

The 15-minute City Concept as a Solution to Climate Change in a Regional Context

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Abstract

The 15-minute city concept is an urban planning strategy that could be used as a solution to climate change in the context of a regional municipality. This paper examines the 15-minute city concept as a solution to climate change in York Region. The 15-minute city concept is a popular sustainable urban planning strategy that has arisen out of media that could be useful in creating policies and plans to combat the effects of climate change. My research focuses on the 15-minute city concept as a positive strategy focusing mainly on urbanized cities and neighbourhoods, neglecting the inequalities and problems that could be associated with this concept. I conducted a literature review on regional planning and sustainable urban forms, interviewed planners at local and regional municipalities, examined two example cases, Ottawa, and Paris, and reviewed official plans and policies in York Region and other municipalities. From this research, I have concluded that the 15-minute city concept could work as a solution to climate change in certain parts of York Region. To fully include the 15-minute city concept in York Region, planners would have to create additional site-specific plans and policies. Overall, I think the 15-minute city solution is an accessible concept to understand that could be used in plans and policies to address sprawl and car dependency. Further research could include research on accessible urban planning wording and the 15-minute city viability in other regional municipalities.

Foreword

This major research paper is written to fulfill the requirements of the Master in Environmental Studies (Planning) Program. My research is based on my area of concentration underlined in my Plan of Study: *Climate Mitigation and Adaptation in Municipal Planning*. In this paper, I have used the knowledge acquired through my coursework, internship experience and research to concentrate on my three learning components: Environmental Planning, Urban Design and Adaptation Planning and Mitigation. As part of these learning components, I have set multiple learning objectives that I have fulfilled through my research.

The learning objectives in the environmental planning learning objective aim to gain a working knowledge and familiarity with environmental systems, environmental and climate policies, and the relationship between built and natural environments. I met these objectives by researching provincial legislation and the growth plan. I also gain a working knowledge of municipal climate policies. Through my research on the 15-minute city concept, I did a lot of research on resilience system thinking which allowed me to gain a familiarity with system thinking that was useful when creating my paper.

In the urban design learning objective, I wanted to gain expert knowledge on existing approaches for designing more resilient and adaptable cities through the built environment. My research on the 15-minute city concept and sustainable urban design gave me a deeper understanding of sustainable cities, thus meeting my learning objective. In addition, this paper also helped me obtain the knowledge and skills necessary to meet the Ontario Professional Planners Institute program requirements for candidate membership by researching current and future provincial legislation and plans, municipal official plans and policies and regional planning as a whole.

For my last learning component, Adaptation Planning and Mitigation, I gained expert knowledge on climate change strategies and mitigation and adaptation planning through my

research on the 15-minute city concept and sustainable urban strategies to combat climate change. In addition, my research has also allowed me to gain expert knowledge on existing adaptation and mitigation strategies that combat climate change in urban areas through an examination of upper-tier and lower-tier municipalities' climate change action plans.

Overall, my research on the 15-minute city concept as a solution to climate change in a regional context has allowed me to gain familiarity with, and expert and working knowledge on various topics that pertain to my area of concentration. I am also very grateful to be able to conduct research on this topic and hope that my major paper will contribute to the discussions on sustainable urban planning, climate change, regional planning and the 15-minute city concept.

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1. Introduction

In urban planning, planners are tasked with finding solutions to climate change using policies and plans. One of the solutions I find most interesting that I do not think has been explored in regional planning is the 15-minute city concept. The 15-minute city concept is defined as a city where residents can meet most of their needs within a 15-minute walk or bicycle ride from their homes (Li et al., 2019, p. 1; Logan et al., 2022, p. 1; Mocák et al., 2022, p. 76; Moreno et al., 2021, pp. 100, 103). I think the 15-minute city concepts offer a unique solution encompassing many aspects of sustainable urbanism and urban planning that could provide a different perspective on planning for climate change. I also think exploring this concept concerning regional planning will demonstrate the options available for large geographic and political spaces. However, I am aware that the introduction and implementation of Bill 23 in Ontario will impact regional planning, which could shift responsibilities.

I have chosen to focus my research on York Region, a regional municipality in the Greater Golden Horseshoe (Figure 7) that is comprised of nine lower-tier municipalities (Figure 8). York Region's official plan addresses the 15-minute concept but does not assess its possibility further than mentioning it.

Therefore, in this paper, I will focus on the 15-minute city concept as a solution to climate change in York Region. Through my examination, I will inspect policies that are currently implemented in York Region and how they relate to the 15-minute city concept in order to enhance them to create policies that are understood better and more accessible to residents.

1.1. Background

Climate change has always been a natural occurrence globally, caused by changes in the earth's orbit, solar radiation, volcanic activity and natural patterns between the land, ocean and atmosphere (Ramanathan et al., 2019, p. 1). However, since the industrial era, human

activity has accelerated climate change. People emit carbon dioxide and other pollutants into the atmosphere as we burn greenhouse gases, drastically altering our climate (Ramanathan et al., 2019, p. 3). Humans are influencing changes in our climate system (Ramanathan et al., 2019, p. x). Scholars state that climate change is the defining issue of our time and that it is a global problem with grave implications (Ramanathan et al., 2019, p. x). The Intergovernmental Panel on Climate Change (IPCC, 2018) states that everyone must reduce greenhouse gas emissions to limit global warming to reduce the risks to the earth's biodiversity. Therefore, I believe that people must do something to help mitigate the effects of climate change that the world is experiencing.

Climate change is a human-caused phenomenon; therefore, it is important as humans that we do something to combat it. Over half the world's population lives in urbanized settings, and more than 60% of greenhouse gases are attributed to these areas (Allam et al., 2022, p. e181; Gordon et al., 2018; Rumbach & Kudva, 2011). I think that to mitigate climate change, we must first start locally. The 2015 Paris Agreement is a framework that focuses on governance models from cities, states and regions that can be scaled up to the global level (Ramanathan & Cole, 2019, p.24). Disasters associated with climate impacts are increasing and result in serious risks to sustainable urban development, causing concerns for city officials and planners (Wamsler, 2013, p. 3). Guyadeen et al. (2019, p. 129) state that "cities have direct control over [greenhouse gas] emissions resulting from their municipal operations, but also have many planning tools to enhance resilience to climate change, such as land use policies and zoning regulations." The city needs to take responsibility for the effects that climate change is having on its municipalities. This includes creating plans and policies that will help mitigate and adapt to climate change at the local level, especially for regional areas.

Climate mitigation is defined as a public policy strategy and tool that aims to reduce greenhouse gasses that enhance climate change (Bullock et al., 2017, p. 72; Hahn et al., 2020,

p. 648; Landauer et al., 2019, p. 741; Wilbanks et al., 2003, p. 31). Mitigation strategies aim to reduce the severity of climate change and can be done by designing new developments, urban retrofitting and policies (Hagen, 2016, p. 14). Most mitigation policies revolve around reducing greenhouse gas emissions, such as decreasing automobile dependency, smart growth and compact urban form (Dhar & Khirfan, 2017, p. 608). Climate adaptation can be defined as the process of responding to immediate and near-term impacts of climate change by giving communities and regions plans to deal with the impacts (Wamsler, 2013, p. 8). Adaptation planning and policies focus on hazard reduction and avoidance, vulnerability reduction, preparedness for response, preparedness for recovery, and risk assessment (Hagen, 2016, p. 17). Both of mitigation and adaptation strategies are useful in urban planning as they help combat the effects of climate change.

There are many sustainable urban planning strategies that multiple cities are implementing across the globe that aim to mitigate and adapt to climate change. Municipalities have been incorporating policies, plans, designs and regulations on spaces that focus on the physical form, economic function and social impacts of the urban environment (Fainstein, 2022). Therefore, urban planning creates many opportunities to find solutions to climate change through sustainable urban forms to redesign the environment and create policies.

1.2. Purpose of Study

In my paper, I will aim to answer: How might the 15-minute city concept work as a solution to climate change in the context of a regional municipality, and what would this look like in York Region? To help answer this question, I will explore what policies York Region has that are similar to the 15-minute city concept, what sustainable urban planning strategies have already been done in York Region and consider if adopting the 15-minute city concept would

make a difference. And if so, then how this concept might work in York Region's plans and policies.

The main goal of my research is to determine if the 15-minute city concept would work as a tool in York Region to create a more sustainable region that is well-equipped to handle climate change and related disasters. I will explore sustainable urban forms and related histories, examples of the 15-minute city concept, and regional planning to help answer my research question.

The reason I have chosen to conduct my research on this is that I am interested in regional planning and sustainable urban forms that focus on climate solutions. I find the 15-minute city concept fascinating as it focuses on mobility, sustainability, design, and policy. Ultimately, I think it is extremely important to focus on planning for climate change solutions so that cities can mitigate and adapt to climate change. I realize that the 15-minute city concept is not new and is related to several other planning strategies and concepts. However, I think leveraging the term the 15-minute city could assist planners in presenting the idea to the public, making the concept of a sustainable region easier to comprehend. Overall, I am interested in exploring the 15-minute city concept as a solution to climate change in a regional setting to better understand sustainable urban forms and regional planning.

1.3 Chapter Overview

This research paper begins by exploring the 15-minute city concept as a creative solution to climate change through examples of the 15-minute city concept in two different municipalities, Paris, France and Ottawa, Ontario. In exploring the 15-minute city concept, I also examine the related theories and historical context of sustainable urban forms related to the 15-minute city concept. To answer my research question, I also examine York Region and how the 15-minute city concept would make a difference. I will do this through an investigation into

regional planning in Ontario and an overview of York Region. In addition, this section also explores the existing policy related to sustainable urban planning strategies in Ontario and York Region by focusing on the Growth Plan for the Greater Golden Horseshoe and York Region Official Plans and policies. The next part of this section looks at the proposed changes that could be made to amenities, pedestrian and green spaces, transportation, and housing to implement the 15-minute city in York Region's plans. The last part of this section discusses the challenges, opportunities and recommendations associated with having the 15-minute city concept in York Region in order to combat climate change.

2. Research Design and Methodology

In order to answer my research question, I used a multi-method research design. This multi-method research design involved a literature review, two case studies, a content analysis of planning documents and policies, and semi-structured one-on-one interviews with various planners.

To set the context of my research, I conducted a literature review of scholarly and grey literature to explore related theories and the historical context of sustainable urban forms. This literature review allowed me to examine multiple topics related to sustainable urban form to understand the 15-minute city concept better. I examined sustainable urban forms to better understand the concept and pulled some key sustainable urban forms I wanted to explore further. The sustainable urban forms I researched for the literature review were pedestrian-oriented development, compact urban development, walkable cities and the 15-minute city concept. The majority of the literature that I found on the 15-minute city concept was positive. I did struggle to find negative reviews on the 15-minute as many scholars' research reiterates solutions to combat inequality and diversity issues. However, I did conduct a quick search to see if I could find literature that was negative regarding the 15-minute city, which resulted in an article related to gentrification and the conspiracy theories associated with the 15-minute city. In addition to sustainable urban form, I also did a literature review on regional planning to provide the context in understanding York Region better. The literature I reviewed were scientific reports, municipal and provincial government documents, university reports and theses, news reports and related documents related to sustainable urban planning, regional planning, and climate change.

I examined two examples of the 15-minute city concept as part of my multi-method design. I explored the 15-minute city concept in Ottawa, Ontario and Paris, France as these

two cities are demonstrating the planning and implementation of the 15-minute city concept in their cities. The Ottawa and Paris examples helped me look at the best practices, the outcomes, and what is being done that could be applied in the context of York Region. This included examining Paris' Climate Action Plan (Paris et al., 2020) and related documents related to the 15-minute city concept on the Paris website. For Ottawa, I explored their 15-minute neighbourhood baseline report (Ottawa, 2021), Official Plan and secondary (Ottawa, 2022) plans, and the Climate Change Master Plan (Ottawa, 2020). This collective study of Paris and Ottawa aims to demonstrate the parts of the 15-minute city that are crucial in developing the concept for other municipalities.

The third method I used in my multi-method research design is a context analysis of York Region's and the province of Ontario's planning documents. In York Region, I explored their recent Official Plan (York Region, 2022a) and Climate Change Action Plan (York Region, 2022b) to better understand the current situation of York Region. I also explore the province's Growth Plan for the Greater Golden Horseshoe (Ontario, 2020) to understand the influence and policies that regional municipalities must follow when planning their municipalities. Analyzing these documents helped me gain a better understanding of work that has already been done for the region and what could be planned.

Lastly, I conducted semi-structured one-on-one interviews with seven planners to answer my research question. I planned to interview 13 planners from Ottawa, Paris, and York Region and its nine lower-tier municipalities. However, during my recruitment process, I emailed several municipal planners at each lower-tier municipality and did not receive a response. I ended up interviewing three planners from Ottawa, one planner from Paris, two planners from York Region and a Planner from the town of Newmarket. These semi-structured interviews were 30 minutes in length and involved five to eight questions, depending on who was being interviewed. For Paris and Ottawa, the planners were asked questions related to the

15-minute city concept and how it works in their municipalities. For York Region, the planners were asked questions about their current policies and whether the 15-minute city could work and be a solution to climate change in their region. These questions helped further answer my research question and helped me better understand the 15-minute city concept and York Region.

Reflecting on my research, I have learned a lot about planning related to municipal processes involving regional governments and official plan processes. I have also learned about sustainable urban planning practices. Some of the challenges I faced was not getting the full scope of regional/upper-tier governments' influence and power over the lower-tier municipalities to understand how the 15-minute city could work in the rural and suburban parts of the region. I believe meeting with municipal planners in Georgina, King, and East Gwillimbury would have helped me understand the rural portions to see if the 15-minute city concept would be feasible in these areas. If I had to do anything differently, I would have reach out to professors in my department that have ties to municipal planners to see if they would be able to help me contact them for interviews.

