

# Security and Planning: A Canadian Case Study Analysis

by

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A thesis  
presented to the University of Waterloo  
in fulfillment of the  
thesis requirement for the degree of  
Master of Environmental Studies  
in  
Planning

Waterloo, Ontario, Canada, 2012

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## **AUTHOR'S DECLARATION**

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

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

## **Abstract**

This thesis explores security planning policy in Canada. It provides a historical overview of the securing of cities from the threat of mass violence and demonstrates how violence affects urban populations and the form and function of cities as a result. A purposefully stamped case study approach is used to determine the state of security planning in Canada and compare selected cities to a benchmark case of Washington D.C. This thesis contributes to the understanding of security planning within Canada in the post September 11, 2001 world and offers insight into strategies used in defense of urban areas. The review of literature and discussion sections also provide a critical assessment of security planning which has occurred in the time following WWII, the IRA crisis in Britain the FLQ crisis in Quebec and the terrorist attacks in London and New York in the past decade. Research questions are answered through a case study and literature analysis approach. Results demonstrate that American responses to the threat of terrorism have motivated various governmental agencies to create policy and physical responses to respond to the threat of terrorism. This thesis concludes that Canada, in comparison to the United States and other areas has done little to secure itself against terrorist attack and more specifically that urban planning and municipalities in Canada have done little to integrate anti-terrorism security planning into their planning policy. It is argued that a lack of federal mandates, a lack of motivation and education in planning spheres as well as funding issues are contributing factors.

## **Acknowledgements**

I would like to thank my supervisor and Dr. Clarence Woudsma for his support and guidance during the writing of this thesis. His knowledge and support has contributed to my success here and elsewhere in life. I would also like to acknowledge my parents for their continued support throughout my education. Additionally, I would like to thank Marta Hano who always encouraged me to finish what I started. Finally I would like to thank my committee members Markus Moos and Murray Haight for their evaluation and contributions to this thesis.

## **Dedication**

I dedicate this thesis to those who strive to make cities safer places to live and visit and to the families and friends who lost loved ones in the terrorist attacks on September 11, 2001.

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## **Glossary of Terms**

**Active Security:** refers to a security element's ability to be able to react or analyses the area it is protecting and either respond, or relay information to response personnel.

**Anti-terrorism:** Refers primarily to defensive measures that can be taken to protect people and property from terrorist attacks and can involve activities including growth management, comprehensive planning and micro-level urban design activities (Schneider, 2003).

**Community planner, planner, urban planner:** those professionals involved in physical land use and transportation planning and organization of urban areas

**Corporate Security:** security measures aimed at protecting the resilience of a system and measures taken to prevent acts of crime on the premises of corporate property. In the case of public sector corporations it also involves handling the safe delivery of services to the public

**Counter Terrorism:** Refers primarily to offensive measures taken to combat terrorism and us generally the territory of agencies such as the FBI, CIA, CSIS, RCMP (Schneider, 2003).

**Mass Violence:** attacks by an individual or group which kill a disproportionately large amount of individuals

**Passive Security:** refers to devices and designs which prevent vehicles, people or ordnates from entering or striking an area by way of stationary infrastructure and barriers. These security devices are generally nonreactive and do not involve any human components beyond their installation.

**Terrorism:** human acts of violence or destruction aimed at causing loss of life, economic damage, physical damage or psychological damage to a nation or group of people.

**CP:** Comprehensive Plan

**CBRNE:** Chemical, Biological, Radiological, Nuclear, Explosive

**FEMA:** Federal Emergency Management Agency

**GTA:** Greater Toronto Area

**OP:** Official Plan

**PPS:** Provincial Policy Statement

**ROP:** Regional Official Plan

**WUF:** World Urban Forum

## **Preface**

My own motivation for conducting this research is twofold. It is of great interest to me and is relevant to my current occupation as an Army Officer with the Canadian Forces. The second portion of my motivation comes from a genuine want to make Canada a safer and better place to live and out of a profound believe that fear and the threat of violence should not prevent people from going about their daily lives and acting as they so choose. I realize my bias and ideological stance at the beginning of this research but I believe that it does not impair my judgment or the validity of my conclusions but rather further motivates me to conduct rigorous and useful research. As the old adages of the boy scouts and army state “simper paratus or be prepared” and “It’s better to have it and not need it, than to need it and not have it.”

## Chapter 1 Introduction

*“[C]ontemporary security as a concept, practice and commodity is undergoing a rescaling, deterritorialisation and reterritorialisation, with previously international security concerns penetrating all levels of governance. Security is becoming more civic, urban, domestic and personal: security is coming home” (Coaffee and Wood, 2006 p 504).*

The issue of security in relation to terrorism and mass violence is one that is becoming necessary in today's urbanizing Canada. However, this has not been well researched in the Canadian context and the following thesis provides a foundation for security planning and anti-terrorism research, integrating it with traditional urban planning. Many authors have determined that terrorism is becoming ever more local and that civilian targets are being threatened by acts of mass violence (Axworthy et al. 2006, Coaffee, 2009). Contemporary urban planning has not traditionally focused on the issues of security planning and anti-terrorism in cities. Planners, as a profession, have largely focused on their traditional roles within their municipal, regional and provincial structures with little communication to one another on the subject of security. While it is argued that local level security planning has the ability to create safer and prosperous environments for residents it is not clear how or if this has been accepted in Canadian cities. Critical analysis of the Canadian situation as well as extensive background context will be provided in the following research. It will illuminate the issues of security planning within Canada and compare the policies and practices in selected Canadian cities to that of a North American city that has incorporated extensive security considerations in its planning - Washington D.C.. In order to begin the analysis of planning and terrorism a sound definition of what is to be studied must first be determined. This will set the scope of the research. For the purposes of this research terrorism will be defined as human acts of violence or destruction aimed at causing loss of life, economic

damage, physical damage or psychological damage to a nation or group of people. Security Planning for the purpose of this research will therefore focus on preventing or mitigating terrorist attacks. It will address the events associated with low frequency high casualty-destruction scenarios and as such a long period of time may pass before defenses and preparedness strategies are tested however the usefulness of these tools can be invaluable, should an event occur. This research will also address the roles of the traditional urban planner and security planner respectively examining their roles in planning strategies to prevent and mitigate terrorist attacks in urban areas. It will examine how the planner can implement built form changes and provide advice to other security practitioners.

### **1.1 Goals and Objectives**

The terrorist attacks of September 11, 2001 changed the landscape of urban areas across North America (Coaffee and Wood, 2006). Not only was there extreme physical damage in New York City and at the Pentagon but the widespread economic, social, cultural and policy aftershocks permeated across the continent. Canada was no exception. This event demonstrated that Canada may be ill prepared to deal with the threats presented by terrorism. Dr. Lloyd Axworthy, Dr. Arthur L. Fallick and Kelly Ross acknowledged this well at the 2006 Urban Economic Forum and in their working paper where they stated:

*“Our cities are at the forefront of the impact of threats and attacks, but they are ill equipped to respond effectively. There is limited redundancy in the infrastructure, support systems are too centralized, and risk assessment and prevention strategies are fragmented. The delicate balance between individual self-reliance and dependency is threatened when the power goes out, the water quality gets tainted, or the transportation system becomes paralyzed”*  
(Axworthy et al, 2006 p 9).

The discussion at the 2006 World Urban Forum (WUF) and the work of other security and terrorism professionals and academics confirms that Canadian cities are at risk of being targeted for major terrorist attacks which are aimed at killing mass a amount of civilians (Axworthy et al. 2006; Coaffee and Wood, 2006: Chenoweth and Clarke, 2010). Axworthy and his colleagues conclude that “Cities should be the locus for more integrated precaution, prevention and risk assessment. Preventive, Adaptive and Human Security provide direction for the stewardship of scarce resources to build capacity at the community level and enhance livability” (Axworthy et al. 2006 p 25).

Municipalities and regional governments are in a unique position to protect their urban population via policy changes and urban form augmentations which can potentially mitigate the effects of terrorism, deter it from occurring and generally better prepare cities for the possibility of terrorism, mass violence and mass causality scenarios. As Clarke and Chenoweth (2010 p 495) state: “high-impact/low-probability events such as terrorist attacks demand immediate and sustained national responses. In a federal system, national responses are only as effective as their implementation through state and local governments.” (Coaffee and Wood, 2009 p504)

Traditionally, security planning for major man-made disasters such as a terrorist attack has been outside of the scope of traditional urban planning. However, it is argued that planning can have a profound impact on the development of policy and infrastructure which can help to address this problem. Similarly to how many other urban issues such as transportation has been addressed it is my belief that security can also be addressed in a similar manner. Many cities now have transportation master plans to supplement their official plan. My hope is that

security planning can be treated in a similar way in order to create a safer urban environment for residents and visitors of cities.

## **1.2 Purpose Statement**

The purpose of this study is to examine the state of security and anti-terrorism planning in Canadian cities and explore its potential influences on community form and character in Canadian cities. It will examine how planners can implement built form aimed at preventing and mitigating terrorist attacks and examine how the planner can act as an urban expert providing information and advice to others in the security planning field. It also serves as an education tool bridging the gap in knowledge many planners have with respect to security planning. The study will explore the following questions:

1. How can planning contribute to the security of urban areas?
2. What is the current security planning landscape in Canada?
3. How do current Canadian practices compare with other standards?
4. What effects has terrorism and security threats following 2001 had on Canadian planning policy and how can urban planners help to secure cities against terrorism?

Municipal and regional level planning will be the focus of study here in order to develop an understanding of its potential contribution to the overall security of cities and how security planning can occur at the municipal level in a meaningful way. The topic will be looked at through an urban-Canadian lens in order to determine the landscape of local security planning in Canada and what Canadian community planners can do in order to mitigate the



effects of terrorist activity in urban areas and how that has impacted the urban form we see in Canadian cities today.

The research questions will be operationalized by reviewing current planning documents from selected major cities around the country and by conducting an extensive literature review of the most up-to-date and relevant data published material available. An analysis of current planning documents will lead to a better understanding of the state of security planning in Canada and it will explore how terrorism and security is perceived and treated by government and private institutions. Critical literature review along with policy analysis will facilitate an evaluation of the security landscape in Canada, how policies have impacted the built environment, and contribute to recommendations informed by the comparative assessment.

This thesis examines the planning driven changes in security planning post September 11, 2001. Recognizing that there are many facets to the issues of planning for terrorism this thesis narrows its scope to examine how planners and planning can prevent and mitigate terrorist attacks in urban areas. It should be noted that disaster management while discussed in the context of the aim of this work is not the primary issue being investigated nor are defense, police or foreign policy changes being investigated. While important in the overall security of a nation the focus remains on urban planning and the local scale changes which can be used to prevent and mitigate terrorist attacks.

