

# **Exploring the New Urbanist Legacy in Cornell, Markham**

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### **Abstract:**

This research paper examines how the principles of New Urbanism were incorporated into the planning and design of the Cornell community in Markham, Ontario. Master Planned as a multi-phase development in the 1990s by some of New Urbanism's biggest proponents—Andres Duany and Elizabeth Plater-Zyberk, Cornell was intentionally designed around the principles identified in the *Charter of the New Urbanism* (2000). Through a detailed study of the various literature on New Urbanism in Canada and the United States, this paper identifies some of the important principles of New Urbanism and explores how the principles were incorporated into the policies, design guidelines, and other planning documents that directed the development of Cornell. This research paper finds that some principles and design elements of New Urbanism were successfully implemented in Cornell (i.e., walkable streets and diverse and affordable housing options), while others were not (i.e., mixed-use). Based on a review of critical literature on New Urbanism, personal observations, and interviews, this research paper finds that the New Urbanist vision for Cornell was generally realized. Although adaptations have been made to recent plans and design guidelines to reflect current and future planning challenges, the New Urbanist framework remains relevant in guiding the future development of Cornell.

Keywords: New Urbanism, suburban planning, conventional suburban development

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## **Foreword:**

This Major Research paper marks the culmination of my Plan of Study for fulfillment of the Faculty of Environmental Studies Masters in Environmental Studies (Planning) Degree. This paper contributes to both area of concentration components identified in my Plan of Study: Suburban Planning and Placemaking, while fulfilling many of my identified learning objectives including:

- Learning Objective 1.2: To gain a thorough understanding of New Urbanism in order to understand how its principles influenced suburban planning in the Greater Toronto Area.
- Learning Objective 1.3: To gain a good understanding of various planning approaches and responses to sprawl including placemaking, retrofitting, New Urbanism, and heritage planning in order to develop an understanding of which strategies might be most useful in redeveloping existing suburban environments.
- Learning Objective 2.1: To gain a thorough understanding of how placemaking is carried out through planning and urban design in order to better understand the role of urban planners and designers in creating good suburban places.

Having grown up in the suburban Town of Newmarket, located approximately midway between the city of Toronto and the City of Barrie, my interest in suburban planning developed around a set of questions or—what I initially had believed to be misunderstandings—about suburban environments and the characteristics of suburban places. When I first began engaging in the literature on Environmental and Urban Studies as an undergraduate student, I quickly learned that much of what is written in the literature on suburban places associates suburban environments in both the US and Canada with negative qualities. Sprawl, social isolation, homogeneity, automobile dependence and “ugly-sameness” (Poticha, 2013, p. xiv) were some of the terms I learned to associate with suburban environments. At first, the literature confused me, while I understood the problems that were identified, I had never thought about these issues before, although I began to wonder if I had lived them and somehow overlooked them for most of my life.

As I continued my studies, I started to become more critical of what was being said about suburban environments and suburban life in the literature. I began to understand that the challenges of sprawl, environmental degradation and automobile dependence are real problems, but I also began to understand that despite these problems, there are positive features associated with suburban life. I soon began to think more about the solutions rather than just focusing on the problems of suburban sprawl. When I decided to continue my education and pursue graduate school, I knew that I wanted to study suburban planning, but more specifically, that I wanted to explore the solutions or alternatives to the problems associated with suburban sprawl. I intended to research solutions that have been proposed or attempted and explore potential compromises between the negative associations with suburban environments and the positive aspects of suburban living that I had drawn from my experience of living in the suburbs. It was this process and realization that led me to identify Suburban Planning and Placemaking as the two components of my Plan of Study.

The first component of my Plan of Study—Suburban Planning, looks at the various planning strategies that have been developed and applied to suburban environments to address the problems that have come to characterize conventional suburbs. One of the reasons why I chose Cornell as my primary case-study is because of its location in the suburban municipality of Markham. Although today Markham is characterized as a City, in the 1990s when the planning and development of Cornell was first initiated, Markham was made up of primarily conventional suburban developments. Cornell was an attempt to re-invent suburban development—to create something new and more place-ful by incorporating the principles of New Urbanism into suburban planning while maintaining the comforts of suburban life (i.e., single-family homes and automobiles).

This Major Research Paper fulfills each of the objectives identified within the Suburban Planning Component of my Plan of Study. I have developed a thorough understanding of New Urbanism, and how its principles have influenced planning in the Greater Toronto Area, particularly in Markham. This paper has also allowed me to develop a good understanding of some of the responses to suburban sprawl, mainly placemaking and New Urbanism but also to a lesser degree, heritage planning and suburban retrofitting.

The second component of my Plan of Study—Placemaking, has been fundamental to the completion of my Major Research Paper. Defined by Bunting, Filion and Walker (2010, p. 453) as, “planning efforts to insert physical/architectural features and events into the urban environment to help make a city or part of a city more appealing, hence more ‘place-ful’ and competitive”, placemaking aligns closely with many of the principles of New Urbanism which aim to create good (sub)urban spaces through urban design. My first learning objective within the Placemaking component of my Plan of Study is to gain a thorough understanding of how planning and design strategies are utilized to develop good suburban spaces and ‘place-ful’ environments. New Urbanism is one example of a place-making strategy that uses urban design and planning principles in attempt to develop good communities. This research paper will explore New Urbanism in detail, while examining Cornell as a case study on the implementation of New Urbanist principles.

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Finally, I would like to thank those who contributed to my research by participating in interviews: Dan Leeming, Sally Campbell and Warren Price, thank you for your valuable insights into the history of New Urbanism and the development of Cornell, and for taking the time to meet with me and participate in my research.

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## **1.0 Introduction:**

This research paper explores the objectives and principles of the New Urbanism movement through an in-depth case study of Cornell—a suburban New Urbanist community in Markham, Ontario that was designed in the 1990s by Andres Duany and Elizabeth Plater Zyberk—two of the founders of the Congress for the New Urbanism. Markham was one of the first municipalities in the Greater Toronto Area to incorporate the principles of New Urbanism into its planning policy and to test the development of entirely New Urbanist communities on greenfield sites through the development of Cornell and Angus Glen—another New Urbanist community in Markham that predated Cornell by only a few months (Leeming, 2017). The development of Cornell has been carried out over several phases each adhering to the principles of New Urbanism, and remains one of the largest New Urbanist communities in Canada (Bohdanow, 2007). Since the 1990s when the planning and development of Cornell first began, the Town (now City) of Markham has become increasingly committed to New Urbanism as both a policy and urban design framework guiding the development of Markham.

In examining the Cornell development within the context of New Urbanism, the objective of this research paper is to determine how the theoretical framework of New Urbanism was translated into policy and the development of Cornell; determine which principles were incorporated into the plans and designs of Cornell; and to demonstrate how Cornell fulfilled the promises of New Urbanism.

Although my research finds that some elements and principles of New Urbanism have been more successfully integrated into the Cornell development than others, I make the argument that Cornell has generally, succeeded in realizing the intended New Urbanist vision.

Cornell succeeded in producing an attractive and viable alternative to postwar conventional suburban development, despite the inability to maintain a successful mixed-use core—which I have identified as one of the primary shortcomings of the development to date. Additionally, Cornell has succeeded in producing a wider-range of housing options than conventional suburban developments—providing more opportunities for those with different income levels and housing needs; it has produced higher residential densities than surrounding conventional suburbs; and safer and more accessible streets for pedestrians while continuing to accommodate automobiles. Each of these abovementioned elements of New Urbanism will be examined in more detail throughout this research paper.

The first chapter of this paper outlines the research methodology used to inform this research paper and explains why Cornell was chosen as the case study for my research. Chapter two defines New Urbanism, traces the history of the Congress for the New Urbanism, and describes the six primary principles of New Urbanism on which my research is based: scale, walkability, mixed-use, density, community and street-layout. The third chapter of this paper details the history of New Urbanism in North America examining the context within which New Urbanism arose as a planning response to suburban sprawl and the challenges that have been encountered in implementing the principles into policy and practice. Chapter four introduces the principle of the vernacular and traces the history of development in Markham since the 1790s highlighting the importance that New Urbanism attributes to celebrating the history of place. Chapter five introduces Cornell, detailing the history of the landscape, explaining why it was chosen as the test-site for developing a New Urbanist community. This chapter also introduces the planning documents that guided the development of Cornell in the early phases

including Amendment No. 20 to Markham's 1987 Official Plan, The Cornell Secondary Plan (1994), and other planning documents including the Bur Oak Avenue Design Guidelines (1999), and the 1994 Master Plan for Cornell Developed by Andres Duany and Elizabeth Plater-Zyberk. Chapter six of this research paper is where I carry out my critique of New Urbanism and explore the New Urbanist planning and design elements that were utilized in the development of Cornell. In this section, I identify which elements I found were successfully implemented in Cornell and critique some of the planning challenges that I have identified in the development of Cornell. In Chapter seven I present some of my observations of Cornell today including the planning challenges moving forward, following which, Chapter eight introduces some of the more recent planning documents for Cornell including the 2008 Secondary Plan and the Cornell Centre Precinct Plan which reaffirm the New Urbanist objectives for Cornell moving forward. Finally, in chapter nine I explain why, despite the planning challenges I have identified throughout my paper, I believe that the New Urbanist vision for Cornell was realized, and more generally, why I think Cornell has provided a favourable alternative to conventional suburban sprawl and the opportunities for growth in Cornell moving forward.

## **1.1 Research Methodology:**

The aim of this research paper is to contribute to the academic discussion surrounding the framework of New Urbanism and its application through suburban planning and design by providing an in-depth case study of a master-planned suburban New Urbanist community called Cornell in Markham, Ontario. This research paper answers the following research questions:

- 1) How were the principles of New Urbanism incorporated into the original planning and design of the Cornell Development in Markham, Ontario?
- 2) Which elements of New Urbanism were adopted? Which were not?
- 3) Did the Cornell development fulfill the promises of New Urbanism?

Responding to each of these research questions requires examining scholarly literature surrounding New Urbanism as well as policy and planning documents including: provincial, regional, municipal, and secondary plans, and drawing connections between such documents and observational research obtained through site visits and by carrying out one-on-one interviews with those who have worked in planning the Cornell development. The remainder of this section will introduce the various methodology that were used to substantiate this research paper.

### **1.1.1 Literature Review:**

The background information on New Urbanism that informed this research paper has been obtained through a detailed review of existing scholarly literature on planning history in Ontario and New Urbanism in both the United States and Canada. One of the primary resources from which a great deal of my research has drawn is the *Charter of the New Urbanism* first published as a book in 2000, with a second edition released in 2013. The *Charter of the New Urbanism (CNU)* (2000), is a collection of essays written by CNU members including urban

designers, architects, academics, and elected officials. Together, the collection of 27 essays comprise the 27 guiding principles of the Congress for the New Urbanism.

While the *Charter of the New Urbanism* (2000), focusses primarily on New Urbanism in the United States, many of the principles are applicable to the Canadian context, while some are not. For the purposes of my research, it is important to understand New Urbanism in the Canadian context. A large portion of my review of scholarly literature has therefore focused on Canadian research related to New Urbanism in order to understand more specifically, the political, geographic and social contexts within which New Urbanism arose in Canada. Some of the most prominent scholars who have informed the background research related to Canadian New Urbanism include: Susan Moore (2010; 2012; 2013) who has produced multiple articles critically examining New Urbanism in the Greater Toronto Area and specifically Cornell; Jill Grant who has produced critical work on New Urbanism in Markham both independently (2006), and in collaboration with other scholars including Stephanie Bohdanow (2008) and Katherine Perrott (2009); as well as independent work by Katherine Perrott (2007); among others.

### *1.1.2 Policy Review:*

For the purposes of this research, I reviewed many policy documents including Amendment 20 to *Markham's 1987 Official Plan*, the *Secondary Plan for Cornell (1994)*, *Cornell Master Plan (1994)*, and *Cornell Centre Precinct Plan (2012)*. These resources provided much of the detail and background information on the process and strategies for planning Cornell and the principles that defined its planning and design. My policy review, in conjunction with the scholarly literature review, allowed me to make connections between what New Urbanist

Scholars have identified and described as principles of New Urbanism, and how these principles were adopted into policy and urban design guidelines. Later, through observational research and site visits I observed how the principles and policies were then translated into the built form of Cornell.

### *1.1.3 Observation—Site Visits:*

I have carried out several site visits over the course of this research project from January to October 2017. One of my primary objectives in carrying out site visits was to observe how people in Cornell interact with difference spaces and how they use public, or shared space. For example, I was interested in seeing whether civic spaces and parks were used by children and families to the degree that New Urbanists intended. I was interested to see whether people sat on their front porches on a warm afternoon, and if children used the community outdoor skating rink on weeknights in the winter. It was important that the site visits be conducted over a range of seasons including both weekdays and weekends because, as noted by Cordileone (2011), “the middle of a working day in winter may not be the ideal time to look for evidence of how much people in Cornell use their feet” (n.p.). It was particularly important when observing how people use public spaces including streets, civic spaces, mixed-use centres, parks and alleys, to consider factors such as the day of the week and time of year.

In carrying out my site visits, I was also interested in observing the built environment, including architectural and design elements and making comparisons to photographs and renderings of both existing and proposed New Urbanist communities elsewhere in North America that have been considered in my literature review. My objective in making these observations was to determine the degree to which Cornell reflects the principles of New

Urbanism as they have been identified in the academic literature and various policy surrounding New Urbanism.

#### *1.1.4 Interviews:*

Individual interviews were conducted with one private sector and one public sector planner, who were both involved at some point, in the planning and development of Cornell. I also conducted a telephone interview with Warren Price, a Partner and Planner at Urban Strategies who was involved in the development of the Cornell Centre Precinct Plan completed in 2012. The first one-on-one interview was with Dan Leeming who is now a Principal Planner at the Planning Partnership—a planning, architecture and design firm established in 1995 based out of Toronto, Ontario (“The Firm and People”, n.d.). Leeming has worked closely with Duany throughout his career, he has been involved in New Urbanism since attending the first Congress for the New Urbanism meeting in Virginia in 1993, and was highly involved in the planning of Cornell in the early days (Leeming, 2017). Leeming’s experience, involvement and knowledge of Cornell and New Urbanism will be referenced throughout this research paper.

My second interview was conducted with Sally Campbell, a planner at the City of Markham who is responsible for projects within the eastern portion of the City—including Cornell. Campbell was not working for the City of Markham for the first several years of the development of Cornell and although her involvement in the project began later, she is familiar with much of the planning and social history of Cornell. Campbell provides some insights on the planning challenges and opportunities presented in Cornell today. In addition to the one-on-one interview, I had the unique opportunity of attending a walking tour of Cornell led by Sally Campbell. In this walking tour, she discussed and pointed out some of the features that have

changed since the community was first established; spoke about some of the challenges that have been encountered in the development of Cornell and the visible traces of these challenges (i.e., the Emerald Ash Borer disease and Toronto Ice Storm which have affected much of the tree canopy); she spoke about the zoning codes as they apply to different features throughout Cornell (i.e., laneway dimensions); and she spoke about the vibrant community life that has flourished in Cornell. This walking tour was incredibly useful to my research, as it allowed me to make visual observations and connections to what has been said about Cornell in Markham's staff reports, scholarly literature and the media. For example, when reading staff reports about the changes that have been made to the street and laneway width requirements over successive phases of the development, I was able to see what these changes actually look like and understand why they were necessary.

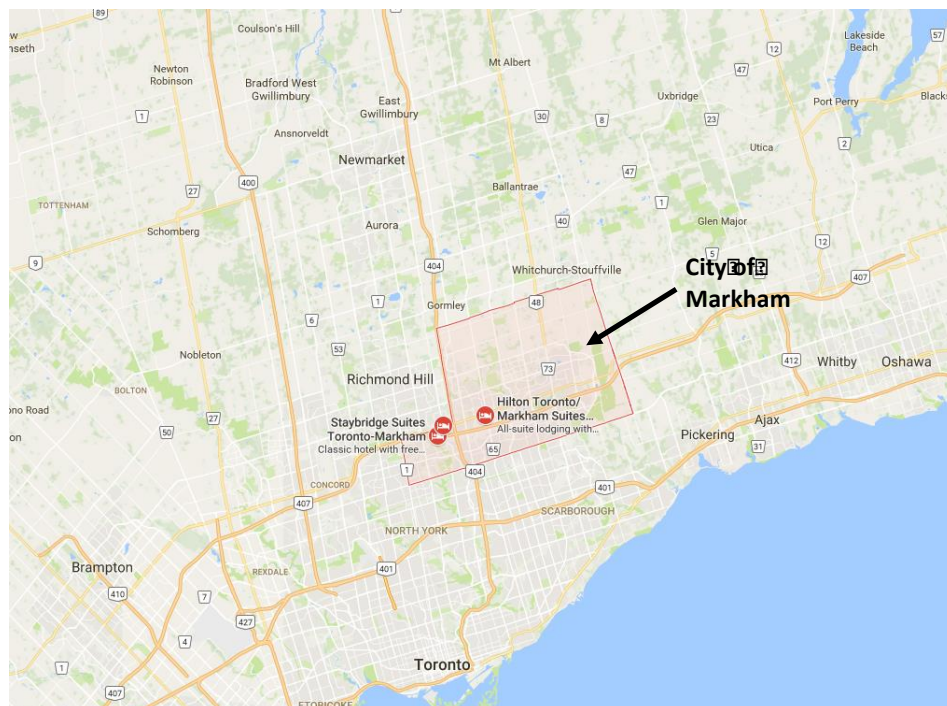


Figure 1: Context Map illustrating Markham within the surrounding GTA



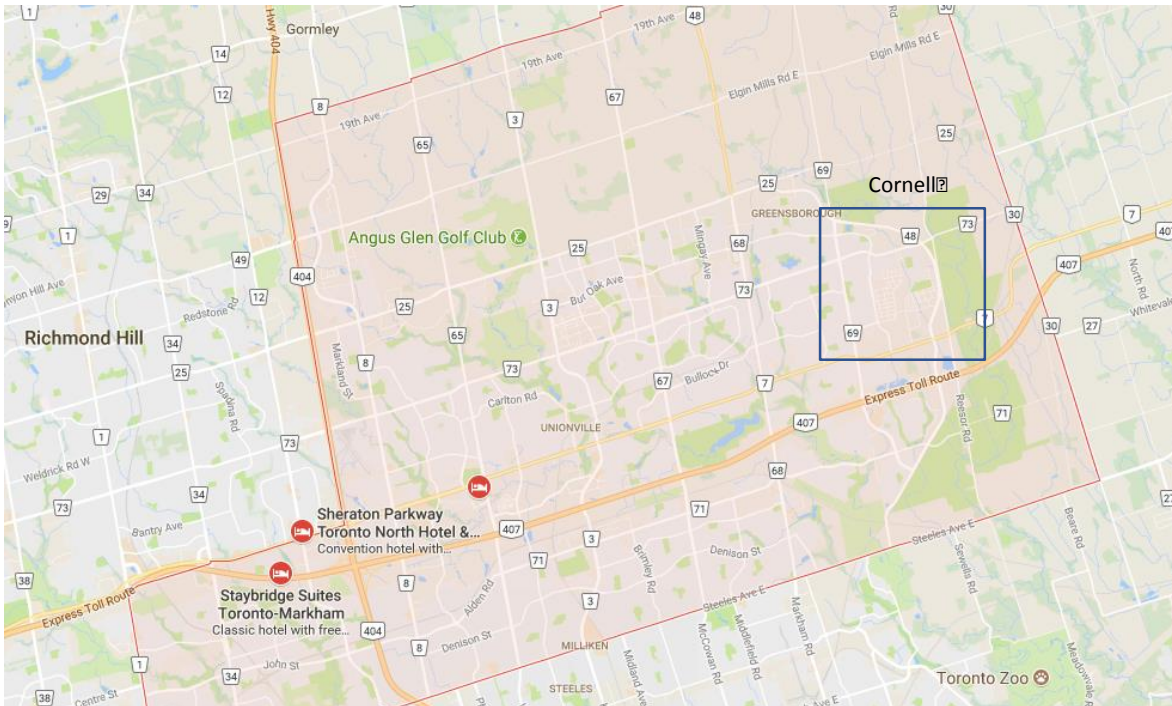


Figure 2: Context Map illustrating Cornell within the surrounding City of Markham

## 1.2 Why Cornell?

Cornell was chosen as the primary case study for my Major Research Paper because its planning and design were developed around the principles of New Urbanism at the height of the New Urbanism movement in the 1990s. Through my background research on New Urbanism and in examining the various communities throughout North America that have been planned and designed around the principles of New Urbanism, Cornell stood out to me as being an interesting and unique case study for many reasons. One element that I found particularly interesting about Cornell is that it was designed by the Miami-based design firm Duany Plater-Zyberk and Associates (DPZ), the leaders of which, are often cited as the founders of New Urbanism. The second factor that makes Cornell unique to other New Urbanist communities I

have studied is that its original planning and development was initiated by the Province of Ontario, which according to Duany, set the development apart from New Urbanist communities being planned throughout the United States which often faced strong opposition from US governments in the late 1980s and 1990s (Duany as cited in Warson, 1995). A third element that makes Cornell a unique case study on which to base my research is that it is an ongoing project that has been planned and developed over multiple decades evolving from the original Master Plan first approved in the 1990s (Urban Strategies, 2012). Further, the community has been lived in for over fifteen years and studied by several academics, journalists and other professionals that it presents a fair case study through which to examine the experiences, and outcomes of the promises of New Urbanism.

Cornell has served as a model community for the implementation of New Urbanist principles throughout the Greater Toronto Area. With the Master Plan and Secondary Plan as the guiding policies for Cornell, the lands have been developed over multiple phases with various residential, commercial, and mixed-use neighbourhoods developed at different times. In 2011, Urban Strategies Inc., an urban planning and design firm was hired by the City of Markham to develop a comprehensive plan for the lands known as Cornell Centre (the mixed-use centre and residential neighbourhoods surrounding Bur Oak Avenue). In the *Cornell Centre Precinct Plan* completed in 2012, almost two decades after the original Master Plan was released, the consultants noted that “Although some of the physical design has changed [from the original Master Plan], Cornell has remained true to its guiding planning principles” (Urban Strategies, 2012, p. 13). In other words, the original New Urbanist vision for Cornell has been implemented through various stages of its planning and development, despite changes in the

physical design from the original vision. My objective in undertaking this research is to look at the planning and development history of Cornell and examine how the principles of New Urbanism were incorporated into the original vision for Cornell and how they were carried out over successive phases.

While it is beyond the scope of this research paper to examine in great length other New Urbanist communities within Ontario and elsewhere in North America, several communities have been considered as part of the background research for this paper (see Appendix A for a list of all communities considered). Cornell is one of the many communities in North America developed in adherence to the principles of New Urbanism, and one of the many projects designed in part by Andres Duany and Elizabeth Plater-Zyberk, the husband-wife team who are often cited as the founders and major proponents of New Urbanism and the Congress for the New Urbanism.

## **2.0 Defining New Urbanism:**

New Urbanism is essentially a placemaking and urban design movement aimed at providing an alternative development framework to post-war suburban sprawl. New Urbanism as a school of thought, grew out of the earlier neotraditional planning movement which established a set of urban design principles drawing from the pre-automobile era and the nineteenth and early twentieth century small town (Furuseth, 1997; CMHC, 2011).

Neotraditional planning, also known as Traditional Neighbourhood Development (TND) aims to “foster neighborliness and community life through the re-creation of idealized small towns from the early twentieth century. Borrowing design and site planning standards, pedestrianism is encouraged and automobile travel is discouraged” (Furuseth, 1997, p. 201). In 1991, the term ‘New Urbanism’ was first used by Stefanos Polyzoides to replace and expand on the term neotraditionalism which was criticized for being oxymoronic and founded on a naïve and idealistic belief that many of our twenty-first century urban problems can be solved by a return to a 19<sup>th</sup> century small town development framework (Gabor, 1994). While neotraditionalism and New Urbanism share similar underlying beliefs, New Urbanism has expanded beyond the “relatively narrow neotraditional design principles to [include] larger scale planning issues: regional planning, transportation engineering, retail marketing and agricultural land protection” (Furuseth, 1997, p. 201; Gabor, 1994). Many urban designers who once aligned with the neotraditional movement, including Andres Duany and Elizabeth Plater-Zyberk became a part of the new ‘New Urbanist’ movement, which has since “gained more supporters and been applied to a wider array of projects” than the earlier neotraditional movement (Furuseth, 1997, p. 201).

The Congress for the New Urbanism (CNU), which convened for the first time in October 1993, was founded by architects Andres Duany, Elizabeth Plater-Zyberk, Elizabeth Moule, Daniel Solomon and Stefanos Polyzoides in the early 1990s (Poticha, 2013). The Congress was established out of a shared concern among the founders since the 1980s for the “charmless suburban sprawl and its dependence on the automobile” that had come to characterize the North American suburban landscape (Yeadon, 1999, p. 11).

