

Designing for A Safer Public Housing Community: A Case Study of Chester Le, Toronto

Hongyan (Ivy) Qi

A Master's Report submitted to the School of Urban and Regional Planning in partial fulfillment of the requirements for the degree of Master of Urban and Regional Planning

School of Urban and Regional Planning
Queen's University
Kingston, Ontario
April 2014

© Hongyan Qi, 2014

ACKNOWLEDGEMENTS

I would like to extend my sincere gratitude towards my research supervisor Dr. David Gordon for his guidance, timely feedback, and encouragement that made this report possible. I also would like to thank Dr. Leela Viswanathan for her helpful advices and support.

I would like to thank all the safety audit and interview participants, especially when the weather condition was not as desirable on the day of the safety audit. I would like to thank my wonderful supervisor Evan Muller-Cheng at ACSA for inspiring me to do this research and providing strong support and encouraging comments throughout the research process.

I am grateful for my family and friends for their continuous support throughout the two years. Thank you to my parents for being supportive to me to pursue my interest, and Nathan T. who volunteered to accompany me for numerous site visits. Finally, a special thank you goes to my fellow classmates, professors, and staff at SURP for the most wonderful two years of my life.

EXECUTIVE SUMMARY

Designing for A Safer Public Housing Community: A Case Study of Chester Le, Toronto

Crime and fear of crime are major concerns confronting public housing tenants today. Public housing tenant population is usually composed of groups of people who have traditionally been found to be more vulnerable to violence and have greater fear of criminal victimization. In response to the increasing level of fear of crime and urban violence, a physical structure-based approach to crime prevention and management of urban spaces, Crime Prevention through Environmental Design (CPTED), was emerged and prevailed in the planning profession in recent years.

This research project examined the links between the characteristics of the built environment, fear of crime, and community safety in a public housing project, the Chester Le community, located in L'Amoreaux neighbourhood in northeast Toronto. The objective of this study was to identify and examine the potential impact of physical design features on the perception of safety in Chester Le and determine how the perception of safety can be improved by modifying these design features. The research used evaluation criteria established in the Metropolitan Action Committee on Violence Against Women and Children's (METRAC's) Community Safety Audit (CSA) tool and the City of Toronto's safety design guideline, *A Working Guide for Planning and Designing Safer Urban Environments*.



Map 1: Site Plan of the Study Area

Figure 1: Townhouse units in Chester Le

A group safety audit was conducted with five local residents in Chester Le, led by the researcher, using a safety audit guide consisted of seven evaluation criteria. The findings from the safety audit revealed some of the main safety concerns associated with the built environment in Chester Le, including:

- Insufficient signage to define the entrances and exits;
- Inconsistent lighting throughout the neighbourhood spaces;
- High fences and overgrown vegetation that blocked the sightlines;
- Lack of emergency services;
- Untidy garbage areas and backyards;
- And a few potential entrapment sites.

At the same time, it was discovered that Chester Le also embodied some physical characteristics that helped to ameliorate fear of crime, including:

- Clear and diverse signage;
- Well-used community amenities;
- An effective surveillance system;
- And a good mix of land uses nearby.



Figure 2: Grade separation with self-built high fences and overgrown vegetation together reduced sightlines in Chester Le.



Figure 3: Well-used community amenities in Chester Le

Table 1: Evaluation of the Built Environment in Chester Le

SAFETY AUDIT CRITERIA	STRENGTHS	WEAKNESSES
Territoriality		
Signs and Maps	<ul style="list-style-type: none"> A variety of signs are present throughout the neighbourhood Existing signs are easy to read and understand Emergency contact information is available 	<ul style="list-style-type: none"> Entrances and exists could be better defined by appropriate signage Absence of wayfinding signage and maps Stigma attached to TCHC logo on the signs
Natural Surveillance		
Lighting	<ul style="list-style-type: none"> Brighter Nights Program Tenants knew where to report broken lights 	<ul style="list-style-type: none"> Low illumination level Inconsistent level of lighting throughout neighbourhood spaces Vandalism
Sightlines	<ul style="list-style-type: none"> Tree trimming 	<ul style="list-style-type: none"> Sharp corners High fences Walls Overgrown vegetation Grade separation
Isolation	<ul style="list-style-type: none"> Well-used playground and outdoor sitting area Functional CCTV Regular police patrol 	<ul style="list-style-type: none"> Lack of emergency services
Image		
Maintenance	<ul style="list-style-type: none"> Accessible superintendent's office Painted graffiti Curb Appeal Project 	<ul style="list-style-type: none"> Maintenance of garbage dumping areas Maintenance of backyards Long time for repairs
Environment		
Nearby Land Use	<ul style="list-style-type: none"> Busy commercial plaza Schools Well-used community centre Well-used park Adjoining busy public streets 	<ul style="list-style-type: none"> Open access to the park Separation from the main street by wall
Natural Access Control		
Entrapment Sites and Escape Routes	<ul style="list-style-type: none"> Locked unused spaces 	<ul style="list-style-type: none"> Unlocked garbage dumping areas Unlocked community garden Complicated alleyway networks

Table 2: Recommendations to Improve the Built Environment in Chester Le

SAFETY AUDIT CRITERIA	SHORT-TERM RECOMMENDATIONS	LONG-TERM RECOMMENDATIONS	IMPLEMENTATION
Signs and Maps	<ul style="list-style-type: none"> • Add street address signs at appropriate locations • Add wayfinding signage or maps at main entrances to aid navigation 	<ul style="list-style-type: none"> • Use signs with positive tones • Standardize signage across TCHC communities 	<ul style="list-style-type: none"> • TCHC should take the responsibility of adding or changing any signage in the neighbourhood
Lighting	<ul style="list-style-type: none"> • Add LED lights in the neighbourhood, especially around the playground area 	<ul style="list-style-type: none"> • Keep up the maintenance of the lights • Promote awareness among tenants to keep their porch lights on overnight • 	<ul style="list-style-type: none"> • Tenants should take the responsibility of turning on and off the porch lights • TCHC should take the responsibility of adding, changing, or maintaining other lights
Sightlines	<ul style="list-style-type: none"> • Add security mirrors at sharp corners 	<ul style="list-style-type: none"> • Encourage tenants to take down self-built fences in their backyards that obstructed sightlines 	<ul style="list-style-type: none"> • Tenants should be responsible for taking down the self-built fences in their backyard with potential help from TCHC staff if in need • TCHC should take the responsibility of adding security mirrors
Isolation	<ul style="list-style-type: none"> • Expand the playground area to accommodate more recreational activities 	<ul style="list-style-type: none"> • Intensify the use of community spaces with planned events 	<ul style="list-style-type: none"> • TCHC should take the responsibility of improving the current recreational facilities • TCHC and local community organizations should work together to encourage the tenants to enjoy the community spaces more often by holding various events
Maintenance	<ul style="list-style-type: none"> • Regularly tree trimming • Timely snow removal • Keep up the maintenance of around the garbage dumping areas 	<ul style="list-style-type: none"> • Encourage tenants to keep up the maintenance of their backyards by prohibiting stocking of large household goods in the area • Make repair services more timely and efficient 	<ul style="list-style-type: none"> • Tenants should take the responsibility of maintaining their backyards and also helping with the maintenance of the garbage areas • TCHC should be responsible for improving tree trimming, snow removal, and other maintenance services
Entrapment Sites and Escape Routes	<ul style="list-style-type: none"> • Lock potential entrapment sites after certain time at night, such as the garbage dumping areas and the community garden • Add lights or convex mirrors at the entrapment sites 	<ul style="list-style-type: none"> • Make the entrapments sites or unused spaces useful with appropriate functions 	<ul style="list-style-type: none"> • TCHC should be responsible of making the entrapment sites safe spaces

Additional policy recommendations for TCHC include:

- Make ‘little things’ right.
- Continue the effort of tenant engagement by conducting safety audits regularly.
- Allocate more funding towards maintenance and make the process more efficient.
- Promote the use of safety design guidelines produced by the City of Toronto.

This research project promoted the awareness and better understanding of community safety issues to the local residents in Chester Le, as well as to TCHC, and highlighted the role of planners to engage local community members in the planning process to actively search for solutions to make changes in their microenvironments of daily life. Planning could play a significant role in crime prevention, reducing fear of crime, and enhancing perception of safety in a community. Good planning helps to reduce opportunities for crime and allows potential victims to escape to safety through effective design and management of urban spaces.

TABLE OF CONTENTS

1. Introduction.....	1-1
1.1. Background	1-1
1.2. Research Objective	1-2
1.3. Scope of Research.....	1-3
1.4. Relevance of the Study	1-3
1.5. Precedents	1-4
1.6. Report Outline.....	1-5
2. Background and Case Description	2-1
2.1. Introduction.....	2-1
2.2. Crime, Fear of Crime, and Community Safety	2-1
2.3. CPTED as A Planning Solution.....	2-2
2.4. Crime in Public Housing Environments	2-6
2.5. Chester Le as a Case Study	2-7
3. Research Methods.....	3-1
3.1. Introduction.....	3-1
3.2. Literature and Document Review	3-1
3.3. Safety Audit Criteria	3-3
3.4. Community Safety Audit	3-6
3.5. Interview with TCHC Professional.....	3-6
3.6. Strengths and Limitations	3-7

4. Findings and Analysis.....	4-1
4.1. Introduction.....	4-1
4.2. Signs and Maps.....	4-1
4.3. Lighting.....	4-5
4.4. Sightlines	4-8
4.5. Isolation.....	4-11
4.6. Maintenance.....	4-13
4.7. Nearby Land Use	4-17
4.8. Entrapment Sites and Escape Routes	4-19
4.9. Safety Audit Summary.....	4-21
5. Recommendations and Conclusion	5-1
5.1. Introduction.....	5-1
5.2. Research Outcomes.....	5-1
5.3. Recommendations for Chester Le.....	5-3
5.4. Recommendations for TCHC	5-5
5.5. Limitations and Areas for Further Research.....	5-7
5.6. Conclusion	5-7
References	R-1
Appendix A: Community Safety Audit Survey	A-1
Appendix B: Community Safety Audit Survey Data.....	A-6
Appendix C: Recruitment Flyer for the Community Safety Audit.....	A-11
Appendix D: Safety Audit Participant Letter of Information and Consent Form.....	A-12
Appendix E: Interview Participant Letter of Information and Consent Form	A-15
Appendix F: Sample Interview Questions	A-17

1. INTRODUCTION

1.1. Background

Crime and fear of crime are currently major concerns in some urban communities, especially in public housing communities. Crime not only threatens the personal safety of residents, but also contributes to the physical and economic deterioration of neighbourhood spaces. Fear of crime prevents inhabitants from actively experiencing pleasant day-to-day lives in a community (Saraiva & Pinho, 2011). In fact, studies show that there is a positive correlation between fear of crime and the actual crime risk (Wilcox, Quisenberry & Jones, 2003). Since 1960s, several planners and architects have recognized and studied the relationship between crime prevention, perception of safety, and the built environment, most notably Jane Jacobs and Oscar Newman (Jacobs, 1984; Newman, 1973). According to the Crime Prevention through Environmental Design (CPTED) principles, effective planning and design can help to reduce incidence and fear of crime by creating easily observable spaces, fostering a sense of ownership of inhabitants to adjacent public areas, and facilitating informal social control.

Since planning and design professionals make decisions about urban built form and how it is used, it is critical for us to recognize the urban safety issues and consider the unique safety concerns of various groups in the society, especially those who are the most vulnerable to violence, such as public housing residents. By engaging local community members in the planning process to actively search for solutions to make changes in their microenvironment of daily life, it is possible to build safer and more sustainable public housing communities.

1.2. Research Objective

Public housing projects are subsidized housing units that are owned, built, and operated by local or central government authorities to provide affordable rental housing for those who are in need. Public housing tenants usually include low-income singles or families, seniors, persons with disabilities, lone-parents, new immigrants, Aboriginal people, and victims of domestic violence (CMHC, 2011). Public housing projects come in different sizes and types, ranging from scattered single-family houses to high-rise apartments.

The objective of this research is to identify and examine the potential impact of physical design features on the perception of safety in a public housing neighbourhood and determine how the perception of safety can be improved by modifying these design features. The evaluation is based on a set of criteria established in the Metropolitan Action Committee on Violence Against Women and Children's (METRAC's) Community Safety Audit (CSA) tool and safety design guidelines, particularly *A Working Guide for Planning and Designing Safer Urban Environments* produced by the City of Toronto (Wekerle, 1992). Three main questions to guide this research are:

1. What are the similarities and differences in terms of the evaluation criteria established in METRAC's CSA tool and the City of Toronto's safety design guideline? How can they be combined or referenced in a way to become more applicable to public housing neighbourhoods?
2. What are the design features increasing or hindering the perception of safety in Chester Le? How can they be improved based on the evaluation criteria?

3. To what extent has Toronto Community Housing (TCHC) incorporated safety concerns into their management policy, if at all? How can their policy be expanded to better address the community safety issues on their properties?

1.3. Scope of Research

This study identifies and examines the potential impact of physical design features on the perception of safety in public housing neighbourhoods by using one of TCHC's properties, the Chester Le Community, as a case study. Chester Le is located in L'Amoreaux neighbourhood in northeast Toronto and consists of 210 single-family townhouse units that are distributed at three locations in the neighbourhood. The study uses the evaluation criteria established in the METRAC's CSA tool and the City of Toronto's safety design guideline to provide specific recommendations to improve the community safety around the public housing areas in Chester Le, and make informed policy recommendations for TCHC to better address community safety issues in general.