The thesis is organized as follows. The literature review begins with a historical review of the affects of violence in cities and its affect on urban form. It then moves on to discuss contemporary terrorist attacks and how they affected city form. Management practices are

then examined as well as the role of planning in defending urban areas from the threat of terrorism. Policy review is then conducted where federal, provincial and municipal government documents are examined and discussed. The results and findings of the thesis are then presented in the form of case studies which are compared to the model of Washington D.C. which has proven itself to be an archetype of anti-terrorism planning in North America (Schneider, 2004). Finally, discussion surrounding the case study cities occurs including comparison to one another and to the Washington D.C. Archetype. The literature review as well as discussion sections of the thesis demonstrate how planning can contribute to the security of urban areas. Additional information regarding this question is found in appendix A. The second research question is answered in the case study and discussion sections with additional information on how anti-terror design is being operationalized in Appendix A. The third research question is answered in the case studies of the purposefully sampled Canadian cities and finally the last research question is answered in the comparison of each case study to that of the archetype of Washington D.C.

## **Chapter 2 Literature review**

The Following literature review examines the historical evolution of security and its connection with urban planning. It begins with a historical analysis of the effects of violence on population and urban form using the case study of London during WWII. The literature review moves onto describe the effects which terrorism and mass violence has had in the post WWII era and how the events of campaigns of violence can affect populations and the architecture and form of cities using the Irish Republican Army crisis in Britain as an example. Responses to mass violence are described including the defensive dispersal movement which followed WWII. It then describes the choice of targets by terrorists in contemporary cities highlighting dense urban areas and sky scrapers as targets. A typology of terrorist attacks is provided with examples of the various types of attacks which have occurred around the world. Using the FEMA risk management series as a foundation as well as academic literature, the typology of urban interventions is discussed as well as the systematic approach which security plans are taking today in order to better defend urban areas. Graphic examples are utilized to demonstrate how these technological and site specific alterations to cities affect its form, function and populations. Finally the creation and adoption of security plans are examined and reactions to security planning are discussed including the debate on aesthetics, accessibility and the psychological affect which security planning is having on urban populations. With the context of security and anti-terrorism planning established the literature review examines how planners have considered security and what has changed in literature and practice following September 11, 2001. Practices and

standards from selected cities are compared and contrasted developing a picture of the current state of security planning in Canada.

## **2.1 Defensive Cities**

Cities of the past were often a product of the safety that agglomeration created.

Concentrating people in one area made it much easier to defend that area. While a few individuals living in the hinterland would likely not become a target from marauders of the past, their ability to defend themselves from such threats was poor. Thus, one of the attractions of cities is that they provide a safer environment and are better equipped and able to defend themselves. However the agglomeration of people also tends to create more attractive targets as well. Yet the positive aspect of agglomeration outweighs this potential. As Mumford writes “the power of massed numbers in itself gave the city a superiority over the thinly populated widely scattered villages, and served as an incentive to further growth” (Mumford 1960, p 291). This effect is what Glaeser and Shapiro (2002) call ‘the safe harbor effect.’ What is most notable and important about the safe harbor effect and the agglomeration of people into cities is the scaled advantage of physical combat in war (Glaeser & Shapiro, 2002). While the safe harbor effect has military, policing and political advantages it also offers an agglomeration of people which has a profound effect on business and urban form in the city.

The agglomeration of people in the past allowed them to congregate and erect defense structures such as keeps and walls. While walls may not play as critical a role in the defense of cities today, they were a critical feature of the past. The main reason for their construction was to reduce the effects of scaled advantage in combat. A smaller force of defenders with

the aid of fortifications could more easily fight a larger force of combatants. This is especially true considering the importance of scaled advantage in war throughout the ages. In recent years the significant military figures including Colin Powell, former four star general and American Statesman have argued the need for overwhelming force especially in fighting in urban environments (Glaeser & Shapiro, 2002). Carl von Clausewitz a military theorist and Prussian soldier from the late 17th early 19th century wrote that “superiority of numbers is the most important factor in the result of a combat” (von Clausewitz, 1874 p31) This theory of scaled advantage demonstrates how the agglomeration of people can be used as a defensive tool (Glaeser & Shapiro, 2002). The agglomeration of people also allows the pooling of other resources such as wealth, raw materials, labour etc. which can be used to work towards the war effort. This is especially important in the scaling of economies in fortified cities. As Glaeser & Shapiro note:

*“If a city has a population of  $N$ , and if each person occupies a fixed area of space (denoted  $A$ ), then the size of the wall needed to circle around city will equal  $2\sqrt{\pi AN}$ . The size of city walls scales with the square root of the city population, so that the length of wall that must be built per person declines sharply with the size of the city.”* (Glaeser & Shapiro, 2002 p209).

Many of the principles and safety affects related to agglomeration are no longer relevant in contemporary cities (Little, 2004). However, a number remain, for example it is easier to enforce no-fly zones over denser cities than it is decentralized areas and it is easier to establish perimeters and blockades on cities than rural areas or even suburban areas (Glaeser & Shapiro, 2002). Density today still has useful defensive purposes and is a reality of the contemporary world. The main issues with relation to terrorism today are the fact that technology has affected the scaled advantage of physical combat (Little, 2004). Today, relatively few individuals can do a significant amount of harm to a much larger group

(Glaeser & Shapiro, 2002). In the past a single soldier or warrior would do little more than get oneself killed when confronting a much larger group. Today, the violent actions of the few have greatly affected the concept of scaled warfare. The events of September 11, 2001, the Madrid Train bombing in 2004 or the London transportation network attacks in 2005 demonstrate how relatively few people have been able to kill a large number of people and cause extreme economic and social damage providing some theorists with an argument against density and agglomeration.

## **2.2 Terrorism and Urban Populations**

The purpose of the following section is to examine the effects of mass violence and terrorism on urban form. Historical examples are used to analyze how terrorism and mass violence have affected populations, changed the form of cities over time, and how it could change the nature of the structures within cities and how they interact with one another. The issues of decentralization and agglomeration tendencies are woven into the discussion of urban form that follows. Along with economic implications they form a key set of determinants influencing how urban form changes in the presence of real or perceived violence and terrorism. The evidence and analysis below also highlights some of the responses to mass violence and terrorism in North American planning and how it has directly affected the urban form of contemporary cities. Population is an important consideration in urban form because it can drive how cities plan and build. Urban growth in many areas of the world is being managed by increasing densities and building up rather than out. With stagnant or falling populations this is not necessarily a concern. Permanent populations of residents can

determine how a city grows and where it grows. This is an integral part of the form of cities. Additionally if fear and death are causing a city's population to fall effects on form and development can follow.

Permanent populations unlike transient populations such as tourists tend to be much more resilient in resisting terrorism and acts of violence (Glaeser and Shapiro, 2002). Although little information is available research by Glaeser and Shapiro, 2002 have demonstrated this to be true in several areas of the world. Historical examples from WWII demonstrate that cities can be very resilient as was the case in London when despite mass destruction and death the population of the city only fell by approximately 10% (Glaeser & Shapiro, 2002).

### **2.3 Cities as Targets**

The agglomeration of people in cities has the potential to make them targets for violence. Larger cities create more attractive targets as urban density means that there are more people to steal from or kill in a smaller area (Glaeser & Shapiro, 2002). This relationship between violence and urban density demonstrates how in the past raiders, marauders, war and pillaging affected urban form and how today terrorism is affecting urban form. As was previously discussed the agglomeration of people in cities made individuals safer. They were able to erect walls and defensive fortifications and change the scale effect of war in their favour. What historical examples provide for contemporary security planners are examples of sustained urban conflict over a long period of time. This is especially important when we consider the role that population numbers play in the influencing of urban form. Large, dense populations have a direct impact on the form of cities and how cities are planned.

Dense cities lend themselves to having tall buildings, subway systems and other planned infrastructure to support the population.

The city of Rome provides an excellent example of how violence directly impacts urban form. After numerous sacking at the hands of Visigoth leader Alaric I, the population of Rome dropped from over 1 million in the year 210 to approximately 35 000 at the beginning of the middle ages. Consistent attacks and looting meant that living in the hinterland around Rome was safer than the city itself due to the constant threats and economic disparity created by the sacking (Glaeser & Shapiro, 2002; Tellier, 2009). History provides many more examples of how violence on a consistent bases effects the population and therefore the urban form of a city. The 17<sup>th</sup> century depopulation of German cities such as Marburg which was occupied eleven times from 1620 to 1650 during the Thirty Years War provides an excellent example (Glaeser & Shapiro, 2002; Wedgwood, 1961).

#### **2.4 Destruction of infrastructure and transportation**

Historically, transportation proved to be a dangerous endeavor; if the creation of city walls made the them safer, then the traveling between cities was inherently dangerous (Glaeser and Shapiro, 2002). Historical examples provide evidence of how often transportation infrastructure has been attacked in the past. However the effects of this destruction on the urban form of cities of the past cannot be translated to today. For example during Lawrence of Arabia's war with the Ottoman Empire he destroyed a great deal of rail infrastructure, Terrorists in New York used airplanes to destroy the world trade center, in Spain trains have been bombed, in London suicide bombers attacked the subway and the bus network killing many people. These acts of destruction and violence demonstrate the strategic importance of



infrastructure in cities and how they are often targeted. What is demonstrated by these examples is the vulnerability to transportation networks and how often they are targeted. Urban planning has a role to play in the mitigation of casualties due to attacks on urban transportation infrastructure. The aim of security planning is firstly to save lives and secondly to preserve capital as Rossi-Hansberg (2004) states, identifying that the economic impact of terrorism due to the destruction of capital investment is a serious planning concern. What is most important in the contemporary context with respect to transportation is the cost associated with transportation infrastructure. As Rossi-Hansberg 2004 states:

*“The threat of future attacks leads to permanent changes in city structure since the potential of future physical capital destruction reduces the returns to capital investments in many locations within the city. Firms and residents will be willing to invest less in structures at those locations, which in turn changes their bid rents, and therefore the structure of the city” (Rossi-Hansberg 2004 p 904).*

Physical capital such as subways, trains (lines and stations), and roads are an extremely expensive and important part of urban form. Without them the city cannot develop in a dense and sustainable manner. Thus their destruction brings about obvious changes to the form of cities. The destruction of the underground path system in New York in 2001 demonstrates this well and has resulted in an increased cost of transportation in New York since (Glaeser and Shapiro, 2002). If people cannot travel by subway because it has been destroyed and will take years to replace the need for parking may increase or the use of busses may become more usual. These changes in transportation can directly affect how a city develops.

