active transportation in general is a matter of the design and facilities. Not a question about driver attitudes, driver education, cyclist attitudes, cyclist education…That approach is a kind of empirically bankrupt, libertarian thinking about how to actually produce the results that are wanted…as if people are constantly driving, making calculated rational choices rather than just acting out of habit or using the facilities in a way that the facilities seem to indicate…Cities build roads to take people directly to where they want to go and then for people who have to work the hardest and take the longest to get places, they build these meandering…pathway systems that take you from one park to another park instead of from where you live to where you work…"Oh hey...wouldn't that be a nice way for people..." or somebody designed it that way without thinking for a second that somebody might actually use this to try and get somewhere?

Some participants expressed how people were so comfortable with taking their car that people fought back relentlessly against any cycling infrastructure proposed for construction. Political structures have enabled this to happen because controversial topics shed a negative light on the council that makes decisions. Thus, there is often opposition to any cycling infrastructure, which ultimately does not get passed. Tom explained:

> You'll see cases where policy as interpreted by staff will require certain kinds of infrastructure to be developed but as soon as you start to threaten things like on street parking, you'll get a small but absolutely kind of manic opposition to it…Whether that opposition succeeds is down to whether or not the council is spineless. And they are very often spineless.

Mark noted how this way of thinking is not progressive and hurts the city in the long run, yet mentioned how trade-offs needed to be made:

> In many cases, the conflict is car priority vs. anything else. As much as possible pushing it away from the cars would be cool. So, densification, not a crazy commercial densification, but densification that maintains the vibe of the city and keeps [it] affordable and keeps it diverse and not a cultural and monetary separation so that the rich people are in the middle and everyone else is around it.

Even when there were strides to make cycling more predominant in Waterloo region, some participants thought they were not taken as seriously as driving or car related infrastructure. Tom expressed:

> The political structures that are responsible for creating infrastructure. That's through process. I was…the chair of the Kitchener Advisory committee...and…I left that committee when I felt I'd accomplished one particular thing…that was to get somebody hired, who's job description was "cycling planning person" because as long as it was just…we've got a master plan but it's nobody's job to implement it or we've got some "champions". Oh, that's rich. The champions model. We've got some champions on government that will speak up for...even if they are champions, it's an incurably brittle model. They get sick, or they get leave…they get burned out, their actual jobs end up taking up all their time. You can't make it somebody's non-job but a personal passion of theirs to be what enforces policy…So we got a cycling master plan and we got somebody who's…job at least, it's a 50% appointment…it was half transportation demand management and half cycling...That pleased me because it struck me as a step in the right direction. Now we've got a policy and now we've got somebody who's job it is to say are we applying the policy.

Therefore, the lack of political capital invested in cycling was low, and there was currently a perceived insufficient amount of funding for cycling. Pamela stated:

> It was just brought to my attention that…the province is investing about two-hundred million in cycling infrastructure…It sounds like a lot of money [but] this is for the whole province…Can you imagine how much money each city spends on infrastructure? It's a lot of money…they spend billions on road infrastructure for cars. So, that just shows you

> where the priorities are. And there's a lot of data already showing that more roads are not going to get less people driving. They're just going to get more people driving.

Lily suggested only spaces for traditional forms of exercise that burden the individual and in accessible to all citizens were being created. She felt investments in cycling infrastructure helped communities move away from traditional ideas of how we participate in physical activity. She indicated:

> Something like [The Waterloo Memorial Recreation Complex]…it's expensive to use it, it's in one spot, you have to go there, whereas cycling is…so visible…you can get a bike for like 2 bucks and then you can get around. So it's incredibly accessible and you see all different kind of folks on the bike path. They're not all like yuppies on the bike path, there's all kind of different people using it…so it's great because it's just so visible and it's such a visible marker of a progressive town.

In sum, the "cycling space model" represents how cyclists perceive, conceive and experience lived space. The participants claimed their space by using pathways, parking lots and sidewalks, trying to ride of the safest area possible. Their experiences were steered and influenced by the dominant discourse and the social construction of the space surrounding them. The results shed light on cyclists' experiences within the Region of Waterloo and requires discussion on the themes identified to suggest areas for change.