3. The “15-minute City” Model as a Creative Solution to Climate Change

In this section I will discuss the related theories and historical context of sustainable urban forms and the 15-minute city, as well as two case studies of the 15-minute city. The related theories and historical context will provide an overview of the theoretical framework behind the 15-minute city and how it came to be in urban planning. The two case studies will provide additional information of what is being done in cities for the 15-minute city. They will focus more on the implementation side the 15-minute city in municipalities rather than theoretical frameworks.

3.1 Related Theories and Historical Context of Sustainable Urban Forms

In order to understand the 15-minute city concept, I think that the history of the concept and where these concepts are originated from needs to be explored first. The 15-minute city concept draws on theories of sustainable urban form, especially pedestrian-oriented development, compact city form, and walkable cities. I believe these concepts are important to understand as they all include aspects that are similar or part of the 15-minute city.

Sustainable urban form has followed an extensive history of different planning theories. This theory first came from Ebenezer Howard's Garden City, which aimed to accommodate 32,000 people at approximately 25-30 people per acre, creating a very dense city (Burton et al., 1996, p. 12). This idea focused on compactness and density. The next theorist to touch upon sustainable urban form was Le Corbusier, who wanted to decongest the city centres by increasing density (Burton et al., 1996, p. 14). Sustainable urban form was also seen in Jane Jacobs' theories for large-scale planning that focused on centralization and involved lively

neighbourhoods, heterogeneous demographics, a mix of uses and pedestrian-friendly design, all to facilitate human interactions with the urban environment (Burton et al., 1996, p. 14; Hirt & Zahm, 2012, p. 221). All of these theories help describe planning approaches to sustainable development.

Sustainable urban form, sustainable development, or sustainable urbanism have been debated over the years with no concrete definition. Some scholars define sustainable urbanism as “walkable and transit-served urbanism integrated with high-performance buildings and high-performance infrastructure” (Hirt & Zahm, 2012, p. 219). Other scholars focus on creating a user-friendly and resourceful city (Burton et al., 2000, p. 3). They state that the main characteristics of sustainable urban form are “compactness (in various forms), mix of uses and interconnected street layouts, supported by strong public transport networks, environmental controls and high standards of urban management” (Burton et al., 2000, p. 355). Jane Jacobs interprets sustainable urbanism as the relationship between natural, human, and economic systems (Hirt & Zahm, 2012, p. 220). These definitions demonstrate that there is no definitive definition of sustainable urban form. Still, I think that they all are useful urban planning strategies that focus on human relationships with the built environment.

Sustainable urban forms can be considered sustainable city forms, which are all closely connected (Stokmane, 2021, p. 5). An overarching definition of sustainable city is a city that can provide basic needs to residents, such as health care, housing, education, and employment, that benefit all sectors of society (Ibrahim & Nizarudin, 2019, p. 3). Some examples of sustainable city forms are; biophilic city, eco-city, green city, smart city, and resilient city. These examples of sustainable city forms are also closely connected to each other and have similarities to the 15-minute city concept. Figure 1 illustrates the main characteristics of the different forms of sustainable cities.

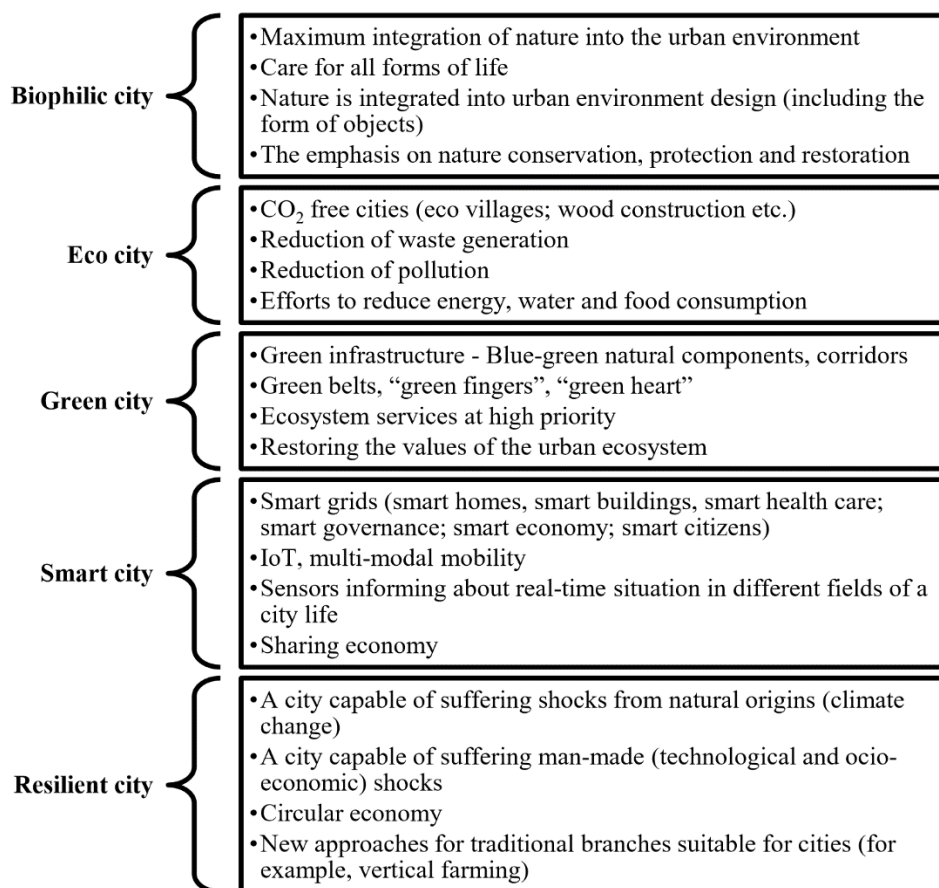


Figure 1. Main characteristics of different forms of sustainable city. (Stokmane, 2021, p. 5)

In addition to these forms of sustainable cities, there are other sustainable urban forms that I have discovered through research that relate to sustainable urban planning strategies. These strategies are pedestrian-oriented development, compact city form, walkable cities and the 15-minute city concept.

Pedestrian-oriented development is the development of a built environment that encourages pedestrian activity and improves mobility (Pena & Shah, 2022). It encourages people to walk rather than drive to their destination by creating spaces that are safe, human scale and pedestrian-friendly (Williams & Russell, 2008, p. 321). Pedestrian-oriented development is created through land-use design related to compact development, mixed-use, traffic calming, a mix of housing options and access to transit (Williams & Russell, 2008, p. 324). Some pedestrian-friendly features are; a connected street layout, more mixed-use, high enough

densities grouped with commercial and residential development, and traffic calming measures (Jabareen, 2006, p. 40).

Scholars William and Russell (2008, pp. 322–324) state that pedestrian-oriented development consists of six components: mixed-use development; compact development; interconnected, traffic-calmed streets; public space pedestrian-scale design; pedestrian orientation; and a mix of housing types. The authors explain that mixed-use development increases pedestrian activity and social interaction by combining housing, commercial, retail, civic, and office uses within close proximity of one another (Williams & Russell, 2008, p. 322). Compact development uses the land efficiently and reduces the loss of open space by locating destinations closer to one another (Williams & Russell, 2008, p. 323). Interconnect and traffic-calmed streets ensure safe and accessible opportunities for people of all ages and abilities. Planners design streets that move traffic slowly by creating roads that are narrow, tree-covered and manage speeds, and create pathways that have frequent linkages to destinations and neighbourhoods (Williams & Russell, 2008, p. 323). Public space pedestrian-scale design is development that balances pedestrian and transit needs by providing comfortable spaces for people to gather and socialize. They should be designed so that services are within a reasonable distance of one another (Williams & Russell, 2008, p. 323). Pedestrian orientation aims to encourage people to walk to local destinations by having spaces that are safe, human-scale and accessible. This should consider how people move from place to place (Williams & Russell, 2008, p. 324). Lastly, a mix of housing types is related to having housing for people of all ages and income levels (Williams & Russell, 2008, p. 324). All these six components make up pedestrian-oriented development. I consider these six components important in creating sustainable cities in order to promote active transportation and reduce sprawl. However, I think that strategy only focuses on people neglecting the fact that cities in North America rely heavily on cars, planners need to also plan for automobile transportation.

Another strategy of sustainable urban form is compact city form, compact development, or compactness. Compact city form refers to a mixed-use, dense urban area linked by access to public transit designed to minimize environmental impact by supporting walking and cycling (Lehmann, 2016, p. 3). Compactness is a widely accepted strategy for achieving sustainable urban form because it aims to reduce sprawl and minimize the transport of energy, water, materials, products and people (Jabareen, 2006, p. 39). Urban sprawl is considered harmful to a city's liveability and sustainability. It creates "longer within-city travel, increased private car usage, congestion, obesity, and pollution" (Graells-Garrido et al., 2021, p. 2).

Studies have shown that compactness with higher densities encourages people to use public transit, increases infrastructure and land use efficiencies, conserves land resources and reduces greenhouse gas emissions caused by urban residents (Lehmann, 2016, p. 3). These studies create a consensus among experts stating that compact living is sustainable because expanding a city's footprint creates the loss of precious agricultural land and greenspaces that benefit the environment (Lehmann, 2016, p. 3). Compactness also benefits social equity, as compactness reduces travel time and people's ability to reach services and amenities (Burton et al., 2000, p. 347). This urban planning strategy can be implemented on various scales, making it diverse and user-friendly from new settlements to urban infill (Jabareen, 2006, p. 46). However, I think other forms of sustainable urban strategies for sustainable urban form equate to more sustainable urban planning than merely compact city form as compact development is included as a characteristic of other sustainable urban forms.

Walkable cities or walkability is another popular urban planning strategy for creating sustainable urban forms. Walkable cities are planned to be equitable, healthy, safe, and vibrant as they consider pedestrians first (ITDP, 2018). Walkability is to be understood as the physical built environment having a positive influence on pedestrian movement (Mocák et al., 2022, p. 70; Weng et al., 2019, p. 260). Walking is the most sustainable form of transportation from a

climate change perspective. There are seven key drivers of the built environment to walkability: demand, demographics, density, design, destination, distance, and diversity (Project Drawdown, 2020). Each of these key drivers makes a place walkable and allows people to walk more in their cities. In addition, walkable cities are easier and more attractive to live in, creating healthy and sustainable environments (Project Drawdown, 2020).

Walkable cities are similar to pedestrian-oriented development as they put pedestrians first. They set out features that encourage people to walk rather than drive. Some pedestrian-first tools for a walkable city are related to infrastructure, activity, and priority. Infrastructure ensures a physical space and design that promotes walking, such as proper sidewalks, accessible crosswalks and signs that prioritize pedestrian crossings (ITDP, 2018). The activity section aims to bring people together to walk in a safe environment. This includes street vendors and sidewalk amenities, on-street parking for traffic calming and activities that throughout the entire day to monitor the street, making it safe and more enjoyable to walk (ITDP, 2018). This is related to the activities that Paris is attempting to implement in their squares and schools to bring people in the neighbourhoods together. The priority section refers to giving preference to walking, cycling and transit over private cars. Some tools include having transit that is reachable by foot, small streets making them easier to cross, and slower traffic speeds, making walking safer and more enjoyable (Institute for Transportation & Development Policy (ITDP), 2018). Most tools and designs for walkable cities aim to make spaces safer and enjoyable. Hence, people are more inclined to walk while reducing greenhouse gas emissions created by personal vehicles. Overall, I think walkable cities are very similar to pedestrian-oriented development as they focus on people and active forms of transportation.

Finally, the 15-minute city concept is also a sustainable urban strategy related to sustainable urban forms. The 15-minute city concept is said to have originated from theorist Carlos Moreno, who describes the need to plan for contemporary urban environments focused

on people (Allam, Bibri, et al., 2022, p. 2). The 15-minute city concept is defined as a city where residents can meet most of their needs within a 15-minute walk or bicycle ride from their homes (Li et al., 2019, p. 1; Logan et al., 2022, p. 1; Mocák et al., 2022, p. 76; Moreno et al., 2021, pp. 100, 103). This “concept builds on previous works of urban thinkers such as Christopher Alexander, Jane Jacobs, Nikos Salingaros, and Leon Krier, who collectively advocate for cities that respond to both human needs and environmental sensibilities” (Allam, Nieuwenhuijsen, et al., 2022, p. e182). The 15-minute city concept builds upon other urban planning strategies related to sustainable urban form but includes the elements of space and time. The 15-minute city aligns with previous urban models, such as green cities or walkable cities but is branded in a way that makes it stand out (Allam, Bibri, et al., 2022, p. 2).

The 15-minute city concept combines three aspects of Moreno’s research: chrono-urbanism, chronotype and topophilia. Chrono-urbanism analyzes what the city offers its citizens in their lifetimes, chronotype is the link between space and time where “the quality of urban life is inversely proportional to the amount of time invested in transportation, more so through the use of automobiles” (Moreno et al., 2021, p. 100), and topophilia is the attachment to place (Pinto & Akhavan, 2022, p. 373).

In addition to these three aspects, the 15-minute city concept draws upon the neighbourhood planning model. Figure 2 illustrates a history of neighbourhood planning that resulted in the terminology of the 15-minute city concept. This history comes from the Garden City to Eco-urbanism, and smart cities, up until 2016, when the 15-minute city concept came to be discussed.