The CNU was modeled after the 1920s Congrès internationaux d'architecture modern (CIAM), a group of architects who promoted modernist architecture through the creation of a charter of architectural principles known as the Athens Charter (Wheeler, 2002; Graham, 2016; CNU, n.d.). Like CIAM, the Congress for the New Urbanism was in its earliest days, a group of architects with a shared vision of how urban and suburban spaces should be designed. The CNU, inspired by CIAM’s Athens Charter, created the Charter of the New Urbanism in 1996 (first published in 2000) to set out the principles of New Urbanism as identified by the CNU members (Wheeler, 2002; Graham, 2016). In the Preamble to the first Charter of the New Urbanism (2000), the Congress for the New Urbanism identifies the goals and objectives of the movement stating that:

We advocate the restructuring of public policy and development practices to support the following principles: neighborhoods should be diverse in use and population; communities should be designed for the pedestrian and transit as well as the car; cities and towns should be shaped by physically defined and universally accessible public spaces and community institutions; urban places should be framed by architecture and landscape design that celebrate local history, climate, ecology, and building practice... We dedicate ourselves to reclaiming our homes, blocks, streets, parks, neighborhoods, districts, towns, cities, regions, and environment (p. vi).

While the Congress for New Urbanism have maintained the guiding belief that good urban design can contribute to generating healthy and vibrant people, communities, businesses and environments, the movement has also evolved over time. While originally comprised of mainly architects and urban designers, the Congress for the New Urbanism has evolved, to include “developers, public officials, and activists, clearly committed to addressing the social and economic implications of design decisions” (Poticha, 2000, p. 2).

New Urbanism is founded on the belief that traditional neighbourhoods provide great places to live, and that these neighbourhoods have largely disappeared since World War II and have been replaced with placeless, automobile oriented sprawl. Some of the main problems that New Urbanists identify with the suburbs planned since the Second World War are that “cars are needed for all transportation, as there are few shops, jobs, schools, or civic buildings within walking distance from homes, and densities are too low to support public transportation” (Barnett, 2000, p. 73). The Charter for the Congress of New Urbanism implies that urban design has the power to influence people’s behaviour and thus, promote an enhanced quality of life for residents through addressing each of the 27 Principles. The following section outlines some of the main goals and principles of New Urbanism and the subsequent case study of Cornell will examine more specifically, some of the tools and design features utilized in Cornell to achieve the principles of New Urbanism.

### **2.1 Guiding Principles of New Urbanism:**

The first *Charter of the New Urbanism (CNU)*, published in 2000 and edited by Michael Leccese and Kathleen McCormick, is comprised of several “essays and case-studies by a world class roster of designers, developers, elected officials and academics” (2000, n.p.). The

collection of essays is intended to reflect the vision, principles and approach to place-making identified by participants who attended the first convention of what would soon become the Congress for the New Urbanism (CNU). The participants presented a response to the concerns surrounding placeless sprawl, environmental deterioration, racial and income disparities, and “the erosion of society’s built heritage” (Leccese & McCormick, 2000, p. v). One of the Charter’s contributors and Executive Director of the Congress for the New Urbanism, Shelley Poticha (2000), notes that:

the original Congress participants were concerned about placelessness of modern suburbs, the decline of central cities, the growing separation in communities by race and income, the challenges of raising children in an economy that requires two incomes for every family, and the environmental damage brought on by development that requires us to depend on the automobile for all daily activities (p. 1).

During the first 1993 convention of the Congress for the New Urbanism in Virginia, participants discussed each of the above concerns, their “root causes” and the relationships between them (Poticha, 2000, p. 1). They then began developing new models based on existing examples and new ideas that presented an alternative model of development around a set of clearly identified principles of community building which are explored through the various essays that make up the Charter (Poticha, 2000). The *Charter of the New Urbanism* (2000) identified 27 principles to guide the goals and objectives of the Congress. In the various literature on New Urbanism, these 27 principles are often condensed into fewer broader principles. Steuteville and Langdon in their book entitled *New Urbanism: Best Practices guide* (2009) for example, identify seven principles of New Urbanism which have been distilled from the original 27 principles set out in the *Charter of the New Urbanism* (2000). The principles Steuteville and Langdon address generally include: the neighbourhood as the “basic building block of a

community”; the neighbourhood should be defined by a defined edge, centre, and five-minute walk; corridors should form boundaries between neighbourhoods; buildings should be designed to the human-scale; a range of transportation options should be considered; the street pattern should act as a grid and network; and civic buildings should be developed as important landmarks (2009, p. 14). Borrowing from both Steuteville and Langdon’s (2009) principles as well as the 27 original principles outlined in the *Charter of the New Urbanism* (2000), For this research paper I have chosen to examine six broad guiding principles of New Urbanism including: scale, walkability, mixed-use, density, community and street layout. These principles were chosen because they stood out to me as being some of the most important concepts of New Urbanism represented in much of the New Urbanist literature. These principles are intentionally broad to incorporate a wider range of more specific principles identified in the *Charter of the New Urbanism* within each of these broad categories. For example, while the Charter identifies several principles related to the different scales of New Urbanism (i.e., regional, metropolitan, city, town, neighbourhood, district, corridor etc.) I address many of these principles within the category which I have broadly labelled ‘scale’. Similarly, within the street layout principle identified in this paper, I include a number of the more specific principles related to street layout that are identified within the Charter (i.e., the laneway model, gridded street pattern and walkability). In discussing each of the six principles identified in this paper, I have considered many of the relevant principles addressed by New Urbanists within the *Charter of the New Urbanism* (2000), and other literature.

For the purpose of this research project, I have chosen to focus primarily on built form principles derived from the Charter leaving out some of the more economic and political



principles that were developed around specifically American political and economic contexts in the 1990s and are thus, less applicable to the present-day Canadian context than those principles which focus on the built form. The remainder of this section will look at some of the principles of New Urbanism that I have drawn from the collection of essays presented in the *Charter of the New Urbanism* (2000) and other work by members and supporters of the Congress for the New Urbanism. While these principles do not encompass all principles identified by New Urbanists, they have been chosen because they appear to some degree in almost all literature I have reviewed relating to New Urbanism and provide a necessary framework for understanding some of the overarching goals and objectives of New Urbanism. Later in this research paper when examining Cornell, I will identify some of the design elements and policy instruments that were utilized in the Planning and design of Cornell in attempt to achieve these broader principles of New Urbanism.

### 2.1.1 Scale

The *Charter of the New Urbanism* (2000), as mentioned earlier, sets out 27 principles to “guide public policy, development practice, urban planning and design” (Barnett, 2000, p.10). Of central importance to understanding and implementing each of the 27 identified principles is the concept of scale. For example, the scale at which the identified problems arise (i.e., environmental issues are typically viewed as regional or global in scale), and the scale at which solutions are developed and implemented (i.e., at the scale of an individual building green technology might be a solution, whereas a solution at a neighbourhood scale might include a community-wide tree planting initiative). As such, the *Charter of the New Urbanism* is organized to categorize the principles based on the scale at which they should be considered. Barnett

(2000) explains how the Charter is organized in stating that “[the principles] begin at the scale of the metropolitan region, and of whole cities and towns. These are followed by design principles for neighbourhoods, districts and corridors as the basic elements of cities and towns, and then city-design principles for blocks, streets, and individual buildings” (p. 10). Some of the problems and principles identified in the Charter must be considered at the regional scale (i.e., sustainability, transit and housing policy), while the neighbourhood, district, and corridor are the most appropriate scale for considering the role of local zoning codes in organizing space and building communities that are designed for the pedestrian. At the even smaller scale of the block, street and building, the Charter addresses principles of design, place-making and safety (Leccese & McCormick, 2000). Since this research paper focuses primarily on a specific community (Cornell), the focus of my analysis will be less on regional problems, principles, and solutions, focusing instead on the scale of the neighbourhood, district and corridor, and even smaller scales of blocks, streets and buildings. While most of my analysis focuses on the smaller-scale built-form elements of New Urbanism and their related principles, I realized in the end that some of the elements of New Urbanism that I have found to be less successful in Cornell (i.e., density and mixed-use) are perhaps best understood in relation to regional-scale issues and policy as will be discussed in more detail in sections 7.0 and 8.0 of this paper.

### 2.1.2 Walkability

One of the primary principles of New Urbanism identified by the Congress for the New Urbanism is walkability. *The Charter of the New Urbanism* (2000) advocates for designing cities “around the needs and abilities of people instead of cars” (Gabor, 1994, p.3). Making neighbourhoods walkable means creating safe networks of pedestrian sidewalks so that people

may choose walking as the safer, more convenient method of travel than the automobile (Pearson, 1990). As it relates to urban planning and design, walkability means locating homes near retail amenities, offices, community spaces, and transit stations, ensuring that a variety of such amenities are located no more than a quarter-mile or five-minute walk from one's residence (Steuteville & Langdon, 2009). The principle of walkability as New Urbanists argue, involves reversing the trend of the previous postwar planning period in which cities were designed to promote ease of access for the car, often at the expense of pedestrian convenience and safety (Gabor, 1994). It is one of the primary goals of the New Urbanists to design urban spaces—particularly streets and other public spaces for people rather than for cars.

New Urbanists do not advocate for the complete elimination of the car, in fact, they stress that the New Urbanism movement is “not anti-car, it's about civilizing our transportation systems” (Arrington, 2000, p. 59). Rather than focussing on developing highways surrounding communities, New Urbanism advocates for better design of streets and transportation systems within communities—to accommodate the automobile but more importantly, to give priority to the safety and ease of access for the pedestrian within the local community (Arrington, 2000; Steuteville & Langdon, 2009). New Urbanists believe that streets should be designed as more than just routes to and from various destinations, but should act as part of the social and public realm of a community. Streets should be designed as social spaces—complete with street furniture such as benches, providing meeting places and resting places; they should be landscaped and well-lit to provide a sense of safety and enclosure; they should align with building frontages and be protected from automobiles wherever possible (Steuteville &

Langdon, 2009). These are some of the strategies recommended by New Urbanists to make communities more walkable.

### 2.1.3 Mixed-Use

One of the major concerns New Urbanists have identified with post war conventional suburban development is the strict separation of land uses which has been guaranteed through the implementation of Euclidean zoning policies. This type of zoning separates residential, industrial, commercial and other uses to specified zones, ensuring that different uses cannot occur in the same zone (Davidson & Dolnick, 2004). Post-war Euclidean zoning, which often resulted in segregated zones of one distinct land-use, meant that people were forced to rely on the automobile to travel outside of their residential neighbourhood to complete daily activities such as shopping, recreation, work, and services. In contrast to the separation of land uses through zoning, which has characterized North American development in the post-war period—New Urbanists tend to support the notion proposed by Jane Jacobs for incorporating a mix of land uses within a neighbourhood, ensuring proximity of jobs, retail and services (Talen, 1999). The argument here is that “mixed-use streets properly designed with major windows and doorways facing the public right-of-way provide eyes-on-the-street security that enables a safe environment” (Moule, 2000, p. 107). Further, Jacobs argues that locating a range of retail, service and civic buildings near residences will encourage people to walk more, promoting social interaction and thus, creating more socially vibrant neighbourhoods (Talen, 1999). New Urbanist principles oppose Euclidean zoning by encouraging zoning policies that allow for a mix of land-uses to occur in the same zone. For

example, by establishing residential neighbourhoods around, and within walking distance of a mixed-use corridor, main street or town centre.

New Urbanists advocate for establishing a mixed-use town centre with convenience shopping, office spaces, eating establishments such as cafés and bakeries, personal service establishments, transit stations and public space surrounded by residential neighbourhoods within a five-minute walk from the town centre to ensure that these uses are accessible to the “greatest number of people” (Moule, 2000, p. 105; Pearson, 1990). Such uses should be accessible by pedestrians, located close to residential neighbourhoods, and never “isolated in remote, single-use complexes” (Moule, 2000, p. 105). The objectives for incorporating mixed-use town centres in New Urbanist developments are to encourage walking, enhance convenience, promote social interaction, and reduce the amount that residents need to drive to accomplish daily tasks (Grant & Perrott, 2011; Talen, 1999).



Figure 3: Storrs, Connecticut — Mixed-use town centre in former strip mall  
Source: Steuteville (2017)



Figure 4: The Mews -- Mixed Use Town Centre in Cornell  
Source: Victoria Moore (September 15, 2017)

#### 2.1.4 Density

For mixed-land uses to work in a New Urbanist community, it is essential that another principle of New Urbanism be incorporated, that is—increased density or cluster-development. One of the primary challenges with developing a mixed-use town centre in suburban neighbourhoods is that such neighbourhoods typically do not have the population to support commercial-centres or make them financially viable (Grant & Perrott, 2011). Mixed-use centres are density dependent—achieving higher success in high-density neighbourhoods which produce more traffic and thus, have more potential shoppers (Pearson, 1990).

New Urbanists advocate for developing neighbourhoods and subdivisions more compactly than in the post-war era as an essential element of preserving open-space and protecting agricultural and environmentally significant land (Arendt, 2000). In the *Charter for the New Urbanism*, Randall Arendt argues that “Growing Greener also means growing denser... we must

broadcast the facts concerning the huge costs of financing low-density sprawl, as well as the benefits of attractive, livable and accessible urban centres” (2000, p. 34). New Urbanists aim to achieve higher density residential development while continuing to provide single-family homes by incorporating higher proportions of semi-detached and townhouse dwellings than in conventional suburban developments; reducing lot sizes and minimum required setbacks to develop more homes per hectare; and establishing residential units above at-grade commercial units (Steuteville & Langdon, 2009).

#### 2.1.5 Community

One of the fundamental goals of New Urbanism is to promote social interactions and build strong communities. New urbanists problematize post-war suburban sprawl for promoting individuality through the expansion of private space at the expense of public or communal space, which they argue has had a negative effect on community life (Bothwell, 2000). In the post-war era, “responsibility for the creation of places shifted from an individual and community-based process to our present model shaped predominantly by specialists: architects, developers, engineers, landscape architects, and planners” (Bothwell, 2000, p. 49). In response to these concerns, New Urbanists argue that such specialists must design and develop spaces that create a sense of community, promote social interaction and thus, generate social capital. This is one element of New Urbanism that makes it unique to other planning movements, the belief that good urban design of the built environment can create social or community benefits. For example, New Urbanists argue that:

The built environment can create a ‘sense of community’, grounded in the idea that private communication networks are simply no substitute for real neighbourhoods, and that a reformulated philosophy about how we build

communities will overcome our current civic deficits, build social capital and revive a community spirit which is currently lost (Talen, 1999, p. 1361).

*The Charter of the New Urbanism* presents several strategies for promoting a strong sense of community through an enhanced focus on the design of public and semi-public places. Some of the strategies for promoting strong-communities relate to the development of mixed-use spaces that bring people together into common areas to increase opportunities for social interaction (Moule, 2000). Other strategies relate to the expansion of semi-public spaces such as front porches which, when aligned with the public street, transform the relationship between the private family home and outdoor public spaces (Schimmenti, 2000). Other principles focus on designing streets and public spaces that encourage people to get out of their cars and walk around their neighbourhoods and to local destinations thus, enhancing opportunities for interaction with neighbours (Plater-Zyberk, 2000). New Urbanists present a number of urban design and planning strategies that might be used to enhance social-life within a community. Some of these strategies that were used in the planning of Cornell will be explored in greater detail below.

#### 2.1.6 Street-Layout

Discussions on transit and street design comprise a large and important part of the literature on New Urbanism. The various New Urbanist literature related to transit, including many of the principles identified in the *Charter of the New Urbanism* (2000), share a common concern for the automobile oriented cities and suburbs that have been designed since the Second World War to promote the ease of access for the car, often at the expense of the safety and accessibility of pedestrians. In response to these concerns, New Urbanists present many



principles relating to street layout and design which enhance pedestrian safety, accessibility and well-being; models such as Transit Oriented Development (TOD) which encourage compact development around transit stations to increase the viability of public transit; and encourage street designs that accommodate both automobiles and pedestrians.

New Urbanists for example, view the cul-de-sac and the car-oriented layout of conventional post-war suburbs as being pedestrian-unfriendly, inaccessible due to the prominence of curvilinear, and dead-end-streets, and thus, highly problematic. Grid layouts promoted by New Urbanists, on the other hand, “enhance walkability by virtue of their permeable configuration” (Cozens & Hilier, 2008, p. 51). The grid patterned street allows the neighbourhood to remain connected to the surrounding region with the presence of through-streets “rather than a feeder road that brings all cars to one or two intersections” as was commonly the case in post-war suburbs (Pearson, 1990, p. 295). Many New Urbanist principles and ideas surrounding street design were utilized in the planning and development of Cornell. These strategies will be examined closely in section 6.2 of this research paper.

### 3.0 Setting the Stage for New Urbanism in North America

In the post-war era and into the 1990s, suburban sprawl dominated much of the North American landscape. Post-war suburban development was characterized by low-density development on greenfields outside the central city; the development of roads and expressways that favoured the car over public transit and pedestrian movement; the separation of land-uses through stringent zoning policies; and overall lack of sustainability due to the high consumption of land, reliance on automobiles and over consumptive lifestyles suburbia promoted (Duany, Plater-Zyberk & Speck, 2000). By the 1990s, suburban sprawl had come to be recognized as a major cause of the many environmental, social and health issues that had developed over previous decades, generating widespread environmental concern throughout

North America. Suburban sprawl was often blamed for obesity; environmental degradation and pollution; automobile dependence; traffic congestion; homogeneity of the built landscape; and social exclusion among other concerns (Bourne & Walks, 2010; Wheeler, 2002). In response to widespread concern surrounding the



*Figure 5: Aerial photograph of one of Markham's conventional suburbs being constructed in 1988. Author Unknown Source: Toronto Public Library (1998).*

implications of post-war suburban sprawl, planners and planning scholars were tasked with the challenge of addressing the problems associated with conventional suburban sprawl and preparing new forms and models of suburban development while aiming to meet continuing market demands for affordable single-family homes. One of the strongest planning movements that arose in the 1990s in response to suburban sprawl was the New Urbanism Movement and the Congress for the New Urbanism (CNU) (Wheeler, 2002).

While the utopian vision of New Urbanism and the underlying theoretical framework and principles discussed above provided a hopeful alternative to suburban sprawl, the principles of New Urbanism proved challenging to implement on many fronts (Grant & Bohdanow, 2008; Moore, 2013). As argued by Gordon and Vipond (2007), “conventional suburban development practices are embedded in zoning bylaws, infrastructure standards, building codes, and lending practices... Developers who wish to serve the market for New Urbanist development face increased time, cost, and risk to amend or replace these regulatory instruments” (p. 41). Postwar planning policies tended to promote conventional suburban development and Euclidean zoning which encouraged the strict separation of land-uses. For example, municipalities zoned lands according to land uses so that residential zones were separate from commercial and industrial zones and each zone would have its own height, density and other provisions and stringent permitted uses (Davidson & Dolnick, 2004). Steuteville and Langdon (2009), argue that conventional post-war zoning, which promotes a separation of land uses ordered around automobile transportation, “places little value on placemaking and human scale” (p.9) which they argue is one of the primary motivators for New Urbanists, to design communities to the human-scale rather than for the automobile.

The urban design firm, Duany Plater-Zyberk and Associates (DPZ), headed by Andres Duany and Elizabeth Plater-Zyberk—two of the founders of the Congress for the New Urbanism struggled with implementing their principles in many projects due to rigid zoning codes and other restrictive policies. In Florida for example, “DPZ architects had found that... elements they wanted to include—parking lots and garages hidden in the rear of buildings, buildings built close to sidewalks, and narrow, tree-lined streets—were illegal under local zoning codes” (Graham, 2016, p. 177). Post-war zoning regulations provided an immense challenge for developers, architects and urban designers wishing to experiment with the principles of New Urbanism in the 1980s and well into the 2000s in both Canada and the United States. In 2004, the Congress for the New Urbanism, in response to the zoning challenges, released a Planning Advisory Service Report (No. 526) Entitled *Codifying New Urbanism: How to Reform Municipal Land Development Regulation*. Report No. 526 served to educate developers, planners, architects and designers, on how to reform existing policies to implement new form-based coding to allow for the implementation of New Urbanist principles such as walkability, transit oriented development, and mixed land uses (Barnett, 2004).

Form-based coding or zoning is described by New Urbanists as a more flexible alternative to stringent Euclidean zoning. Form-based zoning considers market demand in identifying zones and allows for more mixed-use rather than single-use zones, with a particular focus on the three-dimensional form of buildings and the public realm (Steuteville & Langdon, 2009). Form-based zoning allows the municipality to determine building types and relationships to surrounding environments for each zone (i.e., regulates height, density, parking standards etc.) but allows the building owner to determine the use of the building (Davidson & Dolnick, 2004).

Form-based codes address “details of relationship between buildings and the public realm of the street, the form and mass of buildings in relation to one another, and the scale and type of streets and blocks” (Sitkowski & Ohm, 2006, p. 164). Furthermore, form-based coding is highly design-focused based on “scale, character, intensity, and form of development rather than differences in land uses” (Sitkowski & Ohm, 2006, p. 164). Despite the reliance on urban design however, form-based codes are meant to act as more than design guidelines—and according to New Urbanists should be implemented as legal regulations incorporated into municipal zoning policies.

#### **4.0 History of Markham:**

This section of my research paper will examine the history of the City of Markham back to early settlement in the 1790s. The following section will provide a detailed history of the Cornell community more specifically including the series of events that led to its development as a New Urbanist community. An important element of the New Urbanism movement, and placemaking more broadly, is the celebration of the history of a place or community through the preservation and restoration of historic buildings and landscapes. Ken Greenberg, in his essay in the *Charter of the New Urbanism* (2000), argues that the “preservation and renewal of historic buildings, districts, and landscapes affirm the continuity and evolution of urban society” (p. 173). As such, the original Secondary Plan (1994) for Cornell identified 22 heritage buildings or landmarks throughout the community that are to be maintained and restored where necessary. These landmarks are to be celebrated and new buildings and structures within the community are to incorporate similar vernacular architectural elements to maintain a consistent architectural character and historical continuity. As such, in order to design a community that preserves and honours the built and cultural history, it is important to understand the history of what came before the New Urbanist community that exists on the Cornell lands today and the history of the surrounding area. The remainder of this chapter explores the history of Markham.

The Town of Markham’s development history dates to the 1790s when European settlement in Markham began (Williams, 2012). Lieutenant-Governor of Upper Canada, John Graves Simcoe is often cited as the founder of Markham Township, which he named after his friend and Archbishop of York—William Markham (Champion, 1979). New European settlers

from a variety of geographical backgrounds including German, Swiss, French, Dutch, and British; and religious backgrounds including Roman Catholic, Presbyterian, Quaker, Mennonite and more, settled in Markham Township in the 1790s and early 1800s, creating an early population with cultural diversity in Markham that has continued, and that the City prides itself on today (Champion, 1988). Beginning in the early 1800s, a number of artifacts discovered throughout the Rouge River floodplain have indicated an earlier presence of semi-permanent aboriginal settlements throughout Markham prior to European settlement—although I have found this aboriginal history is rarely referenced in Markham’s documented history (Markham, n.d.).

When the first survey of Markham Township was carried out in 1793-1794, the land was divided into ten concessions running north to south, each with 200-acre lots, separated by one and a quarter mile long sideroads running east to west. Both the concessions and sideroads were covered with vegetation, requiring frequent clearance by settlers to avoid having them become quickly overgrown and unpassable (Champion 1979). Early settlers in Markham each purchased from the Simcoe government a standard 200-acre property on which they were expected to build a house, clear the concession road on which their property fronted, and clear part of their land for agricultural purposes (Champion, 1979; 1988). As the families of the original settlers grew in number over successive generations, the original 200-acre properties were subdivided increasing the number of lots and homes on each original 200-acre property. This settlement history established the framework for the present-day layout of the Town of Markham, as many of the Town’s main roads today such as Highway 7 and Steeles Avenue are the early concessions and sideroads originally built in the 1790s.

By the 1850s as the population of Markham Township was growing, larger-scale building and development began to take form around the three villages of Markham including: Thornhill, Unionville and Markham while the land between these villages remained rural and agricultural. In 1850 the municipal government for the Town of Markham was created. The 1851 Census indicated an increase in the amount of cleared land and confirmed that over 200 log homes and an additional 500 frame houses had been built throughout Markham Township (Talbot, 2004; Champion, 1988). By the 1850s, Markham had established multiple mills, stores, hotels and other small businesses and transportation also saw great improvement in the 1850s with the development of bridges, corduroy roads and the towns first public transportation service initiated by Louis Bapp, which offered service by horse drawn car to Georgina Township (Champion, 1988). By 1853, the Ontario Simcoe and Huron Railway was established which spurred the development of multiple other railway routes too, from and through Markham Township, and by the 1890s, electrified rail substantially improved transportation within Markham and in connection to the surrounding region (Champion, 1988). Serving both passenger and freight trains daily, the railroad played an important role in the growth and development of Markham Village from the late 1800s to the 1920s when automobiles quickly arose as the primary method of passenger and freight transport in Ontario (Markham, 2014a).

As automobile ownership became the norm for families in Markham into the 1940s, many individuals began commuting into the city of Toronto for work—returning to their homes in Markham in the evenings. As a result, the viability of the three villages in Markham began to decline as did the rural community—Markham was quickly transforming into a bedroom community (Talbot, 2004). Also in the 1940s and 1950s, in response to widespread market



demand for single-detached homes outside the central city, Markham, along with many other suburban municipalities in the Greater Toronto Area experienced a wave of population growth that spurred widespread development of suburban single-family homes (Hodge & Gordon, 2008). By the 1970s and 1980s, much like the rest of the Greater Toronto Area and North America, development in Markham was characterized by conventional suburban development and sprawl. Most development during the post-war period consisted of single family detached homes in subdivisions networked with cul-de-sac streets and the automobile became the primary method of travel for the suburban family (Gordon & Vipond, 2007; Grant, 2006).