Chapter Five: Discussion

5.1 Introduction

In this chapter, I discuss the results from the previous two chapters under five themes: (1) Identity; (2) tangibilize the intangible; (3) build it *well* and they will come; (4) keeping up with the culture shift; and (5) changing minds to changing modes. This research exposed how seemingly bike-friendly policies served to disadvantage urban cyclists and further privilege car culture. Cyclists' experiences from the Region of Waterloo helped me interrogate how regional initiatives and policies aimed at improving cycling were undervalued and under-resourced. The positive and negative experiences of cyclists offer recommendations for further research and for practice.

5.1.1 Identity

The data collected indicated that cyclists identified themselves through multiple categories such as "utilitarian", "urban cyclist", "crazy cyclist" and "defensive cyclist". Contrary to the literature on cycling that treats the categories of cyclists' as binary—recreational and commuting (Bonham & Koth, 2010; Daly & Daly, 2014; Dill & Carr, 2003; Furness, 2005; Handy & Xing, 2011; Kochtitzky, 2011; Lugo, 2013; Nelson & Allen, 1997; John Pucher, Buehler, & Seinen, 2011; Stehlin, 2015)—This study suggested otherwise. The results confirmed that cyclists' identities are multidimensional and their identities are often reflected through their behavior rather than their destination. This multiplicity of identities revealed the intersectionality of cyclists' identities whereby an overlap of identities was seen across all participants. For example, some participants commuted to work, biked around town for different errands, were defensive or risk-taking in doing so, and found all cycling a form of recreation. The intersectionality of identities exposed a distinct difference from the current categories commonly

used in the literature and reveal how cyclists' identify themselves in a more fluid manner. As a result, cyclists' needs are at risk of being trivialized because their cycling needs may not fit into the binary categories assigned to them. Political decisions are presently made based upon these categories and often cyclists' needs are underestimated because participation numbers are low (Moudon et al., 2005). Likewise, Urry (2003) suggested the line between recreation and commuting is blurred and the notion of "lifestyle" bicycling should be used to explain the behavior of cyclists. All told, the categorization of cyclists ought to reflect the behaviour of cyclists and how they identify themselves rather than placing them into insignificant boxes.

5.1.2 Tangibilize the Intangible

Participants spoke about their rationale to ride their bikes, which was prompted by the many tangible and intangible benefits associated with cycling. The tangible benefits included saving money, time, getting exercise and lowering their carbon footprint. These tangible benefits are consistent with the literature on the benefits of cycling (Buehler, Pucher, Merom & Bauman, 2011; Pucher, Buehler, Bassett & Dannenberg, 2010; Woodcock et al., 2009; Cavill, Kahlmeier, Rutter, Racioppi & Oja, 2008; Pucher, Buehler & Seinen, 2011). Although the tangible benefits of cycling are plenty, there is limited literature on the intangible benefits. By intangible benefits, I mean the benefits that cannot be physically touched and seen as an experience (Lloyd, Fullagar, & Reid, 2016)The findings propose that sense of belonging to one's community, sense of freedom, feelings of relaxation and mental health are all associated with cycling. As previously mentioned, the literature on sense of belonging focuses on how citizens interact with each other on their bikes and how the bike can be a means to foster social groups in the environment that they live (Silverberg, 2011; Aldred & Jungnickel, 2014; Lawson, 2005). The results from this study are congruent with the current literature on the intangible benefits of cycling as a method

of encouraging a sense of community, sense of freedom and sense of relaxation (Aldred, 2010; Conradson, 2005; Fullagar & Pavlidis, 2012; Maibach, Steg, & Anable, 2009; Zander, Passmore, & Mason, 2013).