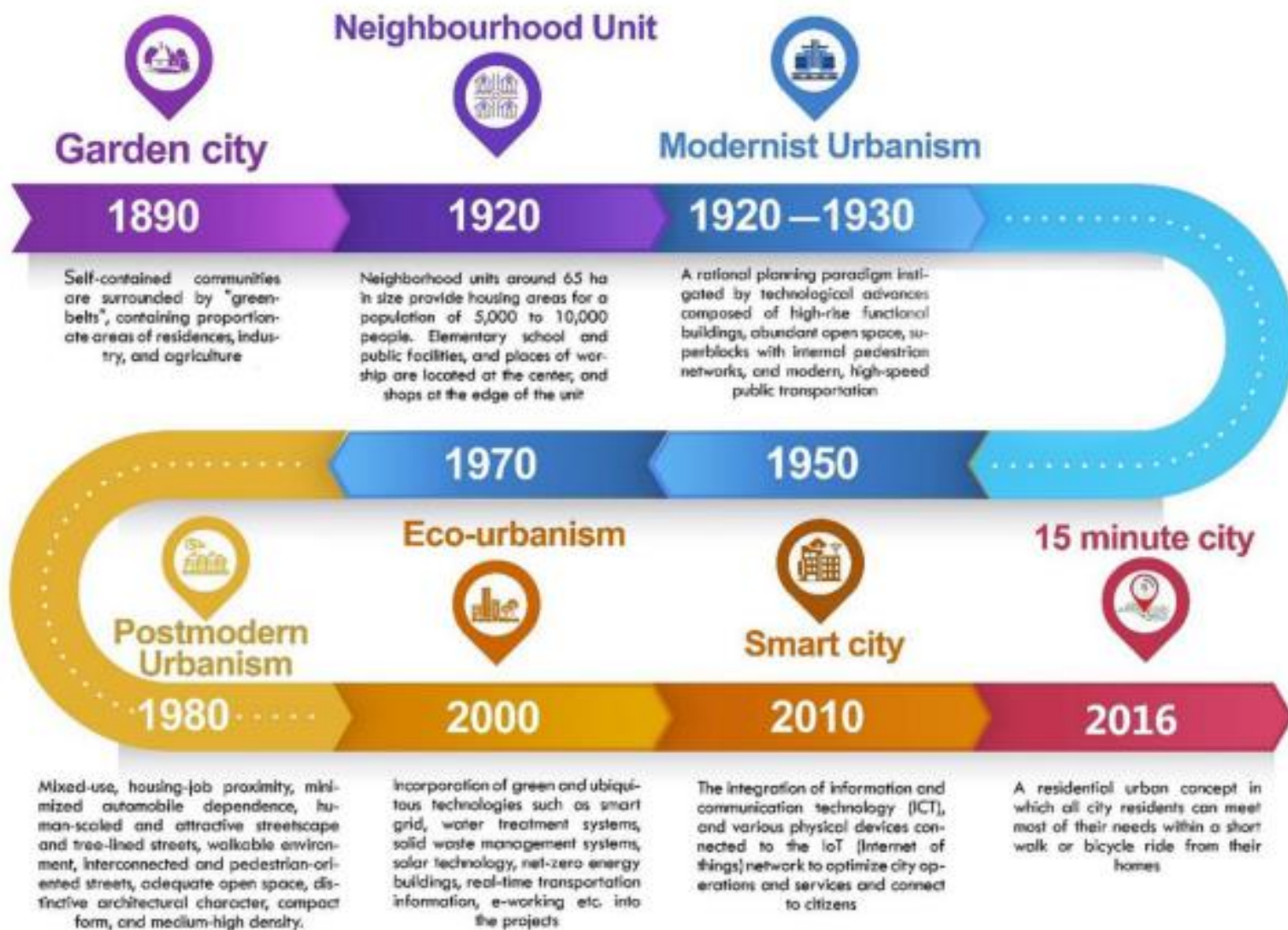


Figure 2. The historical sequence of neighbourhood planning movement to the 15-minute city concept (Khavarian-Garmsir, Sharifi, Hajian Hossein Abadi, et al., 2023, p. 4).

The 15-minute city consists of four basic dimensions; density, proximity, diversity and digitalization (Mocák et al., 2022, p. 76).



Figure 3. The 15-minute city framework (Moreno et al., 2021, p. 102).

Urban density is the number of people inhabiting a given urbanized area and is an important factor when understanding how cities function (Lehmann, 2016, p. 2). According to Jabareen (2006, p. 41), density is the single principal factor because travel by automobile decreases as density increases. I agree that higher densities are needed in York Region, so it would be an important change to planning for the region. However, for the 15-minute city concept, density is referred to as optimal density, similar to compact urban development regarding built form. Optimal density is defined as people per square kilometre by having “the optimal number of people that a given area can comfortably sustain in terms of urban service delivery and resource consumption” (Moreno et al., 2021, p. 102). This will place the optimal number of people in a neighbourhood, allowing for sustainability to be achieved (Mocák et al., 2022, p. 77). Proximity is a temporal and spatial term referring to proximity to basic amenities and services, such as grocery stores, schools, health care, etc. Proximity for this concept is key to the fundamental well-being of people (Amin, 2021, p. 15). It is critical in helping cities reduce their commuting times and environmental and economic impacts (Moreno et al., 2021, p. 103).

The third dimension of this concept is diversity. Diversity is essential in sustainable cities and was popular in Jane Jacobs' work. She states that it is vital in a city; without it, urban systems decline as a place to live (Jabareen, 2006, p. 42). The idea of diversity in the 15-minute city concept is twofold. First, cities need to be mix-use neighbourhoods, having residential, commercial and entertainment elements to maximize space. Second, diversity in terms of multiculturalism (Amin, 2021, p. 6; Mocák et al., 2022, p. 78). If development is not diverse, neighbourhoods often look unattractive and monotonous and lack housing for people of all races, gender, and income (Jabareen, 2006, p. 42). The last dimension of the 15-minute city concept is digitalization. Digitalization is to speed up things by combining digital literacy with the movement of people, for example, bike-sharing systems (Mocák et al., 2022, p. 78). People who are for the 15-minute city concept state that density, diversity and digitalization improve the quality of life by promoting community (Amin, 2021, p. 16). Overall, these dimensions are considered to be the building blocks for the 15-minute city (Daci, 2022, p. 41). I agree that these four dimensions are key in planning for the 15-minute, and I think they are especially important to focus on in York Region as the region continues to grow.

In addition to the basic dimensions, social equity is an important factor in the 15-minute city. The 15-minute city has economic and environmental benefits but also addresses social issues by investing money into affordable transportation, such as busing and pathways, reducing the reliance on cars (Lui, 2021). Scholars have stated that some benefits of the 15-minute city are: better health and quality of life, a more environmentally sustainable city, a more equitable and inclusive city, and a boost to the local economy (The OBEL Award, n.d.). This concept aims to reduce urban sprawl by bringing urban amenities near one another (Mocák et al., 2022, p. 78; Moreno et al., 2021, p. 97). This concept supports a higher quality of life, allowing people to reach essential services. The literature on 15-minute cities mostly only touches upon the positive aspects, but I acknowledge that planning is not always equitable and

does marginalize minority groups, so planners need to be aware of this when attempting to plan and implement that 15-minute city concept.

The 15-minute city concept also has six other basic features that are important to the creation of the 15-minute city. These features are: mixed-use, modularity, adaptability, flexibility, human-scale design and connectivity (Khavarian-Garmsir, et al., 2023, p. 7). The mixed-use features focus on creating a polycentric city with multi-use neighbourhoods. The modularity feature “refers to the ability of a system to be divided into groups of communities and the degree of interconnectedness within the system” (Khavarian-Garmsir, et al., 2023, p. 9). As for flexibility, this was brought out of the COVID-19 pandemic as city dwellers need to become more flexible in their work and living situations. Human-scale urban design is intended to produce more walkable and bikeable city options that optimize human use, reducing the reliance on cars (Khavarian-Garmsir, Sharifi, Hajian Hossein Abadi, et al., 2023, p. 9). The last feature, connectivity, focuses on preventing the creation of isolated neighbourhoods (Khavarian-Garmsir, Sharifi, Hajian Hossein Abadi, et al., 2023, p. 10). I believe these features are all important in creating a sustainable urban development that focuses on people and creates a user-friendly concept that is easy to grasp.

Sustainable urban form is an important aspect of combating climate change locally, as it focuses on urban planning and city structures that influence greenhouse gas emissions. The 15-minute city is an influential form of sustainable urbanism, encompassing all aspects of sustainable urban planning strategies that I have examined. It focuses on pedestrians, walkability, compact living and creating sustainable living environments for all. I believe these are important factors that should be focused on in regional planning as they encompass many demographics and geographies. Overall, understanding these sustainable urban forms and strategies demonstrates what current theorists and planners are doing to create sustainable cities that could be useful in York Region.

3.2. Examples of the 15-minute City Plans and Policies in Other Municipalities.

In order to fully understand the 15-minute city concept and its application to regional planning, I will examine two case study examples. These examples are Paris, France and Ottawa, Ontario. I think that reviewing these two examples will provide context for the 15-minute city and how it could work in York Region. Both examples offer a broad overview of planning for the 15-minute city and how it works in their municipalities. I focus on Paris because it was one of the first examples of the 15-minute city in planning, making it an excellent example to evaluate. I chose to examine Ottawa, as it is closely related to York Region, as the geographic landscapes are similar and is subject to similar planning processes in Ontario. In this section of my paper, I will focus on each example and what it has done and is doing to create 15-minute cities in their areas.

3.2.1. Paris, France

Paris is one of the most notable examples of the 15-minute city concept. As the capital and the largest city in France, it has an estimated population of 2.2 million people in the city area and 11 million people in the urban area (Population Stats, 2023b). The city spans 103 square kilometres (Population Stats, 2023b). These statistics make Paris an excellent example of the 15-minute city development. In 2020, the Mayor of Paris, Anne Hidalgo, introduced the 15-minute city concept as a re-election campaign promise to give her policy agenda the attention it deserves. This agenda includes social, economic, and environmental public reforms, interventions and investments (Chaire ETI & Paris, 2022). She started implementing initial renewals and upgrades to Paris during the COVID-19 pandemic (Kerremans, 2022). However, the 15-minute city promise comes from the Paris city council for their redevelopment project of Paris's emblematic squares to make places more welcoming to pedestrians and cyclists. This initiative aimed to decongest squares, ease access to public transport, create welcoming greenspaces, and simplify the journeys of cyclists and pedestrians (Paris et al., 2020, p. 30).

Policymakers state that they want to make Paris a city of proximity, creating the opportunity to create a 15-minute city, that will rethink several existing facilities (Paris, 2022b).

In Paris, the 15-minute city is referred to as the quarter-hour city. It stems from Carlos Moreno's (2020) research and understanding of the 15-minute city. According to Paris's forms and posts on Paris's municipal website, the quarter-hour city has three elements that are the main pillars. These elements are questioning our travels, responding to underutilized buildings, and responding to the anonymity of life in the city (Moreno, 2020). The quarter-hour city aims to limit the perimeter of access to vital functions, making the city more accessible (Paris, 2022b). The City of Paris's goal for the 15-minute city concept is to have "everything you need within a 15-minute walk from your home or a five-minute bike ride" (Paris, 2022b, para. 1). The city is also very committed to fighting climate change by using the 15-minute city concept as a new model for sustainable urban development (Paris, 2020).

Paris has started a pilot project to implement the 15-minute city concept in three districts and later expanded the project to include one more. See Figure 4 for map of the districts in Paris.



Figure 4. Map of Paris Districts & Neighborhoods. (Parisnet, 2017)

The first district Paris examined for the 15-minute city is the Olympiades district. The Olympiades district is the 13th district in Paris, built in the 1970s (Paris, 2021a). The district comprises 9.8 hectares and has a population of around 10,000 (Paris, 2021a). In order to enhance the 15-minute city in this district, the main focus is the use of municipal facilities. This involves creating a mobile town hall in the Olympiades district accessible to all (Paris, 2021a). This will be done by creating a “bricothèque” in the neighbourhood to bring residents together to share and use. It will have workshops and spaces for the community to use within the district (Paris, 2021a). Overall, the district is planned to have spaces with multiple uses for all residents.

The next district is the Vaugirard district. The Vaugirard district is the 15th district and has about 21,000 inhabitants. The Vaugirard district is comprised of modern and heritage

buildings and neighbours the Eiffel Tower (Paris, 2021c). The focus in this district is to create local amenities that have multi-uses. This starts with rethinking existing facilities, such as schoolyards. The Vaugirard district keeps the schoolyards open on Saturdays for activities (Paris, 2021c). In addition to schoolyards, this district also creates opportunities for local gardeners to sell their harvest and to create classes in specific skills for residents. The Vaugirard district is at the forefront of innovation with all these community projects, including smart lights for streets, and the addition of e-sport space, creating spaces that are accessible for all (Paris, 2021c).

The third district is the Place des Fêtes district. This district was part of the original suburb of Belleville before combining with Paris and was where all the city events were hosted (Paris, 2021b). The Place des Fêtes district is the 19th district, with approximately 17,000 residents. This district's primary quarter-hour city focus is the creation of spaces for everyone through a kiosk in squares and a place for events created by the Capla group. The Capla group aims to animate the area by providing information, events, and social mediation (Paris, 2021b). The renovation of the squares was done through consultation, where residents emphasized creating a space for the community, which is the main focus of the 15-minute city (Paris, 2021b).

The last district Paris highlighted for their 15-minute city concept is the Montmartre district, the 18th district in Paris. Like the Place des Fêtes district, the Montmartre district also has a citizen kiosk. The citizen kiosk is meant for residents to express their needs regarding amenities and services for the 15-minute city (Paris, 2022a). In addition to the citizen kiosks, the district has many initiatives around social ties and proximity. Local residents create and manage the literary cafe and the hours of conversation for people to come and converse. These initiatives are geared toward everyone, but there is an emphasis on young people (Paris, 2022a). This district aims to gear its amenities to all to create spaces that are used and accessible.

These districts aimed to create spaces for all by opening schoolyards on weekends, converting single-use buildings to mixed-use, pedestrianizing school streets and helping local shops with rent affordability (Chaire ETI & Paris, 2022). Paris' attempts to plan for sustainable urban development has included the 15-minute city. This concept has led the way towards districts that are for the people and focus on proximity.