*Figure 6: Train in Markham's CP freight yard bringing automobiles into Markham. Source: Lennon, F (1975).*

In 1971, the Region of York was established as an upper tier municipality governing nine municipalities in the Greater Toronto Area including: Markham, Richmond Hill, Newmarket, East Gwillimbury, Georgina, King, Vaughan, Whitchurch-Stouffville, and Aurora. The establishment of the Region of York resulted in several shifts in municipal boundaries, wards, and political units and many early communities in the Region were amalgamated into larger Towns. The Town of Markham came to incorporate

the early communities of the Village of Markham, Unionville and Mount Joy among others (Williams, 2012). Due to Markham's amalgamation of several early communities, the town lacks one distinct community or business centre, instead consisting of a number of small nodes remaining from the previous communities which had been incorporated into the Town of Markham, as well as a number of former unincorporated rural areas (Grant, 2006; Williams, 2012). As a result, while the smaller communities (i.e., Unionville) have a distinct identity and community culture particularly surrounding the traditional town centre or Main Street for each community, Markham as a whole lacks a distinct community centre. This situation was exacerbated when conventional suburban development continued to characterize the Town of Markham's development into the late 1980s and early 1990s, with a great deal of residential development taking place in the former rural areas of Markham, outside the pre-amalgamation community centres leading the town of Markham to be even more decentralized than before (Williams, 2012). When the Cornell community was established in the late 1990s, it included the development of a town centre within the heart of the Cornell community. Cornell thus, became another distinct node with its own centre, edge and boundaries; its own name; and its own identity within the multi-nodal town of Markham.

By the early 1990s, planning and development in Markham began to change in ways that were noticeably different from earlier years, and that were much different from other suburban municipalities throughout the Greater Toronto Area at the time. The Town of Markham, according to Grant and Perrot (2009), is one of the leading municipalities in adopting environmental planning policies focused on intensification, infilling, mixed land-uses and environmental health prior to the Province of Ontario mandating such policies in provincial

plans. Markham was one of the earliest municipalities to embrace New Urbanist planning principles, ahead of many other suburban municipalities in the Greater Toronto Area at the time that continued to focus on the development of conventional suburbs, and “by the mid-1990s, Markham had fully committed to new urbanism policies and plans” (Grant & Perrot, 2009, p. 275).

Markham’s planning commitment to New Urbanism in the 1990s was made possible in part by a series of regional plan amendments carried out by the Region of York, the upper tier municipality which governs the Town of Markham. The amendments were completed in 1994 allowing Markham to implement town-wide urban design guidelines which aligned more with the principles of New Urbanism than those of conventional suburban development that had previously characterized development within Markham. The *Cornell Secondary Plan* (1994), and *Cornell Architectural Control Guidelines* (1997) promoted grid-patterned street layouts; authentic designs rooted in traditionalism; variety in building designs; well-designed public spaces; a variety of community facilities including parks and open spaces; and a carefully designed road network (Markham, 1994; Law Development Group, 1997).

In collaboration with the provincial government, the Town of Markham was one of the first municipalities to adopt New Urbanist planning principles into the municipal planning process. Following York Region’s Official Plan amendments in 1994, the Town of Markham began the five-year process of amending Markham’s zoning, planning and development regulations to conform to the new Regional Official Plan. The amendment process involved replacing the old regulations and zoning by-laws that limited development to conventional suburban sprawl and applying new policies that would make possible the implementation of

New Urbanist principles (Gordon & Vipond, 2007, p. 43). Gordon and Vipond (2007), note that, “the town’s general strategy was to encourage contiguous expansion of the urbanized area in a more compact form, but the use of New Urbanist design principles to achieve these objectives emerged as a reaction to conventional suburban land use planning” (p. 42). With a newly appointed planning commissioner in the 1990s and a Mayor who was open to experimentation with new environmental planning ideas, Markham was one of the first municipalities in the Greater Toronto Area to commit to New Urbanism as a planning strategy. Gordon and Vipond (2007) summarize Markham’s policy transition from conventional suburban development to New Urbanism in stating that:

Both conventional suburban and New Urbanist projects [were] required to conform to the Markham comprehensive plan’s requirements for dedication of open spaces, provision of school sites, and a range of housing types. However, the new regulations provided for more mixed-use designations and a broader range of road types, including wider boulevards, narrower local streets, and rear lanes. Developers can still build a cul-de-sac in Markham, but they also have the option to try elements of these new codes, should they wish. No special bonuses or incentives are offered for New Urbanist design, but developers can achieve higher development densities using the new standards (p. 43).

While Markham’s Town Council and city staff were responsible for introducing new policies that would allow for New Urbanist style development, the new policies were flexible enough to allow developers to choose to stick with conventional suburban development or to experiment with some New Urbanist principles in their developments. While most developers in the 1990s opted to continue to develop conventional suburbs, two New Urbanist developments were initiated in Markham in the late 1980s to early 1990s: Angus Glen and less than a year later—Cornell. The next section of this research paper will provide the necessary background

information on Cornell including: a brief history of the lands; background information on why it was developed; some of the early planning challenges that were encountered; the documents that were created to guide development; and the context within which it was planned as an intended New Urbanist community.

## 5.0 Introduction to Cornell:



Figure 7: Context Map: Cornell within surrounding City of Markham  
Source: Victoria Moore with Google Maps

In the late 1980s, a 500-acre parcel of land in Markham, Ontario, then known as the East Markham Project Lands, was owned by the Province of Ontario in conjunction with the adjacent North Pickering Lands. Together, the East Markham and North Pickering Lands were intended to be developed into a large community, and just north of the community the federal government planned to develop an international airport (MMAH, n.d.). It was soon decided that the East Markham Lands would be left out of the lands included in the airport proposal, leaving the province with ownership of a large portion of underused, potentially developable land that would soon be renamed and branded as the Cornell Project, named after the pioneer woman Elizabeth Cornell who owned and farmed the land in the early 1800s (Wood-Brunet, 1994; Gordon & Vipond, 2007; Law Development Group, n.d.). In 1988, the Provincial Government, in collaboration with the Town of Markham, developed a proposal for an

affordable housing strategy on the provincially owned lands that would eventually evolve into a test-case New Urbanist development project and the Town of Markham's second entirely New Urbanist community following Angus Glen (Moore, 2010). The agreement between the Province and the Town of Markham was that they would collaborate to create a master-plan for the Cornell lands drawing on the expertise of planning and design consultants, which the Province would pay for (Wood-Brunet, 1994). This type of affordable housing project was further encouraged in 1989 when the Provincial Government implemented the *Land Use Planning for Housing Policy Statement* (1989) requiring that 25% of all new housing in each municipality be made affordable housing (Toronto Planning and Transportation Committee, 2004).

In 1992, after sending out a request for proposals in search of a team of consultants to design the vision for Cornell, the Province of Ontario held an international design competition. Miami-based design firm Duany Plater-Zyberk and Associates won the design competition and were hired by the Province to design the vision for Cornell (Moore, 2013). The objective for the Cornell project was to develop 10,000 dwellings to accommodate approximately 27,000 people in attempt to keep pace with the population projections for the Town of Markham which anticipated that the 1992 population would double over a ten-year period reaching approximately 225,000 by 2002 (Skaburskis, 2006). The Cornell Development Group was established by the Town of Markham and Province of Ontario as the administrative body responsible for coordinating all planning and development approvals and monitoring Duany Plater-Zyberk and Associates in carrying out the conceptual vision for Cornell (Wood-Brunet, 1994).

Duany Plater Zyberk and Associates (DPZ) used Cornell as an opportunity to test the principles of New Urbanism as set out in their relatively newly established organization—the Congress for New Urbanism which was formally established in 1993 (Wheeler, 2002). DPZ created the vision for Cornell drawing on the principles of New Urbanism which may be broadly described as, “a style of planning that exalts the virtues of narrow streets, rear garages and lane ways, schools, parks, mixed housing styles, front porches and commercial areas right in the neighbourhood and above all proximity” (Yeadon, February 1999, p. p10). Earlier amendments to both York Region and the Town of Markham’s Official Plans and Zoning By-law allowed for experimentation with this new form of development, but further zoning amendments, technical studies, public input sessions, and secondary plans were required to implement these ideas in Cornell.

The provincial agency—Cornell Development Group coordinated and funded the technical studies, zoning amendments, planning documentation and development regulations required to carry out the Cornell Project; while DPZ drafted the design principles, and carried out a public consultation process, holding public input and information sessions on many occasions in attempt to gain support for both the Cornell project specifically, and New Urbanism in general (Gordon & Vipond, 2007). DPZ led design charrettes beginning in April 1992 with consultants, politicians, land owners and municipal and provincial staff to develop a consensus on the type of design approach that would be used for the Cornell Project (Wood-Brunet). Following the initial design charrette, DPZ carried out multiple more design charrettes with citizens and the public showcasing the New Urbanist design principles that would be utilized in the design for Cornell (Gordon & Vipond, 2007). While early in the public consultation



process, DPZ and their vision for Cornell faced resistance and skepticism from the public, mainly due to the higher densities that were proposed, throughout numerous public input sessions which experienced extremely high turn outs, DPZ soon gained public support for the projects New Urbanist vision (Skaburskis, 2006; Gordon & Vipond, 2007).

In April 1993, after a year-long consultation process with planners, town staff, land owners and the public Andres Duany and his associates presented the draft conceptual vision for the Cornell community to an audience of over 500 people (Wood-Brunet, 1994). The draft vision was well received by stakeholders, the press, and the public signalling that DPZ had succeeded, through public engagement, in garnishing support for New Urbanism in a municipality that was highly engaged in, and supportive of conventional suburban development (Wood-Brunet, 1994; Skaburskis, 2006).

While the conceptual design for Cornell was well received, the vision remained challenging to implement within the perimeters of zoning and planning policies which tended to favour conventional suburban development. This challenge was a reality for many early attempts at developing New Urbanist communities throughout North America because “conventional suburban development practices [were] embedded in zoning bylaws, infrastructure standards, building codes, and lending practices... Developers who wish to serve the market for New Urbanist development face[d] increased time, cost, and risk to amend or replace these regulatory instruments” (Gordon & Vipond, 2007, p. 41). In order for DPZ to implement New Urbanist principles in Cornell for example, several technical studies were required to be carried out as part of the subdivision process. It was crucial for DPZ and their plan for Cornell that the required studies including a Master Servicing Study, Traffic Impact

Assessment, Municipal Infrastructure Service Study, among others, support the principles of New Urbanism in order to garnish support from Markham Council for the implementation of the New Urbanist Community in Markham that was much different from conventional suburbs that the municipality was used to.

Cornell was not the only project in Markham being developed under New Urbanist principles in the 1990s, in fact, “Eleven secondary plans with varying adherence to New Urbanist principles were approved between 1994 and 1997... These plans [were expected to] accommodate 150,000 people” (Gordon & Vipond, 2007, p. 44). In the 1990s a new planning commissioner was appointed in Markham and the planning trajectory of the town began to change, focusing on more environmental planning principles than in previous decades (Gordon & Vipond, 2007).

In December 1993, the new Master Plan, Draft Secondary Plan and draft zoning by-law for Cornell were filed by the Province with the Town of Markham. The final version of the Secondary Plan was filed in April 1994 and later that year Phase One of the Cornell project, which included the easterly portion of Cornell, along Ninth Line, received draft plan approval for 10,000 residential units, along with retail and other commercial units (Wood-Brunet, 1994; Moore, 2012).

In 1995, with the election of a new Progressive Conservative Provincial Government in Ontario, the plan for Cornell, along with many other provincially initiated affordable housing projects were dramatically changed. The new Provincial Government removed specific housing targets from the Provincial Policy Statement (i.e., the requirement for 25% of new housing in municipalities to be affordable) and downloaded a great deal of previously provincially

controlled and funded housing projects onto local municipalities, who often lacked the resources to take on such responsibilities, leading to the privatization of many previously government funded and managed programs (Friskin, 2007). In line with the Provincial Conservative Government's strategy of selling numerous parcels of provincially owned lands to private interests, in 1996 the Cornell lands were sold to a private developer, Law Development Group (Moore, 2012). At the time of the sale, Phase 1 of Cornell had already gone through draft plan of subdivision approval and the purchaser, Law Development Group agreed to maintain the New Urbanist vision and plan for Cornell including adopting the Secondary Plan as well as the new zoning by-law and urban design guidelines previously put in place by the Province and Municipality in collaboration with DPZ (Gordon & Vipond, 2007; Moore, 2010). Law Development Group purchased from the Ontario Realty Corporation a large portion of the approximately 1500-acre parcel of land known as Cornell for \$2Billion in 1996. The remainder of the Cornell lands were sold to various other developers for future development (Moore, 2012; Adler, June 2001; Leeming, 2017).

After purchasing the Cornell lands, including many already serviced lots, Law Development Group quickly began working on the project and construction officially began in 1997. As promised, construction of the new dwellings followed the New Urbanist principles that DPZ had previously laid out in the Master Plan, Secondary Plan for Cornell and the Urban Design Guidelines (Warson, 1995; Cordileone, 2011). Phase One dwellings embodied the principles of New Urbanism with rear-yard garages and laneways; mixed use buildings with commercial space on the ground floor and second floor residential space; parks and public spaces within walking distance; and networks of grid patterned streets (Adler, 2001). While Phase One

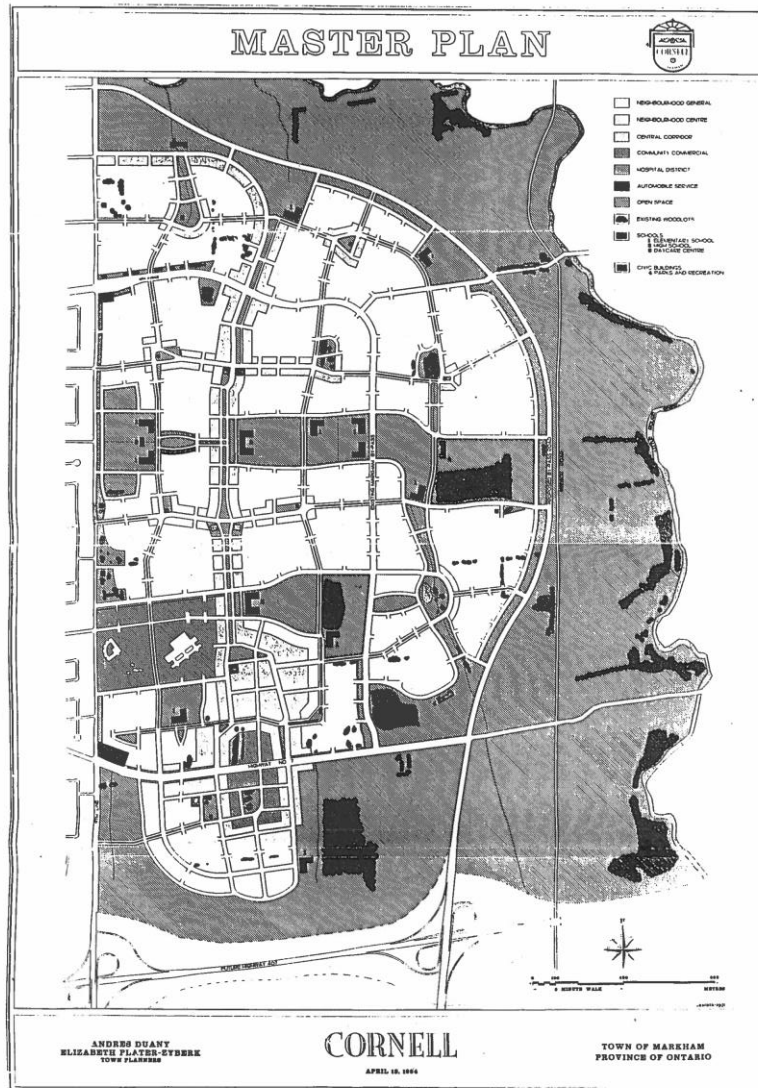
construction appeared promising in the early stages with relatively high sales, and building models closely aligned with New Urbanist principles, recurring delays in construction and unanticipatedly high construction costs forced the developer to stop all construction in Cornell and abandon the Cornell project with only 1,100 of the planned 10,000 homes completed and a great deal of unfinished work (Adler, 2001). The 3,000 residents of the homes that were constructed prior to Law Development Group's abandonment of the project, experienced a great deal of frustration including delays in closing dates, poor customer service, and unfinished landscaping and sodding long after move-in (Adler, 2001; Moore, 2012).

Susan Moore, a prominent New Urbanist scholar who has produced a great deal of critical work on New Urbanism in the Greater Toronto Area, deemed Phase One of Cornell a "financial failure" (2010, p. 105). Moore attributes the failure of Cornell to "poor project management, slow and muddled construction schedules for different builders and inadequate customer service for purchasers" (2012, p. 584). Despite the financial failure of the first phase of Cornell, the development remained successful in terms of the New Urbanist principles it embodied, as it encompassed "virtually every feature discussed in the literature on New Urbanism" (Wood-Brunet, 1994). These New Urbanist principles continued to be incorporated into successive phases of Cornell's development by various developers.

### **5.1 Duany Plater-Zyberk and Associates—Vision for Cornell:**

Duany Plater-Zyberk and Associates designed Cornell according to the principles of New Urbanism. They promoted walkable streets, mixed land uses, high connectivity between neighbourhoods and local amenities, and an overall human-scaled design approach complete with abundant open space. The plan for Cornell included a central mixed-use retail corridor

along Bur Oak Avenue, a network of open spaces linking the central corridor to surrounding natural areas, and a number of residential neighbourhoods between the retail corridor and open space networks (Urban Strategies, 2012). To shape future development through the planning and development approvals process, each of the New Urbanist principles incorporated into the development of Cornell were translated into guiding policies, plans, and design guidelines as well as the *Cornell Secondary Plan (1994)*.



APPENDIX 4  
 Figure 8: Cornell Master Plan created by Duany Plater-Zyberk and Associates (1994)

## **5.2 Amending Markham's 1987 Official Plan (Official Plan Amendment No. 20):**

After the Province of Ontario and the Town of Markham entered into an agreement in 1989 to initiate the planning and development of the Cornell lands—the process of amending Markham's 1987 Official Plan began. The purpose of Official Plan Amendment No. 20 was to re-designate the Cornell lands which were designated Future Urban Area, Hazard Lands, and Agricultural One and Three under the 1987 Official Plan. Official Plan Amendment No. 20 was enacted to replace the earlier land designations with new categories that would allow for the establishment of a diverse range of land-uses in Cornell ranging from open-space, to mixed-use, to medium density residential, among others. The second objective of the Official Plan Amendment was to establish a new Planning District (PD29-1) and Secondary Plan for Cornell (Markham, 1994).

The Official Plan Amendment encompassed an area of 973 Hectares of land bounded by 9<sup>th</sup> Line to the West, Little Rouge Creek to the east and north, and the future (now complete) Highway 407 to the south. Within this area included in the amendment, approximately 625 hectares were expected to undergo urban development. Official Plan Amendment No. 20 was approved by the Ontario Ministry of Municipal Affairs on July 17, 1995. The intent of the Amendment, Secondary Plan and agreement between the Town of Markham and Province of Ontario was to “jointly plan a community which would reflect a range of provincial and municipal policy objectives, such as the promotion of a compact urban form and the provision of a range of housing types, including affordable housing” through the implementation of New Urbanist principles (Markham, 1994, p. ii).

### 5.2.1 Cornell Secondary Plan:

The Secondary Plan for Cornell was developed around an earlier Master Plan for Cornell created by Duany Plater-Zyberk and Associates—the firm hired by the Province to carry out the design and vision for Cornell. The basis of the Master Plan was that “living areas should be cohesive and comprehensible to their residents” (Markham, 1994, p. vii). The plan provided a structural framework for Cornell that was made up of a series of neighbourhoods, districts and corridors—this has formed the basis of the policy framework and land-use pattern for the 1994 Secondary Plan. The objective of the Secondary Plan for Cornell was to “create a balanced, pedestrian-oriented community comprised of residential neighbourhoods and mixed use and functionally specialized districts, that provide opportunities for a variety of housing types, employment and retail/commercial uses and community facilities” (Markham, 1994, p. 6). The Secondary Plan further outlines nine primary objectives of the Cornell Secondary Plan which address: residential development, transportation, open-space and environmental concerns, community facilities, natural and heritage features, employment, services and urban design. Each of the identified objectives formulate a section of the Secondary Plan—informed by a number of provincial and regional policies as well as a number of studies that were carried out early in the planning process. While the objectives are comprised of specific goals in each respective section, the Secondary Plan also identifies a number of overarching principles that were intended to characterize the Cornell Community through the achievement of each of the established objectives. While supporters of New Urbanism such as Yeadon (1999, p. 11) argue that New Urbanism “is about urban planning principles not about architecture”, the Secondary Plan for Cornell along with other planning documents including the Architectural Control

Guidelines, Master Plan for Cornell and Urban Design Guidelines—interpret the planning principles advocated by the New Urbanism and establish a number of design, architectural and policy objectives for achieving those goals and principles such as mixed-use, walkability and community vitality.

### 5.2.2 Other Policies Guiding the Planning and Design of Cornell:

While the *Cornell Secondary Plan* (1994) was the main policy document guiding the development of Cornell, a number of additional plans and guidelines were also developed to facilitate more specific elements of the development including design, architectural elements, and the development of parks and public spaces. Some of the documents used to support the Secondary Plan in guiding the development of Cornell include: *The Master Plan* (1994) developed by Duany Plater-Zyberk and Associates to inform the development of the Secondary Plan; *The Cornell Architectural Control Guidelines* (1997)—produced by Law Development Group to provide guidance to more specific architectural elements; *Bur Oak Avenue Urban Design Guidelines* (1999)—intended to guide the design of Cornell’s mixed-use district surrounding Bur Oak Avenue; and the *Cornell Parks and Open Space Master Plan* (2004) produced by Cosburn Giberson Landscape Architects to provide direction for the enhancement and maintenance of Cornell’s parks and greenspace. Each of these documents will be discussed in greater detail throughout the remainder of this paper particularly when discussing the implementation of each of the New Urbanist principles and design elements.

### **5.3 Scale: The Neighbourhood, District, and Corridor:**

The Community Structure for Cornell which is established in both the Secondary Plan (1994) and the Master Plan for Cornell (1994), “employs three main organizational components



to define the fundamental arrangement of land use and activity. These components are the neighbourhood, the district and the corridor” (Markham, 1994, p. 10). The components are drawn directly from the Charter of the New Urbanism which asserts that neighbourhoods, districts and corridors are the fundamental elements around which communities should be structured (Barnett, 2000).

### 5.3.1 *The Neighbourhood:*

Neighbourhoods, according to the *Charter of the New Urbanism* (2000), should form “the basic building block of all residential districts” (Barnett, 2000, p. 73). The *Charter of the New Urbanism* sets out a number of characteristics and principles that should be incorporated into the design and development of neighbourhoods within a New Urbanist community. Each residential neighbourhood, according to the Charter, should include a mix of housing types (single-detached, townhomes, rental units etc.), walkable (and drivable) streets, as well as “shops, schools, and civic buildings, all within walking distance” (Barnett, 2000, p. 74).

Neighbourhoods should be developed close together forming larger cities and towns so that they can share transportation corridors, civic buildings and public spaces. Elizabeth Plater-Zyberk (2000), argues that neighbourhoods should have a distinct center comprising of “a public space—a square, a green or an important intersection” forming a town centre or shared space for those living in the neighbourhood (p. 79).

The Cornell Secondary Plan (1994), dictates that six residential neighbourhoods be developed in the Cornell community sharing a common corridor and central mixed-use district. Each neighbourhood, according to the Secondary Plan, are to consist of primarily residential uses with “supporting uses such as parks, schools and convenience commercial” (1994, p. 10).

In following the principles outlined in the *Charter of the New Urbanism* (2000), each of Cornell's six residential neighbourhoods are to be located no more than a five-minute walk to the neighbourhood centre and to the shared community mixed-use centre which would contain public spaces and convenience retail amenities among other uses.

### 5.3.2 *The District:*

Districts, according to the *Charter of the New Urbanism* (2000), are defined as “an urbanized area with special functions... [or that] accommodate large-scale transportation or work places” (Plater-Zyberk, 2000, p. 79). Districts are often comprised of uses that are best separated from other land uses (i.e., hospitals, airports or industrial districts) but can also be comprised of retail, employment, restaurants and public spaces characterizing a mixed-use district (Barnett, 2000; Plater-Zyberk, 2000).

The Secondary Plan for Cornell (1994) established two main districts within the boundaries of the Cornell community. One is a functional Hospital District and the other is a mixed-use Central District (referred to as Community Amenity Areas or CAA's on most plans for Cornell). The Hospital district includes the institutional lands of the Markham-Stouffville Hospital (Markham, 1994), and has since been expanded to include the Cornell Community Centre which works closely with the hospital providing rehabilitation and educational services, as well as the E Hong Retirement Residence which also works closely with both the community centre and the hospital (Campbell, 2017). The Central District includes the mixed-use town centre developed around Bur Oak Avenue providing retail, services, higher-density residential and public or civic spaces.

### 5.3.3 The Corridor:

Corridors, according to the *Charter of the New Urbanism* (2000), include transportation corridors (rail-lines or roadways), regional parks, or other natural systems which act as linear networks connecting to various neighbourhoods and districts within a region or community.

Plater-Zyberk (2000), describes corridors as “the connector[s] or separator[s] of neighbourhoods and districts... composed of natural and technical components ranging from wildlife trails to rail lines” (p.