## **2.5 Defensive Dispersal – Sprawl as a Strategy**

The post WWII era brought with it many social, economic and urban changes. The death and destruction of war was fresh in the mind of people and their reactions to the world around

them reflected the collective mood which existed at the time in North America. The events of the war also had a profound impact on the way in which planners viewed their cities. The bombing of cities such as Dresden and Tokyo as well as the nuclear attacks on Hiroshima and Nagasaki demonstrated the destructive power which existed in the world. Reacting to this many planners began advocating for a policy of ‘defensive dispersal’ in order to mitigate the effects of explosive threats to cities (Rhodes, 1986). The movement was largely developed in the United States shortly after the dropping of the atomic bombs in Japan. Realizing the devastation which could be caused in single explosion planners opted to react against this and develop a strategy to decrease the likelihood of an attack and dampen the effects of an attack should it occur. The movement was led largely by veteran planner Tracey B. Augur from the United States (Rhodes, 1986)<sup>1</sup>.

With a great amount of post war development taking place Augur argued that a “dispersed pattern of small efficient cities [that are] much more attuned to the needs of modern living, modern commerce and modern industry” should be developed in place of adding to the dense cities which he argued would make them “more inviting targets” (Scott, 1969; Dunley, 2002). The rationale behind this thinking was that if cities were dispersed properly the use of a nuclear weapon would not completely shut down a city. With the proper dispersal of industry and population no single attack would be able to halt production in a given area making it less likely to be targeted in addition to being significantly more resilient. Augur

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Augur had the unique position of not only being a planner following WWII but had worked on the secret project “Atomic City” as a planning consultant in the development of Oak Ridge. The Project was aimed at developing manufacturing facilities for the production of nuclear arms (Rhodes, 1986). Combining his employment with the issues of the day and the personally haunting images of the bombing of European and

was concerned not only with the agglomeration of people but also of industry as manufacturing had been a significant target during the WWII era seeing as it was the means of support for the war effort and an integral part of the military industrial complex in the United States. Augur's new urban form would see the construction of satellite towns with specific parameters for construction similar to Ebenezer Howard's Garden City concept. Other planners of the day such as Detroit Planner Donald Monson would build on this principle arguing that the creation of satellite towns was not enough and that the center of cities needed to be broken up in order to create a safer environment (Dudley, 2002). The plans of Augur and Monson also called for the mass use of expressways to link the satellite towns. They also argued that the expressway projects would increase the rate of slum clearance and that

*“Once the construction of satellites was well under way, and freeways driven through the metropolitan areas, work could then commence on widening the right-of-ways of these expressways and relocating former residents. The long-term view was to convert the central mass to a ‘number of more or less self-contained communities with populations of 50,000 to 100,000 each, separated one from another by broad belts of open space’ (Dunley, 2002 p 53).*

These plans coupled with the fact that slum clearance was becoming very popular across the United States and with new technologies which allowed decentralization such as telephones and radio the ideas proposed by the two were seen as not only safer forms of development and living but also more desirable (Dudley, 2002). The excerpt from Monson's work with his economist wife Astrid Monson demonstrates the prevailing thought of the day and the general view toward decentralization;

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British cities, Augur encouraged his colleges to consider decentralization as a strategy for urban defense (Scott, 1969).

*the present fearful . . . threat hanging over the great city [will] have been turned into so great a blessing that men, looking backward in an age in which atomic power shall have been fully harnessed to peaceful ends, will say that the greatest benefit which flowed from the explosion at Los Alamos [sic] was the enforced rebuilding of our urban centers.* (Monson, D & Monson, A 1951 p 111).

With prevailing thoughts such as these amongst high ranking planners coupled with the Defense Department (now Department of Defense, DOD) plans for increased highway creation as a defense tool, cities had the necessary conditions to create sprawling suburbs highly dependent on the automobile. In fact, the Defense Department was instrumental in the creation of many highway routes which were built as defense infrastructure, “While the majority of the intercity routes (totaling 37,700 miles) had been tentatively mapped out in 1944 (St.Clair 1986 p 156), the Defense Department had been consulted regarding the remaining 2,300 miles, which were planned as circumferential routes so that (bombed) urban centers could be bypassed” (Dunley 2001p 60). This was a largely American phenomena and cannot be considered the singular reason for the creation of sprawling suburbs, however the availability of transportation routes created by it would certainly influence mobility and people’s ability to live further from employment centers.

The decentralization of urban centers in the United States demonstrates how perceived threats of violence can affect city form. The development of the atomic bomb as well as the experiences of WWII provide excellent examples of planning changes which can come about following acts of violence and destruction.

The examples above provide historical precedents for the depopulation of cities due to violence and the changing of urban form due to realized and perceived threats of terrorism or violence in cities.

## **2.6 Perceived and Realized Terrorist Threats**

The perceived threat of terrorism is one of the most costly affects of the aftermath of an attack. While the initial attack may destroy a large amount of capital in a city the fallout from such an event can be even greater in that it deters the creation of new capital in the area out of fear of future attack. Additionally, as Rossi-Hansberg (2004) states the effects of realized attack can have more far reaching implications for urban business and the generation of funds by reducing agglomeration tendencies in firms and reducing population as well as creating significant transaction costs. He argues that capital destruction creates considerable costs and distorts agglomeration tendencies and forces. The time and effort taken to rebuild infrastructure will therefore be more costly than the real cost of replacement as agglomeration will fade, population growth will slow or fall and a generally lower return on capital will result. (Rossi-Hansberg, 2004).

This is best seen in the case of New York City where the destruction of the World Trade Center as well as other structures has created a significantly different urban form in the local area. The reduction of almost 13 million square feet of class A office space in Manhattan has created a significant shift in the office structure of the city. The Costar real-estate group citing the findings of Julien J. Studley Inc found that:

*“The majority of large displaced tenants signed leases in locations outside of Downtown Manhattan. For transactions larger than 50,000 square feet, 65% signed in Midtown, 17% in New Jersey, 5% in Westchester County, NY, and Connecticut and 9% in Brooklyn and Queens in New York” (Heschmeyer, 2001 p 221).*

This mass exodus from Manhattan represents the profound effects which even a single terrorist attack can have on the urban form of the area. In fact a vacancy rate increase from 10.4% to 12.9%, an increase of 24% was reported in downtown New York from the period of

September 2001 to September 2002 (Eisinger, 2004). What is also important to consider in situations such as this is the larger affect which decentralizations has on the supporting and spin-off businesses in the area. Agglomeration tends to create spillover and spinoff in similar and supporting sectors. As noted by Koo 2005;

*“Studies have emphasized reduced transaction costs, knowledge spillovers, diverse intermediate goods suppliers, and deep labor pools as possible drivers of firm agglomeration. Among these candidates, knowledge spillovers lie at the heart of discussions in the literature. If knowledge spillovers are so important, it follows that firms tend to locate in proximity to capitalize on the knowledge stock in neighboring firms. There-fore, agglomeration and spillovers reinforce each other” (Koo, 2005 p 35).*

Without this reinforcement and the decentralization of business it is therefore possible to surmise that the displacement of industries due to terrorism are at a disadvantage compared to those which are centralized and have access to the tacit knowledge of one another.

Additionally the supporting industry of service providers such as food services, office supply retailers, copy centers etc. all suffer at the hands of decentralization of business into other areas in and near New York. Those firms whose business was predicated on geographic location near major firms severely suffered when the World Trade Center was destroyed and business moved elsewhere. This also has a direct impact on the urban form of the local area. Not only have structures themselves been destroyed but the business culture which drives investment and ultimately affects urban form in the area has also been affected. Without the staple of the World Trade Center which was heavily subsidized by the government and Nelson Rockefeller downtown New York may fall into a state of significant decline, especially considering the dominance of Mid Town Manhattan which has three times as many employees as does Downtown (Glaeser & Shapiro, 2002). With lower levels of employment in downtown especially following the exodus of agglomerated firms and the

destruction of local structures there comes a fear that reinvestment will not follow due to lack of demand for office space in the area, and the availability of space elsewhere including Mid Town, New Jersey and possibly in the five boroughs. Glaeser & Shapiro, 2002 state this well in the analysis of the condition of Downtown New York and the long-term impact of the destruction of buildings due to terrorism.

*“The long-term impact of the destruction of buildings depends critically on whether the demand for physical space in the area is such that the buildings will be rebuilt. In an area where demand is great enough to pay for the costs of new construction, the physical destruction will not matter. However, in other cases, when the demand is low, the destruction of physical infrastructure may matter a great deal. In some cases, agglomeration economies may mean that demand for the space was high before the bombing but low afterward. If the price of space after the destruction is not high enough to cover the costs of new construction, then the direct impact of bombing will be permanent” (Glaeser & Shapiro, 2002 p 213).*

The destruction witnessed in New York demonstrates the changing nature of war and terrorism and how relatively few people can cause extreme hardship for an entire city due to advances in technology. This is a far cry from a single marauder attacking a walled city of the past where it was more likely that one would only get themselves killed in an act of violence against a city. The events of September 11, 2001 demonstrate the inherent vulnerability of cities to attack and the fact that agglomeration people and business makes cities more likely targets for terrorism than other forms of development especially rural or hinterland development. While there are certainly instances of attacks on other targets such as the Pentagon also on September 11, 2001 and various embassies and the Federal Building in Oklahoma City in 1995, even these structures have a common themes of agglomeration associated with them. They centralize power, resources, personnel and knowledge in a single area and make themselves targets for terrorists. Additionally, they have symbolic power as they are intuitions of government and power which when destroyed create a significant and

powerful symbol around the world. Despite the effects of terrorism on urban form and the function of cities there is encouraging evidence that terrorism is not necessarily a stronger decentralizing force than urbanity is a centralizing force.

The case presented by Glaeser & Shapiro, 2002 comparing the population of Jerusalem and Tel Aviv demonstrates this well. Despite the increased rate of terrorism in Jerusalem compared to Tel Aviv the population of Jerusalem has climbed more rapidly than that of Tel Aviv. The authors state that “It would seem that Jerusalem’s advantages—physical beauty, a strong tourist economy, and historical significance—outweigh the relative dangers of terrorism in that city” (Glaeser & Shapiro, 2002 p 218).