I think referencing this example is important in understanding the 15-minute city concept and how it first worked in a municipality. I also think it will help provide insight into creating the 15-minute city in York Region through policy and planning. Overall, this example provides an understanding of how the 15-minute city concept operates and is planned for in an urbanized municipality. I think the takeaway from this case study is that planning for a city using neighbourhood areas and making use of all community spaces is ideal when planning for the 15-minute city concept in an already established city.

3.2.2. Ottawa, Ontario

Ottawa is Canada's capital and has a diverse landscape of urban, suburban, and rural areas like York Region, making Ottawa a great example to explore when examining York Region's likelihood of planning and implementing the 15-minute city. Ottawa has a population of approximately 812,129 and is 2,790 square kilometres in size, making it the fourth largest city in Canada (Population Stats, 2023a). The 15-minute city concept in Ottawa comes from its Official Plan (Ottawa, 2022) and is part of the city's big five moves embedded in health and resilience planning (Ottawa, 2021, p. 5). The 15-minute city concept is commonly called a 15-minute neighbourhood rather than a city in Ottawa's documents.

In 2019, planners at the City of Ottawa brainstormed ideas to create healthy climate-resilient communities and produced the idea of 15-minute neighbourhoods. A planner at Ottawa public health stated they thought they had made up the idea because they had yet to hear of

Paris. In addition, a planner in the policy department stated that they wanted to take the complete communities idea from the Growth Plan and focus it on a manageable idea. In 2019 when they were working on their Official Plan, these planners wanted to add the metric of time to the complete communities framework to tell the public what a healthy climate-resilient community is. They wanted to create a concept that was easy to understand and had the flexibility that complete communities did not offer (Ottawa Planner, personal communication, 2023). This review by the planners helped the planners in Ottawa create the 15-minute neighbourhood baseline report. In Ottawa's baseline report (Ottawa, 2021), they refer to the 15-minute neighbourhood as "compact, well-connected places with a clustering of a diverse mix of land-uses where daily and weekly needs can be accessed within a 15-minute walk; this includes a range of housing types, shops, services, local access to food, schools and childcare facilities, employment, greenspaces, parks and pathways" (Ottawa, 2021, p. 15).

The City of Ottawa's primary goal is to concentrate growth within established communities by supporting their transformation towards 15-minute neighbourhoods and planning new communities to be dense, compact, well connected and walkable 15-minute neighbourhoods (Ottawa, 2021, pp. 8–9). In order to do this, they have written a 15-minute baseline report (Ottawa, 2021) to identify key attributes of healthy, walkable, 15-minute neighbourhoods. These attributes are: a mix of housing; shaded pedestrian and cycling-friendly streets; human-scale urban design that creates a sense of place; safe and convenient access to transit; a range of public service facilities (e.g., parks, community centres, libraries); neighbourhoods with retail and commercial services and; safe and convenient environments (Ottawa, 2021, pp. 6–7).

This report identified transects in their city with high, moderate, and low services, amenities, and pedestrian environments. These services and amenities are listed in Figure 5.










1.  grocery stores and supermarkets
2.  parks, with or without playgrounds or splash pads
3.  retail/commercial, such as restaurants, bookstores, laundry/dry cleaners, bakeries, pet stores, bars, and convenience stores
4.  OC Transpo bus stops
5.  health services, such as doctor's offices, dentist offices, and pharmacies
6.  O-Train/light rail transit (LRT) stations
7.  indoor recreational and community facilities, including libraries
8.  elementary and secondary schools
9.  childcare facilities

Figure 5. List of services and amenities ranked by highest to lowest priority. (Ottawa, 2021, p.15)

Transect is a concept that was introduced in Ottawa's Official Plan and divides the city into six rings based on different eras of development and built form (Ottawa, 2021, p. 12). These rings are the downtown core, inner urban, outer urban, greenbelt, suburban and rural. The idea of transects stemmed from the 1920s neighbourhood units (Khavarian-Garmsir, Sharifi, Hajian Hossein Abadi, et al., 2023). Planners aim to identify transects through these rings to show how the 15-minute neighbourhoods are working on where they need to improve. From these six rings, planners in the city have identified and analyzed five transects (Figure 6) in their city, with varying scores. These are Downtown Core, Inner Urban, Outer Urban, Suburbs, and Rural Areas. For each area, a score is assigned based on the neighbourhood's proximity to amenities and services as well as the perceived walkability.

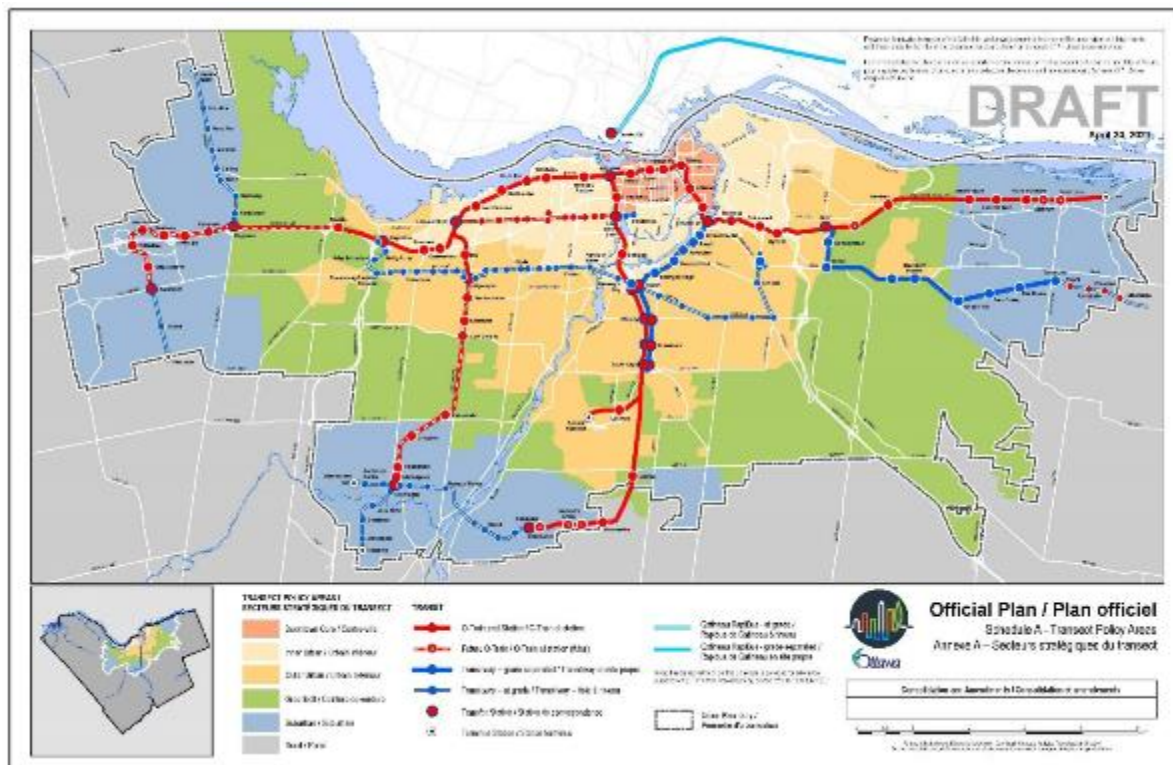


Figure 6. Official Plan Transect Map from the 15-minute neighbourhood baseline report (Ottawa, 2021, p. 12)

In the Downtown Core transect, the majority of the services and amenities are identified as high. However, some pockets have moderate services and amenities. Therefore, Ottawa has identified the next steps in order to improve these areas. One of the ways they wish to do this is to introduce grocery stores, childcare and other facilities in the area by consulting with the City's Economic Development Services and reviewing the parks and recreation facilities master plan (Ottawa, 2021, pp. 36–37). As for the pedestrian environment, it varies throughout the downtown core. Therefore, in order to improve the pedestrian environment through the core, planners have identified areas where they can look into and improve zoning, urban design guidelines and the transportation master plan in order to improve the streets' scores.

Similarly, to the Downtown Core, the Inner Urban transect also has a majority of high services and amenities and a mix of pedestrian environments. However, a few areas in the Inner Urban area have low services and amenities. These areas need more specific services

and a more effective concentration of services and amenities. Therefore, the report recommends introducing the services that the area is missing and consulting with the neighbourhood services unit to identify the common missing services and amenities (Ottawa, 2021, pp. 40–41). As for the pedestrian environment, many streets are rated low because they are dominated by a suburban design that encourages the use of cars. Therefore, to improve this, the planners have recommended creating secondary plans and using other planning tools to construct 15-minute neighbourhoods (Ottawa, 2021, p. 43).

As for the Outer Urban transect, there is a majority of moderate to low services and amenities and various pedestrian environments. The main objective in addressing these areas is to do a deeper dive into them and identify exactly what services and amenities are lacking to plan for what needs to be incorporated to make these areas 15-minute neighbourhoods. The residential streets within the neighbourhoods have higher scores than the commercial streets. The commercial streets' main problem is traffic volume and speeds; the streets are designed for cars rather than people. The planners suggested that they could change the area to mixed-use through redevelopment. This would have to be done by strategizing with community planning and zoning to permit different uses (Ottawa, 2021, pp. 46–47).

Next is the Suburban transect. This transect includes Kanata-Stittsville, South Nepean and Riverside South, Leitrim, and Orleans. The higher service areas are located along commercial streets, while the moderate to low services are between town centres. The recommended improvements are similar to the Inner and Outer Urban transects because identification and consultation are also recommended to improve these areas. The pedestrian environments are different; along the collector streets in the residential neighbourhood, they are rated higher, while on the commercial streets, they score moderate to low due to the car-oriented design (Ottawa, 2021, p. 50). The improvements involve creating pedestrian-focused

streetscapes and residential units along the streets and reducing traffic volume and speed (Ottawa, 2021, p. 51).

The last transect is the Rural transect. This transect is comprised of villages that have a majority of low to moderate services because of a lack of concentration of services. Therefore, many of the services and amenities that make an area highly rated need to be introduced to the area, such as daycares, grocery stores, health services, bus stops, and more (Ottawa, 2021, p. 53). The pedestrian environment varies, having a high score on the former village main streets and lower scores on residential streets due to a lack of street-orientated buildings and segment streets. The planners recommend improving these areas by creating secondary plans to enhance the villages' policies and guidelines (Ottawa, 2021, p. 55).

Overall, the number of services and amenities in the Downtown Core and Inner Urban are higher than in the Outer Urban and Suburban, and the Rural area has the lowest. However, the pedestrian environment of streets depends on whether the streets are major roads rather than neighbourhood streets. Due to several factors, streets within the neighbourhoods have better pedestrian environments than major roads. However, the main factor is traffic and shaded space. The majority of the solutions involve improving other areas of policy to plan 15-minute healthy, walkable neighbourhoods and collaborating with other departments within the city.

I think that Ottawa is an excellent example of the 15-minute city concept, as it has many different geographic sections similar to York Region. It provides an overview of what could be done when examining a municipality with urban, suburban, and rural transects, giving context to what York Region could do to plan for the 15-minute city concept as a solution to climate change. I think that using this case study demonstrates how a municipality in Ontario, that is subjected to the same planning regiments, can use the 15-minute city to create neighbourhoods that focus on planning for equitable spaces. I think that their assessment of their

neighbourhoods is useful in examining how the 15-minute city concept could operate in a large geographic space. I believe that Ottawa is using the term the 15-minute city concept to help residents understand how their neighbourhood planning and framework will work as it is easy to understand.

4. York Region: How the 15-minute City Would Make a Difference

4.1. Regional Planning in Ontario

In order to understand how the 15-minute city would make a difference to York Region, I will explore what regional planning is. Examining regional planning will set the context of York Region while simultaneously explaining its role within planning. Regional planning is comprised of two words, region and planning. A region is “a cohesive area that is homogeneous in selected defining criteria and is distinguished from neighbouring areas or regions by those criteria” (Britannica, 2019, para. 1). Planning is defined as the “design and regulation of the uses of space that focus on the physical form, economic functions, and social impacts of the urban environment and the location of different activities within it” (Fainstein, 2022, para. 1). However, regional planning is more complicated and diverse than having a focus on a large area that differs from neighbouring areas where urban environments are designed and regulated.

According to scholars, regional planning is a term used by planners to organize natural resources in a community (MacKaye, 2014, p. 68). It is planning for a geographic area comprised of several towns and cities that share common economic, social, political and transportation goals (Razao, 2020, p. 18). Regional planning is concerned with many parts of the built environment, the natural environment, and social and economic activities over a large area that could include several towns, cities and rural populations (Hodge et al., 2020, p. 190). Robinson and Hodge (2001, p. 11) state that regional planning has five essential characteristics: large-scale, interrelated, balanced, normative, and having implementation potential. These characteristics are useful in seeing the broad picture of regional planning. In addition to these characteristics, the region should always consider these three intrinsic factors: folk, work, and place. Folk is referred to as the people of the region, work is the region’s economy, and place is the region’s geographical and natural environment dimensions (Hodge et al., 2020, p. 191). The factors and characteristics above are what create regional planning.

Canada has two types of regional planning: rural and non-metropolitan regions, and large urban and metropolitan regions (Hodge & Robinson, 2001, p. 12). Planning for rural and non-metropolitan regions is very diverse because of the size and distinct landscapes. Planning for these regions involves maintaining and protecting rural regions, conserving and developing rural resources and strengthening rural economies (Hodge & Robinson, 2001, p. 13). On the other hand, planning for large urban and metropolitan regions involves planning urban growth and development in viable, efficient, and harmonious patterns (Hodge & Robinson, 2001, p. 13). This is the type of regional planning related to York Region. This type of regional planning should consider the area's scale, the population's size and other inter-municipal settings for planning (Hodge et al., 2020, p. 205). These two types of regional planning are related as they both plan for large geographic areas, economies, and the people in these regions.