82). Corridors are essentially linear networks of either greenspaces, or roadways that connect at multiple nodes throughout a community. The important element of corridors from a New Urbanist perspective however, is that they provide for more than just a way of passing through a community (as highways or expressways often do). Corridors are intended to promote walking



Figure 9: Cornell Parks and Open Space Master Plan Created by Cosburn Giberson Landscape Architects (2004).

and transit, incorporating districts and mixed-use centres throughout the community.

A few types of corridors are identified in the Cornell Secondary Plan (1994), including the Central Corridor (Bur Oak Avenue) and the Highway 7 Corridor which are described in the Secondary Plan as development corridors “relating to principle transportation routes flanked by a mix of land uses contribut[ing] to the community structure” (1994, p. 12). The Secondary Plan also identifies the Little Rouge Creek Valley as a natural corridor running along the eastern portion of the Cornell community as well as the planned Greenlands Corridors defined in the Open Space Master Plan for Cornell. The Greenlands corridors were designed “to provide a naturalized ecological link... in addition to recreational and pedestrian functions” (Markham, 1994, p. 12). The Greenlands Corridors as illustrated in the Cornell Parks and Open Space Master Plan (Figure 9) include linear parks, parkettes, and school sites. While the Greenlands Corridors that were actually developed in Cornell look different from the Master Plan (an east-west system replaced the intended north-south corridor), my research has determined that the goal of connecting the various parks and school sites through this corridor plan was largely achieved.

Now that I have introduced some of the important background information on Cornell including: the key actors, policies, and planning documents that were integral to creating the New Urbanist vision for Cornell, in the next section of this research paper I examine and critique some of the planning and design elements that were identified in the early planning and development of the Cornell community in attempt to achieve the New Urbanist vision. Drawing on scholarly literature as well as the interviews and observational research that I have conducted, I assess which elements of New Urbanism I believe were successfully integrated into

the development of Cornell and explain why Cornell has been unable to develop and maintain a successful mixed-use town centre among other critiques.

## **6.0 Critique: New Urbanist Planning and Design Elements Featured in Cornell:**

The objective of this section of my research paper is to demonstrate how the principles of New Urbanism were incorporated into the plans and designs for Cornell through a specific set of planning, policy and design elements. In this section I examine various elements of the planning documents that directed the development of Cornell's built form to demonstrate how the guiding principles of New Urbanism were incorporated into the plans and thus, the development of Cornell. The elements addressed in this section are drawn from various planning documents that directed the development of Cornell including the Secondary Plan for Cornell (1994), the Architectural Control Guidelines (1997), Bur Oak Avenue Design Guidelines (1999) as well as Zoning and other planning documents and guidelines. This section of my research paper is broken down into three elements of the built form: housing, street layout, and mixed-use space. For each section I examine how the planning or design elements were incorporated into the Cornell's guiding planning documents. I then critique them in relation to the relevant New Urbanist guiding policies drawing from a range of literature related to New Urbanism, and primary research obtained through my site visits and observational research as well as my one-on-one interviews.

### **6.1 *Housing***

Housing is a crucial element in creating good (sub)urban places—as the type and quality of homes play an important role in mental health and developing strong social networks (Evans, Wells & Moch, 2003) and is thus, an important consideration for New Urbanists in developing good places to live. New Urbanism introduced new models of housing in Markham through the development of Cornell including: a more diversified mix of housing options and densities;

vernacular housing design; and changes to the zoning provisions to allow for reduced setbacks, larger front porches and the relocation of parking spaces and garages to the rear of homes. Each of these elements are discussed in the remainder of this section.

### *6.1.1 Mix of Housing Options*

While post-war suburban development tended to produce large neighbourhoods consisting of several similar style homes (single-detached, townhomes or semi-detached homes) on similar sized lots, New Urbanists advocate for the provision of a wide-range of housing types within each neighbourhood that would serve a variety of residents with different incomes and housing needs in the same neighbourhood (Weiss, 2000). The planning of Cornell, per Leeming (2017), essentially rewrote the zoning for Markham to permit a mix of housing options side-by-side so that any street could encompass a mix of single-detached, semi-detached and townhouses. The Architectural Control Guidelines for Cornell developed by Law Development Group (1997) requires that each residential block in Cornell feature at least two building types (i.e., single-detached, semi-detached or townhomes). This was important because it not only made communities visually, more interesting and diverse than conventional suburbs, but it also allowed for a broad range of families with different incomes to live in the same neighbourhood. Dan Leeming (2017), argues that this mixture of housing types is important because it can accommodate families within every stage of their life-cycle. Cornell includes rental options, smaller townhomes, and will soon include condominium options, which might suit young families and first home-buyers. Later, as families grow and mature they can upgrade to larger homes on larger properties including semi-detached and single-detached homes without having to move to a different neighbourhood or a different part of the region.

Further, Cornell also includes a retirement home which Leeming argues is important as it allows grandparents to live in the same neighbourhood as their children and grandchildren (2017).



*Figure 10: Semi-detached homes in Cornell*  
*Source: Victoria Moore (September 15, 2017)*



*Figure 11: Semi-detached homes in Cornell*  
*Source: Victoria Moore (September 15, 2017)*



I strongly agree with Leeming that an important feature of New Urbanism and the Cornell development is the availability of a wide-range of housing options to suit families with different needs throughout various stages of their life-cycles. By producing a community in which families can move into new homes that better suit their life-style at different points throughout their life (i.e., first home, children, empty-nester, retirement) without having to move out of their neighbourhood, I believe this will strengthen the social network within the community by rooting families in place. In other words, the wide-range of housing options provided in Cornell might provide more opportunity for residents to establish the Cornell community as home, even if they move from one house to another within the community. For example, when children move out of their parent's homes and buy or rent their own home, being able to do so in the same community where they grew up and can be close to friends, families, and existing social networks might create a stronger sense of community rather than having to move elsewhere and start over with establishing such community ties.

Apart from suiting family needs at different points throughout their life-cycles, the variety of housing options offered in Cornell might also suit the needs of people with different income levels and family structures. For example, laneway housing (secondary rental suites) might provide an affordable rental option for an elderly or a young person living alone, while the single-detached house on the same property might suit a young family requiring the space of a single-detached home while providing a rental opportunity for additional income to make living in a single-detached home more affordable. Similarly, whereas conventional post-war suburban developments were typically structured for the nuclear family, the variety of housing options afforded in Cornell might accommodate a wider range of family-structures. Single-

income households, families without children, those living with extended families or grandparents, and nuclear families might all find a home in Cornell suited to their particular needs.

Another element of housing diversity that was incorporated into the Secondary Plan for Cornell was the inclusion of a variety of land-use designations with different density requirements within the Cornell development. The density requirements for Cornell have been divided into three density categories: low, medium and high—where 60% of Cornell would be comprised of low-density residential units, 22% would be comprised of medium-density, and 18% would be high-density residences primarily located around the central core of the community (Markham, 1994). This element of the housing plan for Cornell is significant because it includes a range of densities with higher densities located around the central mixed-use core and main transportation network, while maintaining a large portion of low-density housing to suit the continued desire among residents for low-density suburban housing.



*Figure 12: Single-detached homes with rear laneways. Front of homes face a common greenspace.  
Source: Victoria Moore (September 28, 2017)*

### **6.1.2 Vernacular Building Design:**

New Urbanists do not advocate for any specific architectural style, rather they argue that the design of buildings in New Urbanist communities should draw from the local architectural features and vernacular design. As such, houses in Cornell were designed with the intent to reflect nineteenth century Victorian-era villages common throughout the Greater Toronto Area and in the older villages of Markham (Hodge & Gordon, 2008). Multi-storey homes, with elaborate decorative trims, large porches, steep and pointed roofs, and lancet windows are some of the Victorian-era architectural elements that were intended for many of the homes in Cornell. The Architectural Control Guidelines for Cornell (1997) created by Law Development Group intended to regulate the design of homes to some degree in stating that:

Care must be taken to ensure that [housing] designs follow consistent principles and do not rely on false replications of 'olde' styles through the application of insufficient detailed or inaccurate reproduction. Simple architectural solutions should be sought

rather than proposals that are difficult to achieve, elaborate and/or excessively ornate (Law Development Group, 1997, p.1)

In other words, building design was intended to reflect local contexts and historic design, rather than “copying irrelevant, distant or foreign styles” (Law Development Group, 1997, p.1).

Housing designs were meant to reflect the heritage of Markham and the Greater Toronto Area by combining Victorian-style design with newer housing designs, producing a cohesive character for the entire Cornell Community (Law Development Group, 1997). The Architectural Control Guidelines for Cornell establish nineteen elements of architectural and design importance for homes in Cornell and set out guidelines to regulate each element. For example, the guidelines address exterior wall finishes for homes that face public spaces and streets, requiring that quality materials be used and that the architectural character of the building is consistent with that of the neighbourhood.



*Figure 13: Home in Markham designed and built to reproduce Victorian Architecture.  
Source: McConnell, C (1978)*



*Figure 14: Three neighbouring homes in Cornell with distinctively different architectural styles. The homes are similar in that they front onto the street, have rear laneways, and well maintained front porches and gardens.  
Source: Victoria Moore (September 28, 2017)*

Dan Leeming (2017) notes that while it was the intention of designers to feature a vernacular Victorian-style design in the homes in Cornell, this was difficult to implement because the architectural features often did not match homebuyer's preferences for brick homes and modernist—meaning more conventional—suburban homes. When observing many of the homes in the first phase of Cornell, I noticed that the architectural style employed signifies a compromise between the Victorian-style that designers intended and the more modernist styles that homebuyers preferred. Many homes feature a mixture of brick, stone and panelled exteriors, some have pitched roofs while others have entirely flat roofs. Despite these differences, one element that almost all homes in Cornell have in common is that they have covered front porches at the front of the homes.

### *6.1.3 Front Porches and Reduced Setbacks*

While Cornell rewrote Markham's zoning to allow for a mix of housing types in one block, it also transformed the zoning regulations for the Town which once supported deep lots with large setbacks, now proposing instead, that front-yard and side-yard setbacks be reduced to encourage homes to be located along streets and public sidewalks and in closer proximity to neighbours (Leung, 1995). The *Charter of the New Urbanism* advocates for a reduction in front and side yard setbacks both in residential and commercial areas promoting instead what they term "build-to-lines" which dictates that a certain percentage of buildings within a given area be built to the front property line aligning with the public realm or street (Solomon, 2000, p. 126). Aligning building frontages with the sidewalk or front property line enhances the feeling of safety within a community in theory, because front windows facing a public street enhances natural surveillance and "human presence" for pedestrians using public sidewalks (Gindroz, 2000, p. 135).

Similarly, front porches are an important design feature to bridge the relationship between the private space of the interior of a private home, with the public or community sphere outside (Schimmenti, 2000). The presence of front porches along a residential street enhances the feeling of safety and security. In his essay in the *Charter of the New Urbanism*, Gindroz (2000) argues that the presence of well-maintained front porches and gardens enhances community safety because "a stranger knows that he will be seen and is made to feel either welcome or not. The message is clear that this is a managed environment, 'owned' by the neighbours who live there" (p. 136). As such, the Architectural Control Guidelines for Cornell (1997) require that a minimum of 25% of all homes in Cornell have a front porch facing a public street. Today, as I have observed, as-built Cornell has far exceeded this minimum

requirement as almost every single-detached, semi-detached and townhouse in the community has a front porch aligning with the public sidewalk, although some are much smaller and clearly less utilized than others. When walking through the residential neighbourhoods of Cornell, I noticed that many of the housing blocks have front porches that align with the public sidewalk. I noticed that in some areas, particularly in the side streets away from the main roads, front yards and porches appeared to be well maintained and utilized, with patio furniture, décor, and front gardens abutting the public sidewalk. When walking through these areas, it became clear to me what I had read in the New Urbanist literature about the sense of safety and community that can arise in a neighbourhood with well-maintained front yards and porches. At times I felt although I was in a nineteenth century close-knit community where residents took pride in both their private yards and shared public spaces as evidenced in the well-maintained landscapes and, a cohesive community character achieved through consistent vernacular design.

In other areas of Cornell, however, the atmosphere felt much different. When walking along Bur Oak avenue for example, townhomes align with the public street, but porches are much smaller than those on the side streets, in many cases too small to serve a functional purpose. Perhaps because these homes front on to a busy street with lots of car (and bus) traffic, the front porches along Bur Oak Avenue seemed underutilized, neglected even. Unlike the homes within the residential neighbourhoods on residential streets which have patio furniture and manicured gardens at the front of their homes, the homes along Bur Oak Avenue for the most part have no front gardens. I often observed many newspapers and pamphlets on the porches—making it seem as if people don't even use their front doors for weeks at a time.

These observations demonstrate the importance of urban design and human presence in creating neighbourhoods that feel and appear safe, lived in and thus, place-ful.

#### *6.1.4 Affordability*

According to the Province of Ontario's original vision, Cornell was proposed as part of their affordable housing strategy set out in the 1989 Land Use Planning for Housing Policy Statement which required that a minimum of 25% all new housing within each municipality be comprised of affordable housing (Toronto Planning and Transportation Committee, 2004). Exceeding this minimum requirement, the Province intended to provide approximately 50% affordable housing in the Cornell development alone. In 1995 however, when a new conservative provincial government took power over the New Democratic Party-led government, the Cornell project was sold to a private developer, the plans for creating an affordable housing development were diminished, and little affordable (meaning government subsidized) housing was actually provided (Grant, 2006).

While often represented as affordable in comparison to other communities in Markham (which is ranked by Zolo Realtors as the 7<sup>th</sup> most expensive municipality in the GTA in 2017), with the average home price in Cornell in 2014 at \$571,360, it is evident that Cornell is far from affordable for those wishing to purchase a home (Tsang, 2014; "Zolo," 2017). In 2004, the average price for a new townhouse was \$220,000, and by 2014 the average townhouse price had risen to \$500,000. Similarly, in 2014, single-detached homes ranged from \$650,000 to \$900,000 and mixed-use live-work units ranged from \$600,000 to \$800,000 (Tsang, 2014; Grant, 2006). In 2013, Canadian Real Estate Wealth Magazine named Cornell one of Canada's top 100 communities to invest in because property values were expected to increase



significantly (Thompson, 2013). Grant (2006), notes that despite the original intentions to develop Cornell an affordable housing community, “as built Cornell represents another upscale suburb” (p. 164). Based on my research, when considering the cost of purchasing a single-detached home in Cornell, in comparison to elsewhere in the region, I can agree with Grant that Cornell might be considered another upscale suburb—offering single-family homes for purchase at the market rate. The difference between Cornell and conventional suburbs however, is that Cornell generally offers a wider range of housing options that conventional suburban developments do not. In other words, Cornell caters to a wider range of income levels by providing a range of housing options (i.e., single-detached, townhouses, rental coach houses, live-work units etc.) even if single-detached homes are comparable in price or more expensive than similar homes elsewhere in the region. For example, the presence of coach houses in Cornell offers a viable rental market that does not exist elsewhere in Markham.



*Figure 15: Coach house above detached garage on rear laneway in Cornell.  
Source: Victoria Moore (September 15, 2017)*

New Urbanism attempts to present a more affordable type of housing development than conventional suburbs by increasing residential densities, incorporating affordable housing into market-rate housing developments, and by providing a mixture of housing types within New Urbanist communities. Ellis (2002) for example argues that “The New Urbanism has always advocated... mixing people of different income groups within the same communities, and providing dignified affordable housing that looks like normal housing” (p. 279). In other words, New Urbanism attempts to achieve “income-mixing” within residential communities by providing a wide range of housing options encompassing various levels of housing prices including rental options within a community where homes (whether rental or market housing) are designed with similar architectural standards to avoid stigmatizing lower income housing (Ellis, 2002, p. 279). In developing low-income rental housing that looks like market-rate housing, New Urbanists aim to alleviate the type of stigmatization that isolated low-income housing developments have historically received by weaving lower-income housing into what would otherwise be middle-class neighbourhoods. Further, by providing a wide range of housing types for those of different income levels, New Urbanists believe that these communities can “bring people of diverse ages, races, and incomes into daily interaction, strengthening the personal and civic bonds essential to an authentic community” (Weiss, 2000, p. 89).

The New Urbanist model of affordable housing is developed around three main principles: walkability, higher densities, and a variety and mix of housing options to generate mixed-income communities. The first principle is relatively straight forward, New Urbanists believe that increasing pedestrian accessibility in residential areas, thus reducing car

dependence is an essential element of making a community more affordable for lower-income families who cannot afford to rely on an automobile and long commutes for their daily needs (Steffel-Johnson & Talen, 2010). The second principle, is based on a common assumption that higher-densities result in less consumed land per unit, therefore, decreasing lot size can result in reduced housing prices and increased affordability (Leung, 1995).

The third premise of affordability considered by New Urbanists is housing diversity and the creation of mixed-income communities. New Urbanists oppose large-scale segregated low-income housing communities, advocating instead for the provision of affordable housing within mixed-income New Urbanist communities. Duany (1990), argues that “affordable housing should look like market-rate housing, using the same materials, windows and forms, it should never be segregated and never provided in large numbers” (p. 5). Duany suggests that New Urbanist developments should not segregate housing types because, doing so also leads to the segregation of people based on income levels. Instead, he suggests that a range of housing types (single-detached, townhouses, apartments, live-work units, granny-flats) should be provided within the same area in a “naturally and... highly integrated manner” (1990, p. 5). Duany (1990) recommends including two main types of affordable housing in the housing mix, both of which have been incorporated into New Urbanist developments including Cornell: housing above retail establishments, and garage apartments or backyard rental cottages.

Laneway housing or Coach Housing, as it is often referred to in the Greater Toronto Area, has the potential to provide small-scale but affordable opportunities for rental housing. Referred to also as garage apartments, granny-flats, more broadly as accessory dwelling units or second suites; coach houses are defined in the Cornell Secondary Plan (1994) as:

a small, independent building, physically separate from the principal dwelling unit with which it is associated, which may be used as a self-contained dwelling unit, or for activities accessory to those permitted in the principal dwelling unit, and having its primary access from a rear lane or alley abutting the lot upon which both the coach house and its associated principal dwelling unit are located (p. 14).

In other words, coach houses can be described as a living space on the second floor above a detached garage with a kitchen, bathroom, and one or more bedrooms with a private entrance. New Urbanist developments designed around the laneway model—with porches in the front facing the street and detached garages at the rear of the houses on a private laneway, provide an excellent opportunity for the provision of coach or laneway housing.

Cornell is the only subdivision in Markham that provides the opportunity for laneway housing as an affordable rental option (Tsang, 2014). The Town of Markham's Zoning By-law 177-96, permits a maximum of one accessory dwelling unit above a private garage in the Cornell subdivision provided it is accessory to an existing single detached, semi-detached or townhouse dwelling. Laneway housing units in Cornell in 2014, rented for a minimum of \$900 per month, and varied depending on the size, and the number of bedrooms (Tsang, 2014). While often promoted as a selling feature for homebuyers wishing to accumulate additional income through a rental unit, single-detached homes and townhomes with coach houses are significantly more expensive than homes that do not provide a rental unit option. In 2014, it was estimated that homes with above-garage rental units sold for approximately \$70,000 more than similar homes without a secondary rental unit (Tsang, 2014).

The second type of affordable housing that Duany (1990) recommends incorporating in to the mix of land uses in New Urbanist communities is housing units above retail

establishments often described as live-work units. Duany claims that, “this type of dwelling can be provided for the cost of construction alone, as the land acquisition can be assigned to the retail component” (1990, p.5). Live-work units are meant to provide an opportunity for small-business owners to live closer to work, while still providing a physical separation between living space and work space. The types of businesses that operate out of live-work units are often limited to small retail businesses, offices, cafés, and service providers such as hair stylists, chiropractors and travel agents. Restaurants, bars, and offices with several employees are often not permitted due to concerns regarding noise disruption for the dwelling units above, and due to parking restrictions (Campbell, 2017).

While new urbanists have devoted some attention to the provision of affordable housing, what is needed to implement an operative affordable housing model is more than a design approach to affordability. Steffel-Johnson and Talen (2010), note that “financing challenges... market dynamics, soaring construction costs, community resistance to affordable housing and diminishing sources of public subsidy” are a few of the major challenges that developers face in incorporating affordable housing into New Urbanist projects (p. 586). One of the challenges for affordable housing provision that has been faced in Cornell is widespread NIMBYism (Not in My Back Yard) among residents who do not wish to see affordable rental units in their community. In 2006 for example, a proposal was submitted to Markham Council by the Markham Inter-Church Committee for Affordable Housing (MICAH) requesting service allocation and financial incentives for a future affordable rental housing project MICAH planned to propose on a piece of land they owned in Cornell (Roth, 2006). While no actual proposal was submitted for the provision of such an affordable housing apartment, Cornell residents were

quick to voice their opposition to the idea of locating a multi-unit affordable housing project in Cornell Centre as this type of development doesn't fit the New Urbanist vision of the community.

A discussion forum initiated on September 17<sup>th</sup>, 2006 on the Cornell Residents Association discussion board regarding MICAH's request to Council clearly demonstrates resident's opposition to the allocation of affordable housing in Cornell. Common concerns addressed by residents throughout the forum include those related to affordable housing affecting the land values of property owners in the community, the concern of affordable housing attracting individuals with mental illness and substance abuse in a community made up of families and young children, and the general belief that individuals who would be accommodated in this type of affordable housing do not fit mold of the typical Cornell resident. Residents comments within the online forum voiced concerns that affordable housing units would not be maintained to the architectural and design standards of Cornell—and that they might result in messy balconies and window coverings and begin to look like affordable housing units seen throughout the City of Toronto (MICAH... Forum, 2006).

While Cornell is far from the affording housing development it was originally intended to be, based on my research, I believe that Cornell includes more affordable housing than conventional suburbs generally do through the provision of coach houses and live-work units as well as by providing opportunities for a more mixed-income community through the availability of a range of housing options.



*Figure 16: Live-work Units in one of the mixed-use corridors in Cornell along Bur Oak Avenue  
Source: Victoria Moore (September 25, 2017)*



*Figure 17: Live-work units in one of the mixed-use corridors in Cornell along Bur Oak Avenue.  
Source: Victoria Moore (September 25, 2017)*

### **6.1.5 Density:**

There have been ongoing debates over the past several years as to whether Cornell succeeded in providing the type of higher density residential development that New Urbanism encourages. As mentioned above, there has been significant resistance from residents against efforts to allocate high-density affordable rental housing in the Cornell community. Apart from multi-unit housing above commercial units in one of Cornell's intended mixed-use town centres called the Mews, and a few condominium buildings that have been proposed or approved in recent years but are not yet built, there is relatively no medium to high density residential development in Cornell. In 2004 the Canada Mortgage and Housing Corporation carried out a study comparing four New Urbanist developments in Canada to four Conventional Suburban



Developments. The study found that in 2004, 36% of the housing stock in Cornell was made up of single-detached units, 46% townhouses, 17% semi-detached homes and 1% apartment-style housing. The overall gross density was 19.6 units per hectare compared to the average conventional suburban development density of 11.6 units per hectare (CMHC, 2011). Phase One of Cornell, located in the western portion of the development, east of Ninth Line, was said to have doubled the density of the adjacent Conventional Suburban Development just west of Ninth Line (Leeming, 2017).

When visiting Cornell, I observed that a large proportion of the housing units in the community are comprised of single-detached dwellings. I was initially surprised that Cornell had achieved a higher gross density compared to surrounding conventional suburbs while maintaining the suburban trend of producing the majority of housing as single or semi-detached homes on separate lots. When reading about the early planning objectives for Cornell to produce higher-density residential development, I had expected to see this objective realized through the construction of stacked townhomes or apartment-style condominiums, the type of development we often associate with high-density development today. This was not however, the type of development that New Urbanists had envisioned in the 1990s when Cornell was planned and designed. The goal at this time was to achieve higher residential densities than post-war conventional suburbs while still providing the suburban comforts of private single-detached homes that homebuyers preferred. Based on my research, I do not think that Cornell incorporates enough high-density housing to be considered a successful high-density residential community by today's standards. The remainder of this section will examine the scholarly literature surrounding density in New Urbanist developments with a particular focus on Cornell.

In the early stages of planning for Cornell, residents of Markham were in clear opposition to the type of higher-density residential development that was proposed—the proposals for smaller houses on smaller lots were much different from the type of sprawling development Markham was used to. Despite this early opposition to the higher-density development proposed for Cornell, Queen’s University planning professor Andrejs Skaburskis argues that through rigorous public consultation DPZ succeeded in changing the minds of Markham’s residents and Cornell’s gross density in 2006 was twice as high as surrounding conventional suburbs (2006). While the gross density of Cornell may be higher than surrounding conventional suburbs, Skaburskis (2006), argues that this simplistic comparison of relative densities is not enough to fully determine whether the new urbanist model actually reduces sprawl by increasing density. He argues that we must consider who is moving into New Urbanist communities and whether they are moving from higher density housing (i.e., downtown condominiums) or lower density housing (i.e., conventional suburbs). For example:

If the households that moved into a new urbanist development would have moved to higher-density housing elsewhere, then the prototype increases sprawl regardless of how favourable its density compares to that of conventional suburbs... The development may also increase sprawl by inducing households to leave their high-rise apartments earlier by the availability of lower-priced townhouses in the new urbanist development (Skaburskis, 2006, p. 233).