The effect of mass violence and terrorism in urban areas is complex. Different instances around the world have produced different effects. Some cities have grown and continue to do so in the presence of both real and perceived violence, while others decline and have their agglomerated firms disperse. With reference to the Canadian landscape, it is difficult to determine what the effects of a major terrorist attack in a city such as Toronto would produce. The negative effects suffered in New York are in part due to the heavy subsidization of the World Trade center and the loss of business in Downtown New York. Toronto has fewer business districts than does New York and would likely see the destroyed structures rebuilt at a faster rate than in New York. However there is no certainty considering much depends on the economic and political climate of the time.

Despite the uncertainty created by terrorism history and research have made some aspects very clear; cities are likely targets for terrorist attacks, agglomeration of businesses, people



and government intuitions makes them attractive targets and the destruction of structures and the threat of violence whether it be real or perceived greatly affects urban form in cities.

## **2.7 The Issue of Decentralization**

Canadian planning policy has made strong movements in favor of a more centralized urban form. One characterized by having people live close to where they work, inhabit high density structures and neighborhoods and agglomerating commercial, residential and industrial activities in close proximity to one another and often next to or on top of one another. The city of Toronto which is home to 2.84 million people in the city proper and 5.5 million in the metro area is Canada's largest urban center and main economic engine. Plans by the City of Toronto strongly advocate for a more centralized city not only from an economic and logistical point of view but there is a general belief that this form of more dense urban living is more desirable.

*“The same characteristics and qualities that make these cities great places to visit also make them great places to live. What do these places share in common? All are very urban, high density, mixed use, mixed income, transit and pedestrian oriented vibrant places” (City of Toronto Official Plan, p 158 s 3-1).*

Additionally, higher level provincial policy is demanding that cities become more compact and the former urban pattern of decentralized development be done away with in favor of a more centralized urban form as the excerpt from the Growth Plan for the Greater Golden Horseshoe describes;

*“increasing intensification of the existing built-up area, with a focus on urban growth centres, intensification corridors, major transit station areas, brownfield sites and greyfields. Concentrating new development in these areas also provides a focus for transit and infrastructure investments to support future growth... By the year 2015 and for each year thereafter, a minimum of 40 per cent of all residential development occurring annually*

*within each upper- and single-tier municipality will be within the built-up area” (Ontario Ministry of Infrastructure, 2006 p 10).*

These policies follow a plethora of planning theory and research which advocates for the centralization of cities in the contemporary era. The idea of smart growth which advocates denser more manageable and prosperous cities with efficient delivery of services and agglomeration of business and people has a strong presence in academic literature and planning practice (Myers, 1999; Fader 1999; Danielsen, Lang & Fulton, 1999, Fox, 2009).

While many scholars and planning officials have adopted this as conventional wisdom there are others who advocate for the decentralization of cities. Those who support the continued decentralization of cities do so for a variety of reasons such as social reform, economics and, in the scope of this research, for the safety of city dwellers. In the decade following September 11, 2001 many experts in the security field have advocated for a less dense urban form in order to minimize potential losses and deter terrorism (Briffault, 2001).

### **Chapter 3: Recent Security Planning Trends and Developments**

In the post WWII years some municipalities and planners have taken it upon themselves to develop security plans that are tailored to their specific needs. (Dudley, 2002) Similar to the criteria of official plans and sometimes incorporated in them; these security plans are aimed at creating safer urban environments. In fact it is a legal requirement of major cities to have a plan in place which deals with the complex issue of security planning as outlined clearly in a staff report on security planning prepared by the City of Toronto in 2008. It states;

*“Senior management are legally responsible to ensure employees, patrons, and assets are appropriately protected and to ensure security programs are in place that deter, detect, and respond” (Nichol, 2009 p 4).*

This mandate is largely based on Bill c-45, created by the federal government in 2004 to address security, criminal and occupational health and safety issues. The main provisions of the bill as outlined in section 217.1 of the Criminal Code state that it:

“Created rules for establishing criminal liability to organizations for the acts of their representatives.

Establishes a legal duty for all persons "directing the work of others" to take reasonable steps to ensure the safety of workers and the public.

Sets out the factors that courts must consider when sentencing an organization.

Provides optional conditions of probation that a court may impose on an organization.”

(Canadian Center for Occupational Health and Safety, 2010)

Past security plans in North America have focused largely on creating patrols and assessing building security (Nichol, 2009). Corporate security remains the main interest of most

municipalities with regard to security with some emphasis on safe city doctrine. Current security planning has a much larger focus with many more issues under its umbrella including: anti-terrorism, emergency planning, domestic violence, crime prevention and many other matters, which may occur locally and fall under the sphere of security planning (Nichol, 2009). In the case of the Toronto, the city has taken it upon itself to develop an action plan in order to mitigate the effects of terrorism and other security issues. Toronto reflects the general trend being adopted by large municipalities which are developing their own security plans on a variety of bases and are making significant contribution to the literature surrounding security and anti-terrorism planning. The 2006 World Urban Form provides an excellent example where security concerns were addressed and made center stage in the working document for the event. Most importantly the policies and practices being developed in municipalities around the country are putting into practice many of the theoretical and technological developments which the academic world has created. Advances in Geographic Information Science for example have made their way into the framework of security planning and the development of anti-terrorism strategies for urban areas (VanHor & Mosurinjohn, 2010). What the Toronto staff report on a city wide security plan has accomplished is the identification of benefits associated with having security plans in place to deal with the many issues which may arise. However, many of the steps taken by the municipality fail to take into consideration higher level security concerns such as terrorism.

One of the most important products of reports such as the Toronto Staff report is the publicity which security and anti-terrorism planning receives. While relatively minor in the overall

contribution of knowledge to the field, the identification of a gap in understanding on the part of municipalities and the increased conversation about the topic brings with it a potentially great influence. This is especially true in Canada's largest cities, which are the most likely targets of terrorist activity and have the highest potential for disaster (Coaffee et al 2009).

### **3.1 The Role of Regionalism**

Reports such as those mentioned above demonstrate that the issues are being looked at in a local municipal context. However, most cities do not have the resources or necessity to develop their own city-wide security plans and some areas are turning to a regional approach in order to overcome these challenges. Unfortunately, the case has been that regional level security plans are generally developed following a major disaster (Caruson & MacManus, 2007). The case of Hurricane Katrina in Florida provides an excellent example of this and demonstrates how regional organization and preparedness can be used in the place of municipal security plans. Though a natural disaster, Hurricane Katrina provides a recent example of how wider scale cooperation can be used to better prepare cities for disaster and how the pooling of resources create safer environments. Regionalism's appeal as a method for enhancing intergovernmental cooperation has only grown in the wake of Hurricane Katrina (Caruson & MacManus, 2007; Comfort, 2002). However as is often the case progress is made in the face of tragedy. Similarly Florida as a state has moved toward using regionalism to respond to the ever present threat of natural disaster there. Florida which in the wake of an immense disaster made progress toward meaningful cooperation between different levels of government and created security plans to mitigate the effects of disaster, Canadian policy has not. What is strongly demonstrated by Caruson and MacManus (2007)

is the policy shift which is taking place across North America in order to create a safer environment. In the case of Canada, many cities are focusing on the creation of municipal plans as mandated by law and encouraged by the economic and social benefits which can come with it. However, Canadian public planning literature is demonstrating the vertical disintegration which exists within it.

However, academics and some governments are stressing the importance of regionalism as a way to mitigate attacks and preserve life across many cities. As mentioned, most cities will not be able to fend for themselves in the event of a large scale terrorist attack or natural disaster as admitted by some in the 2008 Emergency Preparedness Report created by the Federal Government of Canada. Being able to call on the resources of nearby cities and concentrate personnel and equipment is a critical requirement of managing a natural or human made disaster. While cooperation between cities does exist the logistical issues which a lack of equipment and training has caused has been identified as a serious concern for municipality's ability to respond to a terrorist attack, prepare of a terrorist attack or generally respond emergency situations as they arise (EPC, 2008).

One of the recent influential policy initiatives in security planning is the idea of regionalism and having plans and strategies in place for a variety of events. A large focus of this is the logistical network which needs to be developed to ensure that within a region, experts, equipment and personnel are available at a moment's notice and have been trained to respond to the disaster scenario which has been presented to them. This concept of regionalism builds on the simple idea that we are stronger together than standing alone. It is also in line with the idea that safety and security are not only the responsibility of high ranking officials,

police or the military. This thinking may also have to do with the fact that more civilian targets are being attacked in urban areas. In recent years many Canadian regions, as part of their emergency preparedness plans have coordinated services between cities in order to respond to the possibility of larger occurrences. Regionalism is allowing resources to be pooled in order to prevent local emergency services from being overwhelmed in the event of a disaster.

### **3.2 Creation and Adoption of Security Plans**

In the past decade many of Canada's largest cities have moved toward the creation of city-wide security policies but have not gone so far as to draft any plans and bring them into law. Policies have been worked into the larger framework of official plans however security master plans remain rare and underdeveloped. The City of Hamilton provides an example of this, when in February 2006 a submission was made to council suggesting the creation of a city-wide security plan. Since that event no plan has been made public demonstrating the lack of will, funding or bureaucratic issues have waylaid the plan. The literature analysis of Canadian cities has demonstrated that while security concerns do arise in many places, and that some minor security issues are worked into master plans, there is little emphasis on the creation of an independent security master plan in most cities. Where security planning has arisen as an issue of concern it has been demonstrated that terrorism and anti-terrorism strategies are not at the forefront of thought. Security, at the municipal and regional level in Canada is largely concerned with issues of public safety as they relate to conventional crime, property damage in the form of vandalism and similar issues (Nichol 2009). The issue of terrorism is either avoided or overlooked as regional and municipal governments focus on

matters which they have experienced. The City of Hamilton demonstrates this trend in their own policy which states:

*“The City of Hamilton is committed to providing a safe and secure environment in its facilities for employees, visitors and users of its facilities. Protection of assets from theft and unlawful activities or destruction is a major continuing objective. The City will make every effort to enhance security in its facilities by providing state of the art technology and access control, surveillance, and physical security” (D’Angelo, 2006 p 1).*

What is also demonstrated in the language used by the City of Hamilton is the emphasis on making publically owned property safer and enhancing security at its own facilities. This is not an uncommon trend in publically available security planning literature. Much of the focus is devoted to areas or structures which are directly owned by the municipality and therefore where liability also lies. However what is often missing in the publically available security planning literature produced by governments are plans by to make cities as a whole safer by means of physical security improvements, policy changes or the use of security personnel or police. Without these thoughts or plans in place there is little chance that city wide security plans will come into existence let alone a highly connected regional network. It must be noted however that this review of literature has examined publically available security plans. There is a real possibility that security plans, especially in areas such as Ottawa and Toronto, exist but are not made public for a variety of reasons. What is common in Canada however is the lack of strong security mandates being placed on municipalities or Canada’s provinces or being developed by them independently. There is little emphasis placed on preventing terrorism at a local or regional level using urban planning tools and techniques.