The intangible benefits that are often overlooked, yet identified in this research, are the mental health benefits derived from cycling. According to the planning literature, mental health seems to be acknowledged, yet not empirically examined. The literature referencing mental health and cycling attributes the benefits to physical activity or the built environment (Arent, Rogers, & Landers, 2001; Guite, Clark, & Ackrill, 2006; Paluska & Schwenk, 2000; Penedo & Dahn, 2005; Roe & Aspinall, 2011; Bonham & Koth, 2010; Cavill, Kahlmeier, Rutter, Racioppi, & Oja, 2008; Davis, 2010; Frank, Sallis, & Conway, 2006; Fraser & Lock, 2011; B Giles-Corti, Foster, Shilton, & Falconer, 2010; Mueller, Rojas-Rueda, & Cole-Hunter, 2015; Nazelle, Nieuwenhuijsen, & Antó, 2011; Sallis et al., 2009). Though the mental health benefits of physical activity and the built environment are important to consider, the experiences of cyclists within this study indicated there is another characteristic of cycling that can be beneficial for mental health. As seen in the results section, cyclists experienced a "metronome effect" whereby the cyclists were filled with adrenaline during their rides and did not think about their stress. One participant used cycling as a form of mindfulness meditation to aid his mental health issues and found this approach to be one of the only non-medical remedies that worked for him. This "metronome effect" idea is seldom written about in the literature, and not written about in the planning literature. Bryan and Zipp (2014) found that cycling can be used as a means of meditation and mindfulness because of the rhythmic nature of the sport. This "metronome effect" on mental health contributes another possible dimension to the literature on cycling and the health of cities in general as seen through the results of this study.

Considering that the intangible factors often played an important role in the participant's decision to cycle in a city, they should be used to incentivize decisions made for cycling and to promote more participation. However, these intangible benefits are often neglected in favour of tangible benefits because the latter is more easily quantified. Accordingly, intangible byproducts of cycling should be made tangible so that decision makers can see the importance of funding. The tangibilization of intangible benefits or products are usually seen in business literature and originally referred to by Berry (1986) and Levitt (1981) to make the intangible benefits of a certain product or service tangible to encourage consumption. When a consumer can see the positive affect or experience that a product will bring, the company will be more successful in selling intangibles. As such, this study presents a need to "tangibilize the intangibles of cycling" to address these underestimated, unacknowledged, and under resources intangible benefits and to make higher order decisions based on the intricacies of people's experiences of cycling within the city rather than only the tangible benefits.

5.1.3 Build it *well* and they will come

"If you build it, he will come" is a quote originally written by W.P. Kinsella in his book "Shoeless Joe", and transformed into "Build it and they will come" as part of North American culture, mainly used in business and has been applied to planning for cycling infrastructure (Martin, 2014, p. 12). Martin (2014) argues that cycling infrastructure must be built first if a city is to increase their modal share. The results from this study imply that infrastructure should be built first to encourage cyclists to ride and built well enough to encourage more vulnerable groups to ride. The participants explained how cycling specific infrastructure was most important to them, above education about cycling and law enforcement on the roads. Similarly, Fishman, Washington and Haworth (2012) found bicycle infrastructure to be a major factor in cyclists'

perceived safety, mainly because they know the infrastructure was designed originally for cars and not for cyclists. Likewise, Cervero, Caldwell and Cuellar (2013) found that building safe, secure and well-designed bicycle infrastructure increased the number of cyclists and supported the notion of creating segregated bike lanes and protected intersections that encourage cycling to all users. While some cities have attempted to accommodate for cyclists, the infrastructure is often insufficient because it was not created specifically for the cyclist. Pucher, Garrard and Greaves (2011) found that investment in truly bicycle-friendly infrastructure was a clear and visible sign that sends a message to everyone that cyclists belong there and therefore enables more cycling participation.

Although the literature supports the creation of truly bicycle-friendly infrastructure, a significant amount of money is spend on the research of education programs and the effectiveness of police enforcement aimed to increase cycling safety (Bauman, Rissel, Garrard, Ker, & Speidel, 2008; Carlin, Taylor, & Nolan, 1998; Graitcer, Kellermann, & Christoffel, 1995; Kirsch & Pullen, 2003; Rissel, 2009; Rivara, Thompson, & Patterson, 1998). Although there is merit in educating people on the benefits of cycling, the rules of the road, and enforcing these rules, the onus seems to be placed on the individual cyclist to be safe, rather than on the roads being safe for cyclists. When an individual does not wear a helmet or is not properly "educated" in cycling, the media reports often blame the victim of the crash rather than on the infrastructure that was not conducive to cycling (Parkin, 2015).