What Skaburskis argues here, is that one cannot evaluate the success of New Urbanist communities in achieving higher density models without first understanding where residents of New Urbanist communities move from, or where they would live in the absence of such communities. In other words, to truly provide a higher-density model of housing—New Urbanist communities must attract households who would otherwise choose to reside in low-density conventional suburbs rather than those who would choose to live in high density

condominiums for example. Skaburskis' (2006) study of housing choices in Cornell determined that, the majority of households who purchased homes in Cornell in the early phases moved from low-density suburbs, "showing that Cornell is not drawing demand away from the inner-city condominium market" (p. 127) and is thus, providing a higher-density alternative to conventional suburban sprawl. Based on my research, I think that Skaburskis (2006) theory on density in Cornell is an important consideration because it demonstrates that those who would otherwise contribute to sprawl (i.e., those who choose to reside in low-density suburban homes) were willing to consider alternative, more compact forms of development offered in Cornell.

Although Skaburskis provides an important argument for why Cornell provides a higher density alternative to conventional sprawl, another criticism of New Urbanism applicable to the Cornell development is that, "the built-up part [of the New Urbanist development] is often surrounded by, or interspersed with generous open spaces. This makes the actual land consumption much higher than the look of the development suggests" (Leung, 1995, p. 4). For example, throughout Cornell there are several open spaces intended to be utilized by the Cornell community—such as Grand Cornell Park, Upper Cornell Park, The Mews Park, Northcumberland Commons, the Cornell Community Centre and Library Grounds, Forsters Commons, and the Meadows Parkette among others that should be factored in to the overall density calculations for Cornell. Leung (1995), argues that the pockets of open space provided within New Urbanist communities result in lower gross densities even though actual housing densities might be higher than a comparable conventional suburb. She argues that, "instead of Corbusier's towers in the

park we will now have horizontal towers in a sea of green—picturesque sprawl that will take up just as much land and use up as much energy as the conventional suburban sprawl” (Leung, 1995, p.5). This argument is important for understanding how the inclusion of non-residential development (i.e., roads, parks, public space) in gross density calculations may misrepresent the actual net density of the residential portion of New Urbanist developments.

Another element of the density critique of New Urbanism applicable to the Cornell experience is the argument that development of New Urbanist communities on greenfield sites reproduces suburban sprawl when compared to other forms of development such as infill or brownfield redevelopment. Susan Moore (2010) argues that the New Urbanist model is flawed in the belief that it “was not sprawl if it was a carefully planned community... [and] the conceptualization of sprawl as bad unless it is well planned sprawl” (p. 104). While critics of New Urbanism have argued that New Urbanist developments on greenfield sites outside urban centres contribute to sprawl, Duany has justified this type of development in arguing that—replacing farmland with new urbanist developments is better than replacing them with conventional suburban development. He argues that new towns (New Urbanist inspired towns) are of equal value to the farmland which they replace—an argument that lacks evidence but has been used to support greenfield New Urbanism nonetheless (Eckdish-Knack, 1989).

In the 1990s when the planning of Cornell was initiated, the higher-density model that was proposed was a significant change from earlier post-war conventional suburban development. Despite the fact that Cornell still provided single and semi-detached homes

as the main type of housing, the New Urbanist elements of smaller lots, reduced setbacks, laneway homes and residential units above at-grade commercial units resulted in higher residential densities than many surrounding subdivisions. Today however, with the introduction of new population projections and intensification targets for York Region, development in the City of Markham has shifted away from the development of sprawling suburbs towards more New Urbanist developments and even higher density residential developments including multi-storey condominium buildings. As such, when comparing the density of Cornell to conventional suburbs built during the post-war era, Cornell presents a comparably higher-density alternative. Today, with higher-density residential communities including multi-storey condominiums are being developed elsewhere in Markham in recent years, future plans for Cornell have incorporated even higher-density models of residential development in the future than the original New Urbanist plans for Cornell had. This argument will be discussed in greater detail in section 7.0 when examining the current and future planning context of Cornell.

Based on my observational research, review of scholarly literature on New Urbanism, and the in-depth interviews I have carried out—as it relates to each of the elements discussed above—I believe that Cornell has succeeded in achieving the New Urbanist vision of developing a high-quality residential community with an appropriate diversity of housing options. Densities in Cornell were higher than surrounding post-war conventional suburbs, but not so high as to deter those who preferred low-density suburbs from moving into Cornell; and a wide-range of housing options with high-quality vernacular design were provided in Cornell to suit those with different needs and income

levels while avoiding the stigmatization of low-income residents. The following section examines the New Urbanist elements used in Cornell related to the street layout and the pedestrian realm—demonstrating the planning and design elements that were used to achieve the goal of creating streets and public spaces that are safe and accessible for both pedestrians and automobiles.

## **6.2 *Street Layout & The Pedestrian Realm:***

Residential streets throughout the City of Markham and elsewhere in the Greater Toronto Area have generally continued to be designed and developed following the same patterns that characterized conventional suburban developments in the post-war era. Cul-de-sacs, crescents and winding roads designed primarily for ease of access of the automobile have continually been developed as the norm throughout North American suburbs (Hess, 2009). The continued implementation of these conventional suburban streets is largely a result of engineering and design standards that have become institutionalized and embedded into municipal policy which control how our streets are designed and engineered, making it very difficult to “reshap[e] street-making practices” or stray from these normative standards of street design (Hess, 2009, p. 1). Hess argues that “most urban and suburban streets are designed much as they have been for the past half-century” making those developments testing new street design patterns an exception (2009, p.2). Cornell is one such exception, testing new patterns of street design promoted in the New Urbanist literature. Cornell’s street pattern and design are clearly distinct from other neighbourhoods throughout the City of Markham which continue to follow the conventional design. Cornell’s streets have tested various new models and patterns of street

design including: grid and block patterns, rear-laneways, new parking-models, and various techniques in street architecture and design.

### 6.2.1 The Grid

Conventional suburban street patterns in Markham and elsewhere in North America have traditionally been comprised of winding streets, crescents, cul-de-sacs and reverse-lot subdivisions. Steuteville and Langdon (2009), argue that one of the biggest concerns with conventional suburban streets is that they are “dendritic, like the branches of a tree, rather than interconnected” (p. 12). These streets typically have no clear pattern or form and lack adequate intersections and connections making them difficult to navigate both on foot and by car (Steuteville & Langdon, 2009). While these elements of street design have become common practice throughout North America, embedded in our engineering, planning and “bureaucratic routines” (Hess, 2009, p. 1), they have been highly criticized by New Urbanists for being inefficient for any means of travel besides the automobile. New Urbanists recommend transforming streets into “interconnected networks” that provide direct routes to various destinations, multiple route options, and to increase opportunities for walking, cycling and taking transit as alternatives to driving (Kulash, 2000, p. 83). The objective in developing streets, according to New Urbanists, should be to provide “the greatest number of alternative routes from one part of the neighbourhood to another” (Steuteville & Langdon, 2009, p. 14). In contrast to traditional residential subdivisions in Markham that encompass winding streets and cul-de-sacs, Cornell implemented a new type of street layout made up of a series of grid and through streets (Grant, 2006).

As per the Secondary Plan for Cornell (1994), a number of existing roads were intended to continue to serve as major corridors through Cornell and in connection to the rest of Markham. Bur Oak Avenue, was to be developed as the central corridor running north to south through the Cornell community. Additionally, 9<sup>th</sup> Line and 16<sup>th</sup> Avenue were intended to serve as secondary major arterial roads bordering the Cornell Community. These three major roads were anticipated to eventually include major public transit routes and stations to serve Cornell and surrounding communities.

In addition to series of roads that existed prior to the development of the Cornell lands, a system of internal or local roads were designed for the Cornell community as set out in Section 9.5 of the Cornell Secondary Plan (1994). The objective of the internal road system was to provide a network of local roads along the frontage of blocks as well as rear laneways behind the blocks (to be discussed in section 6.2.2 of this paper). The local roads would be developed to provide as many intersections with the principal roads (i.e., 16<sup>th</sup> Avenue and Bur Oak Avenue) as possible to “maximize permeability... [and] connectivity to the arterial road system” creating a gridded-system of streets throughout the community, interspersed with residential and mixed-use blocks (Markham, 1994, p. 48).

Aerial imagery and mapping of the City of Markham clearly demonstrates the difference between the grid street pattern used in Cornell and those street designs of older suburbs elsewhere in Markham comprised of winding streets with crescents and cul-de-sacs (see figure 18). These maps illustrate the high-connectivity provided in the gridded street layout in Cornell compared to the winding roads with fewer intersections in the conventional suburban community bounded by Steeles Avenue and McCowan Road (Figure 18)



Having travelled through Cornell both by walking and driving, I would argue that the grid-patterned streets, and short blocks with sidewalks on both sides makes navigating and travelling within Cornell a much better experience than comparable conventional suburban developments. When driving, I found it very easy to navigate the streets of Cornell by familiarizing myself with the main roads such as the north-south 9<sup>th</sup> Line, Bur Oak Avenue, and Walkerville Road and the main roads traveling east-west including Donald Sim Avenue, Cornell Park Avenue and Church Street. When driving outside of these main roads on the more local residential streets, it became simply a matter of following the grid pattern through a series of right and left turns to return to the main roads. Similarly, when walking through Cornell, the short blocks and grid pattern of the streets made it quite simple to navigate through even the local residential streets.

Although I found that the grid-pattern street design in Cornell was quite effective and easy to navigate both when driving and on foot, this effective street system ends at the border of the community, relying on the external system of roads to connect Cornell to the rest of Markham. While this is not a fault of New Urbanism, nor those who designed Cornell, it highlights how unsusceptible to change conventional suburban street networks and landforms are. While Cornell's street pattern may be highly effective for those living and travelling within the community, it fails to serve the surrounding communities and to effectively link Cornell to surrounding areas. A truly effective street network, according to the *Charter of the New Urbanism*, would provide multiple routes through the community and in connection to the surrounding region. This would be much easier to achieve for example, if Markham maintained the original concession roads developed in the 1790s, subdividing into smaller blocks in a

continual grid pattern. This was not the case in Markham where conventional suburban roads have characterized most of the street network except for those few major roads that have maintained the grid pattern. As a result, the grid-like street network in Cornell is limited to that specific community, leaving Cornell somewhat isolated from surrounding areas.



Figure 18: Maps illustrating the grid layout of streets in Cornell compared to the curvilinear streets with dead-ends in one of Markham's conventional suburbs

### 6.2.2 The Laneway Model

One of the most visibly distinctive elements of New Urbanist design featured in Cornell is the development of private laneways at the rear of homes to allow garages, parking and vehicle access behind homes. Laneways or alleys were a common design feature in residential neighbourhoods in the nineteenth and early twentieth century. Homes built during this time,

typically fronted onto the street showcasing elaborate front entries with large porches, while the rear yard would house workshops, stables, and worker quarters (Hess, 2008). The laneway design allowed front yards, porches, and streets to flourish as social spaces, reserving rear yards primarily for work and storage space. By the 1920s, with the rise of the automobile, this alley or laneway model began to change dramatically. Front yards soon came to be dominated by driveways, cars, and garages, utilized less as social spaces and more as access routes, and work spaces which were previously relegated to rear alleys. By the end of the Second World War, streets in residential suburbs became lined with garages and driveways—often hiding front entrances and porches from view from the street. Residents frequently drove directly into their garages and entered their homes through garage doors, significantly limiting the possibility of social encounters with neighbours or passing pedestrians. Garages and driveways became spaces for work and storage and leisure was often transferred to inside the homes or the private rear-yard (Hess, 2008). In the 1990s, New Urbanists began advocating for a transformation of the garage dominated streets of conventional suburban developments by once again—designing homes to allow front porches to abut the streetscape and by developing alleys or laneways at the rear of homes for automobile parking, garages, waste collection and servicing.

The return to the rear laneway model through New Urbanist planning allows setbacks to front doors and porches to be reduced to align with the public realm, abutting the street or sidewalk. Perhaps most importantly, the laneway serves to separate cars from pedestrian sidewalks and promote Jane Jacobs vision of “eyes on the street” thus increasing safety and accessibility for pedestrians (Eckdish-Knack, 1989; Gordon & Vipond, 2007). While the provision

of laneways in Cornell has proven challenging to implement, the model has undoubtedly provided an interesting and valuable experiment for testing alternative housing models that challenge conventional suburban development and automobile oriented development in the Greater Toronto Area. While Cornell, being one of the first developments to experiment with a rear laneway model, has been lauded as a “precedent-setting experiment” for other developers, municipalities and policy-makers—several challenges have been encountered, which have forced developers to significantly transform the laneway model over successive phases of the Cornell development (Moore, 2013, p. 2376).



*Figure 19: Rear laneway behind townhome and semi-detached blocks*  
*Source: Victoria Moore (January 27, 2017)*

The laneway model offers many community benefits: visually, laneways allow the architectural features of homes to dominate the street rather than garages, cars and driveways which are relocated to the rear of homes (Leeming, 2017). Similarly, garbage pick-up is moved to the rear laneways, keeping front yards and streets clear of garbage, particularly on waste collection days (Hess, 2008). By relocating garages, cars, and waste collection to the rear

laneways, the front yard may be incorporated into the abutting streetscape allowing residents to utilize their front porches, develop gardens, and carry-out other activities that might otherwise be limited to an enclosed private backyard.

In the early planning of Cornell, the Police and Fire Departments were highly supportive of the laneway model. A study carried out by police and fire departments in one of the early phases of Cornell determined that the laneways provided a unique benefit to emergency services to be able to access homes easily from both the front and back in the event of an emergency (Leeming, 2017). Despite support from emergency services departments, implementing the laneway model in Cornell proved challenging mainly due to the adaptations that were required to accommodate the Canadian climate and snow removal. Markham was one of the first Canadian cities to test the laneway model—which was borrowed from other New Urbanist communities mainly in the southern United States where snow was not a consideration. In the early stages of planning for Cornell, when the laneway model was first proposed—the Town’s Public Works Department identified many concerns and voiced strong opposition to testing this new model (Leeming, 2017; Campbell, 2017).

Perhaps one of the most significant challenges for implementing the laneway model in Cornell was that there were very few precedent setting examples from which to follow. It was realized early on that the Canadian adaptation of the laneway model would take on a much different form to accommodate snow removal. In response to this challenge, early laneways in Cornell were developed much wider than those in US cities, ranging from about 8.5 to 9.5 metres in width to allow snow plows to pass through and to allow for snow storage in the lanes (Gordon & Vipond, 2007; Hess, 2008). Snow removal was perhaps, one of the most contentious

issues with adopting a laneway model in Cornell. Markham's Public Works Department was in clear opposition to the development of laneways in Cornell—there were concerns regarding how and when to plow the laneways, and that developing a new system of snow removal for this new challenge would be too expensive for the department to incur. Despite the challenges identified by the Public Works Department—developers, planners, and local politicians stressed the importance of maintaining the laneways as public spaces—rejecting any motions towards privatizing the laneways or developing the blocks of homes with laneways as condominiums (Campbell, 2017). The second challenge that the laneway model posed for the Public Works and emergency Services Departments was to establish appropriate locations for fire hydrants which was much easier to do in conventional suburban developments (Leeming, 2017). While Markham council was understanding of the concerns raised by the Public Works Department, Town Planners in collaboration with a team of consultants and the Town's Public Works department were able to reach a compromising agreement on how to establish the laneway model in Cornell while addressing the concerns of the Public Works Department. Laneways running behind blocks longer than 180 metres would require fire hydrants both on the front of the block and within the rear laneway. Similar solutions were coordinated for snow removal—Corner lots within laneways were required to have an unpaved easement along the side of the property abutting the laneway for snow storage and drains for runoff (Campbell, 2017). Most of the snow that accumulates within the laneways that cannot be accommodated within these corner lots are removed from the laneway altogether, transported to other greenspaces within Cornell by the Public Works Department (Campbell, 2017).

The laneway model in Cornell was intended to provide an access route for vehicles, waste collection and services in order to maintain the front yard and streetscape as a social space protected from cars. As Hess noted in his (2008) study of Cornell however, if residents continue to rely on the automobile which is to be parked in the rear lane garage or driveway—then the laneway becomes the new commonly used space rather than the front of the house. Despite on-street parking spaces provided at the front of homes in Cornell, Markham’s street parking by-law prevents overnight street parking, forcing residents to park only in the designated parking spaces in the laneways. Thus, “Because residents often rely on their automobiles to go to work or do basic shopping, they may also mostly rely on the back door of their house, used every time they use their automobile stored in the alley. Potentially, then, the street side of the house may be more rarely used by residents” (Hess, 2008, p. 197). This has been the case in Cornell where, Hess (2008) notes that most resident’s park in the rear laneway and use their back door as a primary entrance. Additionally, while in conventional suburban developments the cul-de-sac or dead-end street are often utilized as safe spaces for children to play street hockey, basketball and other outdoor activities, the laneway appears to have evolved as the equivalent recreational space in Cornell.

Despite the initial challenges in reaching an agreement with Markham’s Public Works Department regarding the proposed laneway model, based on my research, I believe it has proven a relatively successful model. Slight modifications have been made to the laneway model over successive phases of Cornell as lessons have been learned—but the overarching concept of the rear laneway has remained largely reflective of the original intent.



*Figure 20: Rear Laneway behind semi-detached blocks with double car garages and potential coach houses above  
Source Victoria Moore (September 15, 2017)*

### 6.2.3 Parking

While the New Urbanism aims to produce more safe and accessible pedestrian spaces, and reduce dependence on the automobile, New Urbanists make it clear that the movement “is not anti-car” (Arrington, 2000, p. 59). As such, New Urbanist plans still incorporate the automobile as an important feature of all plans. One element of consideration in the development of New Urbanist communities is the provision of parking spaces for automobiles. As mentioned in the previous section, the laneway model used in Cornell relocated garages and driveways to the rear of homes transforming the relationship between the automobile and the private home. Another important consideration in the planning of Cornell is the location of public parking for civic spaces, mixed-use buildings in retail cores and near transit stops. Section



11.4.5 of the *Cornell Secondary Plan* (1994) speaks to public parking. This section addresses parking in areas that are expected to experience high-volumes of car traffic and thus require large parking spaces such as apartment buildings, retail buildings, and mixed-use town centres. One of the primary concerns related to parking addressed in this section is the safety and quality of pedestrian spaces. In order to address these concerns, the plan discourages at-grade surface parking at the front of buildings and along public streets (Markham, 1994). The plan requires parking to be provided underground wherever possible and “where it is not feasible to locate parking below grade, parking should be located to the rear of principle buildings” (Markham, 1994, p. 59). In addition to the requirement for parking to be located below grade or at the rear of buildings to maintain the street and building frontages as safe accessible pedestrian spaces, the plan also allows on-street parallel parking as a short-term parking solution (Markham, 1994). In my experience visiting Cornell, I noticed that parking in public spaces is abundant—whether on street or in rear parking lots, however, parking is not the most dominant feature in the landscape as I have often found to be the case in conventional suburban developments.



Figure 21: Surface parking lot at the rear of the Mews mixed-use residential and commercial building - Parking lot consists of both resident and visitor (shopping) parking  
Source: Victoria Moore (January 27, 2017)

#### 6.2.4 Pedestrian Space and the Five-Minute Walk

One of the fundamental elements in the plans and designs for Cornell's streetscape was the focus on pedestrian accessibility and safety, and the balancing of pedestrian space with automobile space within the community's street system. These objectives for Cornell align closely with the principles of walkability and the five-minute walk addressed in the *Charter of the New Urbanism* (2000) and other New Urbanist literature. The fundamental idea driving the concept of the five-minute walk, is that to make places walkable, destinations must be located within reasonable walking distance of one's home. William Lieberman discusses this principle in his essay in the *Charter of the New Urbanism* (2000). Lieberman argues that in order for people to walk to various destinations, they must be reasonably located within a quarter-mile radius or

a five-minute walk (2000). Further, Steuteville and Langdon in their book entitled *New Urbanism: Best Practices Guide* (2009) claim that “all new urbanists agree that pedestrian sheds are important—and the quarter-mile radius circle remains the simplest and most widely use method for applying this concept” (p. 14). Many New Urbanist neighbourhoods are intentionally scaled to the five-minute walk, or quarter-mile radius, Cornell being one such community.

In many of the planning documents for Cornell including the Secondary Plan (1994) and the Bur Oak Avenue Design Guidelines (1999), the five-minute walk is used frequently as a scale or benchmark for determining where to site features such as parks, transit stops, schools and other amenities. For example, one of the objectives for establishing an efficient transit system as mentioned in the Cornell Secondary Plan is to locate 85% of residences within a five-minute walk of a transit stop. Similarly, the Secondary Plan (1994) dictates that neighbourhoods be scaled to the five-minute walk, so that the maximum distance from the centre to the edge of a neighbourhood would be no greater than 400 metres (the equivalent of a five-minute walk). To ensure that these goals were achieved, many of the maps used in the various planning documents for Cornell including the Master Plan developed by Duany Plater-Zyberk and Associates included a map-scale measuring the five-minute walk (see figure 22).

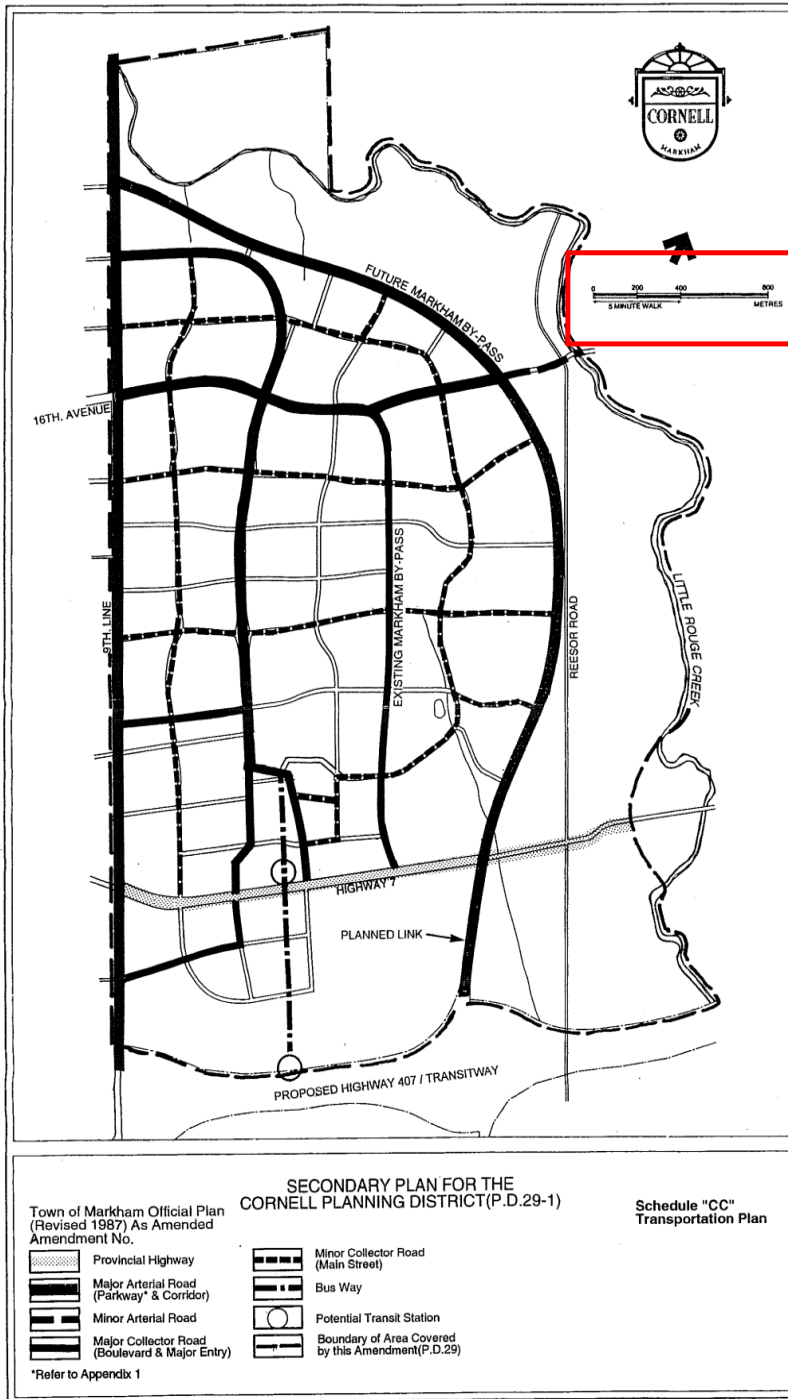


Figure 22: Transportation Plan - Part of 1994 Cornell Secondary Plan. Scale shows 5-minute walk  
Source: Markham (1994)

In addition to scaling each neighbourhood and the distance between important features within the Cornell community using the five-minute walk, several other strategies were employed to ensure that Cornell would be safe and walkable for pedestrians while still accommodating automobiles. For example, early in the planning of Cornell, it was agreed upon by the City and consultants that it would be mandatory for Cornell to have sidewalks on both sides of the street throughout the entire development (Leeming, 2017). This principle contrasted with earlier subdivisions in Markham and elsewhere in the Greater Toronto Area where sidewalks were only developed on one side of a residential street—posing a challenge for accessibility and safety of the pedestrian. Another strategy, as mentioned previously, in section 6.2.1 of this paper, is to design streets in a tight grid system with short blocks. This increases connectivity throughout the community and reduces dead ends (cul-de-sacs) thus, providing more accessible, navigable and walkable streets (Arrington, 2000).