### **3.3 Academic Literature: Resilience, Infrastructure and Aesthetics**

The state of understanding and literature that exists in the academic world is far more advanced, involved and specialized than the practice of security planning at municipal and regional levels, and what is often used at higher levels of aggregation such as a by federal agencies and national police forces. What academic literature has identified as a policy problem, which is preventing governments from being properly prepared for major disaster, is the lack of intergovernmental cooperation for dealing with terrorism or other large scale emergency situations. Internal cooperation at the closest-to-the-ground level is fractures as demonstrated by Canada's largest municipality. A 2009 internal staff report demonstrates this well, stating;

*“In the case of Agencies, Boards, and Commissions (ABCs), there are ABCs without any dedicated security management and a few with dedicated security management including Exhibition Place, the Toronto Parking Authority, the Toronto Transit Commission, and the Toronto Zoo. These ABC's have dedicated security management and programs because of unique operational, physical, and legislative security requirements, as well as, for the most part very defined property limits. There exists little coordinated security between ABC's and between ABC's and Corporate Security” (City of Toronto 2009, City Wide security Plan Staff Report p 4).*

Academic literature is also demonstrating that municipalities are not prepared to handle the effects of terrorism on their own (Comfort, 2002). Academics are stressing the importance of regionalism in the face of disaster and anti-terrorism planning. Shifting policy toward a more vertically and horizontally integrated system of anti-terrorism and disaster management is one of the trends in management which has appeared in the past decade. Some areas of North America are embracing this new principle however most have not reached this step. In order to operationalize many of the proposed policy changes, research in the academic field has focused largely on the concepts of resilience, and physical infrastructure. The two

concepts which are explored in my own research are two fundamental concepts of anti-terrorism planning and have been at the forefront of anti-terrorism planning in the past decade. Resilience is a measure of how well a system can bounce back from an attack and regenerate in order to be prepared for more of the same as well as how quickly it can return to normality (Campanella, 2006). Physical infrastructure with respect to security planning refers to capital projects aimed at preventing or dampening the effects of terrorist attacks. Both of these concepts are well researched and have made great progress in the past decade. The incorporation of various technologies such as 3D modeling, geographic information science and systems as well as materials science has led to the development of new and less intrusive ways of dealing with terrorism while maintaining an atmosphere in cities which feels safe without adding the feeling of impending doom (Coaffee & O'Hare, 2008). The preservation of aesthetics and accessibility in cities has also been a forefront issue in recent security planning. The idea that cities belong to the people who inhabit them and visit and are not to be secured as military installations is a common theme which is running through much of the academic literature as of late. These ideas are reinforced by the notion that creating a sense of fear and limiting the use of our cities because of the perceived threat of terrorism is not conducive to the mental health of people nor is it conducive to good business (Coaffee & O'Hare, 2008). Both of these issues have been brought to the forefront of security planning, as planners must now seek a way to ensure constant security without constant interference. The drive to preserve aesthetics in the face of terrorism is in itself important but has also made important contributions to the advancement of physical infrastructure, which aims to mitigate and prevent terrorist attacks. These advancements in

thinking and science have led to the current state of security planning. While these recent developments have had great influence on security planning the roots of the practice In Canada are largely influenced by British experiences dealing with the Irish Republican Army (Coaffee, 2004). When dealing with these issues British security planners opted to erect rings of steel and concrete to prevent attacks by IRA members (Coaffee, 2004). In doing so the British planners created a system in which London was nearly closed off to citizens, who were forced through many security barriers. Witnessing the results of IRA attacks in London and the detrimental effects which these security measures had on the social, economic and aesthetics properties in the city of London as well as others in Britain where terrorism was an issue and forced security planners to reconsider their methods.

### **3.4 Physical and Social Geography of Terrorism**

Traditional security planning focused largely on utilitarian security infrastructure and surveillance on areas that were seen as high risk targets (Coaffee et al 2009). Current practices have strayed away from this form of thinking, as the geography of terrorism has widened and there are more potential targets throughout urban areas which were traditionally not targeted (Coaffee et al 2009). Apart from nontraditional targets, new thinking in security planning has also shifted the burden of public security to planning officials, citizens groups, and other public and private institutions (Coaffee et al 2009, Rose, 2000; Coaffee & O'Hare, 2008). While experts remain a strong and important force in security planning, the number of people working in the field has increased. Academic attitudes and public policy relating to terrorism have also had identifiable geographic differences with respect to academic literature and the implementation of public policy. British researchers as of late have focused

a great deal of attention on qualitative methods of inquiry, while American political scholars have focused largely on quantitative analysis (Coaffee et al 2009). Changes in thinking with respect to the built form have also taken place and have been identified in academic literature.

Environmental determinism has had a reassurance in security policy as architects, engineers, planners and the like seek to control the movements of people. In opposition to this some scholars argue that the geography of cities is changing creating 'landscapes of terror' (Coaffee et al 2009, Pawley, 1998; Coaffee, 2003; Weizman, 2007). These types of landscapes have been accused of being both placeless in that they are inconspicuous and have no particular draw or iconic nature to them. The idea being that anonymous places are less likely to be targeted (Pawley, 1998). On the other hand some critics have been vocal of the creation of architecture of fear which has been obviously reinforced in order to deter and mitigate acts of terrorism. This has left some in the security planning community and in academia split on the issue. However in the face of these concerns the ideas of aesthetics and creating safe and hidden anti-terrorism infrastructure has arisen. This may be largely due to the changing environments which are being targeted by terrorists. This has been especially true in the British experience when in 2007 two years following the London subway bombings, an attempt to bomb a popular nightclub was carried out (Coaffee et al 2009). Events such as this have spurred security planners and policy makers to reassess the geography of terrorism in light of the fact that people conducting their everyday business are now targets, especially in those places where population density is high and there is a great potential loss of life in the event of a terrorist attack. Coaffee (2009) states:

*“A new front has therefore been opened in the global ‘War on Terror’ – the ‘home front’ – with a range of actors including the general public urged to help defend places from attack, or at least to take measures that will mitigate the effect of a successful strike” (p 247).*

The changes in the nature of terrorism have greatly influenced the practice of security planning and have created a new dynamic in the field where traditional experts are having their ideas and work criticized by and contributed to by various actors in the public and private realms. This has perhaps been one of the most visible changes in security planning in the last decade. As in all studies new ideas arise and new technology makes something possible and others obsolete. However, the contributions of various actors in the urban realm have been one of the greatest changes in the war on terrorism. Canada as well as many other countries is following a similar path. Where in the past security was left to police, military and other federal security agencies it is now the prerogative of municipalities, regions and corporations. Decisions by cities such as Hamilton, Mississauga, Toronto and others to create their own security master plans is in line with this new thinking that a wider audience must take responsibility for the security of the city and its population. However the plans being proposed by these cities are in the preliminary stages and official security plans have yet to be published. The case study of Washington D.C. in the following text demonstrates a complete and operationalized security plan.

### **3.5 Emerging Targets and Tactics**

Unconventional tactics by terrorists and their use of advanced technology has also created a need for a greater emphasis to be placed on a range of traditional and nontraditional targets including, soft targets which were traditionally not attacked in the past (Coaffee, 2009). The

testimony of Brian Michael Jenkins before the Senate Homeland Security and Government Affairs Committee on January 28, 2009 demonstrates this well:

*“Terrorists will continue to focus on soft targets that offer high body counts and that have iconic value. Nationally and internationally recognized venues that offer ease of access, certainty of tactical success, and the opportunity to kill in quantity will guide target selection. Public spaces are inherently difficult to protect. Major investments in target hardening make sense for government only when these provide a net security benefit, that is, when they do not merely displace the risk to another equally lucrative and accessible target” (Jenkins, 2009 p 2).*

An excellent example of soft target attacks was witnessed in Mumbai in 2008 (Wade, 2009; Sengutpa, 2009) This style of attack also demonstrated the use to wireless technology by terrorists and rare siege style tactics which were extremely successful at killing civilians and destroying infrastructure and businesses.

With these new attacks being perpetrated against dense civilian targets, many security planners have adopted a new form of thinking and tactics that diminishes the emphasis on preventing attacks by seeking out perpetrators before an attack happens, although this does remain an important part of anti-terrorism and counter terrorism tactics. This is especially true in North America where many plots have been foiled by various police services, an excellent example being the case of the “Toronto 18,” where a group of men plotted to destroy targets in Toronto in a similar style to the September 11, 2001 attacks in New York City (Teotonio, 2009). While public civilian areas have come to be popular targets in recent years, cities, especially those with large financial and public institutions in them have always been and remain targets (Webb & Cutter, 2010). In fact New York City accounts for 19.9% of all terrorist related attacks in the United States before 2005, demonstrating that well known cities with many financial and government structures are targets of terrorist activity

(Webb & Cutter, 2010). The targets of terrorism have not dissipated in recent years but expanded as the scope of possible targets increases with the widening moral latitude terrorists have (Coaffee, 2003). It may be that Toronto falls into the same category as New York, seeing as it is similar in many ways. Statistics such as this demonstrate that need for Anti-terrorism planning considerations to occur in major cities seeing as metropolitan areas the most likely targets of terrorist attacks (Coaffee, 2003, Webb & Cutter, 2010).

New emphasis is being placed on preparedness for a successful attack and predicting where and when an attack will occur rather than preventing it outright. The notion of inevitability and being able to respond to a successful attack has become more important as the scope of morally acceptable targets of terrorists has widened in the face of religious extremism. This makes all areas of cities potentially vulnerable and it is generally accepted that not all areas can be protected against attack, therefore the goal of response and minimizing the loss of life and damage must be focused on.

The current state of security and anti-terrorism planning has been largely influenced by changes in the nature of terrorism. The prominence of suicide bombings as a major tactic has also led to changes in the anti-terrorism tactics employed by security planners. In response to the new tactics and use of technology by terrorists, experts and academics are moving toward a system of national defense wherein a wider group of people is responsible for the protection of people and property. Some North American cities have begun to draft their own security master plans; however, many of them do not have a strong focus on the risk posed by terrorists. There has also been a movement toward regional organization of cities in light of the fact that no one city can stand alone against this threat and that response and

mitigation measures will be more timely and effective if policy requires reorganization at this level in order to prepare for disaster scenarios (Caruson & MacManus, 2007; Comfort, 2002). Finally the psychology and environmental determinism in security planning is being considered once again as some scholars and practitioners opt for fortress style urban spaces while others seek to create anonymous spaces which are less likely to be targeted while another group of new thinkers reinforce the ideas of aesthetics and creating hidden security infrastructure. While the role of the security planner is widening and the number of players is increasing the goal of preserving life and property remains the same although some have adopted the attitude of inevitability of attack and seek to minimize the damage caused by a successful attack rather than prevent the occurrence of one.