The provincial government plays an important role in Ontario's regional planning and growth management. The government creates these planning regions within the province, using political or natural boundaries, giving regions status and allocating resources to matters of regional interest, like regional transit (Hodge et al., 2020, p. 190; Razao, 2020, p. 18). Regional municipalities are also known as upper-tier municipalities and are responsible for lower-tier or local municipalities. Typically, upper-tier municipalities are formed by two or more lower-tier municipalities. The *Municipal Act* (2001) in section 11 sets out responsibilities for all municipalities. It states, "a lower-tier municipality and an upper-tier municipality may provide any service or thing that the municipality considers necessary or desirable for the public, subject to the rules set out in subsection (4)" (Municipal Act, 2001). Upper-tier municipalities are typically responsible for; water, wastewater, and roads; high-level urban planning; social assistance; affordable housing; transit; EMS; police; and solid waste management. These responsibilities can also be delegated to their lower-tier municipalities, as these are considered to be subordinated to upper tiers, especially in land use planning; for example, lower-tier municipalities' official plans must conform to their upper-tier's official plan. Overall, regional

municipalities in Ontario have many responsibilities to provide necessary or desirable services for the public. I realize that understanding how lower-tier and upper-tier municipalities interact assists in comprehending how planning works in York Region and how planning for climate change would work. However, I must emphasize with the new legislative changes that are happening in Ontario with Bill 23, the function of regional planning will change.

4.2. Overview of York Region

York Region is my study area of choice as this is the regional municipality where I grew up and spent the majority of my life. Therefore, in order to understand how the 15-minute city concept could be a solution to climate change in York Region, I will first illustrate the geography, demographics, and landscape of the York Region.

York Region is an upper-tier municipality in Ontario, located in the Golden Horseshoe. It is north of the City of Toronto, west of the Region of Durham, east of the Region of Peel and south of the County of Simcoe (see Figure 7). York Region spans 1,776 square kilometres and has a population of 1,173,103 living within its nine lower-tier municipalities (York Region, 2022a, p. 5). It is one of the most diverse and fast-growing regions in the Greater Toronto and Hamilton Area (York Region, 2021d, p. 1; 2022, p. 2). Since 2016 the population in York Region has increased by 5.7%. By 2051, the region's population is projected to grow to 2,051,000 and have 991,900 jobs (York Region, 2022a, p. 16). The majority of York Region's population is between the ages of 25-64; the average age is 41.4 years old (York Region, 2021d, p. 2).

Map of the Greater Golden Horseshoe

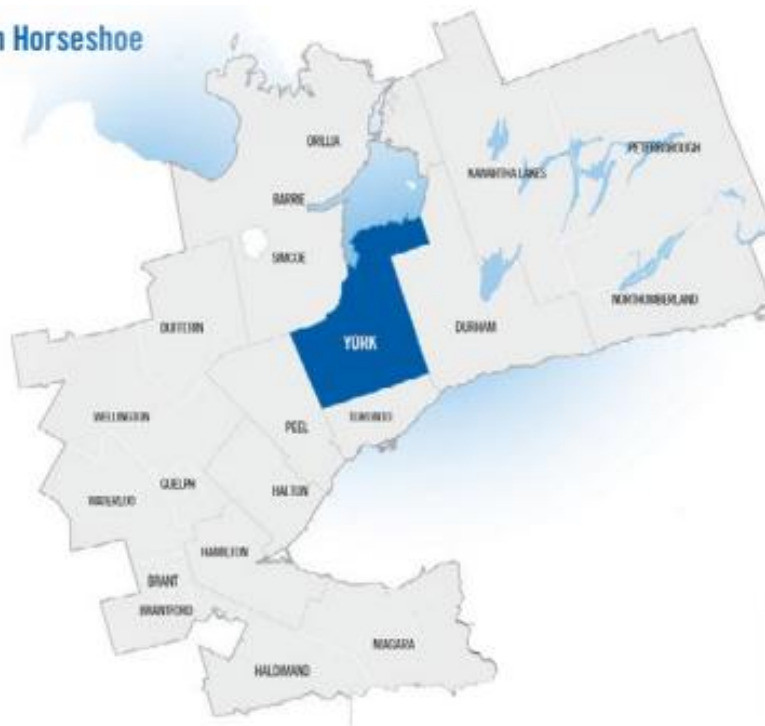


Figure 7. Map of the Greater Golden Horseshoe to show where York Region is located (York Region, 2022a)

The types of housing are also changing in York Region. In 2021 there were approximately 390,935 total dwelling units in the region, an increase of 9.5% from 2016 (York Region, 2021a, p. 3). There has been a decrease in the proportion of single detached dwellings from 75% in 2016 to 62% in 2021. However, this does not change the fact that single-detached dwellings are still the most common dwelling type in the region (York Region, 2021a, p. 1). This decrease in total single-detached dwellings is due to an increase in apartment structure types by 12,025 units (York Region, 2021a, p. 1,3). See Appendix 1 Figure 11 for a breakdown of the 2021 housing mix. In addition to housing type, York Region has 82% of their population as household owners, while the remaining 18% are renters. York Region has the highest ownership percentage in the Greater Toronto and Hamilton Area (York Region, 2021b, p. 1).

Employment in the region has changed over time. Between 2016 and 2021, there has been an increase of 301% in people working from home (York Region, 2021c, p. 1). This

change has also been shown in people's commuting types to work, with single-occupant drivers being the most common mode of transportation (See Appendix 2 Figure 12 for 2021 mode of travel to work breakdown). In contrast, other modes, such as walking/biking and taking the bus, have a 3% and 6% share, respectively (York Region, 2021c, p. 1,4). This demonstrates that people rely on their personal vehicles, especially when travelling for work.

These changes are also demonstrated within the nine lower-tier municipalities in York Region. These nine lower-tier municipalities are; Georgina, East Gwillimbury, Newmarket, Aurora, Richmond Hill, Whitchurch-Stouffville, Markham, King Township and Vaughan (see Figure 8). The town of Georgina is York Region's northernmost municipality, bounded by Lake Simcoe, the township of Brock, Cook's Bay and the Town of Bradford-West Gwillimbury. It is 289.59 square kilometres in size and has a population of 47,642 residents (Georgina, 2020, p. 11; York Region, 2021d, p. 1). Georgina is comprised of four different settlement areas: urban areas, towns and villages, hamlet areas and lakeshore residential (Georgina, 2020, pp. 12–13). The town of East Gwillimbury is the fastest-growing municipality in Canada, with a population of 33,367 residents as of 2021 (York Region, 2021d, p. 1). This is an increase of 44.4% since 2016. East Gwillimbury occupies 238 square kilometres and incorporates hamlets and villages within its rural area. Its residential population is expected to grow to 86,500 (East Gwillimbury, 2018, p. 1). The town of Newmarket is approximately 39 square kilometres, with a population of 87,942 (Newmarket, 2006, p. 29; York Region, 2021d, p. 1). It is considered a community with a "small-town spirit and a strong sense of place" (Newmarket, 2006, p. 28). The town of Aurora is located along Highway 404 in the middle of the York Region. It spans 50 square kilometres and has a population of 62,057 (York Region, 2021d, p. 1).

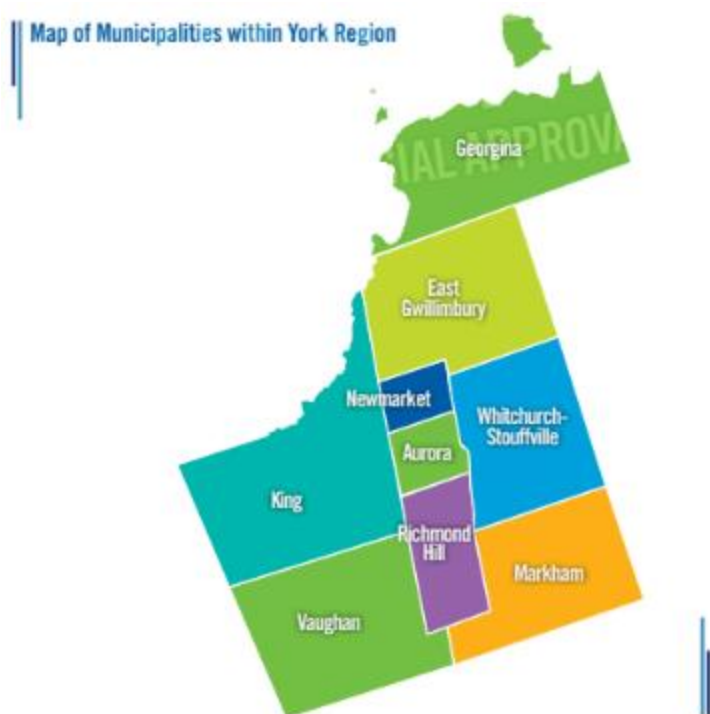


Figure 8. Map of Municipalities within York Region. (York Region, 2022a)

The city of Richmond Hill is one of the more urban lower-tier municipalities in York Region. It has had rapid urbanization over the last three decades, making it almost entirely built out to its urban boundary (Richmond Hill, 2020, sec. 1, p.3). This municipality is approximately 101.11 square kilometres in size and has a population of 202,022 (Richmond Hill, 2020; York Region, 2021d, p. 1). The town of Whitchurch-Stouffville is also one of the fast-growing municipalities in Canada, with a population of 49,864 (Whitchurch-Stouffville, 2020, p. 1; York Region, 2021d, p. 1). It spans approximately 200 square kilometres and includes urban communities and rural/agricultural areas for land-intensive uses and non-farming development (Whitchurch-Stouffville, 2020, pp. 1–4). The city of Markham is York Region’s significant employment centre and spans approximately 212 square kilometres (Markham, 2014, p. 2). Its population has increased tenfold since its move from town to city in 2012, and it now has a population of 338,503 (Markham, 2014, p. 2; York Region, 2021d, p. 1). The township of King spans 332.12 square kilometres and has a population of 27,333 (King, 2019; York Region,

2021d, p. 1). The township encompasses rural areas and hamlets, with most residents located in the three villages of King City, Nobleton and Schomberg (King, 2019, pp. 1–2). The city of Vaughan is the most urban municipality in York Region. It is forecasted to have the most investment in infrastructure with the creation of two subway lines, expansion of Viva bus rapid transit and new civic infrastructure (Vaughan, 2010, p. 3). Vaughan spans 273.5 square kilometres and has a population of 323,103 (Vaughan, 2010; York Region, 2021d, p. 1). See Appendix 1, Figure 13, for a breakdown of the population and projected population for all lower-tier municipalities and the region.

As shown in Figure 9, these lower-tier municipalities have varying land uses. York Region land use is designated as community areas, employment areas, hamlets, rural areas, agriculture areas and specialty crop areas (York Region, 2022a, p. 13). The region's official plan defines community areas where the most housing is required to accommodate the forecasted population (York Region, 2022a, p. 152). Employment areas are defined as areas that are clusters of business and economic activity, such as offices and warehouses (York Region, 2022a, p. 155). Hamlets are located in rural areas and are small communities with limited growth. Rural areas are prime agricultural lands outside the urban areas that support diverse activities, such as tourism and recreational activities. These areas also contain valuable natural resources (York Region, 2022a, p. 13). Agriculture areas are defined as an area that contains a continuous, productive agricultural land base, and specialty crop areas are for agricultural use where special crops are grown (York Region, 2022a, p. 13).

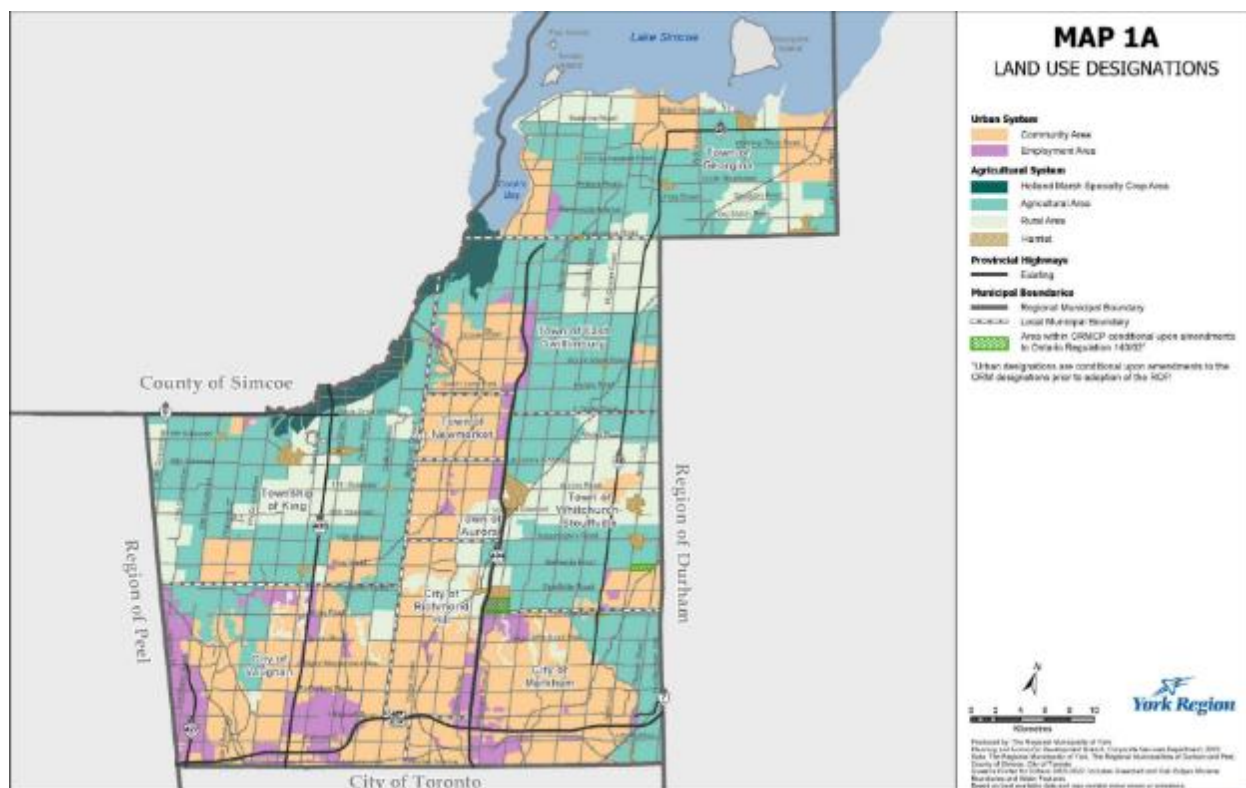


Figure 9. Map from York Region's Official Plan of York Region's Land Use Designations. (York Region, 2022a)

The land use map (Figure 9) does not show York Region's ecologically significant lands, the Oak Ridges Moraine and the Greenbelt. These areas contain 69% of York Region's land base (York Region, 2022a, p. 2). The region's plans must include protecting the Oak Ridges Moraine and the Greenbelt. Overall, York Region is a large area with various degrees of urban and rural areas, making it a great area when studying regional municipalities to determine if the 15-minute city concept could solve climate change in a regional context.