1.4. Relevance of the Study

Crime and fear of crime is often one of the most serious issues confronting public housing tenants because the tenant population is usually composed of groups of people who have traditionally been found to be more vulnerable to violence and have greater fear of criminal victimization (METRAC, 2013b). This is why it is important to undertake this research project: in order to plan and design for a safer public housing community by incorporating the unique safety concerns of the local tenants into the planning process. This objective provides the foundation for the safety audit process, which is led by the local public housing tenants who are being affected the most by their

surrounding environment. The safety audit allows local community members to evaluate specific schemes and highlight missing features based on a standard set of criteria, and empowers them to provide valuable information to the authorities and the planning process for making potential improvements.

The public housing tenants in Chester Le will benefit from this research by giving an opportunity to identify the safety issues and problems in their neighbourhood in a systematic way. Participants are organized into groups to make observations of the surrounding built environment of their daily lives through a walking tour, and to propose changes that will enhance their perception of safety. Local community members are treated as ‘experts’ in identifying and finding solutions to the problems of their community this way. As a result, this research promotes the awareness and better understanding of community safety issues to the local residents in Chester Le, as well as to TCHC. More importantly, recommendations that are made based on the safety audit findings in this research report will hopefully lead to potential improvements to the built environment around the public housing areas in Chester Le, and get extended to other similar public housing neighbourhoods if applicable. The policy recommendations will inform the local housing authority to better address the community safety issues at a general level.

1.5. Precedents

The methods informing this research are drawn from two previous Master’s reports from Queen’s School of Urban and Regional Planning. 1) *Creating a Safe and Vibrant Downtown Guelph: Determining Elements of the Built Environment that will Enhance Women’s Feelings of Safety* (2012) by Tara Spears, and 2) *Getting Safety on*

Track: Expanding Edmonton's LRT Design Guidelines to Improve Women's Perceptions of Safety at Transit Stations (2013) by Radhika Brown. Both Tara and Radhika completed literature review on CPTED theory and principles and document review of METRAC's CSA tool and relevant government documents. Tara recruited five female participants for five individual safety audit, and interviewed a few planning professionals from the City of Guelph. Radhika conducted the safety audit by herself through direct observation and photography. My research methods are mainly based on literature and document review, safety audit by users, interview with TCHC staff, as well as direct observation and photography.

1.6. Report Outline

This report is organized into five chapters. Chapter 1 introduces the topic, objectives, relevance, and context of the research study. Chapter 2 provides a theoretical framework and justification for the significance of this research by reviewing literature sources on the links between the characteristics of the built environment, fear of crime, and community safety. Chapter 3 illustrates the methods used to collect the data and address the research questions, including literature and document review, community safety audit, and interview with TCHC professionals. Chapter 4 presents the findings, along with analysis, from conducting the group community safety audit in Chester Le. Finally, Chapter 5 outlines the recommendations for improving the built environment in Chester Le and for better addressing community safety issues across similar public housing neighbourhoods at a general level, and concludes with potential areas for further research.

2. BACKGROUND AND CASE DESCRIPTION

2.1. Introduction

This chapter provides some background information on the topic of crime prevention through environmental design based on a literature review. The purpose of this chapter is to provide a theoretical framework and justification for the significance of the research by reviewing literature sources on the links between the characteristics of the built environment, fear of crime, and community safety. This chapter is divided into four sections: crime, fear of crime, and community safety; CPTED as a planning solution; crime in public housing environments; and finally Chester Le as a case study.

2.2. Crime, Fear of Crime, and Community Safety

Urban crime and increasing fear of crime are situated within a culture of violence in the 1990's (Wekerle & Whitzman, 1995). Crime not only threatens the personal safety of local residents in a community, but also contributes to the physical and economic deterioration of neighbourhood spaces. Fear of crime, on the other hand, prevents inhabitants from actively experiencing pleasant day-to-day lives in a community (Saraiva & Pinho, 2011). In fact, studies show that there is a positive correlation between fear of crime and the actual crime risk (Wilcox et al., 2003). Perception of safety affects how people use and navigate through public spaces. Lower perception of safety encourages people to not go out, destroys the liveliness of public spaces, and affects the overall quality of life in a community.

Community safety can be defined in multiple ways. Based on the World Health Organization Collaborating Centre for Community Safety, community safety

encompasses all injury prevention, including intentional injuries such as violence, crime, and suicide, as well as unintentional injuries, such as fire, natural disasters, and traffic and other accidents (Whitzman, 2008, p. 11). Other definitions narrow the scope of community safety strictly to the prevention of crime and insecurity, excluding the unintentional injuries (Whitzman, 2008, p. 11). According to METRAC's definition, community safety means "freedom from the threat, fear, and experience of all kinds of violence, oppression, and discrimination" (METRAC, 2013a). For the purpose of this research, community safety is defined as a positive outcome of crime prevention in a neighbourhood. Planning can contribute to crime prevention, reduce fear of crime, and improve community safety through a mixture of improved design and community development initiatives (Wekerle & Whitzman, 1995).

2.3. CPTED as A Planning Solution

We all know that crime prevention can be achieved through the reinforcement of police patrol and target-hardening measures, such as locks, alarms, CCTV, etc. Few are aware that different design features of the built environment also convey signals influencing one's perception of safety. Since 1960s, several planners and architects have recognized and studied the relationship between public violence, fear of crime, and the urban built environment, most notably Jane Jacobs's 'eyes on the street' concept, Oscar Newman's 'defensible space' theory, and C. Ray Jeffrey's CPTED model. The physical structure-based approach to crime prevention and management of urban spaces, Crime Prevention through Environmental Design (CPTED), is a response to the increasing level of fear of crime and urban violence, and has become prevalent in the planning profession in recent years. Although it was Jeffery who originally coined the term CPTED, however,

Jeffery's model was more of a multi-disciplinary approach to crime prevention that incorporated biology and psychology, whereas Newman's model was strictly focused on the physical aspects (Lens, 2013).

Jane Jacobs' ground-breaking book, *The Death and Life of Great American Cities*, introduced many innovative planning issues against Modernist urban renewal ideals and offered urban planning solutions to crime control for the first time. In the book, Jacobs listed three attributes that are needed to make a city street safe: a clear demarcation of public and private spaces; the role of residents as policing agents – ‘eyes on the street’; and finally streets and green spaces that are able to generate continuous movement of people (Jacobs, 1984). Jacobs put emphasis on two concepts that she unequivocally stated were crucial to explain urban crime rates: the attitude of residents towards control in areas considered to be their own and the visibility through presence (Mawby, 1977).

Along similar lines, Oscar Newman's ‘defensible space’ perhaps is the most influential theory connecting crime level and physical environment. Much of his theory was developed as a direct result of his researches that were focused on public housing projects. Newman coined the expression ‘defensible space’ in early 1970's as strongly defined areas of influence that allow inhabitants themselves to become key agents in ensuring their security (Newman, 1973). In his book, *Defensible Space: Crime Prevention Through Urban Design*, Newman listed four design elements contributing to the creation of a defensible space. The first element is *Territoriality*, which is the area of influence where inhabitants become voluntarily responsible for the maintenance and safety of the space as if it were their own. The second element is *Natural Surveillance*, which refers to the capacity of physical design to provide opportunities for inhabitants to

naturally survey the exterior and interior public areas of their living environment. The third element is *Image*, which refers to a mechanism that neutralizes the stigma of peculiarity associated with certain forms of housing and reduces suggestion of vulnerability and isolation. The fourth element is *Environment*, which is the geographic juxtaposition of residential developments with compatible urban activities and land uses, away from areas that provide continued threats (Newman, 1973). *Natural Access Control* has emerged as another key element of CPTED, which deters criminals' access to potential targets and creates a perception of risk to the offenders through the placement of physical design features (CPTED Ontario, 2002).

Newman had experimented his theory with a number of public housing developments in the United States. As an example, the following picture shows Clason Point Gardens before and after a series of physical modifications, which is a two-story public housing row-house development in the Bronx, New York City. As shown on the picture to the left, the original layout provided no private grounds in front of individual house units. In the site redesign shown on the picture to the right, the central green area was removed and residents were given their own front yards (Newman, 1996, p.76). The idea was to divide up and assign the previously public grounds to individual residents and made the residents adopting these areas as their own and assuming responsibility for maintaining and securing them. In combination with other modifications, crimes in Clason Point Gardens were down to one-third of the previous year's level and measures of tenant satisfaction improved significantly in terms of reduced fear of crime and better evaluation of the quality of their living environment (Newman, 1973, p. 174).



Figure 2.1: Before and after photographs of an area of Clason Point Gardens (Source: Newman, 1996).

Although Newman's theory was derived from research projects, whereas Jacobs' ideas were based more on direct observations and personal experiences, their ideas aligned with one another in several ways. First of all, they both encouraged the creation of easily observable spaces that are clearly marked as public or private. Secondly, both of them emphasized inhabitants' role as natural policing agents and their proprietorship attitude towards nearby public spaces. Thirdly, they both believed that planning and design could increase surveillance opportunities for inhabitants to the surrounding areas and facilitate the informal social control of the physical environment.

Although Newman's defensible space theory has been controversial and criticized for the limitations associated with his research methods and for overlooking the socioeconomic aspects of crime prevention, his ideas have provided foundations for many research studies. Newman's defensible space theory has been tested, changed and evolved over time, and get incorporated into programs such as America's "Crime Prevention Through Environmental Design" and Australia's "Design Out Crime", where specific design guidelines are provided based on Newman's theory in creating safer communities (Saraiva & Pinho, 2011).

2.4. Crime in Public Housing Environments

Since the mid-twentieth century, public housing projects have become conflated with a variety of social ills, including serious crimes, because these developments were frequently sited in undesirable areas that offered few amenities and contained high proportions of low-income population (Lens, 2013). In recognition of that certain groups in a society are more vulnerable to violence than others, such as women, children, seniors, people with disabilities, and other marginalized groups, we need to incorporate their unique needs into safety-enhancing plans and policies (METRAC, 2013b). Fear is expected to be more pronounced in public housing projects because they tend to be disproportionately inhabited by these groups of people that have traditionally been found to have the greatest fear of criminal victimization (METRAC, 2013b). Elevated levels of fear tend to produce a variety of negative effects that would further exacerbate the problems in public housing neighbourhoods. As a result, fear of crime, intertwined with crime itself, is generally cited as one of the most serious issues confronting public housing tenants (METRAC, 2013b).

Newman's early work concluded that building size and type were the key physical attributes in account for varying levels of both crime and fear of crime across public housing developments as they had an influence on residents' ability to exert control over surrounding spaces (Davies, 2006). The investigation of the relationship between building height and crime began with the basic hypothesis that a positive correlation exists between the two, that is, as building height increases, so does crime (Newman, 1973, p. 27). The reason behind the argument was that high building blocks with large number of apartment units and people using a single lobby and elevators contribute to a

sense of anonymity (Newman, 1973, p. 27). The more people are segregated at different levels, the less they interact, and the more anonymous the building becomes (Coleman, 1990, p. 32). As a result, there has been a tendency of research towards prejudicial selection bias favouring the examination of very large high-rise public housing projects (Davies, 2006, p. 10). However, the most predominant form of public housing architecture in North America is not high rises, and few projects are composed solely of this building type. In fact, close to half of the public housing developments in United States are comprised of row houses, low-rise apartments, and single-family dwellings that are indistinguishable from the surrounding homes (Davies, 2006, p. 10). As for TCHC, about 40% of its portfolio consist solely or a combination of townhouses, walkups and/or houses (TCHC, personal communication, March 18, 2014). Therefore, it is desirable to shift the research focus from high-rise apartments to smaller developments of different housing prototypes to further examine the safety issues in public housing communities.