Despite infrastructure limitations of cycling in the city, participants used the space as they pleased, making their own path through the city to make themselves feel safe. This was a way that cyclists claimed their "right to the city". Participants behaviours to claim their "right to the city" were apparent when cyclists went through parking lots and used the sidewalk as their road

space even though was illegal. A few people claimed their right to the city by sitting on advocacy committees that advise on city cycling, aiming to appropriate space for cyclists. Some participants advocated for truly bicycle-friendly infrastructure and policies to enable more cyclists to ride. This is in congruence with Lefebvre (1991), Lefebvre (1996) and Harvey (2008) whereby citizens assert their right to the city, aim to make a difference in the decision-making process and reshape the process of urbanization. In the same light, Purcell (2003) highlights participation as one of the key principles of the right to the city, whereby citizens have the right to participate in any decision that involves the production of urban space (2003). Therefore, citizens of Waterloo Region should play a central role in the production of urban space and expose how the current bicycle friendly policies are merely window dressings that obscure the needs of cyclists. One of the significant ways in which bicycle friendly policies obscure the needs of cyclists is that policies are geared towards a specific group of cyclists that are already, rather than consulting what the current cyclists want or asking those who may be interested but don't participate in cycling as to what they want. As seen in the results section, the design of cycling infrastructure must consider people of all ages rather than creating infrastructure that creates an unsafe environment for a small group of cyclists who would feel comfortable using them. This coincides with the literature on enabling cycling participation within cities (Garrard, Handy, & Dill, 2012; John Pucher & Buehler, 2008). The literature also suggests that cities should be built for all ages (World Health Organization, 2007; Steels, 2015). As Lefebvre (1991) suggested, notable aspects of the social production of space are those who are not present in a public space. In the case of cycling for Waterloo Region, there is a lack of women, youth and elderly population participation, as observed by participants. A lack of diversity in cycling does

not seem to be the case in cities that have properly designed their infrastructure to accommodate for these population needs (Garrard, Rose, & Lo, 2008).

5.1.4 Keeping up with the culture shift

Overwhelmingly, the attitude towards living in a city for all participants were similar. No matter the age or sex, participants wanted to live in the denser areas of the region, limit their car usage or ownership and valued walkability and bikeability of the space around them. Participants attitudes towards city living were consistent with the literature on the changing needs of the baby boomer and the millennial generation who value alternate modes of transportation and a stronger city life than the suburban population (Case & Schipinski, 2015). There is sparse literature on the changing needs for cycling between generations, yet there is plenty on the need for planning policies and programs towards more sustainable transportation practices (Calthorpe, 2010; R Cervero, 2006; Garreau, 2011; James & Lahti, 2004). As climate change becomes increasingly detrimental, many authours suggest changing to more sustainable modes of transportation, specifically active transportation can help (Frank, Greenwald, Winkelman, & Chapman, 2010; Billie Giles-Corti, Foster, Shilton, & Falconer, 2010; Gotschi & Mills, 2008; Maibach et al., 2009). Bronstein (2009) explicitly explained how moving from auto-centric cities towards densification can draw people out of their cars and revitalize city life. By investing in sustainable transit-oriented development, cities will see a reduction in traffic congestion, lessen carbon emissions and protect farmland from being developed by suburbia (Bronstein, 2009). Nevertheless, Filion (2003) articulated the appeal of suburbia that continues to pervade cities within North America and how smart growth strategies that focus on densification and active transportation must avoid running counter to powerful groups with vested economic interest in

sprawl. Consequently, it is important to accommodate new generational needs for transportation, yet strategically doing so.