4.3. Existing Policy Related to Sustainable Urban Planning Strategies.

4.3.1. Growth Plan for the Greater Golden Horseshoe

York Region is located in the Greater Golden Horseshoe (Figure 7); therefore, it is subject to provincial legislation and plans. Hence, I will examine the Places to Grow: Growth Plan for the Greater Golden Horseshoe (Ontario, 2020) as it relates to the 15-minute city

concept. This examination will provide context to what I think is possible to plan and implement in York Region in order to create the 15-minute city in this region.

The Places to Grow Act: Growth Plan for the Greater Golden Horseshoe is commonly called the Growth Plan. It was developed to support economic prosperity, protect the environment, and help communities achieve a high quality of life (Ontario, 2020, p. 3). Since the Plan's inception, the Greater Golden Horseshoe has shifted to more compact development, a variety of housing options, and mixed-use development in urban growth centres and other strategic growth areas (Ontario, 2020, p. 5).

The policies and principles relevant to the 15-minute city concept in the Growth Plan are related to growth management, housing, and climate change. The Growth Plan forecasts growth in complete communities (Ontario, 2020, p. 10). Complete communities are defined as follows:

Places such as mixed-use neighbourhoods or other areas within cities, towns, and settlement areas that offer and support opportunities for people of all ages and abilities to conveniently access most of the necessities for daily living, including an appropriate mix of jobs, local stores, and services, a full range of housing, transportation options and public service facilities. Complete communities are age-friendly and may take different shapes and forms appropriate to their contexts (Ontario, 2020, p. 68).

These communities support the quality of life and human health by encouraging active transportation and access to public open spaces. They reduce the need for long commutes as housing and jobs are located in close proximity. To support the realization of these communities, the Growth Plan sets minimum intensification and density targets (Ontario, 2020, p. 10). In addition to these targets, this plan provides policies for numerous topics supporting complete communities and compact development.

In the plan's *Where to Grow and How to Grow* section, policies for managing growth state that complete communities will be supported in settlement areas (Ontario, 2020, p. 13). Policy 3c in this section states that upper-tier municipalities will plan for forecasted growth in

order to provide direction on the urban form to “optimize infrastructure, particularly long transportation corridors, to support the achievement of complete communities through compact built form” (Ontario, 2020, pp. 13–14). Other policies in this section indicate that to create these complete communities regional planners must focus on compact and transit-oriented development. These complete communities will have a diverse mix of land uses, including employment and residential uses, improve the social equity and quality of life for all, and provide a diverse range of housing (Ontario, 2020, p. 14).

The Growth Plan (2020) also directs housing to support the achievement of complete communities. Policy 2 in the housing section states that to achieve complete communities, municipalities must plan for their forecasted growth, minimum intensification targets and densities, consider a range of housing options and diversify the municipality’s housing stock (Ontario, 2020, p. 23). Creating housing options that are diverse and dense is a theme of creating complete communities as well as a characteristic of the 15-minute city concept. Regarding climate change, regional municipalities will develop policies in their official plans to reduce greenhouse gas emissions and address climate change adaptation goals that align with other provincial plans and policies to support the achievement of complete communities.

Overall, the guiding principle of all policies in the Growth Plan is to support the achievement of complete communities. This support is done through housing, transportation, growth management, and climate change policies. There are many policies within the growth plan; however, complete communities is a term most similar to the 15-minute city concept as it relates to accessing services and amenities, compact development, and active transportation. These similarities show that the 15-minute city concept would be easy to implement in regional planning as there are already concepts that could reinforce these ideas. In addition, the 15-minute city concept could offer more in terms of measuring distance and time making it an easier concept to understand to people who are not familiar with policy planning terms.

4.3.2. York Region's Official Plans and Policies

York Region's official plans and policies are essential to understand when determining if the 15-minute city concept could be a solution to climate change in a regional context. These plans are fundamental in planning for York Region by determining how, where, and when growth will happen. In this section, I will examine the current policies in York Region's Official Plan (York Region, 2022a) and Climate Change Action Plan (York Region, 2022b) to explore the potential of the 15-minute city concept. The official plan was adopted in the summer of 2022 and approved by the provincial Minister of Municipal Affairs and Housing in November 2022 (York Region Planner, personal communication, 2023). The Climate Change Action Plan was created in September of 2022, and planners are working to implement it using existing implementation tools for some of their actions.

The official plan does already address the 15-minute city concept under the heading "Urbanizing Region" in its objectives for community areas. This section states that their objective is to "ensure [communities] are walkable, pedestrian-oriented, and amenity-rich locations which provide residents with a range of services and open spaces within a 15-minute walk or cycle of their home" (York Region, 2022a, p. 66). Policy 4.4.7 states that residential intensification should have essential services, such as retail, education, culture, transit and recreational facilities, within a 15-minute walk, consistent with section 2.3 of the plan (York Region, 2022a, p. 80). Their plan also addresses the 15-minute city concept through a graphic measuring the success of complete communities in York Region (Figure 10). It states that the success of complete communities can be measured by looking at 15-minute communities that include greenspaces, address climate change, focus on local food, is compact and vibrant, has a variety of land uses, ensures the quality of life, has transportation and housing options, and are convenient to access. These characteristics are similar to the definition of the 15-minute city concept.



Figure 10. Measuring the success of complete communities in York Region graphic reference 15-minute communities (York Region, 2022a, p. 19)

In addition to the direct reference to the 15-minute city concept in their official plan, many policies are similar to the 15-minute city concept’s characteristics. In particular, section 2.3, supporting complete communities, includes policies that aim to “create vibrant, complete, sustainable communities where people can live, work, play, learn and enjoy a high quality of life” (York Region, 2022a, p. 18). These policies focus on having walkable communities that can access most local amenities. These communities aim to optimize land use through compact, mixed-use, pedestrian-friendly and transit-supportive built forms while promoting wellness and quality of life (York Region, 2022a, pp. 18–19). Policy 2.3.3 states “that communities shall be designed in a manner that fosters physical and mental health, facilitates inclusivity and accessibility for people of all ages and abilities” (York Region, 2022a, p. 19). Policy 2.3.13 emphasizes the design aspects of complete communities, indicating that they should meet green development standards and support walkable neighbourhoods. This policy states that these communities should be designed to provide safety, connectivity, and accessibility while

promoting sustainability and having well-designed public spaces (York Region, 2022a, p. 20). The complete community policies also discuss providing a mix and range of housing to address affordable housing needs. The complete communities' policies' main goal is to create spaces for everyone that are accessible and walkable, promote a wide range of activities, and promote community inclusivity.

In addition to the official plan, York Region has a climate change action plan that includes priorities and actions to address climate change in the region. This plan has identified three priority areas and 20 actions in order to address climate change in all government departments of the region. The priority areas are resilient communities and infrastructure, low-carbon living, and support for an equitable transition. Each action has associated tasks that include an anticipated start date and end date. The resilient communities and infrastructure priority area state that it aims to guide and encourage the creation of complete communities through seven different actions (York Region, 2022b, p. 19). One of these actions is integrating climate change concerns into existing and new municipal plans and development tools. This can be done by ensuring climate change policies are in the lower tier's official plans (York Region, 2022b, p. 19). In the low-carbon living priority area, an action that is related to the 15-minute city concept is to "increase use of more sustainable modes of transportation, such as walking, cycling and transit, and community adoption of electric and low-emissions vehicles" (York Region, 2022b, p. 24). This action is supported by five tasks that relate to expanding cycling and walking routes, updating the official plan, and incorporating climate change adaptation and mitigation into the Transportation Master Plan Program.

York Region's plans and policies focus on complete communities, a concept similar to the 15-minute city concept. The official plan references 15-minute walks and how 15-minute communities can measure the success of complete communities. However, the complete

community policies are missing the reference to time, an important factor in 15-minute cities and could help enhance the current policies in parts of the region.

4.4. Proposed Policy Changes of the “15-minute City” for Implementation in York Region Plans

Fully committing to the 15-minute city concept in York Region’s official plan could change some policies the current official plan has in place. According to the 15-minute city concept framework, the York Region official plan should create spaces that achieve diversity, proximity, density, and digitalization. The 15-minute city concept could be used as a planning tool to help enhance amenities and services, pedestrian and green space, transportation, and housing in York Region. In this section of the paper, I will focus on policy changes that York Region can implement to their official plan to include the 15-minute city concept. I have chosen to examine these sections as I think these would be the best changes that could be made to the current policies set out by York Region in the Official Plan.

4.4.1. Amenities

According to the York Region Official Plan (York Region, 2022a), services are referred to as human services and focus on supporting everyone in all stages of life to strengthen the community. The examples they use for human services are healthcare, education, recreation, and outreach programs (York Region, 2022a, p. 158). This definition of services only provides a brief overview, while a more robust one would help define the most important services required to create 15-minute communities. For example, the city of Ottawa’s 15-minute neighbourhood baseline report did a public survey of residents in order to gauge their preferred amenities and services. This survey includes residents stating what services and amenities they needed in a 15-minute neighbourhood. From the survey, nine services and amenities were identified (Ottawa, 2021, p. 16);

1. Grocery stores and supermarkets
2. Parks, with or without a playground or splash pads
3. Retail/commercial, such as restaurants, bookstores, bakeries, pet stores, bars, and convenience stores
4. OC Transpo bus stop
5. Health services, such as doctor's offices, dentist offices and pharmacies
6. O-Train/light rail transit (LRT) stations
7. Indoor recreation and community facilities, including libraries
8. Elementary and secondary schools
9. Childcare facilities

These amenities and services are clearly stated and ranked based on public opinion. They differ from York Region's definition of human services. Ottawa differentiates between parks and indoor recreation and includes transit as an essential part of the 15-minute neighbourhoods. Adding parks and transportation to York's definition of human services would be useful in enhancing the definition to include aspects of the 15-minute city concept.

Section 2.3, policy 2 of York Region's official plan speaks to optimizing land with compact, mixed-use, pedestrian-friendly and transit support built form (York Region, 2022a, p. 18). This could be described as amenity-dense, meaning that people "have adequate access and can walk to public transit stops, pharmacies, and grocery stores, childcare facilities, and libraries within a one-kilometre distance, and elementary schools within a 1.5-kilometre distance" (Boychev, 2021, p. 79). The inclusion of time and distance is important in the 15-minute city concept, as these set it apart from other sustainable urban planning strategies. A policy planner at the city of Ottawa emphasized the inclusion of time and distance to make the idea more practical and help people "get their heads around it" (Ottawa Planner, personal communication, 2023). Focusing on time and distance when making policies regarding

amenities and services is important in understanding where they should be located within a community/neighbourhood and what mix of amenities and services is needed.

Overall, the policy changes needed in the York Region's official plan to implement the 15-minute city concept related to services and amenities are associated with the metric of time and distance. Therefore, modifying the definition of human services to include transit and parks and using terms like amenity-dense or amenities density to emphasize multiple amenities required to adopt the 15-minute city concept in an official plan policy.

4.4.2. Pedestrian and Green Spaces

Pedestrian and green spaces are important aspects of planning for 15-minute cities. The 15-minute city concept highlights compact living, which creates less space for backyards. Adding more parks, green spaces, and pedestrian areas will give people more opportunities to get fresh air, be active and enjoy nature while living in a dense, more compact city. York Region's official plan already mentions improving access to public spaces, green spaces, and community infrastructure and creating compact and dense communities. Additional policies should be designed to monitor the pedestrian environment, create pedestrian streets, and use schools as community spaces to reference the 15-minute city concept.

The city of Ottawa's 15-minute neighbourhood baseline report (2021) evaluates the pedestrian environment to determine where improvements are needed to create 15-minute neighbourhoods in Ottawa. Based on survey results, the report identified that maintenance of sidewalks and pathways, intersections that feel safe to cross, and protection from traffic through the landscape are the most important factors for the pedestrian environment. Policies focusing on these three criteria would create safer and more enjoyable spaces, encouraging more people to walk and use active transportation. Enjoyability is also an influential part of the pedestrian environment. Ottawa's (2021) report states that desirable features are museums, public art,

sports and leisure areas, forests, waterbodies, greenspaces and buildings, while undesirable features are; surface parking lots, rail yards, brownfields, outdoor storage and vacant lots. These desirable features allow people to stop and sit, understand where they are going and create safe spaces for people of all ages and genders (Ottawa Planner, personal communication, 2023).