2.5. Chester Le as A Case Study

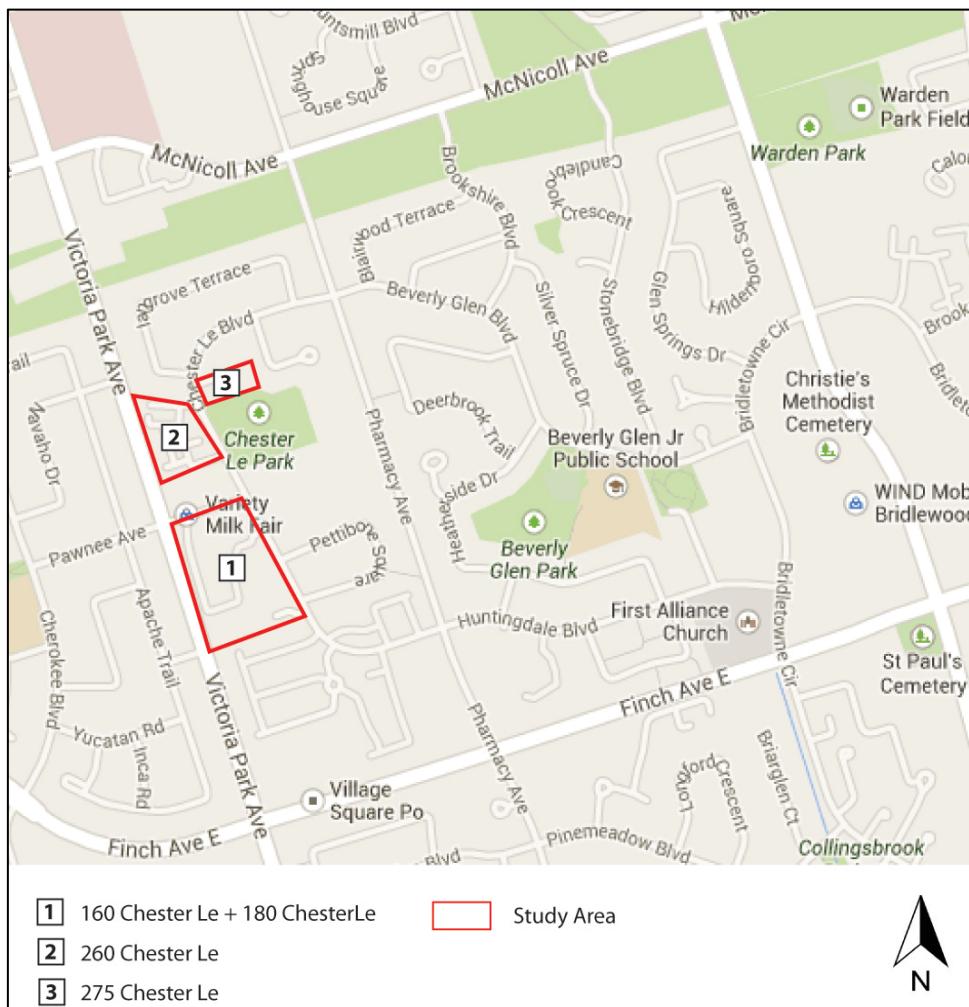
Chester Le, the case study chosen for this research project, is one of TCHC's public housing properties located in the L'Amoreaux neighbourhood in the northeast part of Toronto, bounded by McNicoll Avenue to the north, Pharmacy Avenue to the east, Finch Avenue to the south, and Victoria Park Avenue the west (Map 2.1). The public housing community was built in 1973 and consists of 210 single-family townhouse units with a total of 968 residents (TCHC, personal communication, February 11, 2014). These townhouse units are distributed at three locations in the neighbourhood within walkable distances to one another. The largest cluster of the public housing consists of 160 Chester Le and 180 Chester Le, which totals of about 130 units. The smaller cluster is located at

260 Chester Le, which is immediately to the north of the larger one and consists of about 70 units. The smallest cluster across the street, 275 Chester Le, consists of only about 10 units. Map 2.2 shows a detailed site plan of the public housing development in Chester Le, including the distribution the townhouse units and the locations of major features in and surrounding the community. Tenant population in Chester Le is composed largely of youths and children with 67% of the tenants are under the age of 24 (TCHC, personal communication, February 11, 2014).

The rationale for choosing Chester Le as a case study is that it is situated in Steeles L'Amoreaux, one of the thirteen Priority Areas designated by the City of Toronto, and is often troubled by safety related incidents. A Priority Area is consisted and defined by neighbourhoods that have poor coverage and higher need for community services and facilities (City of Toronto, 2005). According to a ranking from Toronto Life, L'Amoreaux neighbourhood was ranked 104 out of the 140 neighbourhoods in Toronto in terms of crime and safety with the top neighbourhood considered to be the safest neighbourhood (Toronto Life, 2013). According to TCHC's crime report, there are a total of 45 crimes being reported in Chester Le from 2010 to 2014. Majority of the incidents are crimes against properties, following by a few incidents related to discharge of firearms and assaults (TCHC, personal communication, March 13, 2014). In addition, Chester Le was ranked 38 out of the 239 communities in terms of the number of crimes being reported in 2012 with the first place community reported the most number of crimes in the year. Although the crime statistics in Chester Le seemed to be improved over the past few years, however, a comprehensive audit of the built environment could be helpful to identify potential safety concerns and improve the perception of safety in

the area from an environmental design perspective. Another reason for choosing Chester Le is that the community is consisted of townhouses (Figure 2.2). As many previous studies have been focused on safety issues in public housing communities with high-rise apartments, this research project has become unique with its focus on the townhouse prototype. The safety audit evaluation criteria developed from this research will be especially useful for assessing the built environment in similar type public housing neighbourhoods in the city.

Map 2.1: Location Map of the Study Area



Map 2.2: Site Plan of the Study Area





Figure 2.2: Townhouse units in Chester Le. (Photo by Ivy Qi)

3. RESEARCH METHODS

3.1. Introduction

A qualitative research approach was chosen to examine the relationship between the perception of safety and the built environment in Chester Le. This chapter outlines the methods used to collect the data and address the research questions, including literature and document review, community safety audit, and interview with TCHC professionals. A modified version of METRAC's Community Safety Audit (CSA) survey was used as the primary method of data collection. In addition, strengths and limitations of the chosen research methods were discussed in relation to validity, reliability, and generalizability at the end of the chapter.

3.2. Literature and Document Review

A literature review on CPTED theory and community safety in public housing environments was conducted over the summer to establish a better understanding of the topic, as well as to provide a theoretical framework and justification for the significance of this research study. The literature review highlighted the works of Oscar Newman and Alice Coleman on the relationship between the built environment and crime prevention; the work of Dr. Gerda R. Wekerle and Dr. Carolyn Whitzman on the planning and design aspects for making safer cities; and finally the work of Garth Davies on the nature of crimes in public housing communities. The literature review provided context for this research and informed recommendations for potential improvements to enhance the community safety in Chester Le.

In addition to the literature review, a document review was conducted to examine and compare the evaluation criteria established in the METRAC's CSA tool and the City of Toronto's *A Working Guide for Planning and Designing Safer Urban Environments*. METRAC'S CSA tool is an action tool to help people assessing the safety of spaces they use, identifying violence and safety concerns, discussing solutions, and developing an action plan to prevent violence based on the perspectives of local residents in a neighbourhood (METRAC, 2013a). The safety design guideline from the City of Toronto was created to aid the planning and design professionals in Toronto to integrate safety concerns in their work for building safer communities in the city (Wekerle, 1992). Safety audits are intended to gauge the feelings of people pertaining to safety while safety design guidelines focus more on the physical design aspects of safety. The purpose of comparing and referencing the two sources of evaluation criteria was to develop a safety audit guide that integrates both subjective and objective aspects of safety assessment to become more suitable for the purpose of this research.

The safety audit guide used to assess the built environment in Chester Le consisted of seven evaluation criteria, including signs and maps, lighting, sightlines, isolation, maintenance, nearby land use, and entrapment sites and escape routes. In combination, these criteria addressed the five CPTED principles, which respectively are territoriality, natural surveillance, image, environment, and natural access control. The following section provides a brief description and specific measurements associate with each of the evaluation criteria. The actual safety audit survey used for the research can be found in Appendix A.

3.3. Safety Audit Criteria

Territoriality

- *Signs and Maps.* Adequate signage in terms of both quality and quantity is important to orient the space users and contribute to a sense of security. Good signage informs people where they are and the available resources in the surrounding areas (Wekerle & Whitzman, 1995, p. 55).

Natural Surveillance

- *Lighting.* Good lighting increases people's visibility to the surrounding area, encourages people to use public spaces more often, provides better opportunities for informal and natural surveillance, and consequently diminishes fear of crime and enhances the safety in a neighbourhood (Wekerle & Whitzman, 1995, p. 28).
- *Sightlines.* The ability to see what is ahead and around is critical for feeling and being safe. Barriers that hinder one's visual permeability include sharp corners, walls, tall fences, hills, snow banks, overgrown shrubbery, and vehicles (Wekerle & Whitzman, 1995, p. 32).
- *Isolation.* People feel safe when they know they have access to help when in need, that is, they can be seen and heard when asking for help. Both formal and informal surveillance plays an important role to mitigate a sense of isolation. Police, security personnel, and security cameras provide formal surveillance that helps to deter crime, while 'eyes on the street' from nearby homes and ongoing activities in the public spaces provide informal surveillance (Wekerle & Whitzman, 1995, p. 41).

Image

- *Maintenance.* Good maintenance usually suggests a sense of ownership or territoriality, where community safety increases as the local inhabitants become voluntarily responsible for the nearby spaces as if they were their own. A sense of territorial personalization encourages informal social control and consequently helps to reduce fear of crime in a residential setting (Wekerle & Whitzman, 1995, p. 50).

Environment

- *Nearby Land Uses.* The geographic juxtaposition of residential developments with compatible urban activities and land uses is another important factor influencing people's perception of safety. Generally, land use separation contributes to fear of crime while a good land use mix and smaller development scale enhances community safety (Wekerle & Whitzman, 1995, p. 44).

Natural Access Control

- *Entrapment Sites and Escape Routes*

Entrapment sites refer to small and confined areas that are shielded on three sides by some kind of barriers and hidden from the street view, which usually are areas of special safety concerns (Wekerle & Whitzman, 1995, 33). Examples of outdoor entrapment sites include back allies or lanes, unlocked utility sheds, or construction sites. Escape routes assess whether there are easy ways to escape should there be an incident.

The evaluation criteria and measurements used for assessing the built environment in Chester Le are summarized in the following table.

Table 3.1: Safety Audit Evaluation Criteria and Measurements

SAFETY AUDIT CRITERIA	MEASUREMENTS	LITERATURE SOURCES
Territoriality		
Signs and Maps	<ul style="list-style-type: none"> Identification signs (street names, building names and numbers) Directional signs and maps Emergency assistance signage Sign locations 	Sousa, 2013 Wekerle, 1992 Wekerle & Whitzman, 1995
Natural Surveillance		
Lighting	<ul style="list-style-type: none"> Brightness Location Consistency Obstruction Upkeep and maintenance 	Hervert & Davison, 1994 Wekerle & Whitzman, 1995
Sightlines	<ul style="list-style-type: none"> Clear sightlines Barriers 	Coleman, 1990 Wekerle & Whitzman, 1995
Isolation	<ul style="list-style-type: none"> Frequency of area patrol Surveillance system (security cameras) Emergency services (telephone, intercom) Number of users in the community spaces at different times of a day 	Wekerle & Whitzman, 1995
Image		
Maintenance	<ul style="list-style-type: none"> Presence of litter Presence of vandalism Need of major repairs Sense of care Contact information to report maintenance concerns 	Coleman, 1990 Kuo & Sullivan, 2001 Newman, 1972
Environment		
Nearby Land Use	<ul style="list-style-type: none"> Surrounding land uses Ease of identifying ownership Changing land uses 	Newman, 1972 Wekerle & Whitzman, 1995 Wilcox, Quisenberry & Jones, 2003
Natural Access Control		
Entrapment Sites and Escape Routes	<ul style="list-style-type: none"> Storage areas Dead-end alleys Construction sites 	Coleman, 1990 Wekerle & Whitzman, 1995

3.4. Community Safety Audit

A group safety audit was conducted with five local residents in Chester Le, led by the researcher, using the safety audit survey produced from the document review. The goals of conducting a group safety audit was to engage the local residents from Chester Le in the process of assessing their surrounding built environment and identifying any safety concerns associated with the physical design features in the neighbourhood. To recruit the safety audit participants, contact were made with the coordinator at the Chester Le Community Corner to spread the word about this project to the local community groups, such as the Women in Action group. In addition, flyers were posted at the community centre to advertise the research project (Appendix C).

The timeframe of the safety audit was 2-3 hours, with the first half-hour to one hour to brief the participants about the location, size, routes, and the safety audit questions, following by one hour to conduct the safety audit, and finally another half-an-hour to discuss the findings after the safety audit was completed. In compliance to the ethics conduct, each of the participants was provided with the Letter of Information and Consent Form at the commencing of the safety audit (Appendix D). The safety audit was mainly carried out through direct observations. Photographs were taken by the researcher to supplement the findings from the safety audit.

3.5. Interview with TCHC professionals

An interview with one community safety advisor from the Community Safety Unit of TCHC was conducted to discuss the safety audit findings, and get informed about their perspectives on the topic, as well as the efforts have been made by TCHC towards addressing the safety issues on their properties. To recruit the interview participants, the

researcher attended the CPTED Ontario 2013 Conference at York University on October 30 and October 31, 2013, through which the researcher was able to talk to a few safety specialists from TCHC who attended the event as well. In addition, contact had been made with the Strategic Planning & Stakeholder Relations of TCHC to request an interview with the community safety advisor who has specific knowledge about Chester Le. The contact was then followed up with an email invitation for interview.

3.6. Strengths and Limitations

The research methods used in this study had several strengths, but were also subjected to some limitations. First of all, the study had developed a converging line of inquiry by drawing information from multiple sources (literature, safety design guidelines, METRAC's CSA tool, local residents, and TCHC professionals) using multiple methods (literature and document review, community safety audit, direct observation, photography, and interviews). The data triangulation addressed construct validity of the research and helped to mitigate the researcher bias. Secondly, the METRAC's CSA tool had been refined and used in cities around the world for the past 25 years, and it was named a best practice by United Nation's Habitat Program under Safer Cities Campaign from 2008-2013 (METRAC, 2013a). By cross referencing the CSA tool with the City of Toronto's safety design guideline, the safety audit guide used in this study provided a credible framework to compile and evaluate the data, contributing to the external validity of the research. Acknowledging that every public housing neighbourhood is unique, although the safety audit guide developed for this study can be adapted to similar public housing communities, the findings of this study might only be generalizable at a policy level.