5.1.5 Changing minds to changing modes

The participants' in this study had to constantly challenge the social expectations of transportation, and therefore car culture. As seen in the results section, some participants sold one of their cars, decided to not to own a car at all, moved to a denser area of the city, and argue with others as to why choosing cycling as their mode of transportation was valid. Many participants had seen the aggression towards cyclists lessen in recent years, yet overwhelmingly, the car culture still reigns supreme. As shown in Litman (2002), there are determinants of dependency that can be focused on to help change the behaviour of citizens and the reliance on driving. The first determinant is the incentivization of driving, which was apparent within the Region of Waterloo. The second determinant was the lack of more appealing options. The lack of appealing options other than a car was significantly relevant in this study because the situations where participants would take another mode of transport were mainly because the bike could not take them where they wanted to go safely enough or the bus system to support them ran infrequently. The third determinant which reined true in this study was that the true cost of driving was not incurred by the individual, yet by government. The individual paid for the cost of the car, but not the road, traffic management or parking. The individual costs of owning a car made the cost of owning a car high, but not as high to deter most people owning a car.

As seen through these data, the true cost of driving needs to be illuminated to lessen the detrimental prevalence of car-culture and to incentivize cycling as an appealing alternate mode of transportation. Although car drivers are thought to have an "urban sprawl" mentality whereby they want to only use their car to transport themselves, there is literature to suggest otherwise.

Some car drivers are open to other modes of transportation because the traffic and cost of owning a car have gotten so high. Stradling, Meadows and Beatty (2000) found that a third of their participants indicated they wanted to reduce their car use, yet only a small percentage thought they were likely to take another mode of transportation because it was not as appealing as driving. Jones and Ogilvie (2012) posit that improving the convenience, cost, speed and reliability of active transportation and public transportation in comparison to cars could be a way to change the perception of cycling and therefore change.

Chapter Six: Conclusion

This study clearly exposed the negligence towards cyclists within the Region of Waterloo. Cyclists spoke about their views on bicycle friendly policies and infrastructure and critiqued their effectiveness. Cyclists' experiences reflected their right to the city, or lack thereof in which car culture was privileged over them and their cycling needs. The research questions asked to expose this negligence towards city cyclists consisted of: (1) How do cyclists experience so-called bike-friendly policies and infrastructure in the Region of Waterloo?; (2) how do cyclists' lived experiences reflect their right to the city?; and (3) how do bike-friendly policies and infrastructure privilege car culture? In regard to question one, cyclists felt as though there were some steps taken to accommodate for cyclists, yet the infrastructure was not sufficient. For example, the participants explained how they would rather not use multi-use trails aimed at accommodating non-motorized modes of transportation because they had laborious and dangerous crossings, as well as being riddled with other unpredictable users. The second research question, pertaining to cyclists' right to the city, cyclists' lived experiences exhibited how they used the space in a manner they saw fit, regardless of the law. An example of this was stated previously, whereby some participants went through parking lots or biked on the sidewalk because they perceived the road space for cars and use other spaces to ride on, thus appropriating this space for bikes. The third research question in relation to policies and infrastructure that privileged car culture was addressed through the lived experiences influenced by the overbearing car culture by which policies and infrastructure are created.

Though this research addressed the purpose and research questions pertaining to cyclists' experiences in a qualitative manner, there are minor limitations associated with doing so. First, it must be acknowledged that I am representing individuals' experiences and conceptualizing

others' realities. Therefore, I cannot fully understand or represent the realities of others, yet draw on their told experiences and create interpretations based on these stories. Nevertheless, by researching this topic in a qualitative manner, I was able to gather in-depth and contextualized experiences which further led me to uncover unique benefits associated with city cycling. The second limitation to this study is the scope. Having utilized Marcuse's (2009) three step model of political change, this study only addressed the expose stage. Future research should therefore build upon the expose stage and focus on the proposing specific changes to be made to policy and infrastructure the best strategies for politicizing the latter to induce change.