To combat many of these tactics and to create safer security environments security planners have adopted a variety of technical and social tools to prevent and mitigate terrorist attacks. The following section describes common preventative measures the thinking behind them and how they are influencing the urban form cities. This section will also demonstrate how planners can easily implement many of the technological and aesthetic tools in their own cities without the approval of higher levels of government while operating well within the described mandates. It will also demonstrate how physical changes can change the urban form of cities and how by using innovative strategies planners are able to dampen the negative aesthetic impact of anti-terrorism infrastructure and retain the traditional atmosphere while providing a secure environment.



### **3.6 Aesthetics**

The notion of beautiful cities which inspire people and encourage them to walk the streets and attract visitors is one which is deeply valued. While the goal of many terrorists is to destroy these areas it is necessary that those whose job and duty it is to protect them do not inadvertently destroy their quality in the process of defending them. New technology is allowing defense planners to do away with the rings of steel once used to defend urban areas. New innovations such as hydraulic bollards, turn tables, tiger traps, road blockers, closed circuit television (CCTV) and changes in the design of and look of traditional walls fences, bollards and the like are allowing cities to be well defended without compromising the aesthetic qualities which exists in the area. These new innovations combined with proper placement and well thought out urban design allow cities to both function well and appear pleasing while protecting the people and the environment in which they live.

Realizing the importance of these qualities the city of Washington D.C. decided that it required long-term anti-terror infrastructure which would not compromise the quality of life in the city, as a result they created the National Capitol Planning Commission (NCPC). The mandate of this commission was to ensure that Washington D.C. was protected from possible future attacks without eroding the sense of freedom and the beautiful landscapes which exist in the city. In order to accomplish this, a task which is still ongoing, it was decided that concrete walls, steel fences and Jersey barriers would be replaced by a variety of aesthetically appealing hardened infrastructure. Since “fortress architecture is elevated to represent a national discourse of war, fear and entrenchment” it is necessary to blend security measures into the urban environment to prevent this (Benton-short, 2007).

### **3.7 Accessibility**

Urban security should not impede people's ability to travel in and between cities and should not place undue hardship on visitors and residents of cities. Many anti-terror infrastructure changes in the post September 11 world have focused on target hardening and making overt statements of strength and protection (Coaffee, 2004). While it is necessary to sometimes display defensive prowess and create a general feeling of toughness in cities this cannot come at the expense of accessibility. Washington D.C., which is one of the world's most iconic centers of freedom has seen its main avenues and streets turned into checkpoints emblematic of old Berlin. Traffic in many areas is halted during peak hours or during special events as main thoroughways such as Pennsylvania avenue have been shut down out of fear of a another attack on a high profile target. Queues have been erected in some areas causing pedestrian delays. Not only do these impediments to vehicular and pedestrian traffic interfere with the daily lives of residents they also have adverse economic effects.

Contemporary urban defense design calls for infrastructure which does not impede traffic flows but rather, directs it better. It must also ensure that people with disabilities are not marginalized in the name of national security. New forms of urban security may rely on the tracking of individuals and detections of dangerous material rather than physical barriers.

While there is a growing trend toward digital surveillance walls, bollards and barriers which are among the most fundamental security devices are irreplaceable and as such must be designed and implemented in ways which do not decrease people's ability to move with ease in their environment.

### **3.8 Community context**

Unlike defensive strategies of the past, contemporary defense calls for citizens to live in a secure environment for the rest of their lives. Past anti-terror measures focused largely on the principles of fortress architecture and defensible place, to protect localized areas. Ireland in the 1970's and Las Angeles provide us with examples of these experiments in national security (Coaffee 2004). Current wars are not fought and won in clear terms as such; contemporary defenses will be long lasting and ever-present. It is important for designers to design with the community in mind as mentioned above. As Brown stated in his New York Times article: "Barricades and bollards have become the newest accessory on this country's psychic frontier ... you might call it the architecture of paranoia. They call it defensible space" (Brown 1995). Terrorists have accomplished their goal if we destroy the sanctity and meaning of our monuments with architecture and measures of fear. While "the car bomb may become the ultimate weapon of crime and terror" in today's urban battlefields, "Security solutions need to be very carefully planned to maintain the public amenities and aesthetic qualities in neighborhoods in which residents and visitors feel welcomed, comfortable, and safe" (Davis 1992 p 12, FEMA 426, 2003). It may be that freedom comes with a measure of acceptable risk, a measure which is yet to be determined, however it is not possible to have a city which functions well when its residents live in constant fear and inconvenience (Molotch and McClain, 2003).

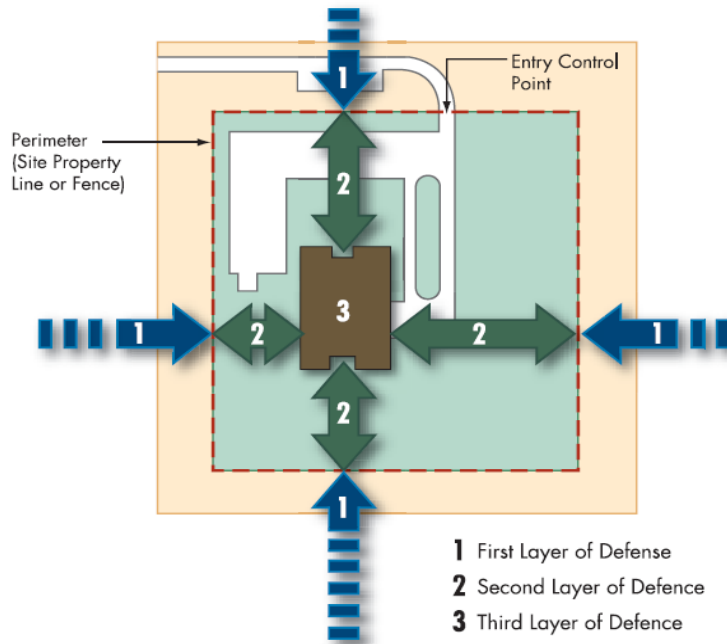
### **3.9 Site Specific Security Design**

The following section outlines some site specific anti-terrorism and traffic control measures which are being utilized throughout North America. An analysis of defensive tactics and site

analysis as outlined in the FEMA Risk Management Series is explained and developed below. These tactics and analysis tools can help planners develop policy and site specific security requirements.

### The three layers of defense

The three layers of defense system is a traditional, spatial way of examining and engineering both the built and natural environment around an asset. It involves analysis of the community surrounding an asset in the first layer; the area between perimeter defenses and an asset in the second layer and the asset itself in the third layer. This method examines the features of all of these areas and evaluates them from a spherical standpoint. Meaning that, security analysis of the sky, ground level and underground level are all covered and



evaluated.

**Figure 1: The three layers of defense provide a foundational structure for built form changes aimed at preventing and mitigating terrorist attacks.**  
Source: FEMA 430

### **3.9.1 The first layer of defense**

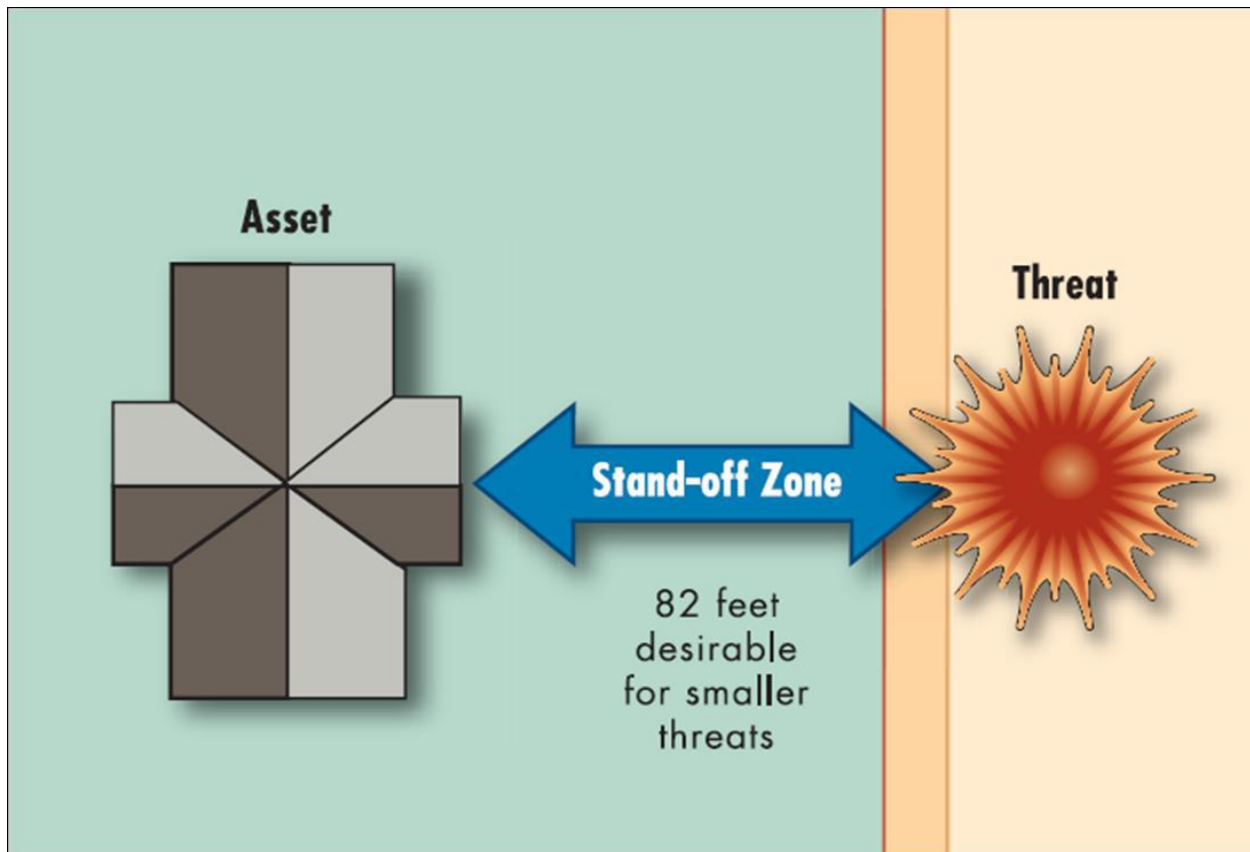
The first layer of defense, also known as the outer layer or surrounding community is the first front in preventing a terrorist from detonating a device at an interior target location. Careful analysis of the exterior community is essential in developing a sound and effective plan to protect interior assets against attack. Considerations such as viewpoints, local hazardous chemical sites, underground tunnels, sewer systems and more must be considered in order to effectively plan for the subsequent layers of defense which follow the first outer layer (FEMA 430, 2007). Understanding the first layer of defense requires an in depth knowledge of the types of activities and structures which exist in the third layer. By identifying what is common and what belongs it is easier to identify threats which do not belong. This can involve knowledge of transportation routes or the shipping and receiving habits of a local chemical company. Knowledge of the area surrounding an asset is essential in defending the asset. The first layer of defense while defined by a geographic area exists largely in the minds of people especially those involved in the protection of an asset (Hopper & Droge 2005). Analysis of this layer allows for early detection of a threat and interception before it can reach an asset.