Conspicuously absent from this research was a consideration of social factors contributing to crime prevention as the research focus was solely on the physical aspect. Moreover, the scope of this study was limited to public housing communities with the townhouse built form and focused primarily on exterior spaces. However, this limitation in turn helped to justify the evaluation criteria used, as well as the significance of this particular research as similar studies of public housing communities were usually focused on the Modernist high-rise apartments. Another limitation of this research was that the safety design guideline being used as a reference, *A Working Guide for Planning and Designing Safer Urban Environments*, from the City of Toronto, was produced in 1992. The information might be out-dated and not as relevant to practices nowadays. The study could have further benefitted from key formant interviews with planning professionals from the City of Toronto to validate the relevance of the city's safety design guideline. A final limitation of this research was that the community safety audit was conducted only once. In fact, the safety audit findings could potentially vary if it was done at a different time of the day, a different day of a week, or a different time of the year. Multiple safety audits were recommended to encompass the potential variations. It is important to acknowledge these limitations associated with this research study to highlight the potential for future research in the area.

4. FINDINGS AND ANALYSIS

4.1. Introduction

The purpose of this chapter is to present the findings, along with analysis, from conducting the group community safety audit in Chester Le. The safety audit survey responses were compiled and organized into sections based on the evaluation criteria established in Chapter 3, which respectively are signs and maps, lighting, sightlines, isolation, maintenance, nearby land uses, and entrapment sites and escape routes (See Appendix B). The analysis was informed by the literature and document review, direct observation, photography, safety audit discussions, and interviews.

4.2. Signs and Maps

Knowing where one is and being able to navigate around contributes to one's perception of safety (Wekerle & Whitzman, 1995, p. 55). Signs help to establish a sense of place, reduce anonymity, and demarcate public spaces from private spaces. Maps, on the other hand, help to visually orient people's way around a neighbourhood. Together, adequate signs and maps would help to increase the legibility of neighbourhood spaces and ultimately add to a feeling of security (Wekerle, 1992)

There was a variety of signage found in Chester Le, including street address signs, building number signs, directional signs, as well as informational signs. Nevertheless, participants felt there were not enough signs to identify the different building clusters and define the entrances and exits from the major streets. Although the existing signs were perceived as easy to read and understand, the locations of these signs, particularly the street address signs, were not ideal as they were hard to find and see from a distance,

which made it difficult for people who were not familiar with the area to find their way around. Participants strongly suggested that street address signs should be placed or added at each of the entrances and exits at all three locations of the public housing in Chester Le to facilitate way finding (Figure 4.1). These entrances and exits were indicated on Map 2.2 in Chapter 2. It was mentioned that a sizable name sign, “Chester Le Community” was put up at the corner of Victoria Park Avenue and Morecambe Gate in 2009 as part of TCHC’s effort to improve the built environment in the neighbourhood. The sign helped to identify Chester Le community to the passers-by on Victoria Park Avenue and facilitated their way finding. The sign also enhanced a sense of community among local residents.



Figure 4.1: Entrances where participants suggested to add street address signs (Photo by Ivy Qi)

Despite the variety of signage present in Chester Le, there was no wayfinding signage or maps in the neighbourhood, though they were considered to be helpful given that the townhouse units in Chester Le did not have individual street addresses. It is evident that wayfinding signage and maps are both used in private townhouse developments with directional signs are more commonly seen than maps in more recent developments. Most of the developments employed one of the two options for

wayfinding, while a few employed both directional signs and maps (Figure 4.2). Literature spoke to the importance of incorporating wayfinding tools to orient people's way around in a neighbourhood, however, it did not specifically address if one tool is better than the other (Wekerle & Whitzman, 1995). Although directional signs are considered to be more cost-efficient, further research is required to evaluate these different wayfinding tools and conclude which one is more suitable for public housing developments that are similar to Chester Le.



Figure 4.2: Examples of private townhouse developments using wayfinding signage and map. Left: Greenbelt Village, Toronto. Right: Rothwell Ridge, Ottawa (Photo by Google Streetview)

Moreover, most of the informational signs found in Chester Le was restrictive in nature, and related to parking restrictions or garbage distribution, such as “Authorized Parking Only”, “NO DUMPING, Trespassers will be prosecuted”, or “No loitering or consumption of alcohol, playing cards, dice or dominos in the common area” (Figure 4.3). There were also a few signs placed at a number of locations in the neighbourhood indicated that CCTV was available in the area and people should call 911 for help in case of emergency assistance was needed (Figure 4.4). While these signs were necessary and

helpful to protect TCHC's properties from being violated by the outsiders, the messages being delivered could sound more positive. For example, rather than saying trespassers will be prosecuted, it could say that the garbage dumpsters are only intended to be used by the TCHC tenants.



Figure 4.3: Examples of restrictive signage in Chester Le (Photo by Ivy Qi)



Figure 4.4: Examples of clear signage in Chester Le (Photo by Ivy Qi)

Some of the issues raised by the community safety advisor during the interview regarding to signage included stigmatization and standardization of signs across TCHC communities. As we know, public housing developments were stigmatized for their physical appearance and the social characteristics of their tenant population. It was pointed out that some tenants tended to resist of having TCHC's name and logo on the signs in their communities because they wanted to avoid the social stigma attached to the

public housing developments. In addition, as TCHC had changed their logos over the years, the signs were not consistent across different communities. Standardized signs would help to deliver a stronger sense of authority and avoid confusion among the public. Therefore, it was recommended for TCHC to standardize its signage if funding is available. The issue of stigmatization was more complicated and would take longer and more efforts to be resolved. The stigma associated with public housing was essentially resulted from the failure to provide the tenants a meaningful degree of ownership of, responsibility for, and control over the place in which they are living, which was rooted in the power inequality in the society (Sousa, 2013). Only by engaging the public housing tenants in the management and decision-making process, the stigma would eventually diminish and we would be able to create safer, healthier, and more integrated public housing communities (Sousa, 2013).

4.3. Lighting

Lighting is a critical design feature that helps to increase people's visibility to their surrounding environment and contributes to a sense of security, particularly during night times (Wekerle & Whitzman, 1995, p. 28). Street lighting has been found to correlate with an area's vulnerability to crime. In a comparative study of two cities, there were clear indicators that improved street lighting diminished fear of crime amongst residents and increased the level of community safety in the two study areas, brought real and recognizable gains to the communities (Hervert & Davison, 1994).

In general, participants felt that there was insufficient level of lighting in Chester Le both in qualitative and quantitative terms. Participants indicated that they were unable to identify a face 25 metres away when it was dark, which could be improved through either an increase in illumination level or the number of lighting fixtures. In addition, lighting was found to be inconsistent throughout the neighbourhood spaces with certain areas needed special attention, such as alleyways in between two rows of the townhouses that were faced back to back and the playground area. The parking lots and the garbage dumping areas were generally well lit (Figure 4.5). The inconsistency of lighting also can be attributed to the different types of lights present in Chester Le. In general, areas that were covered by LED lights were better lit than the areas covered by the traditional lights; nonetheless, the former type was less common to see in the neighbourhood. It was recommended that LED lights should be added to well-used community spaces, such as around the playground area.



Figure 4.5: Areas that are well lit in Chester Le, including parking lots and garbage dumping areas as shown in the pictures to the right. The picture to the left shows one of the effective LED lights in the neighbourhood (Photo by Ivy Qi)

During the safety audit, it was noted that some lights in Chester Le were blocked by overgrown trees along the sidewalks and shrubbery in the backyards, decreased the overall visibility in the neighbourhood. In addition, according to the community safety advisor, the lights in Chester Le had been prone to vandalism in the past years. However, there were only a few broken lights identified from the safety audit. There was one located beside a sidewalk, and a couple around the playground area (Figure 4.6). Most participants knew where to report the broken lights in the community, which was to the superintendent's office situated in one of the townhouse units. However, participants were not sure where to report the broken lights found along the streets, which should be to the City of Toronto.



Figure 4.6: Areas that are not as well lit in Chester Le, including the playground area as shown in the picture to the left and where broken lights are found as shown in the picture to the right. (Photo by Ivy Qi)

As part of the effort to increase the level of lighting and enhance community safety, TCHC had partnered with Toronto Hydro, Toronto Community Crisis Response Program, and Toronto Police Services to implement a community outreach program, known as the Brighter Nights Program, in at-risk neighbourhoods in the city, including Chester Le (Toronto Hydro, 2013). The Brighter Nights Program aimed to make the neighbourhoods safer by installing porch lights with compact fluorescent light bulbs

(CFLs) and encouraging residents to leave them on overnight. These energy-efficient porch lights were installed at Chester Le in the summer of 2013, where local residents in Chester Le participated in the process as well. Although residents were encouraged to leave their new porch lights on between 9 p.m. and 7 a.m., some tenants failed to do so (Figure 4.7). It was estimated that about 20% of the units did not turn on their porch lights on the day of the audit. It might be helpful to promote the awareness among the tenants regarding to the importance of turning on their porch lights as a way to enhance the community safety.



Figure 4.7: Turned-off porch lights for some units in Chester Le (Photo by Ivy Qi)

4.4. Sightlines

Clear sightlines are an essential ingredient of a safe residential space. Inhabitants feel safer and more in control of their territory if they command a clear view of the approaches to it (Coleman, 1990, p. 15). In addition, visual permeability affects one's ability to make reasonable choice of routes (Wekerle & Whitzman, 1995, p. 32). Creating

spaces and pathways with good sightlines means that users are able to see the end of the pathways on one hand, and they are made visible to others for assistance on the other hand (Wekerle & Whitzman, 1995, p. 32).

Participants reported that the lack of clear sightlines in Chester Le was mainly attributed to sharp corners, high fences, untrimmed bushes, and parked vehicles. Specifically, fences in some of the backyards were very high, completely blocking the view from the housing units to the back alleyways. In fact, these fences that varied in height and type were added to the lower wired fences by the tenants over the time for privacy concerns. Although these self-built fences helped to better define private spaces and increase a sense of ownership of individual households in Chester Le, they also reduced sightlines greatly in the neighbourhood. TCHC had made efforts to tell the tenants to take down the fences by sending them notices, however, the measure was not very effective as the self-built fences continued to exist on the site. In addition, grade separation aggravated the situation with some housing units were being raised above the grade level. The high fences added to the backyards of the raised housing units made the sightlines even worse in the neighbourhood (Figure 4.8).

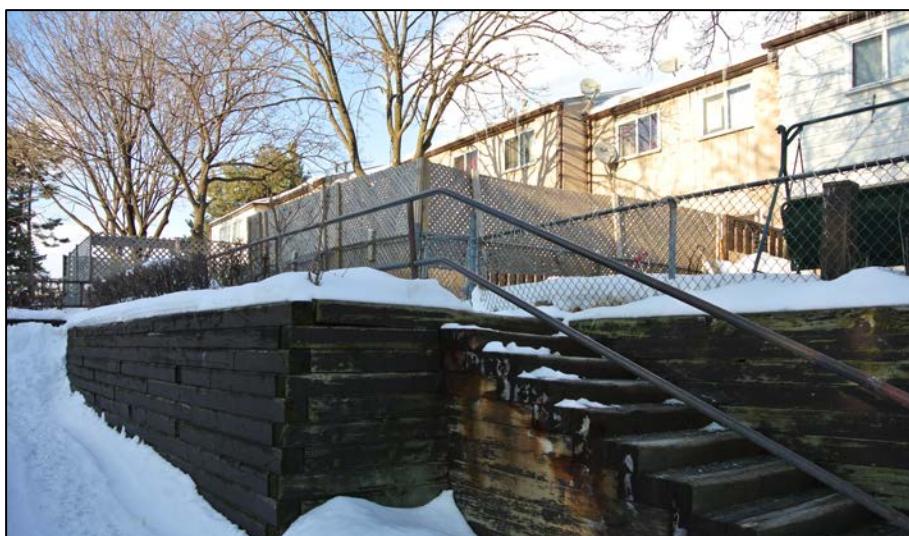


Figure 4.8: Grade separation with self-built high fences together increased privacy but reduced sightlines in Chester Le. (Photo by Ivy Qi)

Another major factor impeded the sightlines in Chester Le was the overgrown vegetation. Particularly, overgrown shrubbery in the backyards was very common (Figure 4.9). Some of the trees were extended over the backyard fences to the alleyways, contributing to the obstructed sightlines, especially in the summertime. The high fences and the overgrown vegetation together had made it difficult to see what was on the other end of a path in some areas in the neighbourhood. When asked of what could be done to improve the sightlines in Chester Le, participants suggested of adding security mirrors, trimming the trees in the summer, and clearing the snow in the winter as potential measures.



Figure 4.9: Overgrown vegetation in the backyards. (Photo by Ivy Qi)

Chester Le was bounded by an arterial street, Victoria Park Avenue, to the west, with a row of townhouses had their backyards facing the street and separated from the street by a series of walls (Figure 4.10). Only pedestrians were able to access the neighbourhood from Victoria Park Avenue through a few openings. These walls blocked

the view of the residents to the traffic and pedestrian flows on Victoria Park Avenue and reduced the opportunities for natural surveillance from the neighbourhood to the street and the other way around. In addition, the spaces in between the wall and the townhouse units were identified as potential hiding spots for offenders.