In my site visits to Cornell I ensured that I visited at different times of the year, week and day so that I could experience the pedestrian realm in each of these different contexts. I walked through Cornell multiple times on weekdays, twice on a weekend and once in the evening just before dark. Generally, I felt very safe when walking on the sidewalks, the streets were well lit in the evenings, sidewalks and on street parking and tree plantings along the curbs of major roads affords a sense of protection from passing vehicles. Additionally, I found that the concept of the five-minute walk was well implemented. Within each residential neighbourhood, I found that it took no more than five-minutes to reach the outer edge of the neighbourhood, the central park or square or the nearest major road. It took approximately five-minutes to walk from the community centre to one of the nearby schools, and similarly from that same school

to the mixed-use centre. The one issue I observed with Cornell's pedestrian realm is that there simply aren't many destinations to walk to. While scaling the community to the five-minute walk and providing safe and enjoyable streets may encourage parents to walk their children to school, or to the community centre or parks on the weekends, residents are still required to drive to complete daily tasks such as shopping, dining, or simply to visit a coffee shop. If people still must use their cars to complete these tasks, I would imagine they would often continue to drive to the various destinations within their neighbourhood on their way in and out of the community to accomplish other tasks. While this is not a fault of the planners or designers who were involved in the development of Cornell, this issue highlights that the success of isolated New Urbanist projects in suburban municipalities requires a more regional approach. In other words, an isolated community cannot succeed in achieving true walkability if the surrounding region continues to be developed to accommodate the automobile at the expense of the pedestrian.

#### 6.2.5 Street Architecture

Street design and architecture are important elements in developing streets that are safe and attractive to pedestrians while still accommodating car traffic. Architectural features such as tree-planted medians and landscaping can be effective techniques in not only making streets more attractive to pedestrians, but also in calming traffic, thus enhancing pedestrian safety. For example, Steuteville and Langdon (2009), argue that "tree-lined roadways cause motorists to slow down and drive more carefully" (p. 137). Street tree-plantings also serve other important functions such as reducing the Urban Heat Island effect which in turn makes streets cooler and shadier and thus, more enjoyable for pedestrians (Leeming, 2017).

While in the post-war planning era, streets were designed primarily as access routes for the automobile and few pedestrian sidewalks were developed, one of the goals in the planning of Cornell was to design streets as vibrant and enjoyable places for pedestrians while continuing to accommodate automobile traffic. The Bur Oak Avenue Design Guidelines (1999) as one example, sets out a number of urban design recommendations including proposed renderings for the development of one of Cornell's main corridors—Bur Oak Avenue as an attractive, pedestrian friendly place. The document sets out guidelines related to the placement of street trees, the design of bus shelters and suggestions for decorative street corners. The guidelines also dictate which portions of the street should have a median, and which should not. It provides recommendations on the types of (deciduous) trees that should be planted along the streets, the widths of sidewalks and the number and location of streetlights and utilities throughout the Bur Oak Avenue Corridor.

Based on my research, I believe that Cornell has largely succeeded in achieving an attractive streetscape through landscaping and design techniques such as the development of medians and tree plantings along the community's primary roads. Particularly in the summer, some of the streets in Cornell such as Cornell Park Avenue, have a very attractive streetscape making it a pleasant place to walk. In my experience walking through the Cornell neighbourhood, I noticed that some streets have a much fuller tree canopy than others. At first I assumed that the areas with younger trees and less tree coverage were developed in later phases. I later learned that major environmental impacts—namely the Emerald Ash Borer and the 2013 Toronto Ice-Storm had taken a significant toll on the Cornell community's tree canopy resulting in the destruction and removal of several trees along Cornell's boulevards and

medians and their replacement later with younger and more diverse species of trees (Campbell, 2017). I would imagine in a few years from now, once the relatively newly planted trees along Cornell's roadways mature, these streets will be an even more attractive pedestrian network.



*Figure 23: Pedestrian sidewalk along Bur Oak Avenue - From left to right: Bur Oak Avenue, on street parallel parking, boulevard with tree plantings, wide sidewalks, porches, mixed-use buildings.  
Source: Victoria Moore (September 28, 2017)*

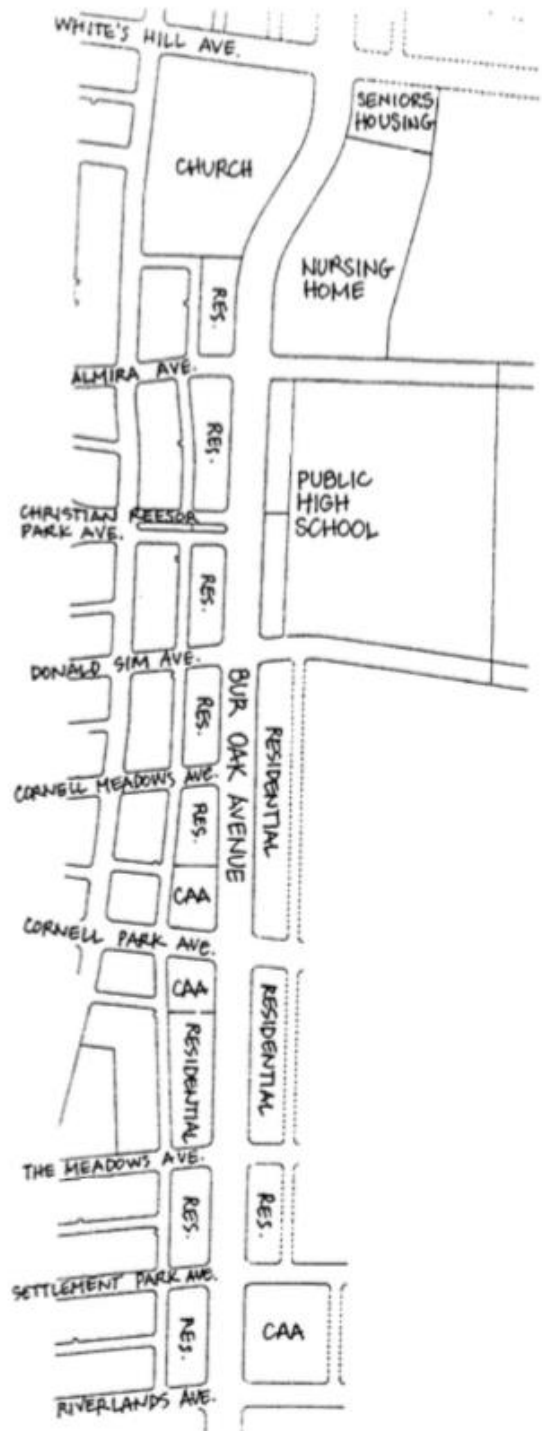
#### **6.2.6 Transit Corridor—Bur Oak Avenue**

Bur Oak Avenue was an existing main street in Markham prior to the development of the Cornell Community, originally passing through many communities including Berczy, Wismer, Greensboro and eventually, Cornell (Planning Partnership, 1999). An important element of the design and layout of the Cornell Community was that it be planned around the existing Bur Oak Avenue transit corridor which was intended to act as the “central mixed use and transit corridor of the Cornell Community” (Planning Partnership, 1999, p. 1). With six of Cornell's nine planned



residential neighbourhoods directly connected to Bur Oak Avenue, and the fact that Bur Oak was already established as a main transit corridor for cars (and later, buses) in Markham, there was excellent opportunity to develop the portion of Bur Oak Avenue extending through Cornell as a central mixed-use corridor to serve the community.

In 1999, five years after the Secondary Plan for Cornell was released and almost a year after residents began moving into the first Phase of Cornell, the Town of Markham presented the Bur Oak Avenue Design Guidelines created by the Planning Partnership to guide development in and around the Cornell portion of Bur Oak Avenue. The objective of the design guidelines was to create a “grand residential street” along Bur Oak Avenue, complete with tree-lined streets, retail amenities and “medium density ground-related residential uses that clearly define the public realm of this significant street” (Planning Partnership, 1999, p. 1). The design guidelines set out a number of strategies for achieving this vision including a set of



Bur Oak Avenue, connecting streets and proposed uses.

Figure 24 Excerpt from Bur Oak Avenue Design Guidelines (1999). Map shows different land uses along Bur Oak Avenue including reserve for future high school

streetscape design principles that detail the location and placement of street furniture, tree plantings and medians. The document also identifies “landmark buildings” or significant public buildings such as schools, churches and nursing homes that were to be located along Bur Oak Avenue. In general, Bur Oak Avenue was intended to be “more urban in character” than surrounding streets and residential neighbourhoods. Buildings would align with the public sidewalks, streets would be pedestrian oriented, and transit stops and shelters would be located along the Cornell stretch of Bur Oak Avenue (The Planning Partnership, 1999).

Today, Bur Oak Avenue remains one of the primary transportation corridors to, from, and through the Cornell community by car while also serving some bus routes (Campbell, 2017). I have observed that many of the guidelines set out in the 1999 design guidelines have been fulfilled along the Bur Oak Avenue Corridor. For example, building frontages are aligned with the sidewalk facing the street as per sections 1.2, 1.5 and 3.1 of the Urban Design Guidelines; parking is located at the rear of buildings with limited on street parking located out front, as outlined in section 4.11; commercial units occupy the corner units in many of the building blocks (section 6.1) and a landscaped median runs down a portion of Bur Oak Avenue. These and other design elements from the Bur Oak Avenue Urban Design Guidelines have been incorporated into the development of Cornell, however, based on my research, I feel as though these elements have not produced the vibrant street life and pedestrian activity that was intended. Today, many of the retail businesses that occupy the ground-floor commercial space within Bur Oak Avenue’s mixed-use buildings do not appear to be attracting people to the central district as anticipated. Many of the businesses consist of offices (i.e., travel agencies, real estate offices, dentist offices, etc.) that do not appear to bring in a high volume of

customers. Without the appropriate retail businesses occupying these commercial units in the intended mixed-use core, I do not think that Bur Oak Avenue has truly succeeded as a mixed-use corridor.

The portion of land on the east side of Bur Oak Avenue that runs from Donald Sim Avenue north to Almira Avenue is identified in the design guidelines (and other planning documents for Cornell) as reserved institutional lands for a future high school. This parcel of land however, has remained vacant until about a year ago when the Construction of Cornell's first high school began (Campbell, 2017). It will be interesting to see, when construction of the school is complete, how closely the school aligns with the Bur Oak Avenue design guidelines that were created 18 years ago and the more recent plans that have been introduced. I would expect that the presence of a high school within Cornell's intended mixed-use corridor might enhance the public realm of Bur Oak Avenue by attracting retailers and bringing more people out into the street on a regular basis. From my experience, high school students tend to use their feet perhaps more than any other group in a community because they spend most of their high school years too young to own a vehicle, but old enough to have the independence to travel to-and-from school without parental supervision. Based on my conversations with Markham Planner Sally Campbell, I would imagine that retailers might be more likely to establish a business on Bur Oak Avenue when the high school opens as students would likely bring in a great deal of business for certain retailers. For example, a bakery, convenience store, ice cream shop, café or bookstore might attract high school students on their lunch breaks or after school, which could enhance Bur Oak Avenue as a public gathering space for students. Unfortunately, Markham's current zoning does not permit eating and drinking establishments such as

restaurants along the Cornell portion of Bur Oak Avenue largely because of the presence of a large number of residential units which are often viewed as incompatible with such uses (Campbell, 2017). Perhaps when the high school opens, this would create a good opportunity for Markham to reconsider the zoning policies, and allow for some sort of eating and drinking establishments along Bur Oak Avenue to accompany the high school. Similarly, the presence of a high school on Bur Oak Avenue might increase the demand for transit along the Bur Oak Avenue Corridor—connecting students to the rest of Markham i.e., to reach their after-school jobs, shopping mall, movie theatre etc. which would otherwise be very difficult for high school students to reach without access to a vehicle.

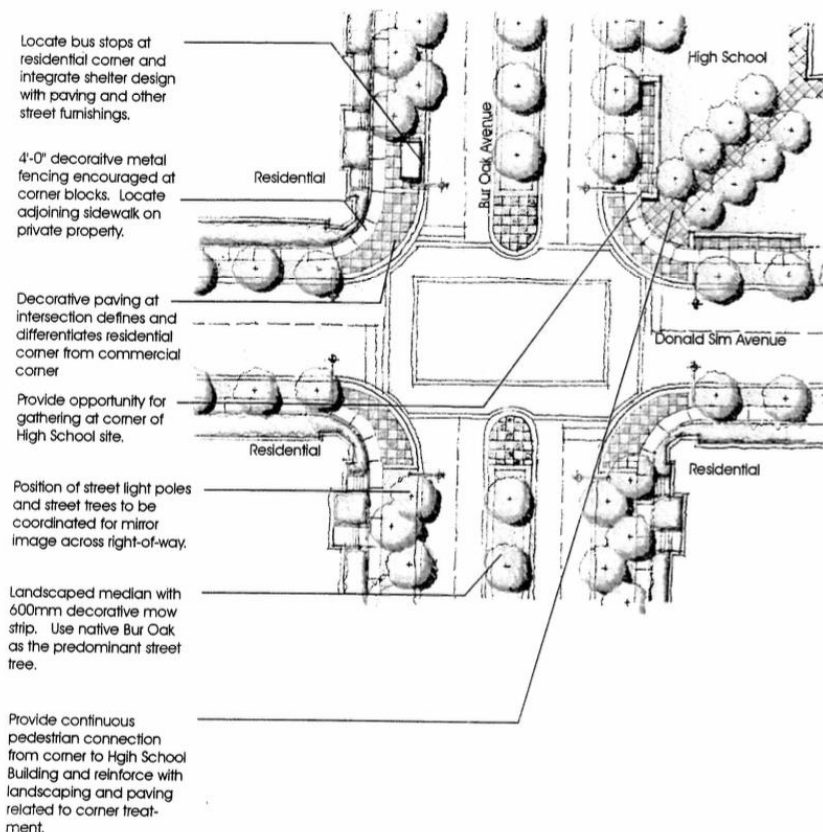


Figure 25: Excerpt from *Bur Oak Avenue Design Guidelines* (1999). Image illustrates some of the elements of street architecture (i.e., tree plantings, street medians) used in the *Bur Oak Avenue Design Guidelines*

### 6.3 Built Form—Mixed Land Uses

One of the most significant challenges that Cornell has faced since its inception is to establish and maintain a viable mixed-use core with successful retail establishments—revealing some of the struggles that suburban New Urbanist communities may face in attempting to implement the principle of mixed-use in new developments. Various academic and non-academic literature written on Cornell have identified this as one of the most noteworthy challenges of Cornell’s attempt to achieve a New Urbanist vision. Grant and Perrott (2011) for example, argue that “In a society where people shop at big-box outlets, making the local café or pub commercially viable proves increasingly challenging” (p. 177). The authors explore this challenge in examining the Mews—the earliest mixed-use town centre established in Cornell during the first phase of development that once housed successful coffee shop that was viewed as “the symbolic heart and anchor of the town centre” before going out of business in 2006 (p. 186).



Figure 26: The Mews - Intended mixed-use town centre in Cornell  
Source: Victoria Moore (January 27, 2017)

The Mews was intentionally one of the first buildings to be constructed in Phase One of Cornell. The developer's intention in designing the Mews was to recreate a 19<sup>th</sup> century Main Street surrounded by greenspace and residential neighbourhoods (Campbell, 2017). The intent was for residents to be able to walk to the Mews for convenience shopping, to socialize at the café or to allow their children to play at the park—while providing affordable housing options in the condominiums above the at-grade commercial units. Upon visiting the Mews for the first time, I was surprised by what I observed. There was nobody around, the adjacent park was empty, the former café was a vacant unit, most units housed some sort of service business (i.e., medical office, travel agency, daycare etc.) except for one occupied convenience store, and even the parking spaces along the street were empty. What I observed at the Mews did not match the intentions for this development that were outlined in the Secondary Plan (1994), and other earlier plans and guidelines for Cornell. In further researching the history of Cornell and the Mews through reading newspaper and scholarly journal articles, I learned that in the early stages of Cornell the Mews was often viewed as a successful mixed-use town centre complete with 27,000 square feet of retail space and 48 condominium units above a bustling café which served as a gathering place for many residents who could reach the Mews on foot within five minutes from any of the surrounding residential neighbourhoods (Markham, 2003). So why then, did the seemingly successful café go out of business? And why has no similar community hotspot been established at the Mews in the past ten years?

Grant and Perrott (2011), attempt to understand why Cornell has struggled to maintain a successful mixed-use core, particularly at the Mews. Based on information obtained from interviews with various planners, councillors and developers, the authors point to a number of

possible reasons why mixed-use town centres have been unsuccessful in Cornell. One suggestion is that densities and population in Cornell have been too low to maintain the large number of customers required to make retail sustainable (Grant & Perrott, 2011). While this may have been a reasonable explanation in the early phases of Cornell, recent population projections for Cornell have been expanded from the original anticipated population of 28,000 to an expected population of 40,000 people (York Region, 2014; Leeming, 2017) thus, further studies would be required to determine whether this is a reasonable explanation as to why successful mixed-use centres in Cornell have not been achieved.

Another suggestion made by Grant and Perrot (2011) points to consumer preferences for shopping at big-box stores to explain why mom-and-pop stores and main street shopping districts have been unable to compete with corporate retailers and strip malls. The authors argue that “in the pre-automobile city scattered local retail met daily needs, in the contemporary city, consumers seek convenience and competitive pricing, travelling far to complete purchases” (Grant & Perrott, 2011, p. 177). Based on my research I believe this is a more likely explanation for the lack of successful retail businesses in Cornell’s intended mixed-use centres than the density argument. There are many grocery stores such as a Walmart Supercentre located just south of highway 407 within a five-minute drive of Cornell (yet too far, and too inconvenient to walk) as well as many other big-box stores and strip malls within short driving distance offering convenience and competitive prices. With the proximity of these retailers to Cornell, I would imagine they would out-compete any mom-and-pop retailer that might wish to establish a business in Cornell.



Figure 27: Mixed-use town centre along Bur Oak Avenue  
Source: Victoria Moore (September 28, 2017)

It is clear from Grant and Perrott's (2011) interviews with Markham's planners, councillors and developers, as well as from recent changes to the Secondary Plan and other planning documents for Cornell, that the lack of successful mixed-use centres within Cornell is one of the planning challenges to be addressed in the near future. For example, the *Cornell Centre Precinct Plan* which was completed in 2012, sets out a number of guidelines to redevelop the intersection of Highway 7 and Bur Oak Avenue as "Cornell's Commercial Core" (Urban Strategies, 2012, p. 24). The plans recommend establishing higher density multi-unit residential buildings above retail establishments to increase population density in Cornell. Based on my research I believe that increasing population density in and around mixed-use centres will likely bring in more potential shoppers and thus increase the likelihood of establishing successful



retail amenities. The Precinct Plan also recommends introducing some “large format retail uses to serve the community” (Urban Strategies, 2012, p. 24). The development of a large-format grocery store offering competitive prices might work to keep residents shopping within their community, rather than travelling by vehicle outside of Cornell to shop for groceries at competitive big-box retailers. With these new plans in place for Cornell, and a number of other factors including the planned development of a transit terminal in Cornell; the redevelopment of the Markham Stouffville Hospital; and planned infill and condominium development, it will be interesting to observe over the next several years whether or not Cornell’s mixed-use town centres evolve into the walkable, convenient, social environments they were originally intended to be.

## **7.0 Cornell Today:**

Based on my research, I believe that Cornell has succeeded in achieving some principles of New Urbanism through the planning and design elements discussed in this paper, while other elements that were tested have been less successful in achieving the New Urbanist principles and goals. In this section I review some of the observations and conclusions I have made regarding the development of Cornell up to the present day. In the next section, I will examine the present-day planning context of Cornell and introduce some of the recent changes that have been made to the planning framework and documents guiding the future development of Cornell.

Generally, I think that Cornell has succeeded in developing a high-quality residential community and in providing a viable alternative to conventional suburban development. I believe Cornell has succeeded in developing a series of residential neighbourhoods and an integrated street network throughout the community. Homes in Cornell incorporate high-quality vernacular design elements and provide a mix of housing types and styles to accommodate families with different needs and different income levels, including the provision of a sustainable rental market through the development of coach houses and live-work units. The neighbourhood structure used in the development of Cornell (i.e., six residential neighbourhoods within a five-minute walk of Bur Oak Avenue) has worked well in satisfying the New Urbanist Principles of scale, walkability and in creating a strong neighbourhood character. Schools, parks and community amenities (i.e., library and community centre) are all within walking distance of each of the six residential neighbourhoods and the grid-patterned street network makes walking within Cornell safe and easy to navigate.

Based on the literature I have read on New Urbanism, I believe that Cornell has succeeded in creating an effective street network and achieving the mutually supportive principles of walkability and the creation of a human-scaled community. As mentioned previously, the grid-network of streets has been successful in making Cornell navigable both for pedestrians and drivers. The wide sidewalks, on-street parking, street furniture, and relocation of driveways and garages to the rear of housing blocks have made Cornell a pleasant environment for pedestrians. In my site visits I noticed that there is a generous amount of parking throughout the Cornell Community although it is not the most dominant feature in the landscape as is often the case in conventional suburban residential developments and strip malls. Large-surface parking lots seem to be a rarity in Cornell present only at local schools, and behind the mixed-use building at the Mews. In the residential neighbourhoods there is limited on-street parking at the front of homes, but most parking is provided in the rear laneways out of sight when walking along the sidewalks at the front of housing blocks.

Based on my research, I believe Cornell has been less successful in achieving the New Urbanist principles related to creating a viable mixed-use core with adequate transit, retail, services and other amenities. These challenges have been addressed in the New Urbanist literature identified both as a challenge for Cornell specifically, and for suburban New Urbanist communities more generally. The challenge of maintaining a successful mixed-use core in Cornell has also been addressed by planners, developers, and councillors in Markham who have placed this issue at the forefront of future planning policies and guidelines for Cornell. The next section of this research paper will examine this, and other challenges that have been addressed in new plans for the future development of Cornell.

## **8.0 Planning for the Future of Cornell**

As mentioned in the beginning of this paper, part of what makes Cornell a unique case study to examine is that it is a multi-phase development that has been carried out for over twenty years now. Cornell is far from complete and is still relevant in the City of Markham's planning agenda. There continue to be ongoing discussions between the City, developers and the public regarding the planning challenges identified in Cornell, and the future of its development. New or updated planning documents have been introduced within the past ten years, largely



Figure 28: Red outline illustrates the area defined as Cornell Centre. Source: Cornell Centre Precinct Plan (2012)

in response to new policies and plans at the Provincial level, including the *Growth Plan for the Greater Golden Horseshoe* (2006). The new planning documents respect the original New Urbanist vision, while addressing some of the more recent planning challenges and making changes from earlier document as necessary to achieve the overarching goals for Cornell.

In 2008, a new Official Plan Amendment No. 168 was introduced to replace the earlier Official Plan Amendment No. 20. This new amendment introduced a new Secondary Plan for Cornell and identified a further need to carry out several studies and eventually introduce another plan specifically for the lands identified as Cornell Centre (See figure 28). Urban

Strategies was the design firm hired by the City of Markham to carry out the Cornell Centre Precinct Study and create the Cornell Centre Precinct Plan which was completed in 2012. The City of Markham is currently undergoing a review of the plans for the Cornell Planning District (PD 29-1) and is in the process of once again revising the Cornell Secondary Plan to reflect today's planning challenges and opportunities and the findings of the Cornell Centre Precinct Study.

Many events have occurred in the past decade that have set the stage for the implementation of a new series of plans to guide the future development of Cornell (See Appendix C for a detailed list of events). First, in 2008 Metrolinx, a transportation agency of the Government of Ontario introduced a new Transportation Master Plan for the Greater Toronto Hamilton Area entitled *The Big Move* (2008). The objective of *The Big Move* was to create a “strategic plan for an integrated, multi-modal, regional transportation system” (Metrolinx, 2008, p. 1). The Transportation Master Plan identifies Markham as one of the Regional Transit Centres in York Region which is also recognized in the 2010 *York Region Official Plan*. Following the objectives set out in *The Big Move* (2008), York Regional Transit introduced the Viva Next Project—a multi-phase plan to develop an integrated rapid transit network throughout York Region. One of the Viva Next projects includes the development of a transit terminal named Cornell Terminal in Markham near Highway 7 west of Ninth Line, across the street from Markham-Stouffville Hospital and the Cornell Community Centre (Viva Next, n.d.). With a transit terminal planned within the Secondary Plan area of Cornell, the new Cornell Secondary Plan (OPA 168) and *Cornell Centre Precinct Plan* (2012), address the need to integrate the terminal into the future plans for Cornell and focus on developing the area around the transit

terminal as a mixed-use corridor as it was intended in the original vision for Cornell (York Region, 2014).

Second, in 2010 York Region introduced a new Regional Official Plan as part of their five-year Official Plan Review as mandated in the *Planning Act*. The new Regional Official Plan contained new population projections for the Region including specific targets for the City of Markham and set out minimum intensification targets to promote infill development and reduce continued greenfield development (Markham Development Services Committee, 2015). Both the *Cornell Centre Precinct Plan* (2012), and the current review of the Secondary Plan for Cornell reflect these new population targets identifying Cornell as one of the primary intensification areas within the City of Markham for future infill development to accommodate the new population projections (York Region, 2016).