### **3.9.2 The Second Layer of Defense**

The second layer of defense: “The primary strategy in planning the second layer of defense is to keep terrorists away from inhabited buildings” (FEMA 430, 2007 p 95 s 3-5).

The goal of the second layer of defense is to prevent terrorists from gaining access to interior areas where their devices will yield the greatest amount of damage (FEMA 430, 2007). This

is done by creating both active and passive layers of defense.. Second layer defense systems which include fences, walls and other general perimeter defenses combine to create the line of demarcation. Perimeter defenses are especially important in dampening blast damage from a hand delivered or vehicle delivered device (FEMA 426, 2003). These barriers create the point of critical detonation which refers to the closest point of detonation assuming all security measures which are in place have not been comprised or breached. The distance between perimeter defenses and the target is known as the standoff distance (FEMA 426, 2003).



**Figure 2: standoff distance can greatly dampen the effects of explosives in structures and people. Maximizing standoff distance is however not always possible especially in dense urban areas or historical areas.**  
Source: FEMA 430

Through the strengthening of the second layer of defense planners aim to increase standoff distance and create an environment in which an attacker would be detected. By increasing the distance between the blast and the target, designers expect that the force which does reach the building is insufficient to cause any damage to the structure, windows or people inside.

While this tactic is seemingly simple in theory the practice of increasing standoff distance and erecting physical barriers which prevent people or vehicles from delivering explosives and which do not prevent honest, law-abiding citizens from enjoying and interacting with their environment is difficult. Secondly by creating a larger distance from perimeter defenses to an asset planners aim to detect a threat as it traverses that distance. Since it simply takes a longer time to cover a larger distance it is more likely that a threat headed toward an asset would be detected. Large standoff areas also give more time for security personnel to intervene creating a safer environment. Providing a larger distance between a target and its perimeter defenses also gives defense engineers and planners valuable space to perform target hardening improvements (FEMA 430, 2007). This is an especially important factor when considering the vulnerability of assets outside the city which service it such as water treatment facilities, dams and power plants. These installations are often situated on large plots of land with few or no surrounding buildings. As such the standoff distance between the outer perimeter and asset should be utilized to its fullest potential. This can involve surveillance systems, earthworks, motion detectors and where demanded lethal measures such as landmines. Planners must not overlook the 360 degrees of air space and underground space which exist in built communities (FEMA 430, 2007). While attacks from these angles

are unlikely especially in large urban centers they are not unprecedented. September 11, 2001 provides the perfect example. Despite security measures taken at ground level the attack which brought down the World Trade Center came from the air. Many large structures may need a clear aerial line of demarcation as well as in-depth knowledge of all scheduled air traffic. This principle ties closely to the first layer of defense which manages the outside environment and depending on the asset may be considered to be a part of the first layer of defense. Regardless of its relative classification it is necessary to understand the flows of all types of traffic especially those which are allowed inside or near the line of demarcation. This is true for the underground plane as well. Subways and derelict tunnels run underneath vulnerable structures in many cities.

### **3.9.3 The third layer of defense**

The third layer of defense is devoted to the direct protection of a given asset itself. It involves target hardening and the general reinforcement of structures themselves. This is an especially important factor in securing urban areas where increasing standoff distance is not an option and where there are high levels of traffic. The third layer of defense incorporates a variety of tactics discussed in detail in section 5.1. Unlike the first layer of defense the third layer of defense exists primarily in the physical structure of a given asset. The goal is to absorb as much blast damage as possible and prevent the successive collapse of a structure (FEMA 426, 2003). In many cases the assets of a structure are limited to the people which live or work inside. If this is the case then vital structural elements need only remain intact as long as it takes for people to evacuate the structure and retreat to a safe distance. However in some cases it may be simply unacceptable to lose a structure due to an explosion. This is especially

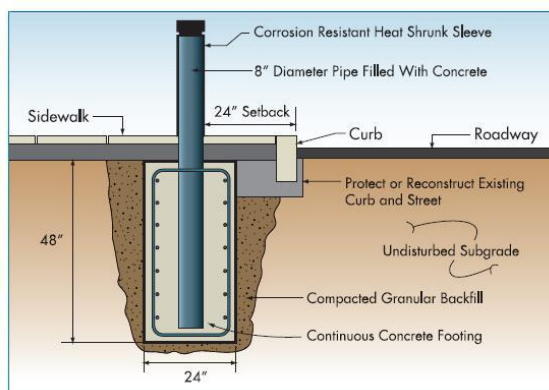


true for government buildings, military institutions as well as others. In these cases extreme target hardening measures are needed. These measures are often undertaken as a result of limited standoff distance. Many urban cores and central business districts simply do not allow large standoff distances to exist as such target hardening is one of the few options available. This may involve measures such as structure enveloping, structural reinforcement, window replacement and more. In some cases the relocation of assets may be needed to create a secure site and structure. Target hardening and the tactics and technology involved is examined in detail in Appendix C.

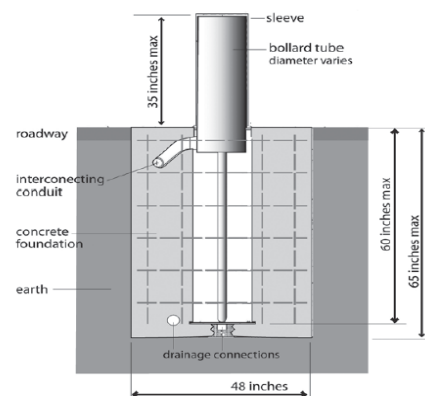
### 3.10 Description of Common and Innovative Anti-terror Infrastructure

Below, some common and new and innovative pieces of urban anti-terror infrastructure have been listed and briefly described. By combining these elements in a well thought out way planners can create accessible and eye-pleasing landscapes which are safe and difficult to bypass and destroy.

#### Bollards



**Figure 3: Standard non-retractable bollard**  
Source: FEMA 430



**Figure 4 Hydraulic retractable bollard**  
Source: FEMA 430

Essentially, a bollard is a post (usually no larger than chest height) which prevents cars from entering area where they do not belong. They effectively prevent vehicles from driving into structures and create a line of demarcation clearly displaying where vehicles do and do not belong. There are many variations of the bollard that come in different shapes and sizes; the most notable of which is the hydraulic bollard which is retractable.

### Road blockers

Road blockers are in many ways the same as bollards however they are more practical for shutting down an entire street where traffic would normally flow freely. Road blockers are hydraulic systems which erect a small barricade that prevents cars or trucks from passing over them. The figure below shows a deployed road blocker. During normal conditions the blocker would be down allowing traffic to pass over it virtually unnoticed.



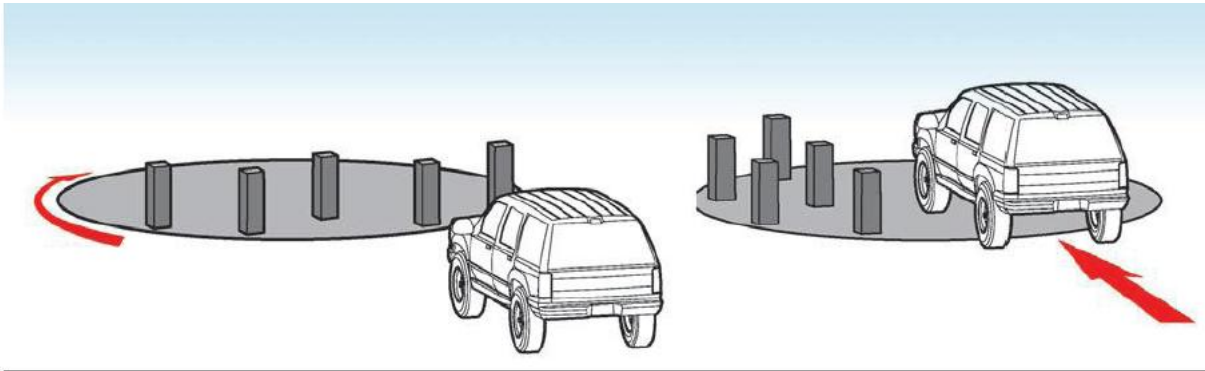
**Figure 5: Road Blockers: note their ability to effectively bar auto traffic from an entire street with the push of a button. Source: FEMA 430**

### Turn tables

Turn tables are anti-ram infrastructure which allow vehicle to pass when permitted and easily prevent vehicles from entering an area when not permitted. They are as effective as bollards

in stopping vehicles and can be designed to blend into their surroundings with greater ease.

The advantage of turn tables is that they can close a street in a matter of second and reopen as necessary.



**Figure 6: Turn tables allow security personnel to easily control traffic flow into an area and are designed to withstand ramming speeds from heavy vehicles.**  
Source: FEMA 430

### Jersey Barriers



**Figure 7: Jersey Barriers are rapidly deployable concrete barriers which can be used to bar traffic and people. They can be bare as seen on the right or with a fence attachment as seen on the left. They can also be used as temporary measures in events which demand it such as a visit from head of state.**

Jersey barriers are precast concrete blockades roughly waist height. Originally designed as highway medians they have been adapted as security barriers. Although cumbersome, jersey barriers can be moved and placed with heavy machinery. They are usually employed as

traffic barriers but unless properly fastened to the ground even their 5700lbs at 12.5' may not be enough to stop a charging vehicle (Molotch and McClain). In some circumstances staggered jersey barriers combined with vehicles can create effective anti-vehicle barriers which can be deployed relatively quickly.