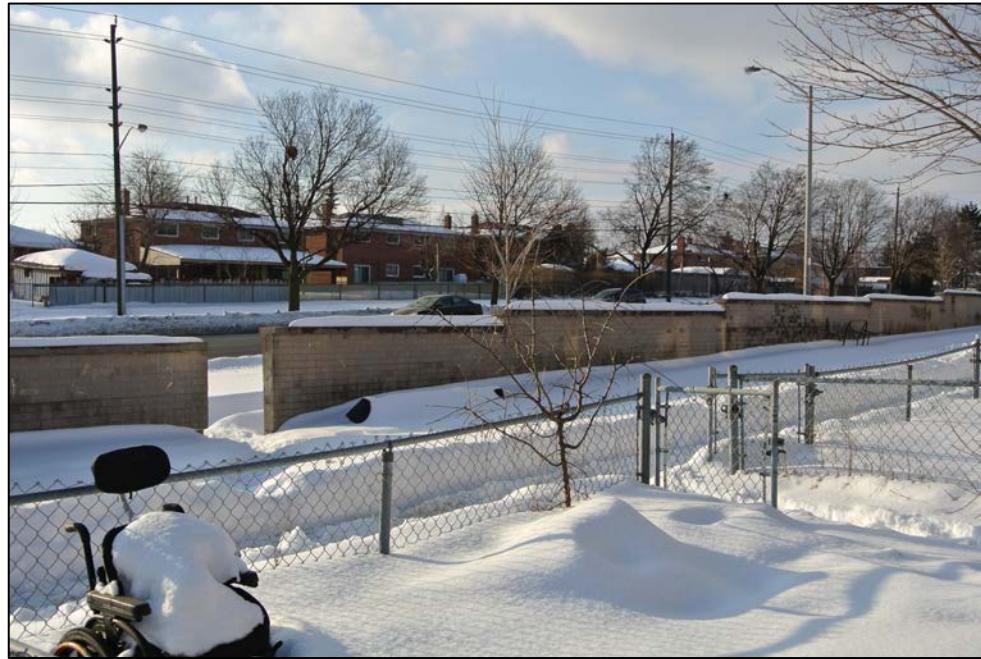


Figure 4.10: Wall separation from the street. (Photo by Ivy Qi)

4.5. Isolation

Being able to know if there are people around to help is another important factor contributing to a sense of security (Wekerle & Whitzman, 1995, p. 41). Feelings of isolation can be influenced by the level of activities in the community spaces that provide opportunities for informal surveillance, as well as by the frequency of human powered surveillance, such as police patrols, and the presence of technical security hardware in a neighbourhood, such as security cameras.

Active and vital urban spaces that were highly-used were often perceived as safe spaces (Wekerle & Whitzman, 1995, p. 46). Activity generators help to increase natural surveillance and reduce isolation by adding ‘eyes’ to the street or community spaces to make the place safer (Wekerle & Whitzman, 1995, p. 46). Participants reported that they did not feel isolated in Chester Le as it was connected to major streets, and surrounded by a mix of land uses that continuously attracted streams of people from in and around the neighbourhood. Participants remarked that more people were present in the community spaces during the day and early evening, while fewer people were seen around in the early morning and late at night. There was a playground area equipped with recreational facilities located in the middle of the bigger public housing cluster, which was reported to be well used by the tenants, especially during the summertime (Map 2.2). In addition, there was an outdoor sitting area in front of the old community centre facing Chester Le Boulevard, which was also used often by the tenants as a gathering place in the summertime (Figure 4.11). We discovered a self-built basketball stand from the audit, which indicated that there was a demand for additional activities being incorporated in the community spaces. These activity generators contributed to a higher intensity use of the community spaces and helped to reduce a feeling of isolation in Chester Le.



Figure 4.11: Well-used community amenities in Chester Le. The locations are marked on Map 2.2
(Photo by Ivy Qi)

Formal surveillance systems were available in Chester Le, including police patrols and CCTV surveillance. According to the community safety advisor, TCHC's special constables and community patrol officers had regularly conducted joint patrols with local police based on the need and the number of incidents in a neighbourhood. Participants in Chester Le reported such patrols happened more often in the summertime than wintertime. Although CCTV program was advertised of being installed throughout the neighbourhood, a visual audit was insufficient to determine whether these security cameras were functioning well or being installed at proper locations, and whether they were monitored frequently. However, based on the interview with the community safety advisor, CCTV had been working very well in Chester Le with the superintendent doing daily checks on the system. It was also pointed out that CCTV had been extremely useful to the police for identifying potential suspects for incidents happened in the neighbourhood.

4.6. Maintenance

Many public housing projects are struggling with stigmatized images that showing little evidence of care, upkeep, and maintenance, and conveying a sense of isolation (Newman, 1973, p. 107). Good maintenance usually suggests a sense of ownership that exerts potent territorial prerogatives and serves as natural and significant deterrents to fear and crime (Newman, 1973, p. 53). In addition, overgrown trees and shrubbery could provide good cover for lurking offenders (Coleman, 1990, p. 16). A recent study examined the relationship between vegetation and crime by comparing the crime rates for 98 apartment buildings with varying levels of nearby vegetation in an inner-city neighbourhood in Chicago. The study revealed that the visibility-preserving

forms of vegetation helped to deter crime and reduce fear of crime by increasing opportunities for informal surveillance and implying a sense of territorial personalization (Kuo & Sullivan, 2001).

Participants generally perceived the maintenance in Chester Le as satisfactory, however, there were room for improvement. Litter was reported as a special concern around the garbage dumping areas, where participants remarked that some private house owners from nearby would dump their household garbage into the dumpsters despite there were signs prohibited them from doing so. In addition, people would just put their garbage on the side, rather than putting it into the dumpsters as the dumpsters were too high for some to reach, especially children. One of the issues associated with centralized garbage dumping was that people tended to be less willing to put their garbage in appropriate places because they had to walk longer distances to do that comparing to individualized garbage collection. Map 2.2 shows the garbage dumping locations in Chester Le. As a result, it was evident that there were garbage bags being placed by the front door and in the backyards at the tenants' convenience in Chester Le (Figure 4.12). Although there were TCHC staff cleaning the garbage dumping areas on weekdays, it was hard to maintain the cleanliness of these areas if there was no real sense of proprietary attitude established towards these public community spaces.



Figure 4.12: Garbage dumping areas that need better maintenance in Chester Le (Photo by Ivy Qi)

Spatial organization and demarcation of public and private spaces could encourage or discourage the control and maintenance by residents depending on the ways that grounds were being arranged (Coleman, 1990, p. 44). In Chester Le, TCHC was responsible for maintaining the front lawns and tenants were responsible for the backyards. The front lawns seemed to be better maintained than the backyards, where overgrown shrubbery and unused household goods, such as bicycles, strollers, and mattresses were commonly seen (Figure 4.13). The backyards were considered to be semi-private spaces that were controlled by a single household yet visible to others. In theory, these semi-private spaces were the best type of buffer zone in a spatial organization of a neighbourhood that had the potential to produce a high probability of a cared-for environment (Coleman, 1990, p. 44). However, it seemed that no real sense of caring was established for most of these spaces in Chester Le despite that the tenants knew it was their responsibility to maintain the backyards.



Figure 4.13: Examples of well-maintained and unmaintained backyard in Chester Le (Photo by Ivy Qi)

Overgrown vegetation was reported as another major concern regarding to maintenance in Chester Le as the overgrown trees tended to block the signs, lights, and sightlines in the neighbourhood (Figure 4.14). The community safety advisor suggested

that tree trimming was one of the most straightforward and effective measures for reducing opportunities for crime, however, regular tree trimming could be costly. In addition, snow removal was identified as another maintenance effort that could get improved in the wintertime. On the day of the audit, snow on the pathways had made it difficult to walk as some pathways were not cleared in time. In addition, there were still broken trees lying on the ground in several parts of the neighbourhood from the ice storm occurred a couple of months ago (Figure 4.15). Graffiti was evident in a few places but were covered by white paint. All the participants knew where to report major repairs, which was to the superintendent's office. However, a common concern was that repairs often took as long as a few months.



Figure 4.14: Overgrown trees blocking the signage in Chester Le (Photo by Ivy Qi)



Figure 4.15: Broken trees lying on the ground from the ice storm (Photo by Ivy Qi)

As an effort to uplift the face of the physical environment in Chester Le, TCHC piloted a Curb Appeal Project in nine public housing communities in Toronto in 2009, and Chester Le was one of them. The project was considered to be a great success by both the tenants and the community safety advisor. Through the Curb Appeal Project, Chester Le received new signage welcoming tenants and visitors to the community, flowerbeds and hanging plants, garbage enclosures, as well as an enlarged community

courtyard (TCHC, 2009). More importantly, local tenants were actively engaged in the process of beautifying their own community by planting the flowerbeds throughout the neighbourhood, which helped them to establish a sense of ownership towards the public community spaces.

4.7. Nearby Land Use

Studies show that subjective perception of community safety also correlates to the surrounding public land uses, such as businesses, parks, playgrounds, and schools (Wilcox et al., 2003). In general, good land use mix not only contributes to economic and social prosperity, but is also an important factor for community safety (Wekerle & Whitzman, 1995, p. 44). If a neighbourhood adjoins urban areas, streets, or paths that are recognized as being safe, the neighbourhood would benefit from the sense of safety as well (Newman, 1973, p. 108). The factors that determine whether a land use is safe include the activity generating capability of the land use and whether the land use is compatible and well connected to the neighbourhood (Newman, 1973, p. 110)

According to Newman, areas that usually being identified as safe are heavily trafficked public streets and arteries combining both intense vehicular and pedestrian movement; commercial retailing area during shopping hours; and institutional areas (Newman, 1973, p. 109). Chester Le was surrounded by a combination of the ‘safe’ land uses as mentioned above within a 500 metre radius, including a commercial plaza that consisted of a number of restaurants and stores, a junior high school, a Catholic school, a community centre, a park, private residential houses, and local streets (Map 4.1). Specific locations of these surrounding amenities and services are shown on Map 2.2 in Chapter 2. Participants were generally satisfied with these surrounding land uses. The commercial

plaza, Morecambe Plaza, was well used by residents in and around the neighbourhood, which attracted a continuous flow of customers during the daytime to the area, increased the opportunities for natural surveillance (Figure 4.16). The Chester Le Park was well defined with two sides bounding schools and their playgrounds, which were Chester Le Junior High School and Epiphany of Our Lord Catholic Academy, one side bounding residential houses, and the other side bounding a local street, Chester Le Boulevard. There was a playground and a community garden, Chester Le Olive's Garden, established in the park as well. The Chester Le Community Corner had been actively providing local residents a variety of programs and services, and was especially popular to be used by the public housing tenants as a social and communal space throughout the year (Figure 4.17).

Map 4. 1: Land Use Map of the Study Area



Figure 4.16: Morecambe Plaza (Photo by Ivy Qi)



Figure 4.17: Chester Le Community Corner
(Photo by Ivy Qi)

All three public housing clusters had their entrances and exits opened to Chester Le Boulevard, a local street cutting through the neighbourhood. One location had a row of housing units facing the street, while the other two locations did not. Although the building complexes were also bounded by Victoria Park Avenue to the west, however, they were separated from the street by walls with their backyards facing the street as discussed in the sightlines section.

4.8. Entrapment Sites and Escape Routes

Entrapment sites refer to small and confined areas in a neighbourhood that are shielded on three sides by some kind of barriers and are adjacent to major pedestrian routes, such as unlocked equipment or utility sheds, dead-end alleyways, and recessed doorways (Wekerle & Whitzman, 1995, p. 33). These sites that are isolated or invisible from the street could become potential sites of committing a crime. Alternative escape routes allow criminals to be more audacious and confident of being able to lose themselves in a network of outlets (Coleman, 1990, p. 16).

Potential entrapment sites being identified in Chester Le from the safety audit were the unlocked garbage dumping areas, the community garden in Chester Le Park, as well as the dead-end spaces found in between the park and the public housing units, where it was fenced off on three sides yet accessible from an alleyway on the fourth side (Figure 4.18). In addition, there were some unused spaces between the townhouse units that had the potential to become entrapment spots. However, they were gated and fenced to prevent them from becoming one (Figure 4.19). One preventative measure to improve these entrapment sites in Chester Le was perhaps to lock the garbage areas and the

community garden after certain time at night. An alternative solution would be to increase the visibility around the entrapment areas through lighting or convex mirrors.



Figure 4.18: Unlocked garbage dumping area and dead-end space to become entrapment sites in Chester Le (Photo by Ivy Qi)



Figure 4.19: Locked and well lit unused spaces in Chester Le as a good example of how to prevent these spaces to become entrapment spots (Photo by Ivy Qi)

People's routes and movements were relatively easy to predict in the two smaller size public housing clusters, but more difficult in the larger public housing cluster because the network of pathways was more complex and offered more route options to pedestrians, which also meant offenders would find it easier to disappear. In fact, participants felt that it was very easy for the offenders to disappear, but rather difficult for themselves to escape to safety in Chester Le, as perhaps because there was no emergency services, such as emergency phones immediately available in the area.

4.9. Safety Audit Summary

In general, participants felt safe in Chester Le, but not as safe when used the neighbourhood spaces alone or after dark. Four out of the five participants indicated that they needed to change their routine, activities, or avoided certain places in the neighbourhood at some point during their residency at Chester Le because they did not feel safe, which indicated room for potential improvement to enhance the perception of safety in Chester Le.

The main areas of concern discovered from the safety audit were insufficient signage to define the entrances and exits; inconsistent lighting throughout the neighbourhood spaces; high fences and overgrown vegetation that blocked the sightlines; lack of emergency services; untidy garbage areas and backyards; and a few potential entrapment sites. Despite these concerns, it is also important to acknowledge some of the strengths associated with the overall design of the built environment in Chester Le, including the diversity of signage being present, well-used community amenities, an effective surveillance system, as well as a good mix of land uses nearby.