In 2013, Markham City Council adopted a new Official Plan for the City of Markham. The new *City of Markham Official Plan* (2014) was appealed to the Ontario Municipal Board and has still only received partial approvals with the 1987 Official Plan remaining in force until the new Official Plan is fully approved. The new *City of Markham Official Plan* (2014), recognizes Cornell Centre as an intensification area to accommodate both future population growth (through infill development) and as a major employment area. The development of Cornell Centre as an employment area is to be supported through the redevelopment of Markham Stouffville Hospital into a health care campus as identified in the *Markham Stouffville Hospital Strategic Plan 2014-2020* and through the redevelopment of Cornell Centre into a mixed-use town centre through the Cornell Centre Precinct Plan while, maintaining the intent of the original Master Plan for Cornell.

Another factor that led to the City of Markham identifying a need to update the planning documents for Cornell was the number of uncoordinated development applications received from various landowners within the Cornell Secondary Plan Area. Applications requesting more flexibility in housing types (i.e., requesting zoning amendments to allow for condominiums and stacked townhouses) and requesting more flexibility in retail policies, triggered the City of Markham to initiate the process of carrying out various studies (i.e., Market Impact Studies) with the intent of developing a Secondary Plan for Cornell Centre. The objective in initiating this process was to introduce a more integrated planning and development framework to better manage and coordinate various development applications for the Cornell lands (Markham, 2015).

Each of the abovementioned events in combination with the overall realization that despite the success of residential development in Cornell since the 1990s, “many areas [of Cornell] remain undeveloped, most notably, Cornell Centre” have set the stage for the implementation of new guiding planning documents for the future development of Cornell. The new plans that have been introduced for Cornell recognize the original intent of the early plans and continue to follow the New Urbanist vision. These plans identify some of the challenges in implementing the New Urbanist elements included in earlier plans, and identify the areas that require further work in order to achieve the New Urbanist principles and overall vision. One of the biggest challenges identified in these plans, which I have also identified in my research as being one of the principles that Cornell had not achieved, is to create a viable mixed-use town centre.

The following subsections address Official Plan Amendment No. 168 and the New Secondary Plan for Cornell as well as the *Cornell Centre Precinct Plan* (2012) examining how these new plans relate to the original New Urbanist vision for Cornell, the challenges they identify, and how they aim to address the principles of New Urbanism where the implementation of earlier plans has failed to achieve the principles and objectives of the New Urbanist vision.

### **8.1 *Official Plan Amendment No. 168—A New Secondary Plan for Cornell***

On January 22, 2008, a new Official Plan Amendment No. 168 was approved by the Council of the City of Markham. The Official Plan Amendment was later approved by the Regional Municipality of York on July 15, 2008. This new Official Plan Amendment was adopted to replace the original Secondary Plan (Official Plan Amendment No. 20) for the Cornell Planning District (PD 29-1). The purpose of the amendment was to update the Cornell Secondary Plan—identifying new compact growth, transportation, and open space system policies for the Cornell lands to reflect changes in Provincial and Regional Policy since the original Master Plan and Secondary Plan for Cornell were enacted in 1994, and to reflect present-day planning concerns and needs that have been identified within the Cornell Planning District (Markham, 2008).

The new Cornell Secondary Plan has been updated to ensure conformity with any changes that have been made over the past twenty years to provincial policy including: The Provincial Policy Statement, the provincial Growth Plan for the Greater Golden Horseshoe, and Regional Policy including: York Regions Centres and Corridors Strategy, the Official Plan for York Region, and the Regional Transportation Master Plan. The new 2008 Cornell Secondary Plan



states that “the planning of the Cornell community is based on the principles of New Urbanism developed by the Congress of New Urbanism” (2008, p. 38). The new Secondary Plan has maintained much of the original New Urbanist vision for Cornell while outlining a more detailed planning and urban design framework for maintaining the New Urbanist vision in the context of new planning challenges (Urban Strategies, 2012). The 2008 Secondary Plan sets out various strategies for accommodating new population targets through intensification and infill development; and identifies Cornell Centre as the future mixed-use town centre serving not just the Cornell Community, but the entire City of Markham as an employment area, health care centre, regional transit centre and shopping destination (Markham, 2015). While the 2008 Secondary Plan for Cornell remains relevant today, the City of Markham is currently in the process of amending the new 2014 *City of Markham Official Plan* to introduce a new Secondary Plan for Cornell to replace the 2008 Secondary Plan and complement the Cornell Centre Precinct Plan.

## **8.2 Cornell Centre Precinct Plan (2012):**

Following the adoption of the new Secondary Plan for Cornell (OPA No. 168), the City of Markham began preparing the Cornell Centre Precinct Plan in 2011, again hiring Urban Strategies Inc. —an urban design and planning firm, to prepare the plan in collaboration with city staff. The Precinct Plan aims to ensure consistency between the new Secondary Plan, Markham’s Official Plan, relevant Regional and Provincial policies and new development proposals within the Cornell Planning District, while providing a detailed urban design approach to guide the ongoing development of Cornell. The primary focus of the Precinct Plan is Cornell Centre, which was originally envisioned as a mixed-use retail core with higher densities than

surrounding neighbourhoods. Cornell Centre was intended as the “heart of Cornell,” however, it has remained largely underdeveloped since its inception (Urban Strategies, 2012, p. 13). The objective of the Precinct Plan is to bring the vision for Cornell Centre to fruition by providing guidance through detailed urban design guidelines and development strategies.

The Precinct Plan, which builds on the direction of the Secondary Plan, generally maintains the original New Urbanist vision for Cornell while providing a more detailed urban design and planning approach. The Precinct Plan also introduces some significant changes from the original vision including “a more concentrated node at Highway 7 and Bur Oak Avenue and an increase in building heights around this node. This will ensure the success of retail development and further align commercial development with major infrastructure and city building initiatives” (Urban Strategies, 2012, p. 11). The *Cornell Centre Precinct Plan* recognizes many of the challenges of shortcomings that I have identified within Cornell throughout this paper, more specifically, the areas in which the Cornell development fell short of achieving the promises and principles of New Urbanism.

The primary challenge addressed in the *Cornell Centre Precinct Plan* which has formed a significant portion of my critique of Cornell, is that it has failed to achieve the mixed-use town centre that both the New Urbanist literature and the early plans for Cornell had envisioned. Cornell Centre is the name given to the planning area or intended mixed-use town centre identified in both the Secondary Plan (2008) and the Precinct Plan (2012), which is located around the Highway 7 and Bur Oak Avenue intersection. This is the same area that was identified in the original planning documents for Cornell as the intended mixed-use town centre. The Precinct Plan maintains the original vision and intent for Cornell’s mixed-use town

centre while introducing new guidelines to reflect new population and employment projections, the proposed transit station, and redevelopment of the Markham Stouffville Hospital (Urban Strategies, Inc., 2012).

In following the vision set out in the Bur Oak Avenue Design Guidelines (1999), the Precinct Plan (2012), identifies Bur Oak Avenue as the main street of Cornell, intended to house a variety of retail amenities and several transit stops providing connections to the adjacent hospital campus for transit users, pedestrians, and automobiles. This section of the Precinct Plan recommends planting “a continuous row of street trees”, establishing retail amenities, and wide sidewalks along Bur Oak Avenue, with the majority of parking and servicing relegated to the rear of the blocks (Urban Strategies, 2012, p.23). Bur Oak Avenue is intended to “function as a pedestrian-oriented retail main street linking the surrounding Cornell neighbourhoods to Cornell Centre” (Urban Strategies, 2012, p. 38).

The Highway 7 and Bur Oak Avenue intersection is identified in the Precinct Plan as the intended commercial core for Cornell Centre, as it was in the original planning documents for Cornell. This area is intended to include a wider variety of retail uses than Bur Oak Avenue including some “large format retail uses to serve the community” while providing higher density residential units above the at-grade retail units (Urban Strategies Inc., 2012, p. 24). The Highway 7 and Bur Oak Avenue Intersection is also the identified location for a new transit station, which is intended to provide regional connectivity and serve as a “backbone for local transit service” and will likely bring in more people to Cornell Centre (Urban Strategies Inc., 2012, p. 25).

The second element of the *Cornell Centre Precinct Plan* that relates to my research is that it recommends the type of higher-density residential developments that I had noticed are absent in Cornell today. For example, the Precinct Plan recommends concentrating commercial development and increasing building heights and residential densities around the Highway 7 and Bur Oak Avenue intersection, while maintaining lower heights and densities in the areas near existing residential neighbourhoods, creating transitional areas so as not to disrupt existing neighbourhoods (Urban Strategies Inc., 2012). The Precinct Plan aims to manage building heights and densities to ensure that the highest densities and building heights are concentrated around the Highway 7 and Bur Oak Avenue intersection and that lower heights and densities are maintained farther into the existing residential neighbourhoods of the Cornell Community. The Precinct Plan includes a map identifying maximum building heights and densities throughout Cornell Centre (Figure 29). While this higher density model of development is less in keeping with the original New Urbanist vision for Cornell, it demonstrates how the New Urbanist model is proving to be adaptable to accommodate changes in demographics, community needs and preferences (i.e., higher density development to reflect new populations and intensification targets). Gabor (1994), argues that this opportunity for change is one of the elements that Duany believed to be important in constructing new communities compared to “existing, conventionally planned low density developments... [which] preclude any opportunity for change” (p. 6).

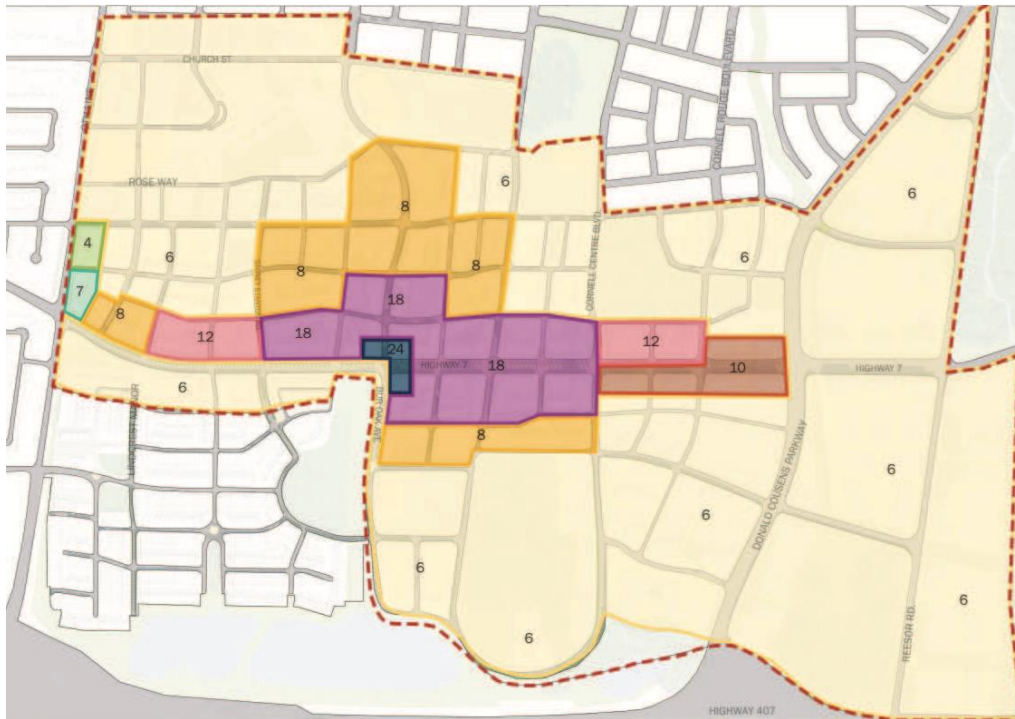


Figure 29: Map illustrating proposed intensification in Cornell Centre. Numbers on the map identify maximum heights for corresponding colours (i.e., dark blue - maximum height = 24 storeys)  
 Source: Cornell Centre Precinct Plan (2012)

## **9.0 Conclusion: Was the New Urbanist Vision for Cornell Realized?**

A number of previous studies have been carried out on Cornell examining the success and failures of specific design elements and principles of New Urbanism. Skaburskis (2006) for example, compares density and housing prices in Cornell to conventional suburbs elsewhere in Markham and the Greater Toronto Area observing that, “although the density in Cornell is twice as high as some of the surrounding conventional suburbs, its net effect on urban density is not nearly that high” (p. 246). In other words, despite densities in Cornell being higher than surrounding communities, higher than average densities in this one community is not enough to contribute in any meaningful way to increasing regional densities or that of the City of Markham. Gordon and Vipond (2007) also compare Cornell’s density with that of surrounding conventional suburban developments presenting a different argument that, “New Urbanist planning principles have proven to be an effective strategy to raise gross densities and reduce land consumption in Markham” (p. 51). Based on my research, I have found that Cornell was successful in providing a higher-density alternative to conventional suburban development by reducing lot sizes and setbacks; and relocating driveways and garages to rear-laneways while still providing some elements of conventional suburbs including single-detached homes and abundant open spaces. However, based on recent population projections and intensification targets outlined in regional and municipal plans and reports, it is clear that the New Urbanist model developed in Cornell has been reimagined at even higher densities in the future through infill development and intensification in order to accommodate Markham’s projected growth. Recent plans for Cornell including the 2008 Secondary Plan and the Cornell Centre Precinct Plan (2012) have addressed this challenge in moving forward, suggesting a move away from the

original New Urbanist model of the neo-traditional and vernacular-style single and semi-detached homes and townhouses in Cornell towards the development of higher-density development including stacked townhouses and multi-storey condominiums. While these higher-density models were not part of the original New Urbanist vision for Cornell, the movement towards higher density development reflects some of the principles of New Urbanism as they relate to infill development; designing places that can adapt to future changes; and in providing a wide-range of housing types to suit different needs and income levels. In a growing city such as Markham, where future development is directed less towards the provision of single-detached housing and more towards the development of multi-unit condominium buildings (i.e., those around Highway 7 and Warden Avenue and at Markham Road and Bur Oak Avenue), in order to keep pace with providing a higher density model of housing and to meet population growth and intensification targets, it is necessary that Cornell include newer and higher-density forms of residential developments in the future.

Other academic studies including Grant and Perrott's (2011) research on Cornell focus on the challenges of establishing successful retail uses within mixed-use centres in suburban New Urbanist communities. Grant and Perrott (2011) conclude that while planning policy makes mixed-use developments with retail uses possible, market factors and consumer preferences make it difficult to establish successful mixed-use developments with viable retail establishments. Similarly, articles produced by scholars including Langlois (2010) as well as Grant and Bohdanow (2008), have critiqued Cornell for the inability to establish and maintain successful retail uses in the intended mixed-use centres identified in the early plans for Cornell. This challenge has been addressed in recent plans including the 2008 Cornell Secondary Plan,

the 2012 Cornell Centre Precinct Plan, and the new updated Secondary Plan that is currently underway. Recommendations to address this challenge include developing higher-density residential buildings, a new transit terminal, and expanding employment lands in Cornell Centre in attempt to bring more traffic into the mixed-use town centre.

While my researched has focussed primarily on the built form elements and principles of New Urbanism in Cornell, I recommend that future studies be carried out to examine the lived experience of those who live in Cornell to develop an understanding of how well the New Urbanist principles employed in Cornell have succeeded in fostering the type of close-knit community and social capital that New Urbanists had anticipated. While this type of study is beyond the scope of my research, I believe that future research on the social and community elements of New Urbanism are important considerations in making a fulsome claim as to whether or not Cornell was successful in achieving the New Urbanist vision.

Based on my review of academic and non-academic literature that has been produced since the 1990s on New Urbanism, I have observed that there are mixed-findings on whether Cornell has succeeded in achieving the intended New Urbanist vision. Most research including my own, has determined that there are some things Cornell has done very well, while other elements have not been quite so successful. Grant and Bohdanow (2008) for example, in evaluating the success of New Urbanist development in general argue that “new urbanism communities have been successful in achieving a mix of housing types, high design standards, attractive open space systems, and a walkable environment. They have had less success in establishing viable commercial districts, increasing urban densities, providing affordable housing, or reducing reliance on automobiles” (p. 109). These findings align with the



observations I have made in this research paper, and some of these identified challenges have been addressed in recent plans and guidelines for the future development of Cornell.

While my research has found that not all the principles of New Urbanism were successfully integrated into the development of Cornell, I believe that the overall New Urbanist vision was generally achieved. Cornell has provided a viable alternative to postwar conventional suburban development from which various elements have informed Markham's planning vision and objectives for future development (Bohdanow, 2007). Cornell has succeeded in introducing buildings with higher-quality vernacular design; a wider and more affordable range of housing options and densities; more attractive, safe and accessible streets that accommodate pedestrians as well as cars; and a built form that provides more opportunities for enhanced social cohesion and community character than conventional suburbs (i.e., front porches, public spaces and parks). Perhaps most importantly, Cornell has introduced a development model that provides opportunities for change and evolution where conventional suburbs do not (Gabor, 1994). For example, while Cornell has been unable to sustain a successful mixed-use town centre, the original Master Plan ensured that the framework for mixed-use development was provided (i.e., the mixed-use zoning, district and buildings), which has created opportunities for planners and developers to continuously work to achieve the goal of creating a mixed-use town centre in Cornell. New plans and ideas have been introduced in recent years in attempt to redevelop the Bur Oak Avenue corridor—for example, by introducing a transit terminal, higher-density residential developments and new employment uses to hopefully bring in higher volumes of people to Cornell Centre from both within the Cornell community and the surrounding City of Markham. These types of adaptations and changes would not be possible in

conventional residential suburbs or strip malls and I think that this highlights the success of the New Urbanist model—the opportunity to work within the existing development and evolve as required to address new challenges, opportunities, and to reflect changing demographic and community structures.

## References:

- Adler, M. (June, 2001). Cornell housing project in turmoil. *Markham Economist & Sun*.
- Arendt, R. (2000). Saving agricultural lands through cluster developments. In M. Leccese & K. McCormick (Eds.), *Charter of the New Urbanism*. New York: McGraw Hill. (pp. 34).
- Arrington, G. B. (2000). Chapter eight: The physical organization of the region should be supported by a framework of transportation alternatives. Transit, pedestrian, and bicycle systems should maximize access and mobility throughout the region while reducing dependence on the automobile. In M. Leccese & K. McCormick (Eds.), *Charter of the New Urbanism*. New York: McGraw Hill. (pp. 59-70).
- Barnett, J. (2000). Chapter ten: The neighbourhood, the district, and the corridor are the essential elements of development and redevelopment in the metropolis. They form identifiable areas that encourage citizens to take responsibility for their maintenance and evolution. In M. Leccese & K. McCormick (Eds.), *Charter of the New Urbanism*. New York: McGraw Hill. (pp. 73-78).
- Barnett, J. (2004). Introduction: New Urbanism and codes. In P. Crawford, S. Rhees, J. Russell R. Sitkowski, & M. White (Eds.), *Codifying New Urbanism: How to Reform Municipal Land Development Regulations*. Chicago: American Planning Association.
- BH Architects. (n.d.). Markham Stouffville Hospital Redevelopment. Retrieved from: <https://www.bharchitects.com/en/project/markham-stouffville-hospital-redevelopment/>
- Bohdanow, S. (2007). An overview of New Urbanism communities in Canada. *Theory and Practice in Planning the Suburbs*. Retrieved from: [http://theoryandpractice.planning.dal.ca/\\_pdf/suburbs/development\\_trends/newurbanism\\_overview.pdf](http://theoryandpractice.planning.dal.ca/_pdf/suburbs/development_trends/newurbanism_overview.pdf)
- Bothwell, S. (2000). Chapter six: the development and redevelopment of towns and cities should respect historical patterns, precedents, and boundaries. In M. Leccese & K. McCormick (Eds.), *Charter of the New Urbanism*. New York: McGraw Hill. (pp. 49-51).
- Bourne, L., & Walks, A. (2010). Conclusion: Challenges and opportunities in the twenty-first-century city. In T. Bunting, P. Filion, & R. Walker (Eds.), *Canadian Cities in Transition: New Directions in the Twenty-First Century* (4<sup>th</sup> ed). Toronto: Oxford.
- Bunting, T., Filion, P., & Walker, R. (2010). *Canadian Cities in Transition: New Directions in the Twenty-First Century*. (4<sup>th</sup> ed). Toronto: Oxford.
- Champion, I. (1979). *Markham 1793-1900*. Markham: The Markham District Historical Museum.

- Champion, M. (1988). *Markham Remembered: A Photographic History of Old Markham Township*. Markham: The Markham District Historical Museum.
- CMHC. (2011). Comparing Canadian New Urbanist and Conventional Suburban Neighbourhoods. Retrieved on September 27 from <https://www.cmhc-schl.gc.ca/odpub/pdf/66954.pdf>
- CNU (Congress for the New Urbanism). (n.d.). CNU history. *Congress for the New Urbanism*. Retrieved from: <https://www.cnu.org/movement/cnu-history>
- Cordileone, E. (April 2011). Revisiting new urbanism in Cornell. *The Star*. Retrieved from: [https://www.thestar.com/life/homes/2011/04/27/revisiting\\_new\\_urbanism\\_in\\_cornell.html](https://www.thestar.com/life/homes/2011/04/27/revisiting_new_urbanism_in_cornell.html)
- Cosburn Giberson Landscape Architects (2004). *Cornell Parks and Open Space Master Plan*.
- Cozens, P., & Hillier, D. (2008). The shape of things to come: New urbanism, the grid and the cul-de-sac. *International Planning Studies*, 13(1). (pp. 51-73).
- Davidson, M., & Dolnick, F. (Eds.). (2004). *A Planners Dictionary*. Chicago: II: American Planning Association.
- Duany, A. (1990). Suburban sprawl or livable neighbourhoods: The decline of the suburbs. *Neotraditional Town Planning*. American Institute of Certified Planners.
- Duany, A. (2013). 20 years of New Urbanism. In E. Talen (Ed.). *Charter of the New Urbanism* (2<sup>nd</sup> ed.). New York: McGraw Hill.
- Duany, A., Plater-Zyberk, E., & Speck, J. (2000). *Suburban Nation: The Rise of Sprawl and the Decline of the American Dream*. New York: North Point Press.
- Duany, A., & Plater-Zyberk, E. (1994). *Cornell Master Plan*.
- Eckdish-Knack, R. (1989). Repent, ye sinners, repent. *Planning*, 55(8). (pp. 4-13).
- Ellis, C. (2002). The New Urbanism: Critiques and rebuttals. *Journal of Urban Design* 7(3). (pp. 201-213).
- Evans, G. W., Wells, N. M., & Moch, A. (2003). Housing and mental health: A review of the evidence and a methodological and conceptual critique. *Journal of Social Issues* 59(3) (pp.475-500).

- Friskin, F. (2007). *The Public Metropolis: The Political Dynamics of Urban Expansion in the Toronto Region, 1924-2003*. Toronto: Canadian Scholar's Press Inc.
- Furusest, O. (1997). Neotraditional planning: A new strategy for building neighbourhoods? *Land Use Policy* 14(3), (pp. 201-213).
- Gabor, P. (1994). Duany designs for people not cars. *Ontario Planning Journal*, 9(3), pp. 3-6.
- Gindroz, R. (2000). Chapter twenty-one: The revitalization of urban places depends on safety and security. The design of streets and buildings should reinforce safe environments, but not at the expense of accessibility and openness. In M. Leccese & K. McCormick (Eds.), *Charter of the New Urbanism*. New York: McGraw Hill. (pp. 133-137).
- Gordon, D., & Vipond, S. (2007). Gross density and new urbanism: Comparing conventional and new urbanist suburbs in Markham, Ontario. *Journal of the American Planning Association* 71(1), (pp. 41-54).
- Gordon, D. L. A., & Tamminga, K. (2010) Large-scale traditional neighbourhood development and pre-emptive ecosystem planning: The Markham experience, 1989-2001. *Journal of Urban Design* 7(3), (pp. 321-340).
- Graham, W. (2016). *Dream Cities: Seven Urban Ideas that Shape the World*. New York: Harper Collins.
- Grant, J. (2006). *Planning the Good Community: New Urbanism in Theory and Practice*. New York: Taylor & Francis.
- Grant, J. L., & Bohdanow, S. (2008). New urbanism developments in Canada: A survey. *Journal of Urbanism: International Research on Placemaking and Urban Sustainability* 1(2), (pp. 109-127).
- Grant, J. L., & Perrott, K. (2009). Producing diversity in a new urbanism community: Policy and practice. *Town Planning Review*, 80(3) (pp. 267-289).
- Greenberg, K. (2000). Chapter twenty-seven: Preservation and renewal of historic buildings, districts, and landscapes affirm the continuity and evolution of urban society. In M. Leccese & K. McCormick (Eds.), *Charter of the New Urbanism*. New York: McGraw Hill. (pp. 173-175).
- Harris, R. (2004). *Creeping Conformity: How Canada Became Suburban, 1900-1960*. Toronto: University of Toronto Press.