The pedestrian environment relates to complete streets that are a part of the official plan. Complete Streets is “a policy and design approach for streets to ensure the provision of safe and comfortable movement by all modes of travel and for users of all ages and abilities” (York Region, 2022a, p. 21). Researchers have written that having complete streets requires analyzing how they operate, similar to Ottawa evaluating its pedestrian environments (Amin, 2021, p. 20). Complete streets are related to pedestrian streets.

Pedestrian streets are car-free zones that allow pedestrians and cyclists only. These streets help improve businesses; a study in six American cities done by Bliss (2021) stated that these streets positively affect business sales and employment (Boychev, 2021, p. 23). In Paris, the transformation of streets for pedestrian use helps create an ecological transformation for the city (Boychev, 2021, p. 29). The main goal was to prioritize pedestrians by removing cars or creating slower speeds for traffic to create safer and more enjoyable walking environments (Institute for Transportation & Development Policy (ITDP), 2018). Pedestrian streets do not just have an impact on the environment but also the economy. Policies in the official plan should include mandating the local municipalities to create pedestrian streets, where appropriate, to encourage active transportation. This will expand on the complete street policies by creating areas used only for active transportation.

Lastly, in order to enhance pedestrian and green space policies in the official plan to include the 15-minute city concept, partnerships with schools and school boards to create

community spaces should be encouraged. In Paris (2022b), they have been rethinking existing facilities to develop a city of proximity. These facilities include schoolyards becoming meeting places and entertainment venues in the neighbourhoods on Saturdays (Paris, 2021c). Paris plans to make and has made schools a central meeting place in their city. They are places of relaxation and physical activity for residents. York Region has over 300 elementary schools in the York Catholic and York Public Boards. Partnerships with these school boards could open up community spaces that are accessible for residents to congregate and access green space. Creating policies in the official plan that focus on schools and partnerships with schools to create and animate safe and accessible space for the community would be crucial in creating the 15-minute city concept in York Region.

Overall, for pedestrians and green spaces, focusing on people first is the way to create the 15-minute city in York Region. Focusing on greenspaces and active travel would have a positive effect on combating climate change. Planning pedestrian streets and partnerships with schools would also utilize existing infrastructure to make York Region more walkable.

4.4.3. Transportation: Active Transportation and Public Transit

As previously mentioned, including public transportation, in the definition of human services would be useful in incorporating and implementing the 15-minute city concept into York Region's official plan. Transportation is a vital part of the 15-minute city concept. In large areas, public transit becomes an extension of creating 15-minute communities/neighbourhoods. In the official plan (York Region, 2022a), public transit policies focus on creating linkages to active transportation corridors, having the right-of-way and accommodating people of all ages and abilities. I agree that these are important policies for public transit. However, I think it would be beneficial to include policies that address transit-less areas where transit is less frequent and fewer stops are available. Since there are areas where 15-minute walks to amenities and

services may not be possible, public transit would be the alternative option instead of relying on personal vehicles.

In addition to public transit, policies need to focus on active transportation, especially cycling. When creating mixed-use development, people and municipalities have multiple options for transportation, such as bike sharing (Boychev, 2021, pp. 19–20). Creating partnerships with bike-sharing companies is an approach the region could explore to make cycling more accessible. Including policies supporting the infrastructure of public bike-share facilities close to public transportation would encourage more active transportation throughout the region. Encouraging cycling is easy, but creating infrastructure for cycling can be difficult. Often bike lanes are scattered and of poor quality; therefore, when creating bike lanes, the region must think, “Can cyclists get to everything they need to in a safe, pleasant, and convenient way?” (de Gheldere, 2020 para. 8). Planners must focus on policies that enhance public transit, cycling and pathway connections.

4.4.4. Housing

Housing is also an important policy point for implementing the 15-minute city in York Region. The official plan has seven policy points that focus on topic areas, such as a mix and range of housing, the percentage of new housing being built, how many rental units are required, housing options and tools that could implement these housing strategies. The main focus of the policies that reference the 15-minute city concept is diversity and density. Diversity is similar to having a mix and range of housing. If planners do not emphasize diversity, housing will become homogeneous, unattractive, monotonous, and lacking (Jabareen, 2006, p. 42). A planner in Paris states that mixed-use and mixed-income are the most important characteristics of the 15-minute city concept, so policy needs to consider the diverse housing and incomes (Paris Planner, personal communication, 2023). Therefore, including the word “diverse” in the

policies will underline the importance of having a diverse range of housing for all people. This is already included in the Growth Plan (2020) (2.2.6); therefore, it is likely that York Region has considered it in their plans. In the official plan, density is not a focus for housing. Adding density to the housing policies' wording would allow for the 15-minute city concept to be included in the policies. Higher densities optimal for the area will result in shorter travel times, encourage active travel, and reduce greenhouse gas emissions (Allam, Nieuwenhuijsen, et al., 2022, p. e182).

Overall, including density and diversity wording in the housing policies for complete communities could transform the official plan policies to include the 15-minute city concept and help implement it. These are two critical characteristics of the 15-minute city concept.

Focusing on policy areas related to amenities and services, pedestrian and greenspaces, transportation, and housing could help change York Region's Official Plan. These changes could market sustainable planning to the public to find a solution to climate change. Adopting the 15-minute city concept as an urban planning strategy will promote sustainable urban planning, address regional climate change, and make sustainable urban planning easier to comprehend.

4.5 Discussion: Challenges, Opportunities, and Recommendations

The 15-minute city concept could transform York Region and combat climate change within the region. In some lower-tier municipalities, the 15-minute city concept could transform their amenities and services, pedestrian and green spaces, transportation, housing, and many other aspects. However, this concept could be hard to plan for in other lower-tier municipalities. I think implementing this 15-minute city concept from the creation of new policies will have a few challenges and many opportunities.

4.5.1 Challenges

The challenges I think York Region will have to address when it comes to having the 15-minute city concept are related to the geography of the region, collaboration that is required, new legislation proposed by the provincial government and public opinion of the 15-minute city concept.

York Region is a huge area and is comprised of urban, suburban, and rural landscapes. Making policies related to the 15-minute city concept for the urbanized areas is much easier since they are more compact, denser, and already have built-up areas. Difficulties arise when planning for suburban and rural areas that are less urbanized because of sprawl. York Region is severely car-dependent and has an urban structure that is spread out; therefore, implementing the 15-minute city concept in rural areas can be extremely difficult (Khavarian-Garmsir, Sharifi, & Sadeghi, 2023, p. 3; Khavarian-Garmsir, Sharifi, Hajian Hossein Abadi, et al., 2023, p. 12). The suburbs and rural areas have fewer and more spread-out services and amenities and unreliable public transportation. A Planner in Paris emphasizes a need for more connection between Paris's urban centre and the suburbs, which becomes an issue when creating 15-minute communities/neighbourhoods. These connections are not a one-size fit all solution; they require neighbourhood plans that consider the geographic specificities and uniqueness of the areas (Khavarian-Garmsir, Sharifi, Hajian Hossein Abadi, et al., 2023, p. 12). For York Region to implement the 15-minute city concept into policies and plans, planners must consider the region's geography.

People who live in the suburbs rely on their cars to get to work in the urban centre because transit is not reliable. These municipalities historically have been planned for automotive transportation, so spatial development can be difficult when trying to reinvent these sprawling suburbs and rural areas (Ratti & Florida, 2021, para. 6; Steuteville & Duany, 2022,

para. 6). The Planner in Paris recommends that in order to create a 15-minute city in Paris, they will have to strengthen the public transportation and the subway network in the city (Paris Planner, personal communication, 2023). When planning for the 15-minute city in York Region, planners need to emphasize the importance of public transportation and create policies that support transit in rural and suburban communities that is reliable and frequent.

Everyone in the municipality must make the changes necessary to create the 15-minute city in York Region, not just the region's planners. A Planner at Ottawa states that the 15-minute neighbourhood concept should take a whole society approach. They emphasize that all departments of the municipality and residents should work together. The planners can create the conditions for the 15-minute city concept, but the concept will never become a reality if no one uses these initiatives. That is why the planners in Ottawa have conducted multiple public meetings and surveys to get residents' opinions on the 15-minute city to create a plan that works (Ottawa Planner, personal communication, 2023). These public meetings were held over Zoom and involved approximately 300 attendees. The participants were allowed to ask questions about the 15-minute neighbourhoods to better understand the concept and educate themselves (Ottawa, 2021, p. 13). The challenge following this is coordination with departments and residents to fully understand what is needed to create the 15-minute city concept. In order to do this, it takes time and resources that the municipality may not have to start a project of this calibre to create policies and implement the 15-minute city concept in York Region. This challenge makes the 15-minute city harder to achieve as there are barriers between departments and residents regarding the transportation systems, regulations and communities (Steuteville & Duany, 2022, para. 44).

In addition to these challenges, the current provincial government is creating multiple legislative changes that could affect York Region policies. I am unaware of the implications Bill 23, *More Homes Built Faster Act*, 2022, will have on planning policies in York Region. This Act

was passed on November 28, 2022, and is an act to amend various statutes, to revoke various regulations and to enact the *Supporting Growth and Housing in York and Durham Regions Act, 2022* (Bill 23, 2022). Bill 23 will impact affordable housing, site plans, parks, heritage, environment, development charges and public consultation. It is still being determined what significant effects Bill 23 will have on York Region, which is a concern for planners creating policies. Another change that the provincial government has done that could create challenges for York Region is the proposed 2023 Provincial Planning Statement (Ontario, 2023). The proposed statement eliminates intensification targets, repeals the Growth Plan and allows municipalities to expand settlement areas at any time, shifting how and where municipalities grow and replacing the planning responsibilities for regions (Barnett et al., 2023).

The last change the provincial government poses that would challenge York Region in creating the 15-minute city is proposed amendments to the Greenbelt boundary. The provincial government has removed 2,995 hectares of Greenbelt lands from 10 municipalities. In York Region, the affected lower tiers are Vaughan, Richmond Hill, King Township, Whitchurch-Stouffville, and Markham (See appendix 2). Removing these lands from the Greenbelt is said to facilitate the building of at least 50,000 homes (Jones & Nicole, 2022). This amendment will encourage sprawl within York Region, challenging the creation of a 15-minute city in York Region as people and houses are more spread out and less compact. I am unaware of the implications of these legislative changes on the development in York Region, thus making it a challenge for planners when planning for the 15-minute city in York Region.

The last challenge I foresee being a problem in creating the 15-minute city concept in York Region is the public opinion of the concept. Currently, there are two opinions that are creating challenges in planning for the 15-minute city concept York Region. The first opinion is that the people believe that the 15-minute city is an endpoint and that this is how the community will be. People believe that creating a 15-minute city in their municipality is all that needs to be

done. This is not the case; a Planner at the city of Ottawa states that the 15-minute city concept is a process and journey that continuously needs to be met and upheld (Ottawa Planner, personal communication, 2023). They also explain that communities will never stop growing and are continually changing. There will be shifts in population and their needs (Ottawa Planner, personal communication, 2023).

People's second opinion of the 15-minute city concept is a negative one. Recently, the 15-minute city concept has emerged as the new conspiracy theory in the media. The conspiracies first started when the UK was creating Low Traffic Neighbourhoods, and in order to create these spaces, they aimed to erect barriers called 'modal filters.' Modal filters are points on a road that aim to restrict passengers of certain types of vehicles. The purpose of the filters is to cut congestion by filtering six roads. These roads will require permits to travel along and have traffic cameras that will scan the drivers' license plates to find those without the permits (Limb, 2023, paras. 8 & 10). These Low Traffic Neighbourhoods aim to reduce the use of cars. However, this started to make residents and other people very angry. This anger started the conspiracy theories around the 15-minute city concept.

The conspiracy theories state that the 15-minute city concept is designed to be an "open-air surveillance prison" that prevents people from leaving their neighbourhoods (Abraham, 2023, para. 10; Baker & Weedon, 2023). The conspiracy theory focuses on the fact that the government is trying to control citizens by taking their cars and controlling their life by making residents stay in 15-minute communities. They make references to fictional cities depicted in George Orwell's 1984 and the Hunger Games series to reference how the 15-minute city is a terrible idea (Baker & Weedon, 2023, paras. 2–3; Calafiore, 2023, para. 6; Chonghaile, 2023, para. 11). These conspiracy theories are partially driven by climate deniers and COVID 19 conspirators stating that the 15-minute cities will allow governments to enforce more lockdowns, using climate change as an excuse (Dreith, 2023, para. 5; Hsu, 2023, para. 4). I

think these conspiracy theories are drastically blown out of proportion and spread disinformation about the 15-minute city causing panic among residents. A planner in Ottawa states that the spread of disinformation is a real problem. As planners, I think there is a need to collectively dismantle myths and conspiracies around the 15-minute city before it is faced with even more suspicion (Ottawa Planner, personal communication, 2023). The challenge arises with proving these conspiracy theories wrong and giving the public the correct information to make an informed opinion regarding the 15-minute city concept. This dismantling of disinformation could include education on the goals of the 15-minute city concept. Studies have shown that people who are more educated on a topic tend to make more rational decisions (Kim et al., 2018).

4.5.2 Opportunities

In addition to the challenges, many opportunities can arise from planning the 15-minute city concept in York Region. The opportunities that could arise are related to public transit, possible partnerships and collaboration, the ability to optimize existing planning tools and the use of other planning tools to support the creation of the 15-minute city concept. These opportunities create openings for new policies and designs.