In addition, Chester Le also celebrated successes of various initiatives that aimed to increase the visibility in the neighbourhood, uplift the face of the built environment, and engage the local tenants in building a safer community. Programs such as the Brighter Nights Program and the Curb Appeal Project had been successfully implemented in Chester Le, raised the local awareness of the importance of several design features that contributed to the community safety, including lighting and maintenance.

The table on the following page summarized the strengths and weaknesses of each of the evaluation criteria used in assessing the built environment in Chester Le based on the evidences collected from the safety audit.

Table 4.1: Evaluation of the Built Environment in Chester Le

SAFETY AUDIT CRITERIA	STRENGTHS	WEAKNESSES
Territoriality		
Signs and Maps	<ul style="list-style-type: none"> A variety of signs are present throughout the neighbourhood Existing signs are easy to read and understand Emergency contact information is available 	<ul style="list-style-type: none"> Entrances and exists could be better defined by appropriate signage Absence of wayfinding signage and maps Stigma attached to TCHC logo on the signs
Natural Surveillance		
Lighting	<ul style="list-style-type: none"> Brighter Nights Program Tenants knew where to report broken lights 	<ul style="list-style-type: none"> Low illumination level Inconsistent level of lighting throughout neighbourhood spaces Vandalism
Sightlines	<ul style="list-style-type: none"> Tree trimming 	<ul style="list-style-type: none"> Sharp corners High fences Walls Overgrown vegetation Grade separation
Isolation	<ul style="list-style-type: none"> Well-used playground and outdoor sitting area Functional CCTV Regular police patrol 	<ul style="list-style-type: none"> Lack of emergency services
Image		
Maintenance	<ul style="list-style-type: none"> Accessible superintendent's office Painted graffiti Curb Appeal Project 	<ul style="list-style-type: none"> Maintenance of garbage dumping areas Maintenance of backyards Long time for repairs
Environment		
Nearby Land Use	<ul style="list-style-type: none"> Busy commercial plaza Schools Well-used community centre Well-used park Adjoining busy public streets 	<ul style="list-style-type: none"> Open access to the park Separation from the main street by wall
Natural Access Control		
Entrapment Sites and Escape Routes	<ul style="list-style-type: none"> Locked unused spaces 	<ul style="list-style-type: none"> Unlocked garbage dumping areas Unlocked community garden Complicated alleyway networks

5. RECOMMENDATIONS AND CONCLUSIONS

5.1. Introduction

Based on the findings and analysis from conducting the group community safety audit in Chester Le, this chapter presents a series of recommendations for improving the built environment in Chester Le and for better addressing community safety issues in similar public housing neighbourhoods. This chapter concludes with key contributions for conducting this research study and potential areas for further research.

5.2. Research Outcomes

At the beginning of this report, we have stated that the objective of this research project was to identify and examine the potential impact of physical design features on the perception of safety in a public housing neighbourhood and determine how the perception of safety can be improved by modifying these design features. This research was carried out to answer the following questions:

1. What are the similarities and differences in terms of the evaluation criteria established in METRAC's CSA tool and the City of Toronto's safety design guideline? How can they be combined or referenced in a way to become more applicable to public housing neighbourhoods?
2. What are the design features increasing or hindering the perception of safety in Chester Le? How can they be improved based on the evaluation criteria?

3. To what extent has Toronto Community Housing (TCHC) incorporated safety concerns into their management policy, if at all? How can their policy be expanded to better address the community safety issues on their properties?

In order to answer the first research question, a document review was conducted to examine and compare the evaluation criteria established in the METRAC's CSA tool and the City of Toronto's *A Working Guide for Planning and Designing Safer Urban Environments*. As a result, a customized safety audit guide consisted of seven evaluation criteria was developed to assess the built environment in Chester Le, a public housing community consists of townhouses. The seven evaluation criteria included signs and maps, lighting, sightlines, isolation, maintenance, nearby land use, and entrapment sites and escape routes. In combination, these criteria addressed the five CPTED principles, which respectively are territoriality, natural surveillance, image, environment, and natural access control.

A group safety audit was conducted with five local residents in Chester Le, led by the researcher, using the safety audit guide produced from the document review. Analysis of the safety audit findings helped to evaluate various physical design features in Chester Le based on the seven criteria to answer the second research question. A list of specific recommendations is provided in the following section to see what design features need to be modified to improve the perception of safety in Chester Le.

Finally, an interview with TCHC's community safety advisor and a close examination of TCHC's strategic plan, *Homeward 2016*, was done to see how TCHC incorporated safety concerns into their management policy and how their policy can be expanded to better address the community safety issues in general.

5.3. Recommendations for Chester Le

A list of specific recommendations for improving the built environment around the public housing areas in Chester Le are proposed based on the safety audit findings and analysis. Some of the recommendations would require immediate attention from TCHC and can be achieved in a short term while other recommendations are for longer term and would require a collaborative effort from TCHC and the local tenants at Chester Le. Given the scope of this study, these recommendations are expected to work with the existing layout of the neighbourhood. Therefore, major architectural or spatial modifications to the buildings or grounds are not considered with the recommendations. In combination, these recommendations are aimed to enhance a sense of ownership among the public housing tenants and increase opportunities for natural surveillance in Chester Le. This can be achieved by increasing visibility and legibility of the neighbourhood spaces, improving sightlines, intensifying the use of the community spaces, reducing opportunities for entrapment, and establishing a sense of proprietorship towards maintaining the semi-public and semi-private spaces in the neighbourhood. These short-term and long-term recommendations are summarized in the following table along with implementation strategies:

Table 5.1: Recommendations to Improve the Built Environment in Chester Le

SAFETY AUDIT CRITERIA	SHORT-TERM RECOMMENDATIONS	LONG-TERM RECOMMENDATIONS	IMPLEMENTATION
Signs and Maps	<ul style="list-style-type: none"> • Add street address signs at appropriate locations • Add wayfinding signage or maps at main entrances to aid navigation 	<ul style="list-style-type: none"> • Use signs with positive tones • Standardize signage across TCHC communities 	<ul style="list-style-type: none"> • TCHC should take the responsibility of adding or changing any signage in the neighbourhood

Lighting	<ul style="list-style-type: none"> • Add LED lights in the neighbourhood, especially around the playground area 	<ul style="list-style-type: none"> • Keep up the maintenance of the lights • Promote awareness among tenants to keep their porch lights on overnight • 	<ul style="list-style-type: none"> • Tenants should take the responsibility of turning on and off the porch lights • TCHC should take the responsibility of adding, changing, or maintaining other lights
Sightlines	<ul style="list-style-type: none"> • Add security mirrors at sharp corners 	<ul style="list-style-type: none"> • Encourage tenants to take down self-built fences in their backyards that obstructed sightlines 	<ul style="list-style-type: none"> • Tenants should be responsible for taking down the self-built fences in their backyard with potential help from TCHC staff if in need • TCHC should take the responsibility of adding security mirrors
Isolation	<ul style="list-style-type: none"> • Expand the playground area to accommodate more recreational activities 	<ul style="list-style-type: none"> • Intensify the use of community spaces with planned events 	<ul style="list-style-type: none"> • TCHC should take the responsibility of improving the current recreational facilities • TCHC and local community organizations should work together to encourage the tenants to enjoy the community spaces more often by holding various events
Maintenance	<ul style="list-style-type: none"> • Regularly tree trimming • Timely snow removal • Keep up the maintenance of around the garbage dumping areas 	<ul style="list-style-type: none"> • Encourage tenants to keep up the maintenance of their backyards by prohibiting stocking of large household goods in the area • Make repair services more timely and efficient 	<ul style="list-style-type: none"> • Tenants should take the responsibility of maintaining their backyards and also helping with the maintenance of the garbage areas • TCHC should be responsible for improving tree trimming, snow removal, and other maintenance services
Entrapment Sites and Escape Routes	<ul style="list-style-type: none"> • Lock potential entrapment sites after certain time at night, such as the garbage dumping areas and the community garden • Add lights or convex mirrors at the entrapment sites 	<ul style="list-style-type: none"> • Make the entrapments sites or unused spaces useful with appropriate functions 	<ul style="list-style-type: none"> • TCHC should be responsible of making the entrapment sites safe spaces

5.4. Recommendations for TCHC

TCHC has acknowledged the importance of safety for building vibrant and sustainable communities and incorporated the value of community safety in their Strategic Plan of 2013-2015, *Homeward 2016* (TCHC, 2013a, p. 14). The following are a list of policy recommendations for TCHC to better address community safety issues at a general level across similar public housing communities.

- ***Make ‘little things’ right.*** As most the public housing projects were built more than decades ago, their physical layouts are often not ideal based on the CPTED principles. However, it is not feasible to undertake major physical modifications for each of the projects. Therefore, it is critical to make smaller changes and make them right. Some of the smaller changes would include those listed as the specific recommendations for Chester Le, such as better lighting, regular tree trimming, clear signage, and better maintenance. These ‘little things’ would add up and contribute to a better sense of safety in a community.
- ***Continue the effort of tenant engagement by conducting safety audits regularly.*** Tenant engagement is one of the core values of TCHC as outlined in their strategic plan (TCHC, 2013a, p. 5). It is recommended that regular safety audits should be used as a tool to actively engage tenants to find solutions to the safety issues and problems in their communities. After all, local public housing tenants know about their communities the best and are affected the most by their surrounding environment. In addition, it is also crucial for the community safety advisors to develop a close working relationship with the tenants to encourage them to report criminal behaviour and share valuable information.

- *Allocate more funding towards maintenance and make the process more efficient.* Funding was pointed out to be the biggest challenge to upkeep the maintenance in Chester Le, as well as in many other public housing communities. It is important to recognize that safety audits will not add value if the issues identified are not addressed. If there is no real outcome associated with the safety audits, tenants would be discouraged from getting involved in the process. Since 2011, TCHC has set aside the State of Good Repair Funds from revenues generated from the sales of a number of stand-alone units and other assets (TCHC, 2013b). It is critical for TCHC to use the fund strategically, and prioritize and manage the repairs in an efficient and cost-effective way based on the needs of different communities.
- *Promote the use of safety design guidelines produced by the City of Toronto.* *A Working Guide for Planning and Designing Safer Urban Environments* is a safety design guideline created by the City of Toronto as a tool to help to build safer communities in the city. However, it seems like the safety design guideline is not widely adopted and well-used by planning and design professionals, community groups, police departments, and housing institutions in the city (Toronto Women's City Alliance, 2013). It might be helpful for TCHC to use the safety design guideline as a reference for conducting safety audits and evaluating safety issues of the built environment across different communities. In addition, TCHC should also reference the design guideline for its revitalization projects, incorporating safety concerns into individual planning practices.

5.5. Limitations and Areas for Further Research

The scope of this research study was limited due to the time and length constraints associated with reports. While this research was focused solely on the relationship between the physical built environment and crime in public housing communities, social factors contributing to crime prevention should not be overlooked. In fact, the physical changes will achieve greater success when the social aspects are being addressed at the same time. Therefore, it is important to understand the social context of public housing in relation to crime through future research, including the unique demographics and social networks in public housing communities. Moreover, further research on the topic could benefit from expanding the size of the community safety audit group by recruiting participants from different gender, age, and ethnic groups to understand the specific safety concerns might be raised by the different groups. In addition, multiple safety audits at different times would also help to encompass the potential variations and enhance the solidity of the safety audit findings. Finally, the scope of this study was limited to public housing communities with the townhouse built form and focused primarily on exterior spaces. It might be helpful to extend the safety audits to other types of public housing developments to compare the findings and better examine the relationship between fear of crime and the characteristics of the built environment in public housing communities.

5.6. Conclusion

The aim of this research study was to identify and examine the potential impact of physical design features on the perception of safety in Chester Le, a public housing community in Toronto, and determine how the perception of safety can be improved by modifying these design features. This report first provided a theoretical framework and

justification for the significance of this research by reviewing literature sources on the links between the characteristics of the built environment, fear of crime, and community safety. In addition, a document review was conducted to examine and compare the evaluation criteria established in the METRAC's CSA tool and the City of Toronto's safety design guideline. Finally, a group safety audit was conducted using a safety audit guide developed from the document review and the analysis of the safety audit findings was aided by an interview with a community safety advisor from TCHC.

The findings from the group safety audit revealed some of the main safety concerns associated with the built environment in Chester Le, including insufficient signage to define the entrances and exits; inconsistent lighting throughout the neighbourhood spaces; high fences and overgrown vegetation that blocked the sightlines; lack of emergency services; untidy garbage areas and backyards; and a few potential entrapment sites. At the same time, the community also embodied some physical characteristics that were considered helpful to reduce fear of crime, such as clear and diverse signage, well-used community amenities, an effective surveillance system, as well as a good mix of land uses nearby. In addition, Chester Le celebrated successes of various initiatives that aimed to uplift the face of the built environment and engage the local tenants in building a safer community. Based on the safety audit findings, a list of key recommendations were provided to improve the built environment in Chester Le and to inform TCHC to better address community safety issues at a general level.

From this research study, we learned that planning could play a significant role in crime prevention, reducing fear of crime, and enhancing perception of safety in a community. As planning and design professionals who make decisions about urban built

form and how it is used, there is a growing need for architects, urban planners, and engineers to integrate the issues of urban safety in their work. Good planning helps to reduce opportunities for crime and allows potential victims to escape to safety through effective design and management of urban spaces. As planners, we need to consider the unique safety concerns of various groups in the society, especially those who are the most vulnerable, by involving local community members in the planning process to actively search for solutions to make changes in their microenvironment of daily life. This research project highlights the significance of that role of planners and promotes the awareness and better understanding of community safety issues to the local residents in Chester Le, as well as to TCHC. Finally, the implementation outcomes of this research could potentially provide additional supporting evidence to CPTED theory as a planning approach to reduce the incidence and fear of crime in a community.