The results from this study suggest that researchers and practitioners examine concepts that may or may not have been addressed in the literature on city cycling. The concepts of identity, making intangible benefits tangible, cultural shift in transportation, best practices for cycling infrastructure and how the generational change will impact mobility and the needs for city life should be investigated. The next two sections include the recommendations for research and practice prompted by my interpretations of the results.

6.1 Recommendations for Research

Reflecting upon my own research in the field and existing literature on the topic of city cycling, this study prompts more interdisciplinary research on the topic. First, research should examine the intersectionality of cycling identities whereby cyclists categorize themselves in a multiplicity of ways. Findings from this thesis ought to provoke further exploration and critique on the binary categorization of cyclists' identities. This question of identity is important because political decisions are made based on participation in cycling for either commuting or recreational purposes. This dichotomy limits the strength of cyclists because they are separated

into smaller groups. Researchers should study this topic cognizant of the fact that smaller groups of cyclists may not translate into political capital.

Second, the intangible benefits of cycling should be further explored, specifically how to make intangible benefits more tangible insofar as affecting political decisions. For example, there should be more research on the "metronome effect" which served as a mindfulness and meditation technique for remedying mental health issues rather than insinuating that the physical activity benefits from cycling have sole bearing on one's mental health. This effect is important to consider because it broadens our understanding of mental health issues and remedies that may be overlooked in a medical model. Researchers should focus their future research on exploring how the act of cycling is not only a form of physical activity, but also a form of meditation that can serve to remedy complex issues.

Third, further research should be done to examine the "8-80" concept of building cities for people across the lifespan by building infrastructure more inclusive of all ages. This topic is important for research because it can help inform practitioners' decisions for designing infrastructure within cities and consequently enable more participation from a wide variety of ages and abilities by ensuring the roads and trails are safer and easier to use. Researchers should study this topic by evaluating certain designs and infrastructure to see how useful or constraining they are to children, the elderly, and those with a wide range of abilities, thus informing best practices within "8-80" cities.

Fourth, researchers ought to focus less on the effectiveness of bicycle helmet and education programs and focus on the effectiveness of infrastructure to determine safety and behaviour. According to the research, this approach is a more proactive way to increase cycling safety as it does not blame individuals for breaking rules of the road, but rather builds

infrastructure that will not allow for the rules to be broken. For example, researchers can explore different bike lane infrastructure design such as segregated bike lanes and bike signaled lights to ensure that cars do not turn into cyclists on a right hand turn and to keep cyclists in their own visible lane of traffic.

6.2 Recommendations for Practice

The negligence towards cyclists within the Region of Waterloo is derived from political agenda. The policies that dictate infrastructure development have consequences for cyclists' experiences, and elected officials approve of these changes without fully appreciating what they are intended to do: further privilege car culture. Conceivably, there are councilors who believe they are doing the right thing by supporting "bike-friendly" policies, yet it is important to consider the recommendations derived from this study, for instance—doing more than offering token solutions. At both a policy level and for the built environment, these recommendations could play an influential role in changing the way the practitioners see city cycling. First, at a policy level the type of cyclist should not be binary. As shown above, there is a multiplicity of cycling identities and separating cyclists into those who cycle for commuting or recreational trivializes the groups all together. Practitioners need to make segregated bike lanes and trails and build them with the intention of cyclists getting from point a to b in an efficient manner. In other words, the infrastructure should be built for all cyclists regardless of their destination or purpose for biking. Either way, seemingly gratuitous and meandering trails do not incentivize cyclists to ride, rather the direct and safe routes away from speeding cars does incentivize cyclists.

Second, focus on creating truly bicycle friendly infrastructure to determine the behaviour of both cyclists and drivers. Do not focus efforts solely on education, police enforcement or lowering speed limits. The literature and results from this study show that the use of a helmet,

signage on the street and enforcement is not as effective as designing smaller streets with natural speed limits built into them and creating safe spaces to ride without the possibility of a fatal collision. To create safer and more bike friendly built environments, frame the infrastructure development around the concept of "8-80" whereby the city is more inclusive of age and abilities. If this approach is at the core of designing infrastructure for cycling, then it will be a safe and inviting place for a multitude of ages. Accordingly, start with tackling the "low-hanging fruit" of cycling infrastructure. These are minor changes to the infrastructure landscape that make the cycling network better. For example, connect paths with safe cycling specific crossings, include wayfinding along trails, reduce the width of driving lanes and introduce more traffic calming measures. The recommendations are visualized in the form on an infographic.