Making connections to the suburbs and rural parts of the region is a challenge. However, this challenge can be an opportunity for planners and the region to strengthen their public transit system. In Paris, the Planner suggests that one way to combat their problems with connections to the suburbs is to strengthen public transit and their subway network (Paris Planner, personal communication, 2023). Similarly, a policy planner at York Region states that in order to implement and support the 15-minute city concept in the region, a far more significant investment in transit to expand to the northern parts of the region is required (York Region Planner, personal communication, 2023). The northern parts of the region are more rural than the southern and have large geographic areas. The current official plan's policy 6.3.12 states "to

develop effective transit services which support integration by providing connection points for inter- and intra-regional transit and connections between the Urban Area and Towns and Villages (York Region, 2022a, p. 117). This policy is vital in planning transit for the region. However, I think drawing more attention to how much investment is needed is important since the rural parts of the region are often neglected due to sprawl and smaller population sizes. For example, in Melbourne, Australia their development is also sprawled; therefore, public transit would be a viable solution in their outer suburban areas to achieve the 20-minute city that they have planned for (Pozoukidou & Chatziyiannaki, 2021, p. 15). Creating connections with transit to main streets and villages in the rural areas to other municipalities in the region would give people the option to use a more sustainable mode of transportation. The opportunity to strengthen public transit to push forward the 15-minute city concept is essential.

Another opportunity that York Region can explore to construct the 15-minute city concept is partnerships. There are many opportunities for partnerships that will strengthen the 15-minute city concept. These partnerships can be internally in the region, with other departments, and externally with developers, residents, school boards, lower-tier municipalities, and other companies. In order to construct the 15-minute city concept in York Region, setting out policies that encourage collaboration and partnership should be the first step.

An example of a partnership that could stem out of the 15-minute concept is partnerships with school boards. This example stems from my perspective as a planning student for York Catholic District School Board as they continue looking for partnerships with municipalities. In Paris, schools are considered to be the central place of their communities (Paris, 2022b). To enhance the 15-minute city in Paris, planners have chosen to open schoolyards on Saturdays for activities for everyone to create community spaces (Paris, 2022b). In York Region, there are over 300 elementary schools in the York Catholic and Public boards. Adding the 15-minute city concept to policies and plans would produce more collaboration with

school boards between the region and local municipalities. This would also align with the new Provincial Planning Statement that the Ontario government is creating. The Provincial Planning Statement creates new policies that reiterate collaboration and consultation between municipalities and school boards to create schools and community spaces (Ontario, 2023).

Another example of a partnership opportunity is between the region and bike share programs (as discussed in 4.4.3. above). The City of Toronto's Official Plan includes policies and frameworks that promote using the bike share system in the city and create connections to public transit (Toronto, 2022). Having a bike share program in York Region connected to public transit could create opportunities for people to choose more active transportation, reinforcing the values of the 15-minute city concept to reduce the use of personal vehicles. These are just two opportunities for partnerships and collaboration that could arise from implementing the 15-minute concept into the policy framework in York Region's official plan.

The 15-minute city concept also allows planners to use existing planning tools more effectively and create new tools to advance the 15-minute city concept in York Region. In Ottawa, planners say they will not publish a 15-minute city strategy or present new tools. They plan to leverage their existing tools, such as the zoning by-laws, their current official plan, and their park master plan (Ottawa Planner, personal communication, 2023). These tools are already at their disposal, so there is no need to create new tools and more work for the planners in Ottawa. The region and local municipalities already have multiple policies, plans and by-laws that would reinforce and implement the 15-minute concept in York Region. For example, as part of York Region's climate change action plan, they have decided to complete a climate change and health vulnerability assessment (York Region, 2022b, p. 31). This assessment could help create an equity index to assess neighbourhoods to ensure everyone receives equitable assistance. In Ottawa, they have the Ottawa neighbourhood equity index that assesses the 15-minute neighbourhoods to ensure each neighbourhood is receiving equitable attention in terms

of public assets to be more resilient to climate change (Ottawa Planner, personal communication, 2023). The addition of additional planning tools could further enhance the 15-minute city concept.

I think the 15-minute city concept could work in York Region because the region is already planning for sustainable urban growth. I think truly adopting the terminology and adding the metric of space and time would assist the public in understanding sustainable urban strategies. This is referred to as transmuted expertise. Transmute expertise is a “social expertise being transmuted into technical judgments” (Collins & Weinel, 2011, p. 402). This means the experts are taking a complicated term and making it easier to understand. Sustainable urbanism is a complicated concept. The 15-minute city concept is a short, catchy, and easy-to-remember concept. It is effective communication for change and helps focus the public on the idea (Stenersen & Prøitz, 2022, p. 12). Carlos Moreno, the key theorist of the 15-minute city, believes that the 15-minute city concept will help planners rethink the relationship between citizens and cities (Pinto & Akhavan, 2022, p. 372). The principles behind the 15-minute concept are not new to the planning world familiar with sustainable urbanism, but the concept has been hard to explain in everyday terms, in spite of efforts to talk about compact form and complete communities. The 15-minute concept is a rebranding of sustainable urbanism, and the metric of time and space could help people better understand the theory of sustainable urban form.

4.5.3 Recommendations

I have devised four recommendations for York Region to consider when creating the 15-minute concept in the region.

1. Create a localized policies based on the 15-minute city concept throughout each lower-tier municipality, focusing on urbanized areas. This will avoid creating a

one-size-fits-all approach for the region, as it has many different geographic and spatial areas. At the regional level, this would include creating policies focusing on specific geographic areas, such as urban centres, village centres, major transit station areas, etc. For the rural/northern parts of the region, these localized policies could come in the form of secondary plans and policies that focus on downtowns or main streets. For the more urbanized areas, these policies could be included in all plans for the municipalities.

2. Creating partnerships that encourage active transportation and the creation of community spaces in neighbourhoods around the region. For example, collaborating with school boards to create safe and accessible spaces for communities to meet.
3. Enhance the health and climate vulnerability assessment to include an equity index to assess if all parts of the region are treated equitably and have access to the same resources.
4. Educate residents and municipal staff on the 15-minute city concept to dismantle disinformation regarding the 15-minute city concept that is currently in the media. This could come in the form of public meetings, surveys, information booths at municipal events and social media content to help educate people on the concept so they are able to make informed decisions.

The 15-minute city concept could help combat climate change in the region. This concept touches upon transportation and land use planning useful when confronting climate change. However, this concept would have to work with other parts of the region and lower-tier municipalities in a larger plan. Overall, the 15-minute city concept could work as part of the solution to climate change but would require the region to change many parts of its current official plan and policies and address provincial pressures and public opinion. This concept must

be devised locally to address the region's geographic differences. I also think it would thrive in more urbanized areas, for example, the city of Vaughan, the city of Markham, the Town of Newmarket, and the Town of Aurora, versus the more rural northern parts of the region. These recommendations are some that I think would advance policies for the 15-minute city concept in York Region while also focusing on equity and climate change. However, I think the most useful part of using the 15-minute city concept in York Region is that it is an easy-to-understand concept for people to grasp when understanding sustainable urban strategies.

5. Conclusion

Regarding climate change, I know we do not have time to do nothing. Society needs to make changes, whether on a global or local scale, to change the outcome and help mitigate and adapt to climate change. Urban planners, municipal officials, and residents of municipalities need to start planning for change and find solutions to climate change.

York Region and other regional municipalities need to coordinate their planning efforts and create plans and policies to combat climate change across the region and provide direction for their lower-tier municipalities. Regions can be complex to plan for as they have many moving parts. Therefore, urban planners must consider everything involved when planning for a region rather than creating one-size-fits-all solutions for complex problems.

Climate change has many different layers, and there are many things municipalities can do in addition to designing our cities to work toward a climate solution. That is why I think producing creative solutions, like the 15-minute city concept, to combat climate change can be one of the many solutions to climate change at a regional level. However, I do not think the 15-minute city concept is the only solution to climate change, but it is a component. The 15-minute city concept addresses sprawl by intensifying already built-up areas to make them denser, which is key in reducing greenhouse gas emissions created through land use and transportation. In York Region, buildings and transportation are the major emitters of greenhouse gas emissions (York Region Planner, personal communication, 2023). I believe that creating the 15-minute city concept in York Region would be helpful if done correctly and appropriately communicated. I have found that education is the most important part of planning for the 15-minute city concept in the York Region. People need to be educated on the 15-minute city concept to stop the spread of disinformation. I think the 15-minute city concept would work as a solution to climate change in the regional setting in the urbanized areas. However, I realize there will be difficulties creating the 15-minute city in the northern rural parts of the region as there are fewer people and more sprawl.

Overall, creating more sustainable spaces through sustainable urban planning strategies is one way urban planners can mitigate the effects of climate change through land use planning. I think transforming York Region into a 15-minute city, neighbourhoods and communities in urbanized areas would be a step toward solving climate change. However, I do acknowledge that there are many other things that York Region and their lower-tier municipalities are already doing to combat climate change. The policies needed to create the 15-minute city concept in York Region are already there, but by enhancing them to use the concept, the 15-minute city would develop policies that are understood better and more accessible to residents.

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Appendices

Appendix 1- York Region demographic and statistical data

2021 Housing Mix By Local Municipality

Municipality	2021 Housing Unit Mix										
	Total Units	Single Detached		Semi Detached		Townhouse		Apartment		Duplex	
		Units	% Share	Units	% Share	Units	% Share	Units	% Share	Units	% Share
Aurora	21,510	12,990	60%	1,490	7%	3,615	17%	2,745	13%	670	3%
East Gwillimbury	11,445	9,310	81%	400	3%	1,110	10%	285	2%	340	3%
Georgina	17,895	14,990	84%	460	3%	785	4%	1,090	6%	570	3%
King	8,970	7,835	87%	150	2%	370	4%	520	6%	95	1%
Markham	110,870	62,290	56%	6,985	6%	15,985	14%	19,540	18%	6,070	5%
Newmarket	30,295	18,295	60%	2,255	7%	3,880	13%	3,870	13%	1,995	7%
Richmond Hill	69,320	39,350	57%	2,665	4%	10,510	15%	14,660	21%	2,135	3%
Vaughan	103,910	65,035	63%	7,960	8%	11,410	11%	16,015	15%	3,490	3%
Whitchurch-Stouffville	16,720	12,430	74%	830	5%	1,810	11%	1,200	7%	450	3%
York Region	390,935	242,525	62%	23,195	6%	49,475	13%	59,925	15%	15,815	4%

Figure 11. List of Housing Unit Mix for each municipality located in York Region (York Region, 2021a, p. 4)

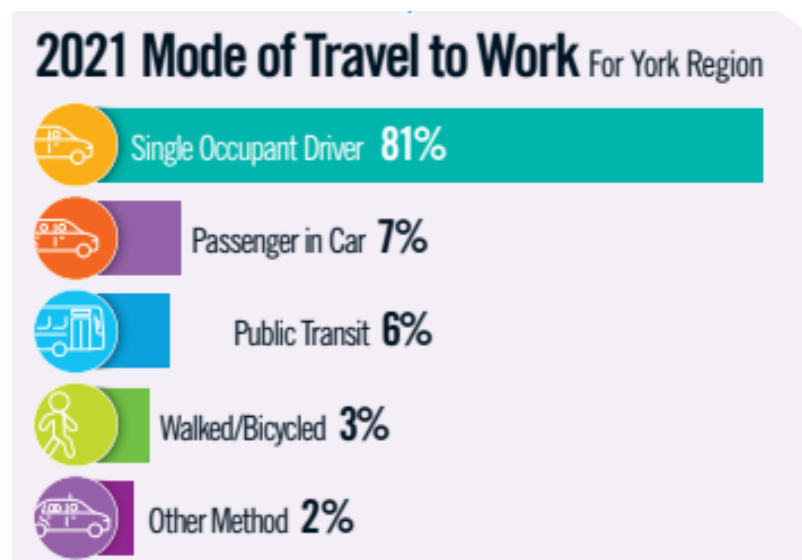


Figure 12. Graphic of modes of transportation for York Region residents (York Region, 2021c, p. 4)

Table 1 – York Region Population and Employment Forecast by Local Municipality

Municipality		2016	2021	2031	2041	2051
Aurora	Population	57,200	63,800	71,600	79,000	85,000
	Employment	27,300	29,200	33,700	37,900	41,400
East Gwillimbury	Population	24,700	37,600	52,900	83,500	127,700
	Employment	9,500	10,300	15,700	26,500	43,500
Georgina	Population	46,800	48,800	56,400	65,000	70,300
	Employment	9,300	9,900	13,100	17,100	20,700
King	Population	25,300	27,800	35,400	42,600	50,300
	Employment	9,600	9,800	11,800	14,100	16,400
Markham	Population	339,100	354,600	416,900	498,100	611,800
	Employment	182,000	193,200	223,700	260,700	301,400
Newmarket	Population	86,800	89,800	96,200	104,600	116,700
	Employment	45,000	49,200	51,800	54,600	58,500
Richmond Hill	Population	201,000	214,300	251,200	284,600	322,300
	Employment	78,800	86,000	97,800	109,400	122,900
Vaughan	Population	315,700	340,700	407,300	487,500	575,200
	Employment	222,200	240,100	278,600	314,500	352,300
Whitchurch-Stouffville	Population	47,300	49,400	59,800	72,400	91,700
	Employment	15,400	16,900	20,300	25,700	34,800
York Region	Population	1,143,900	1,226,800	1,447,700	1,717,300	2,051,000
	Employment	599,100	644,600	746,500	860,500	991,900

Please note forecasts in this table reflect the motions adopted by Council on October 21, 2021. Should the Province refuse requested settlement area boundary expansions within the ORM, minor updates to this table would be required to reintroduce urban expansion on the whitebelt lands in Whitchurch-Stouffville in accordance with Council direction of November 25, 2021.

Figure 13. Table of York Region's population and employment forecast by local municipality. (York Region, 2022a, p. 16)

APPENDIX 2 - Lands removed in the Greenbelt in York Region

Lands removed from the greenbelt in York Region Map 1-5 of the Greenbelt Plan, Oak Ridges Moraine Conservation Plan, Redesignation, Removal Maps (King's Printer for Ontario, 2022)