REFERENCES

- City of Toronto. (2005). *Strong neighbourhoods a call to action : A report of the strong neighbourhoods task force*. Toronto, Ont. : United Way Toronto.
- CMHC. (2011) Canadian housing observer, a comprehensive report on the state of housing in canada. *Marketwire*. Retrieved from <http://search.proquest.com/docview/912934494?accountid=6180>
- Coleman, A., & King's College London. Design Disadvantagement Team. (1990). *Utopia on trial: vision and reality in planned housing* (2nd ed. ed.). London: H. Shipman.
- CPTED Ontario. (2002). What is CPTED?. Retrieved from <http://www.cptedontario.ca/>.
- Davies, G.(2006). *Crime, neighborhood, and public housing*. New York: LFB Scholarly Pub.
- Hervert, D., & Davison, N. (1994). Modifying the built environment: The impact of improved street lighting. *Geoforum*. 25(3), 339-350.
- Jacobs, J. (1984). *Death and life of great american cities*. Harmondsworth: Penguin.
- Kuo, F. E., & Sullivan, W. C. (2001). Environment and crime in the inner city: Does vegetation reduce crime? *Environment and Behaviour*. 33(3), 343-367.
- Lens, M. (2013). Subsidized housing and crime: Theory, mechanisms, and evidence. *Journal of Planning Literature*, 28(4), 352-363. doi:10.1177/0885412213500992
- Mawby, R. I. (1977). Defensible space: A theoretical and empirical appraisal. *Urban Studies*. 14(2), 169-179.
- METRAC. (2013a). METRAC's community safety audit. Retrieved from <http://www.metrac.org/programs/safety/downloads/community.safety.audit.info.sheet.pdf>
- METRAC. (2013b). Why safety for women and marginalized groups?. Retrieved from <http://www.metrac.org/programs/safety/downloads/why.safety.for.women.marginalized.groups.pdf>
- Newman, O. (1973). Defensible space: Crime prevention through urban design. New York: Collier Books.

- Newman, O., Rutgers University. Center for Urban Policy Research., United States. Dept. of Housing and Urban Development., & United States. Department of Housing and Urban Development. Office of Policy Development and Research. (1996). *Creating defensible space*. Washington, D.C.: U.S. Dept. of Housing and Urban Development. Office of Policy Development and Research.
- Saraiva, M., Pinho, P. (2011). A comprehensive and accessible approach to crime prevention in the planning and design of public spaces. *Urban Design International, suppl. Special Issue: Attractive Places to Live*. 16(3), 213-226.
- Sousa, J. (2013). In Jorge Sousa. (Ed.), *Building a co-operative community in public housing : The case of the atkinson housing co-operative*
- Toronto Community Housing (TCHC). (2009). Curb appeal communities. Retrieved from http://www.torontohousing.ca/curb_appeal_communities
- Toronto Community Housing (TCHC). (2013a). *Homeward, 2016: Strategic plan 2013 – 2015*. Toronto: TCHC
- Toronto Community Housing (TCHC). (2013b). About toronto community housing's state of good repair program. Retrieved from http://www.torontohousing.ca/state_good_repair
- Toronto Hydro. (2013). Brighter nights. Retrieved from <https://www.toronto hydro.com/sites/electricsystem/corporateresponsibility/comm unityoutreach/Pages/lightthenight.aspx>
- Toronto life. (2013). Neighbourhood ranking. Retrieved from http://www.torontolife.com/neighbourhood_rankings/
- Toronto Women's City Alliance. (2013). Toronto safer city guidelines. Retrieved from <http://www.twca.ca/>
- Wekerle, G. R., Toronto (Ont.). Planning and Development Dept., & Toronto (Ont.). Safe City Committee. (1992). *Working guide for planning and designing safer urban environments*. Toronto: The Dept.; Safe City Committee.
- Wekerle, G. R., & Whitzman, C. (1995). *Safe cities: Guidelines for planning, design, and management*. New York: Van Nostrand Reinhold.
- Whitzman, C. (2008). *Handbook of community safety, gender and violence prevention: Practical planning tools*. London ; Sterling, VA: Earthscan.
- Wilcox, P., Quisenberry, N., & Jones, S. (2003). The built environment and community crime risk interpretation. *Journal of Research in Crime and Delinquency*, 40(3), 322-345. doi:10.1177/0022427803253

APPENDIX A:

**SAFETY AUDIT SURVEY FOR
OUTDOOR PUBLIC HOUSING ENVIRONMENT**
(A Modified Version of METRAC'S Community Safety Audit Survey)

ABOUT YOU:

Age: _____ Gender: _____ Ethnicity: _____

ABOUT THE AUDIT:

Date: _____ Time: _____

Group doing Audit: _____

Location of Audit: _____

OVERVIEW (*Please circle one letter grade for each section*)

Safety Audit Criteria	Grade				
General Impressions	A	B	C	D	F
Signs and Maps	A	B	C	D	F
Lighting	A	B	C	D	F
Sightlines	A	B	C	D	F
Isolation	A	B	C	D	F
Maintenance	A	B	C	D	F
Nearby Land Use	A	B	C	D	F
Entrapment Sites & Escape Routes	A	B	C	D	F

GENERAL IMPRESSIONS (*Please circle your answers*)**1. In general, how safe do you feel in this neighbourhood?**

Very Safe Safe Somewhat Safe Unsafe Very Unsafe

2. How safe do you feel when using the spaces alone in this neighbourhood?

Very Safe Safe Somewhat Safe Unsafe Very Unsafe

3. How safe do you feel when using the spaces after dark in this neighbourhood?

Very Safe Safe Somewhat Safe Unsafe Very Unsafe

4. Have you ever needed to change your routine, activities, or avoided certain places in this neighbourhood because you don't feel safe?

Yes No

5. Are there any specific areas in this neighbourhood making you feel unsafe?

Yes No

6. If yes, where? _____ (*Please specify the location*)

SIGNS AND MAPS (*Please circle your answers*)

1. Are there enough signs identifying the area? (e.g. street names, building names)?

Yes No

2. Are there signs showing you where to get emergency assistance if needed?

Yes No

3. Are the signs and maps easy to see and find?

Yes No

4. Are the signs and maps easy to read and understand?

Yes No

5. What signs need to be added and where?
-

LIGHTING (*Please circle your answers*)

1. What is your impression of the lighting in the neighbourhood?

Very Good Good Satisfactory Poor Very Poor
Too Dark Too Bright

2. Is the lighting consistent throughout the space?

Yes No

3. Are you able to see and identify a face 25 metres away?

Yes No

4. Are there broken lights?

Yes No

5. If yes, where? _____ (*Please specify the location*)

How many? _____ (*Please specify the number*)

6. Do you know where/whom to contact if lights are out/broken?

Yes No

7. Are there lights blocked by trees/bushes?

Yes No

8. If yes, where? _____ (*Please specify the location*)

9. How well does the lighting illuminate pedestrian walkways or sidewalks?

Very Well	Well	Satisfactory	Poorly	Very Poorly
-----------	------	--------------	--------	-------------

10. How clearly does the lighting illuminate directional signs or maps?

Very Well	Well	Satisfactory	Poorly	Very Poorly
-----------	------	--------------	--------	-------------

SIGHTLINES (Please circle your answers)**1. Can you clearly see what is up ahead?**

Yes No

2. If no, the reasons may be:

Sharp Corners	Walls	Fences	Bushes
Hills	Cars	Others _____	(Please specify)

3. What would make it easier to see ahead?

Angled Corners	Security Mirrors	Trimmed Bushes
Cleared Snow	Moved Vehicles	Others

4. Are there places someone could be hiding?

Yes No

5. If yes, where? _____ (Please specify the location)**ISOLATION (Please circle your answers)****1. Does the neighbourhood feel isolated and abandoned?**

Very Isolated	Isolated	Somewhat Isolated	Not Isolated
---------------	----------	-------------------	--------------

2. How many people are likely to be around in the neighbourhood?

In the early morning:	None	A Few
------------------------------	-------------	--------------

During the day:	None	A Few
------------------------	-------------	--------------

In the evening:	None	A Few
------------------------	-------------	--------------

Late at night (after 10 p.m.):	None	A Few
---------------------------------------	-------------	--------------

Several	Many
----------------	-------------

3. Is there a monitor or surveillance system? (e.g. security cameras)

Yes No Don't Know

4. How far away is the nearest person to hear a call for help? (Please specify the approximate distance, write "don't know" if not sure)

5. How far away is the nearest emergency service, such as emergency telephones? (Please specify the approximate distance, write "don't know" if not sure)

6. Can you see a telephone or a sign directing you to emergency assistance?

Yes No

7. Is the area patrolled by police?

Yes No Don't Know

8. If yes, how frequently? _____ (Please specify)**MAINTENANCE (Please circle your answers)****1. What is your impression of the overall maintenance in the neighbourhood area?**

Very Good Good Satisfactory Poor Very Poor

2. Is there litter lying around in the neighbourhood area?

Yes No

3. Is there a lot of vandalism in the neighbourhood area?

Yes No

4. Is there need for major repairs in the neighbourhood area?

Yes No

5. Do you know to where/ whom should maintenance concerns be reported to?

Yes No

6. From your experience, how long do repairs generally take? (Please specify the approximate time, write "don't know" if not sure)

NEARBY LAND USE (Please circle your answers)**1. What is the surrounding or nearby land used for? (Circle all the applicable answers)**

Stores Offices Restaurants Factories River Bank
 Residential Houses and Streets Busy Traffic Parking Lots
 Heavily Treed/ Wooded Area Don't Know Others: _____ (Please specify)

2. Can you identify who own or maintain the nearby land?

Yes No

3. What is your impression of the nearby land use?

Very Good Good Satisfactory Poor Very Poor

4. Is the land use in the area changing?

Yes No Don't Know

5. If yes, what use is it changing from and to what use?

6. Does the new use make you feel more or less comfortable than its old use?

ENTRAPMENT SITES & ESCAPE ROUTES (Please circle your answers)**1. Are there small, confined areas in the neighbourhood where you would be hidden from view? e.g.**

Unlocked Equipment or Utility Shed Alley or Laneway
 Recessed Doorway Construction Site Others: _____ (Please specify)

2. How easy would it be for an offender to disappear?

Very Easy Easy Somewhat Uneasy Uneasy Very Uneasy Don't Know

3. How difficult would it be for you to escape to safety if you have to?

Very Difficult Difficult Somewhat Difficult Not Difficult Don't Know

Thank You for Completing this Safety Audit Survey!

APPENDIX B:

Community Safety Audit Survey Data

OVERVIEW	PARTICIPANTS				
	1	2	3	4	5
General Impressions	C	C	B	C	C
Signs and Maps	C	D	C	C	D
Lighting	B	D	B	C	C
Sightlines	B	C	C	C	C
Isolation	C	B	C	C	C
Maintenance	B	F	B	D	D
Nearby Land Use	C	B	B	A	C
Entrapment sites & Escape Routes	B	D	C	C	C

GENERAL IMPRESSIONS	1	2	3	4	5
1. How safe do you feel in this neighbourhood?	Safe	Somewhat safe	Safe	Somewhat safe	Somewhat safe
2. How safe do you feel when using the spaces alone in this neighbourhood?	Safe	Somewhat safe	Safe	Somewhat safe	Somewhat safe
3. How safe do you feel when using the spaces after dark in this neighbourhood?	Unsafe	Somewhat safe	Unsafe	Somewhat safe	Unsafe
4. Have you ever needed to change your routine, activities, or avoided certain places in this neighbourhood because you don't feel safe?	Yes	Yes	No	Yes	Yes
5. Are there any specific areas in this neighbourhood making you feel unsafe?	No	Yes	No	Yes	Yes
6. If yes, where?	-	Olive Garden	-	Beside the garbage bin and where big bushes are	-

SIGNS & MAPS	1	2	3	4	5
1. Are there enough signs identifying the area?	No	No	No	Yes	Yes
2. Are there signs showing where to get emergency assistance?	No	No	No	No	No
3. Are the signs and maps easy to see and find?	No	No	No	Yes	Yes
4. Are the signs and maps easy to read and understand?	Yes	No	Yes	Yes	Yes
5. What signs need to be added and where?	Entrances/ Exits	Entrances at each location	-	-	Street number signs

LIGHTING	1	2	3	4	5
1. What is your impression of the lighting in the neighbourhood?	Poor	Poor	Poor	Satisfactory	Poor
2. Is the lighting consistent throughout the space?	No	No	No	Yes	No
3. Are you able to see and identify a face 25 metres away?	Yes	No	Yes	No	No
4. Are there broken lights?	No	Yes	No	No	Yes
5. If yes, where? How many?	-	Three	-	-	Two
6. Do you know where/whom to contact if lights are out/broken?	No	Yes	No	Yes	Yes
7. Are there lights blocked by trees/bushes?	No	Yes	Yes	Yes	No
8. If yes, where?	-	Backyards	Park	Backyards/ street trees	-
9. How well does the lighting illuminate or sidewalks?	Well	Poorly	Well	Satisfactory	Well
10. How clearly does the lighting illuminate signs or maps?	Well	Poorly	Well	Satisfactory	Well