- Hess, P. (2008). Fronts and backs: The use of streets, yards and alleys in Toronto-Area new urbanist neighbourhoods. *Journal of Planning Education and Research*, 28(2). (pp. 196-212).
- Hess, P. (2009). Avenues or arterials: The struggle to change street building practices in Toronto, Canada. *Journal of Urban Design*, 14(1), (pp. 1-28).
- Hodge, G., & Gordon, D. (2008). *Planning Canadian Communities*. (5<sup>th</sup> ed.). Toronto: Nelson Education.
- Karumanchery, B. (2013). *Deferral 2 to Amendment No. 168 (Cornell Secondary Plan) City of Markham*. Retrieved from Region of York Online Archives: <http://archives.york.ca/councilcommitteearchives/pdf/rpt%201%20cls%202-4.pdf>
- Kulash, W. (2000). Chapter twelve: Many activities of daily living should occur within walking distance, allowing independence to those who do not drive, especially the elderly and the young. Interconnected networks of streets should be designed to encourage walking, reduce the number and length of automobile trips, and conserve energy. In M. Leccese & K. McCormick (Eds.), *Charter of the New Urbanism*. New York: McGraw Hill. (pp. 83-87).
- Langlois, P. (2010). Municipal visions, market realities: Does planning guide residential development? *Environment and Planning B: Urban Analytics and city Science* 37(3), (pp. 449-462).
- Law Development Group. (1997). *Cornell: Architectural Control Guidelines*.
- Law Development Group. (n.d.). *Cornell Markham*. [Brochure].
- Leccese, M., & McCormick, K. (Eds.). (2000). *Charter of the New Urbanism*. New York: McGraw Hill.
- Lennon, F. (1975). *Imported Cars Head East* [image]. Retrieved from: [http://www.torontopubliclibrary.ca/detail.jsp?Entt=RDMD-C-TSPA\\_0012581F&R=DC-TSPA\\_0012581F](http://www.torontopubliclibrary.ca/detail.jsp?Entt=RDMD-C-TSPA_0012581F&R=DC-TSPA_0012581F)
- Leung, H. (1995). A new kind of sprawl. *Plan Canada*, 35(5). (pp. 4-5).
- Lieberman, W. (2000). Chapter fifteen: Appropriate building densities and land uses should be within walking distance of transit stops, permitting public transit to become a viable alternative to the automobile. In M. Leccese & K. McCormick (Eds.), *Charter of the New Urbanism*. New York: McGraw Hill. (pp. 101-103).
- Markham. (1994). *Official Plan Amendment and Secondary Plan: Cornell*.

Markham. (2003). *Cornell Community: Fast Facts* [Brochure]. Markham.

Markham, City of. (2014a). The railway in Markham. *Heritage*. Retrieved from:  
[https://www.markham.ca/wps/portal/Markham/AboutMarkham/Heritage!/ut/p/a1/04\\_Sj9CPykssy0xPLMnMz0vMAfGjzOJN\\_N2dnX3CLAKNgkwMDDw9XcJM\\_VwCDS3cDPQLsh0VAXM\\_3Qk!/](https://www.markham.ca/wps/portal/Markham/AboutMarkham/Heritage!/ut/p/a1/04_Sj9CPykssy0xPLMnMz0vMAfGjzOJN_N2dnX3CLAKNgkwMDDw9XcJM_VwCDS3cDPQLsh0VAXM_3Qk!/)

Markham, City of. (2014b). *Planning Markham's Future: City of Markham Official Plan*. Retrieved from:  
[https://www.markham.ca/wps/portal/Markham/BusinessDevelopment/PlanningAndDevelopmentServices/OfficialPlan/2014OP!/ut/p/a1/hZDBjolwElafhms7UGjL3gpEFnRFSIrYi0GDSCJgAOX1F3e9mLjs3Cb5vvz\\_DFY4w6rJ71WZD1Xb5JfHruje5llwF2uIUyY9CElH9mXEws3SmoDdBli--DTZCgCkPwEsdmT0tSQQ0F8\\_8l13lfLYSEyAIPBSa-3FOI\\_A04c\\_RsB\\_-VusZiMSeAJzFX-AmQ4hVtWhRuOxRoAosyihhNuGbnDdJo8TRHMgvMSqK05FV3To1k2vOw\\_Dtf\\_QQINxHFHZtuWlQMdcg3fGue0HnL2A-FrLDKpNveW9-AZsxHtG/dI5/d5/L2dBISevZ0FBIS9nQSEh/](https://www.markham.ca/wps/portal/Markham/BusinessDevelopment/PlanningAndDevelopmentServices/OfficialPlan/2014OP!/ut/p/a1/hZDBjolwElafhms7UGjL3gpEFnRFSIrYi0GDSCJgAOX1F3e9mLjs3Cb5vvz_DFY4w6rJ71WZD1Xb5JfHruje5llwF2uIUyY9CElH9mXEws3SmoDdBli--DTZCgCkPwEsdmT0tSQQ0F8_8l13lfLYSEyAIPBSa-3FOI_A04c_RsB_-VusZiMSeAJzFX-AmQ4hVtWhRuOxRoAosyihhNuGbnDdJo8TRHMgvMSqK05FV3To1k2vOw_Dtf_QQINxHFHZtuWlQMdcg3fGue0HnL2A-FrLDKpNveW9-AZsxHtG/dI5/d5/L2dBISevZ0FBIS9nQSEh/)

Markham, City of. (2015). Draft Official Plan Policy Framework for Cornell Centre [Public Meeting Presentation]. Retrieved from:  
<https://www.markham.ca/wps/wcm/connect/markhampublic/19465685-609b-41bd-8c11-e1166cad1d1f/Oct+20%2C+2015+Cornell+Public+Meeting+Presentation.pdf?MOD=AJPERES&CACHEID=19465685-609b-41bd-8c11-e1166cad1d1f>

Markham, City of. (n.d.). Aboriginal presence in the Rouge Valley. Webpage. Retrieved on: September 22 from:  
<https://www.markham.ca/wps/portal/Markham/AboutMarkham/Heritage/Markham-Village-Heritage-Tour/Aboriginal-Presence-in-the-Rouge-Valley>

Markham Development Services Committee. (2015). *York Region Draft Growth Scenarios 2041*. Retrieved from:  
<http://www2.markham.ca/markham/ccbs/indexfile/Agendas/2015/Development%20Services/pl150911/Growth%20Scenarios%20to%202041.pdf>

Markham, Town of. (July 1994). *Official Plan Amendment and Secondary Plan: Cornell*.

Markham (Ont.). (2008). *Official Plan of the Town of Markham Planning Area Amendment No. 168 and Secondary Plan for the Cornell Planning District*. Markham: Planning and Urban Design.

McConnell, C. (1978). *A Return to Victorian Elegance* [image]. Retrieved from:  
[http://www.torontopubliclibrary.ca/detail.jsp?Entt=RDMDC-TSPA\\_0106661F&R=DC-TSPA\\_0106661F](http://www.torontopubliclibrary.ca/detail.jsp?Entt=RDMDC-TSPA_0106661F&R=DC-TSPA_0106661F)

- Metrolinx. (2008). *The Big Move: Transforming Transportation in the Greater Toronto and Hamilton Area*. Retrieved from:  
[http://www.metrolinx.com/en/regionalplanning/bigmove/big\\_move.aspx](http://www.metrolinx.com/en/regionalplanning/bigmove/big_move.aspx)
- MICAH Affordable Housing Proposal for Cornell Ctr. —Forum. (September, 2006). *Cornell Village*. Retrieved on September 15, from: <http://www.cornellvillage.ca/cgi-bin/yabb/YaBB.pl?board=urban;action=display;num=1158469071>
- MMAH. (n.d.). North Pickering land exchange. *Ontario Ministry of Municipal Affairs and Housing*. Retrieved from <http://www.mah.gov.on.ca/Page13715.aspx>
- Moore, S. (2010). 'More Toronto, naturally' but 'too strange for Orangeville': De-universalizing New Urbanism in Greater Toronto. *Cities* 27(2), (pp. 103-113).
- Moore, S. (2012). Re-evaluating 'public' and 'private' in local development cultures: Converging vocabularies of public good and market success in Toronto's New Urbanism. *Town Planning Review* 83(5), (pp. 575-596).
- Moore, S. (2013). What's wrong with best practice? Questioning the typification of New Urbanism. *Urban Studies* at 50, 50(11), (pp. 2371-2387).
- Moule, E. (2000). Chapter sixteen: Concentrations of civic, institutional, and commercial activity should be embedded in neighbourhoods and districts, not isolated in remote, single-use complexes. Schools should be sized and located to enable children to walk or bicycle to them. In M. Leccese & K. McCormick (Eds.), *Charter of the New Urbanism*. New York: McGraw Hill. (pp. 105-109).
- Pearson, C. (1990). The new new towns. *Builder*. (pp. 294-301).
- Perrott, K. (2007). *Selling the Suburbs: Exploring Representations of Social Diversity in Marketing Media in Markham, Ontario*. School of Planning, Dalhousie University.
- Planning Partnership. (1999). *Town of Markham Cornell Community: Bur Oak Avene Design Guidelines*.
- Plater-Zyberk, E. (2000). Chapter eleven: Neighbourhoods should be compact, pedestrian-friendly, and mixed-use, and should follow the principles of neighbourhood design when possible. Corridors are regional connectors of neighbourhoods and districts; they range from boulevards and rail lines to rivers and parkways. In M. Leccese & K. McCormick (Eds.), *Charter of the New Urbanism*. New York: McGraw Hill. (pp. 79-82).
- Poticha, S. R. (2000). Foreword. In M. Leccese & K. McCormick (Eds.), *Charter of the New Urbanism*. New York: McGraw Hill.



- Poticha, S. R. (2013). Foreword. In E. Talen (Ed.), *Charter of the New Urbanism* (2<sup>nd</sup> ed.). New York: McGraw Hill.
- Roth, P. (2006). Request for servicing allocation from Town's reserve and future request for financial incentives from the Town in support of proposed affordable rental housing project in Cornell Centre. *Markham Interchurch Committee for Affordable housing*. Retrieved on September 15, from: <http://www.markham.ca/markham/ccbs/indexfile/Agendas/2006/Development%20Services-Economic%20Development/September%2019/markham%20interchurch.PDF>
- Schimmenti, M. M. (2000). Chapter twenty-six: All buildings should provide their inhabitants with a clear sense of location, weather, and time. Natural methods of heating and cooling can be more resource-efficient than mechanical systems. In M. Leccese & K. McCormick (Eds.), *Charter of the New Urbanism*. New York: McGraw Hill. (pp. 169-172).
- Sitkowski, R. J., & Ohm, B. W. (2006). Form-based land development regulations. *Urban Lawyer*, 38(1), (pp. 163-172).
- Skaburskis, A. (2006). New Urbanism and sprawl: A Toronto case study. *Journal of Planning Education and Research* 25, (pp. 233-248).
- Solomon, D. (2000). Chapter nineteen: A primary task of all urban architecture and landscape design is the physical definition of streets and public spaces as places of shared use. In M. Leccese & K. McCormick (Eds.), *Charter of the New Urbanism*. New York: McGraw Hill. (pp. 123-126).
- Steffel-Johnson, J., & Talen, E. (2010). Affordable housing in new urbanist communities: A survey of developers. *Housing Policy Debate*, 19(4). (pp. 583-613).
- Steuteville, R. (2009). Disappointment arises at Toronto area project. *Public Square: A CNU Journal*. Retrieved on September 20 from: <https://www.cnu.org/publicsquare/disappointment-arises-toronto-area-project>
- Steuteville, R. (2017). Great idea: Mixed-use urban centres. *Public Square: A CNU Journal*. Retrieved from: <https://www.cnu.org/publicsquare/2017/04/27/great-idea-mixed-use-urban-centers>
- Steuteville, R., & Langdon, P. (2009). Introduction. In R. Steuteville & P. Langdon (Eds.). *New Urbanism: Best Practices Guide* (4<sup>th</sup> ed.). Ithaca, NY: New Urban News Publications, Inc. (pp. 9-12).
- Talen, E. (1999). Sense of community and neighbourhood form: An assessment of the social doctrine of New Urbanism. *Urban Studies*, 36(8), (pp. 1361-1379).

- Talbot, R. (2004). *Cornell Town Centre—Markham, Ontario, Canada*. Retrieved on September 27<sup>th</sup> from [http://www.talbotconsultants.com/articles/cornell\\_town\\_centre.pdf](http://www.talbotconsultants.com/articles/cornell_town_centre.pdf)
- The Firm and People. (n.d.). *The Planning Partnership*. Retrieved from: <http://planpart.ca/#firm>
- Thompson, P. J. (2013). Neighbourhood news: Markham in motion. *National Post*. Retrieved from: <http://nationalpost.com/life/homes/neighbourhood-news-markham-in-motion>
- Toronto Planning and Transportation Committee. (2004). *Provincial Planning Reform Initiatives: Consultation Papers on OMB Reform, Planning Act Reform and Implementation Tools and Provincial Policy Statement Draft Policies* [Staff Report]. Retrieved from: <http://www.toronto.ca/legdocs/2004/agendas/council/cc040720/plt5rpt/cl014.pdf>
- Toronto Public Library (1998). *No Title* [image]. Retrieved from: [http://static.torontopubliclibrary.ca/da/images/LC/tspa\\_0106663f.jpg](http://static.torontopubliclibrary.ca/da/images/LC/tspa_0106663f.jpg)
- Tsang, J. (2014). Community review: The Cornell community in Markham and why you might want to consider moving there. *Century 21*. Retrieved on September 14, from, [https://www.century21.ca/janis.tsang/blog/Community\\_Review\\_the\\_Cornell\\_Community\\_in\\_Markham\\_and\\_why\\_you\\_might\\_want\\_to\\_consider\\_moving\\_there](https://www.century21.ca/janis.tsang/blog/Community_Review_the_Cornell_Community_in_Markham_and_why_you_might_want_to_consider_moving_there)
- Urban Strategies Inc. (2011). Cornell Centre Precinct Plan: Open House [Public Meeting Presentation]. Retrieved from: [https://www.markham.ca/wps/wcm/connect/markhampublic/f310e993-e71e-4202-9e0e-a6e619f596a9/cornel\\_openhouse\\_2011.pdf?MOD=AJPERES&CACHEID=f310e993-e71e-4202-9e0e-a6e619f596a9](https://www.markham.ca/wps/wcm/connect/markhampublic/f310e993-e71e-4202-9e0e-a6e619f596a9/cornel_openhouse_2011.pdf?MOD=AJPERES&CACHEID=f310e993-e71e-4202-9e0e-a6e619f596a9)
- Urban Strategies Inc. (2012). *Cornell Centre Precinct Plan*. Prepared for the Town of Markham. Retrieved from [http://www3.markham.ca/Markham/aspc/lrgfiles/20121126\\_CCPP.pdf](http://www3.markham.ca/Markham/aspc/lrgfiles/20121126_CCPP.pdf)
- Viva Next. (n.d.). transit terminal/Markham. Retrieved from: [http://www.vivanext.com/project\\_TerminalMarkham](http://www.vivanext.com/project_TerminalMarkham)
- Warson, A. (1995). Escaping suburban sprawl. *Building*, 44(4) pp.16-20
- Weiss, M. (2000). Chapter thirteen: Within neighbourhoods, a broad range of housing types and price levels can bring people of diverse ages, races, and incomes into daily interaction, strengthening the personal and civic bonds essential to an authentic community. In M. Leccese & K. McCormick (Eds.), *Charter of the New Urbanism*. New York: McGraw Hill. (pp. 89-93).
- Wheeler, S. (2002). The new regionalism: Key characteristics of an emerging movement. *Journal of the American Planning Association*, 68(3), (pp. 267-278).

- Williams, R. J. (2012). *Interim Report: 2014 Ward Boundary Review*. Retrieved from:  
[https://www.markham.ca/wps/cm/connect/markhampublic/516aa1ff-c88a-4d36-8fb5a02e7fafa314/2012\\_WardBoundaryReviewInterimRpt.pdf?MOD=AJPERES&CACHEID=516aa1ff-c88a-4d36-8fb5-a02e7fafa314](https://www.markham.ca/wps/cm/connect/markhampublic/516aa1ff-c88a-4d36-8fb5a02e7fafa314/2012_WardBoundaryReviewInterimRpt.pdf?MOD=AJPERES&CACHEID=516aa1ff-c88a-4d36-8fb5-a02e7fafa314)
- Wood-Brunet, E. (1994). The New Urbanism in Markham. *Ontario Planning Journal*, 9(3), (pp. 7-8).
- Yaro, R. D. (2000). Chapter two: "Metropolitan regions are finite places with geographic boundaries derived from topography, watersheds, coastlines, farmlands, regional parks, and river basins. The metropolis is made of multiple centers that are cities, towns and villages, each within its own identifiable center and edges. In M. Leccese & K. McCormick (Eds.), *Charter of the New Urbanism*. New York: McGraw Hill. (pp. 23-25).
- Yeadon, S. (February 1999). New digs, old look. *Toronto Star*.
- York Region. (2014). Deferral 2 to Amendment No. 168 (Cornell Secondary Plan) City of Markham [Staff Report]. Retrieved from:  
<http://www.york.ca/wps/wcm/connect/yorkpublic/03dd0a09-2a6f-46ce-9c01-9ea1ff756937/jan+9+deferral+ex.pdf?MOD=AJPERES>
- York Region. (2016). Modified York Region Official Plan, 2010. Retrieved from:  
[http://www.york.ca/wps/portal/yorkhome/yorkregion/yr/regionalofficialplan!/ut/p/a1/jZDNTsMwEISfpYccG2\\_dn1jcrCDqJFRB4kDqC3Iq27Fk7Mg1RPD0mIgLerTsbVff7M4s4qhD3Ik3o0U03gn71fPdc0X3FWMN1O2GIEChpTUuCJcSMAXAfBHUbimr\\_9xAIdDedCljyIOS-OUR12QejbolTInI-xohUNPiM\\_bMN7s2KqEGlhLoLorHra3hK2g3F4BGvwNXMiTDGvr-\\_k3R-r6NUnOglQyyJC\\_hjQeYhzPNxlkME1Trr3XVuYnkcFvisGfl-p-gGh86T7u1WO15P37RBeLT2ocKI8!/dl5/d5/L2dBISEvZ0FBIS9nQSEh/#.WhGd9WWlei4](http://www.york.ca/wps/portal/yorkhome/yorkregion/yr/regionalofficialplan!/ut/p/a1/jZDNTsMwEISfpYccG2_dn1jcrCDqJFRB4kDqC3Iq27Fk7Mg1RPD0mIgLerTsbVff7M4s4qhD3Ik3o0U03gn71fPdc0X3FWMN1O2GIEChpTUuCJcSMAXAfBHUbimr_9xAIdDedCljyIOS-OUR12QejbolTInI-xohUNPiM_bMN7s2KqEGlhLoLorHra3hK2g3F4BGvwNXMiTDGvr-_k3R-r6NUnOglQyyJC_hjQeYhzPNxlkME1Trr3XVuYnkcFvisGfl-p-gGh86T7u1WO15P37RBeLT2ocKI8!/dl5/d5/L2dBISEvZ0FBIS9nQSEh/#.WhGd9WWlei4)
- Zolo. (2017). Markham real estate trends. *Zolo*, Retrieved September 14, 2017, from  
<https://www.zolo.ca/markham-real-estate/trends>

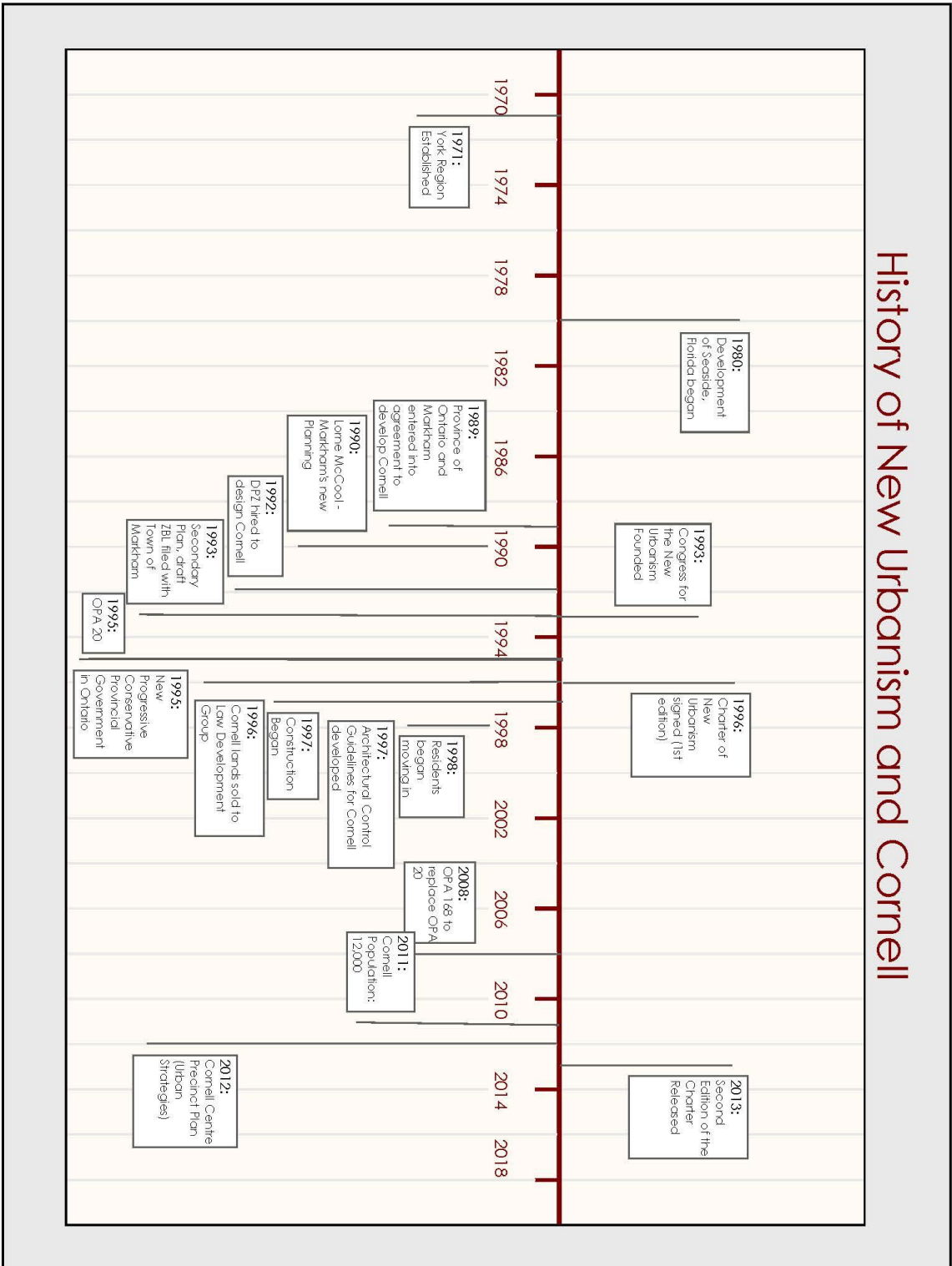
## 11.0 Appendices

### **Appendix A:**

List of Communities Considered:

<b>Name of Community</b>	<b>Location</b>	<b>Notes</b>
<b>Don Mills</b>	Toronto, Ontario	Not considered a New Urbanist community but one of Toronto's earliest and most famous master planned communities. <ul style="list-style-type: none"><li>• Signalled the Beginning of Toronto's master planning era (Suburban Sprawl)</li></ul>
<b>The Beaches</b>	Toronto, Ontario	<ul style="list-style-type: none"><li>• New Urbanist Community in Toronto Ontario—also uses the laneway model</li></ul>
<b>The Kentlands</b>	Gaithersburg, Maryland	<ul style="list-style-type: none"><li>• One of the earliest NU communities to experiment with auxiliary rental apartments above detached garages (Steuteville &amp; Langdon, 2009).</li></ul>
<b>Angus Glen</b>	Markham, Ontario	A New Urbanist community developed in Markham around the same time as Cornell—also considered one of the first experiments with NU in Markham and the GTA <ul style="list-style-type: none"><li>• Golf Course community—more of a resort community than an everyday community like Cornell</li></ul>
<b>Seaside</b>	Seaside, Florida	One of the earliest master planned New Urbanist Communities—predated the Congress for the New Urbanism and the Charter of the New Urbanism

Appendix B:



**Appendix C:**

The following chart identifies the events that led the City of Markham to identify the need to introduce updated planning documents to guide the development of Cornell.		
Year	Event or Policy	Details
2008	Metrolinx Transportation Master Plan— <i>The Big Move</i>	<ul style="list-style-type: none"> <li>- Identified Markham as a Regional Transit Centre</li> <li>- Introduced the Viva Next Project—transit terminal near Highway 7 and Ninth Line</li> </ul>
2010	York Region Official Plan	<ul style="list-style-type: none"> <li>- New population projections for Markham</li> <li>- Intensification targets for Markham (infill)</li> </ul>
2013-2014	<i>City of Markham Official Plan Update</i>	<ul style="list-style-type: none"> <li>- Recognizes Cornell Centre as intensification area and major employment area</li> </ul>
2014	Markham Stouffville Hospital Redevelopment—developing a regional health care campus  <i>Markham Stouffville Hospital Strategic Plan 2014-2020</i>	<ul style="list-style-type: none"> <li>- The goal of the MS Hospital redevelopment is to transform “a twenty-year old, formerly isolated facility into a metropolitan healing and wellness hub” (BH Architects, n.d., n.p.)</li> </ul>
Ongoing	Development Proposals from various land owners	<ul style="list-style-type: none"> <li>- Various landowners have come forward with development proposals for sites within and around Cornell</li> <li>- Development have requested more flexibility in housing types (i.e., stacked townhouses and condominium buildings) and more flexibility in retail policies</li> <li>- In response to these proposals, the City of Markham identified the need for a new coordinated planning approach through the development of an additional secondary plan for Cornell Centre—to provide an integrated and coordinated approach to land use planning and development within Cornell Centre (Markham, 2015)</li> </ul>