Figure 2. Truly Bicycle-Friendly Cities: Suggestions for Practice Infographic

The recommendations listed above take political capital. It is often difficult to progress cycling infrastructure and policies in certain political climates and especially in a car dominated city with strong advocacy groups. Nevertheless, there are some things that can be done to ensure these changes are made. First, there must be political continuation regardless of those in decision making positions. Political continuation can be achieved by creating a purposeful agency where it is the agencies number one paid priority to

build cycling infrastructure in the region rather than constituents who are “champions” or have an interest in cycling, as they are given a lot of responsibility without much accountability. The health, environmental, economic and cultural benefits of cycling are paramount and continuously hard to ignore. Subsequently, cycling is a mode of transportation that should be taken seriously to reshape the car dependent city and meet both environmental, health and social goals. There is a plethora of literature on the need for cycling in cities, and this will continue to rise as more research is done on the topic. Cycling must have sufficient resources to make strategic political decisions and are crucial for the betterment of the city. In sum, this study highlighted the importance of researching cyclists’ experiences in regards to city cycling to expose the negligence towards cyclists and the privilege of car culture. This research contributes to the body of knowledge on city cycling, and encourages future research and practices to enable more participation in cycling.

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Appendix

Appendix A: Semi-Structured Interview Guide

Research Question 1: How do cyclists experience so-called bike-friendly policies and infrastructure in the Region of Waterloo?

Lead Question 1A: Are you a bike commuter? Recreational biker?

Follow-up questions:

A. If you do either or both, why? What's the difference in your mind?

LQ1B: Tell me about your decision to cycle

Follow-up questions:

A. Why have you decided to cycle in the city? (Is it faster? More fun than other modes of transport? Cheaper than driving?) Recreational?
B. What are the benefits and costs that you receive from cycling? (Saving money? Environmental? Physical fitness? Friendships? Inquiries? Bikes stolen?)

LQ1C: Tell me about your experience cycling in the city (Bike lanes, sharrows etc.) Do you have any personal stories that speak to the experience?

Follow-up questions:

A. Which routes do you use to ride your bike? Why? (On the road, trails, bike lanes?) Tell me about these spaces on your route
B. Could you take me through your typical ride?
C. Tell me about your experiences riding on shared roads in this region (Do cars share the road with you? Do you feel as though this space was meant for you? Was this space made for you or do you feel as though you're claiming it?)
D. Do you feel safe while riding your bike?

RQ2: How do cyclists' lived experiences reflect their right to the city?

LQ2A: How would you characterize biking in Waterloo Region?

Follow-up questions:

A. Would you say you generally follow the rules of the road? Why or why not?

RQ3: How do bike-friendly policies and infrastructure privilege car culture?

LQ3A: What are your thoughts about policies for cyclists in Waterloo Region?

Follow-up questions:

A. How do the bike friendly policies benefit you? Do they create an incentive to cycle?
B. Do bike friendly policies in Waterloo Region go far enough?

LQ3B: Does the government give enough attention to cyclists?

Follow-up questions:

A. How important is cycling to you relative to other issues? (i.e. Does cycling reflect your world view or how do you see yourself politically?)

LQ3C: Have you ever had an altercation or accident while riding your bike?

Follow-up questions:

B. Tell me about the context in which the incident took place (Was this at an intersection? On a trail? Was there fault?)
C. What was the severity of the accident?
D. Do you think that this accident could have been avoided? How? (i.e. speed, separated bike lane, bike lights, right turning signal? visibility? education?)

Reflection

LQ1A: What are your thoughts about our discussion?

Follow-up questions:

A. What should be done to improve city cycling, if anything? How would these changes make cycling better in your view?
B. Any final thoughts?