SIGHTLINES	1	2	3	4	5
1. Can you clearly see what is up ahead?	No	No	No	Yes	No
2. If no, the reasons may be?	Bushes	Sharp corners/ Cars	Fences	-	Fences/ Cars
3. What would make it easier to see ahead?	Angled corners/ Security mirrors	Clear snow/ Move vehicles	Angles corners/ Security mirrors	Angled corners	Angled corners/ Security mirrors
4. Are there places someone could be hiding?	Yes	Yes	Yes	Yes	Yes
5. If yes, where?	Around corners	Behind trees	Garbage bins	Around the plaza/ Behind the garbage bins	Garbage bins

ISOLATION	1	2	3	4	5
1. Does the neighbourhood feel isolated and abandoned?	Isolated	Not isolated	Not isolated	Not isolated	Somewhat isolated
2. How many people are likely to be around in the neighbourhood: in the early morning/ during the day/ in the evening/ late at night?	A few/ Several/ Many/ A few	Several/ A few/ Many/ A few	A few/ Many/ Several/ None	None/ A few/ Many/ Several	Several/ Several/ A few/ None
3. Is there a monitor or surveillance system?	Yes	Yes	Yes	No	No
4. How far away is the nearest person to hear a call for help?	Don't know	Don't know	Don't know	Don't know	Not sure
5. How far away is the nearest emergency service, such as emergency telephones?	Don't know	Don't know	Don't know	No emergency telephone	Not sure
6. Can you see a telephone or a sign directing you to emergency assistance?	No	No	No	No	No
7. Is the area patrolled by police?	Don't know	Yes	Yes	Yes	Yes
8. If yes, how frequently?	-	More in the summer	Summer time	Frequently in summer	Everyday in summer

MAINTENANCE	1	2	3	4	5
1. What is your impression of the overall maintenance in the neighbourhood?	Good	Very poor	Good	Poor	Satisfactory
2. Is there litter lying around in the neighbourhood area?	No	Yes	No	Yes	Yes
3. Is there a lot of vandalism in the neighbourhood area?	No	Yes	No	Yes	No
4. Is there need for major repairs in the neighbourhood area?	Yes	Yes	No	Yes	Yes/roof
5. Do you know to where/ whom should maintenance concerns be reported to?	Yes	Yes	Yes	Yes	Yes
6. How long do repairs generally take?	Long time	Months	-	For long, sometime don't care	A few weeks to a month

NEARBY LAND USE	1	2	3	4	5
1. What is the surrounding or nearby land used for?	Stores/ Restaurants/ Parking lots	Stores/ Residential houses and streets/ Busy traffic parking lots	Stores/ School/ Busy traffic parking lots	Stores/ Residential houses and streets	Stores/ Restaurants
2. Can you identify who own or maintain the nearby land?	Yes	Yes	No	No	No
3. What is your impression of the nearby land use?	Good	Satisfactory	Good	Poor	Good
4. Is the land use in the area changing?	No	No	No	Don't know	No
5. If yes, what use is it changing from and to what use?	-	-	-	-	-
6. Does the new use make you feel more or less comfortable than its old use?	-	-	-	-	-

ENTRAPMENT SITES & ESCAPE ROUTES	1	2	3	4	5
1. Are there small, confined areas in the neighbourhood where you would be hidden from view?	Alley or laneway	Unlocked equipment or utility shed/ Alley or laneway	Construction site	Garbage bin side	Garbage
2. How easy would be for an offender to disappear?	Very easy	Very easy	Very easy	Very easy	Easy
3. How difficult would it be for you to escape to safety if you have to?	Very easy	Very difficult	Very easy	Very difficult	Somewhat difficult

APPENDIX C:

MAKING CHESTER LE A SAFER COMMUNITY

Are you a local public housing tenant who walks around the neighbourhood and feel that changes could be made to the built environment for a safer community?

If so, get involved in this urban planning graduate research project!

Community Safety Audit Information:

- Approximately one hour of a walk around survey in the public housing area, following by a brief discussion on the findings.
- Receive a \$ 10 Tim Hortons gift card for your participation..

If you are a current public housing tenant at Chester Le, 18+ years of age, you are invited to participate in a community safety audit with a small group of local residents who share similar concerns. The purpose of this research is to assess the built environment of the Chester Le public housing community and determine how the perception of safety can be improved by modifying the physical design features .

For further information, please contact Ivy Qi
email: hongyan.qi@queensu.ca/ phone: 613 - 539 - 6852

Can it be Better and Safer?



APPENDIX D:

COMMUNITY SAFETY AUDIT PARTICIPANT LETTER OF INFORMATION

“Designing for A Safer Public Housing Community: A Case Study of Chester Le, Toronto”

This research is being conducted by Hongyan (Ivy) Qi under the supervision of Dr. David L.A. Gordon, in the School of Urban and Regional Planning at Queen's University in Kingston, Ontario.

What is this study about? The purpose of this research is to identify and examine the potential impact of physical design features on the perception of safety in a public housing community located in Chester Le neighbourhood in Toronto, and determine how the perception of safety can be enhanced by modifying the features of the built environment. This research will be carried out by conducting a group safety audit with 3-5 local residents in Chester Le community. In addition, 1-2 interviews will be conducted with professionals from the Toronto Community Housing Corporation (TCHC) to get informed about their perspectives on the topic, as well as the efforts have been made by TCHC towards addressing the safety issues on their properties.

What is a Community Safety Audit? METRAC's Community Safety Audit (CSA) is a survey tool designed to be used by groups of local residents to assess the safety of their communities. The questions in the safety audit cover topics of general impressions of the area; lighting; signs and maps; visibility/sightlines; isolation; entrapment sites and escape routes; maintenance; nearby land use; and the overall design. Participants of the safety audit will each be given a copy of the CSA survey to fill out while walking around the neighbourhood. They will have an opportunity to review the survey questions and get briefed on the walking routes beforehand. After the audit is completed, the researcher will be collecting all the surveys for analysis purpose later.

Is my participation voluntary? Your participation in this project is entirely voluntary. Although it would be greatly appreciated if you would respond to all materials as frankly as possible, however, you should not feel obliged to answer any question or participate in any discussion that makes you feel uncomfortable. Should any question on the safety audit survey makes you feel distressed, you may end your involvement at any time during the safety audit process by notifying the researcher immediately.

Will I be compensated for my participation? You will receive a \$10 Tim Hortons gift card for your participation. You will receive this at the onset of your participation and this is the case even when you wish to withdraw from the project at any point.

What will happen to my response?

Any response given during the research process will be kept confidential. Only the researcher, Ivy Qi, and research supervisor, Dr. David Gordon, will have access to this information. Information provided by the participants will be stripped of identifiers. The data may be conveyed in the final report or deliverables. However, any such presentation will be of general findings with individual confidentiality protected. If you would like to receive a copy of the final report, please inform the researcher. The report will also be made available online once it is completed.

What if I have concerns? Any questions or concerns about the research may be directed to Ivy Qi at hongyan.qi@queensu.ca or 613-539-6852 or to Dr. David Gordon, research supervisor, at gordond@queensu.ca or 613-533-6000 x 77063. Any ethical concerns about the study may be directed to the Chair of the General Research Ethics Board at chair.GREB@queensu.ca or 613-533-6081.

Thank you for your participation in this research study. Your interest and time taken to complete the safety audit is greatly appreciated.

This study has been granted clearance according to the recommended principles of Canadian ethics guidelines, and Queen's policies

COMMUNITY SAFETY AUDIT PARTICIPANT CONSENT FORM**“Designing for A Safer Public Housing Community:
A Case Study of Chester Le, Toronto”**

Name (please print clearly): _____

1. I have read and understood the Letter of Information and all of my questions about the information provided have been answered.
2. I agree to participate in the study, “Designing for A Safer Public Housing Community: A Case Study of Chester Le, Toronto”, and understand that I will be asked to participate in a group safety audit by walking around the Chester Le neighbourhood with the researcher, Ivy Qi.
3. I understand that my participation in this study is voluntary, and I may withdraw at any time. I understand that every effort will be made to maintain the confidentiality of any responses provided during the research process. Only the researcher, Ivy Qi, and research supervisor, Dr. David Gordon, will have access to this information. The data collected may be conveyed in the final report or deliverables. However, any such presentation will be of general findings with individual confidentiality protected. Should I be interested, I am entitled to a copy of the final report.
4. I am aware that any questions or concerns about the research may be directed to Ivy Qi at hongyan.qi@queensu.ca or 613-539-6852 or to Dr. David Gordon, research supervisor, at gordond@queensu.ca or 613-533-6000 x 77063. Any ethical concerns about the study may be directed to the Chair of the General Research Ethics Board at chair.GREB@queensu.ca or 613-533-6081.

I have read the above statements and freely consent to participate in this research:

Participant's Printed Name: _____

Participant's Signature: _____

Date: _____

APPENDIX E:

TCHC PROFESSIONAL INTERVIEW PARTICIPANT LETTER OF INFORMATION

“Designing for A Safer Public Housing Community: A Case Study of Chester Le, Toronto”

This research is being conducted by Hongyan (Ivy) Qi under the supervision of Dr. David L.A. Gordon, in the School of Urban and Regional Planning at Queen's University in Kingston, Ontario.

What is this study about? The purpose of this research is to identify and examine the potential impact of physical design features on the perception of safety in a public housing community located in Chester Le neighbourhood in Toronto, and determine how the perception of safety can be enhanced by modifying the features of the built environment. This research will be carried out by conducting a group safety audit with 3-5 local residents in Chester Le community. In addition, 1-2 interviews will be conducted with professionals from the Toronto Community Housing Corporation (TCHC) to get informed about their perspectives on the topic, as well as the efforts have been made by TCHC towards addressing the safety issues on their properties.

Is my participation voluntary? Your participation in this project is entirely voluntary. Although it would be greatly appreciated if you would respond to all materials as frankly as possible, however, you should not feel obliged to answer any question or participate in any discussion that makes you feel uncomfortable. You may withdraw your information and end your involvement at any time during the research process.

What will happen to my response?

Any response given during the research process will be kept confidential, only the researcher, Ivy Qi, and research supervisor, Dr. David Gordon, will have access to the information. The data may be conveyed in the final report or deliverables. However, any such presentation will be of general findings with individual confidentiality protected. If you would like to receive a copy of the final report, please inform the researcher. The report will also be made available online once it is completed.

What if I have concerns? Any questions or concerns about the research may be directed to Ivy Qi at hongyan.qi@queensu.ca or 613-539-6852 or to Dr. David Gordon, research supervisor, at gordond@queensu.ca or 613-533-6000 x 77063. Any ethical concerns about the study may be directed to the Chair of the General Research Ethics Board at chair.GREB@queensu.ca or 613-533-6081.

Thank you for your participation in this research study. Your interest and time taken to complete the interview is greatly appreciated.

This study has been granted clearance according to the recommended principles of Canadian ethics guidelines, and Queen's policies

TCHC PROFESSIONAL INTERVIEW PARTICIPANT CONSENT FORM**“Designing for A Safer Public Housing Community:
A Case Study of Chester Le, Toronto”**

Name (please print clearly): _____

1. I have read and understood the Letter of Information and all of my questions about the information provided have been answered.
2. I agree to participate in the study, “Designing for A Safer Public Housing Community: A Case Study of Chester Le, Toronto”, and understand that I will be asked to participate in an interview either on the phone or in person with the researcher, Ivy Qi.
3. I understand that my participation in this study is voluntary, and I may withdraw at any time. I understand that every effort will be made to maintain the confidentiality of any responses provided during the research process. Only the researcher, Ivy Qi, and research supervisor, Dr. David Gordon, will have access to this information. The data collected may be conveyed in the final report or deliverables. However, any such presentation will be of general findings with individual confidentiality protected. Should I be interested, I am entitled to a copy of the final report.
4. I am aware that any questions or concerns about the research may be directed to Ivy Qi at hongyan.qi@queensu.ca or 613-539-6852 or to Dr. David Gordon, research supervisor, at gordond@queensu.ca or 613-533-6000 x 77063. Any ethical concerns about the study may be directed to the Chair of the General Research Ethics Board at chair.GREB@queensu.ca or 613-533-6081.
5. By placing initials in this box, I give permission to the researcher to audio record the interview for the purposes of maintaining accuracy of the information collected from this interview.

I have read the above statements and freely consent to participate in this research:

Participant's Printed Name: _____

Participant's Signature: _____

Date: _____

APPENDIX F:**TCHC PROFESSIONAL SAMPLE INTERVIEW QUESTIONS****“Designing for A Safer Public Housing Community:
A Case Study of Chester Le, Toronto”**

General questions about safety in public housing neighbourhoods, community safety audit, and Crime Prevention Through Environmental Design (CPTED) will be asked. In addition, safety issues, crime statistics, and community safety audit findings specific to Chester Le might also be discussed given that the findings will only be discussed in general terms, no specific safety audit participants will be identified.

1. What are the efforts have been made by TCHC toward addressing safety issues on its public housing properties at the policy level and the implementation level?
2. In particular, what efforts have been made by TCHC towards addressing safety issues at Chester Le? To what extent they have been effective?
3. Is TCHC being supportive to the idea of conducting community safety audits for its public housing communities? If so, in what way?
4. What are the partnerships that TCHC has established towards building safer communities? In general, as well as locally at Chester Le.
5. From an environmental design perspective, what specific design features do you think are effective in enhancing community safety in public housing environments? (e.g. lighting, signage, CCTV, etc)
6. What other insights can you offer on the topic of Crime Prevention Through Environmental Design?