### Heavy Objects and Trees



**Figure 8: Heavy objects and trees can form effective barriers and create clear lines of demarcation. They also create protective barriers without using 'fortress architecture' or creating landscapes of fear, this is especially important with the demand for aesthetically appealing security measures. Source: FEMA 430**

Large objects such as decorative boulders, trees, sculptures, fountains etc. can be used in much the same way as bollards. They can effectively prevent vehicles from entering areas and add some diversity and aesthetic quality to the monotony and arguable unsightly nature of mass amounts of bollards.

### Water Barriers

Water is one of the oldest and most effective barrier forms. Impassible by car or truck and difficult to cross unnoticed by swimming water obstacles can provide a perimeter security barrier that is effective and eye pleasing.

### Fences and walls

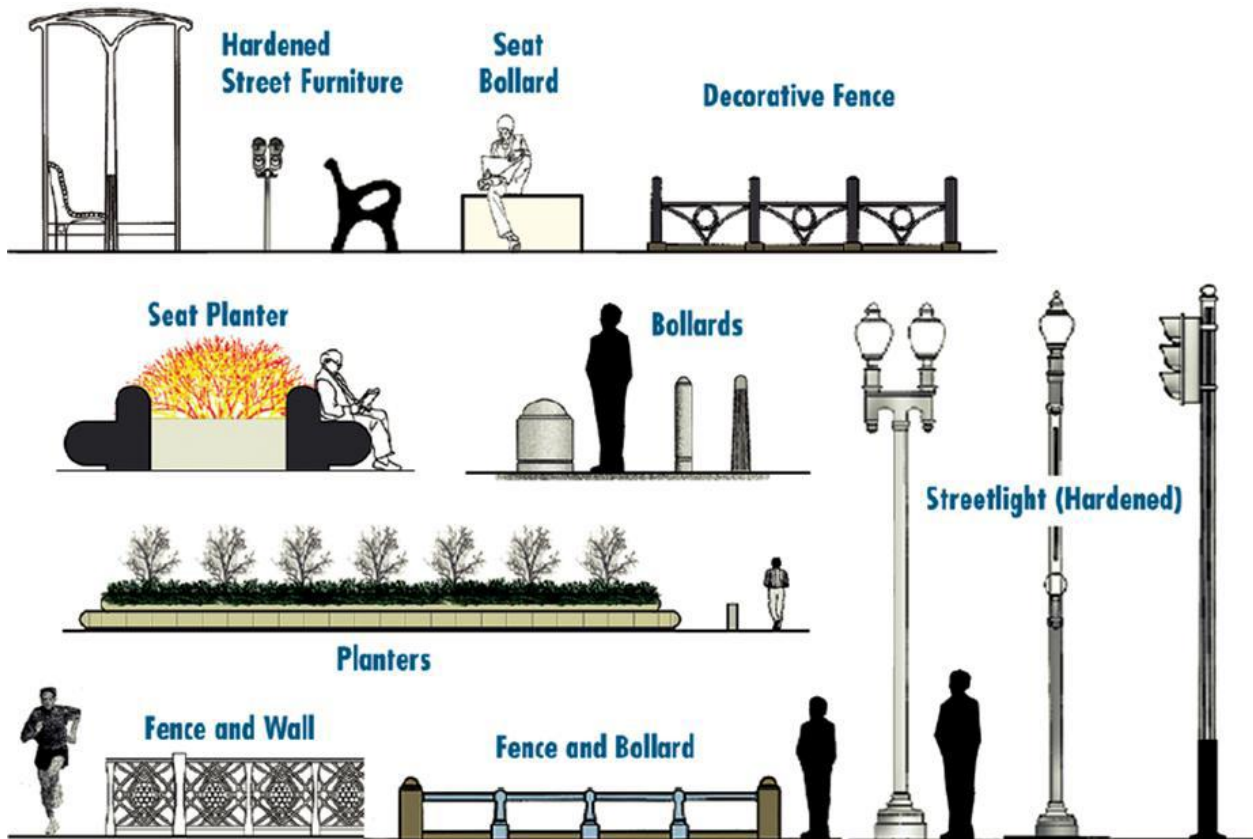
Fences are a traditional and effective form of barrier which comes in a variety of forms with endless variations. They can deter and delay intruders and create a line of demarcation. New innovations in fence and wall design include motion detectors, electric fences, anti-climb and anti-ram fences.



**Figure 9: Fences, including this anti-climb example are passive security measures which can make an asset unreachable to foot or vehicle effectively protecting them and forcing attacks to find other way around it including past security points**  
Source: FEMA 430

### Reinforced street furniture

Reinforced street furniture provides an aesthetically pleasing form of barrier which can be used to prevent vehicles from approaching or ramming their way through and can curtail the flow of pedestrian traffic. These elements can come in a seemingly endless variety with reinforced features such as seats, planters, lamp posts, sculptures etc.



**Figure 10: Reinforced street furniture provides aesthetically appealing solutions to traffic control for both pedestrians and vehicles. Almost all mundane street furniture can be reinforced to withstand a charging vehicle and some such as the planters above can discourage or prevent pedestrian intrusion. Source: FEMA 430**

Tiger Traps

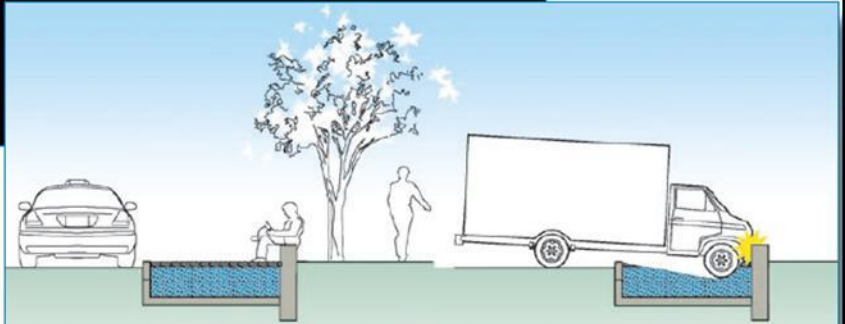
Tiger traps are innovative solutions which have traditionally been reserved for airport runways. The blue material situated below grass or other surface cover is a collapsible concrete analog which will give way under the weight of a loaded vehicle but is strong

enough to support pedestrian traffic, motorized scooters and the like. When installed the tiger trap is completely invisible and highly effective. The tiger trap will give way under the immense weight of a vehicle essentially sinking it into the ground, immobilizing it.



**Figure 11: When installed tiger traps provide an invisible anti-vehicle trap which effectively immobilizes a vehicle and which does not interfere with pedestrian traffic or traffic flow on city streets**  
Source: FEMA 430

**Tiger traps allow pedestrians and motorized scooters to travel over them but will collapse under the weight of a vehicle**



## Chapter 4 Methods

This thesis has adopted a case study approach utilizing content analysis from secondary sources. Sources examined include, academic literature, government documents and reports published by professedly organizations. This was selected as the research approach due to the foundational nature of the research. Content was filtered through and searched for key terms. Articles were reviewed to determine their content and validity to the overall objective of this research. The content analysis approach was selected because it allows the user to sort through large amounts of material and identify its properties. Data was collected and analyzed working in reverse of the traditional scientific method to develop a theory based on the existing body of data. This research fills part of the gap which exists in this regard and may pave the way for more empirical research in the future. It also allows the research questions posed earlier to be answered. In order to determine the current state of the security planning in Canada a quantitative case study analysis is necessary. This form of research has been validated by research such as Cresswell, 2009; Bryman, Bell & Teevan, 2012, Yin 2009. Additionally, in order to determine how planning can contribute to the security of urban areas, the changes in policy and design following September 11, 2001 in Canada and how current standards in Canada compare to those expressed in the idealized city of Washington D.C. secondary research was necessary. It provides the information necessary to answer these questions and clearly demonstrates what actions have taken place in North America in the past decade to secure cities. Documents were analyzed for content relating to security and ant-terrorism. Additionally government documents were analyzed for mandates



pertaining to the protection of citizens and references to anti-terrorism and security. In Fact, Peter Eisinger of Wayne State University conducted similar research which was published in his 2004, Urban Affairs Review article *The American City is the Age of Terror: A Preliminary Assessment of the Effects of September 11*.

#### **4.1 Case Study Cities**

This research into security planning in the Canadian context focuses on Canada's major metropolitan areas, specifically; Toronto, Edmonton, Montreal, Ottawa- Gatineau, Montreal, Kingston, Vancouver and Hamilton. This purposefully sampled selection of cities represents a cross section of the Canadian urban population living in different jurisdictional contexts. Additionally, Washington D.C. represents an ideal in security and anti-terrorism planning and is used to set a precedent for security planning in North America and is a potential benchmark for Canadian cities (Schneider, 2004). The selected cities also offer unique planning circumstances that influence how security planning may be conducted. The context in which they exist provides additional information and insight into many different issues and technological solutions which are being used to adapt cities to the threats presented by terrorism.

Ottawa is the center of Federal Government for the country and has developed security planning measures of their own to face the unique challenges which this presents. Toronto is the largest city in the country and has some experience dealing with the threat of terrorism. It is also a major financial engine in Canada, the capital of Ontario and is home to many multinational corporations and government offices. Montreal is a large city which has had experience with security threats and terrorism during the separatist crises which occurred in

the 1970s and has hosted many high profile international events like the Olympics. Edmonton represents the rapidly growing prairie city which has had unprecedented growth and is in a position to develop anti-terrorism infrastructure. The major fossil fuel projects (oil sands) situated nearby also pose a potential target and are the source of great environmental contention. Kingston offers an example of a city with a large military presence and was once the capital of Canada before being moved due to security concerns. Hamilton provides an example of a moderate sized large city and it also has attempted to create municipal level security plans. Finally, Vancouver stands as the hub of Canada's west coast and densely populated with major international traffic flows associated with its ports. These representative cities are various hubs of government, finance, population and transportation which have been highlighted as the most likely areas to be attack by terrorists by many security experts. The case study of Washington D.C. provides an excellent example of a North American City which has taken strong measures to secure the city against terrorist attacks and which has done so by using planning methods and has had significant input from the planning community.

#### **4.2 Data Collection: Documents**

The document analysis portion of the research focuses on the collection of academic articles, relevant news articles, professional trade journal and magazine articles and government documents. Due to the foundational nature of the research a great deal of literature review is necessary. Additionally in order to determine how security concerns are working their way into Canadian planning policy and practice the analysis of relevant documents is necessary. While no primary data collection is undertaken, the validity of the findings is not in question.

The policy review, case study and purposeful sampling approaches to research are sound and accepted (Creswell, 2009). Additionally due to the relatively small amount of research in Canadian security planning there is a need to conduct secondary research analysis in order to further understand security planning in Canada.

As Creswell (2009) suggests, the method of purposefully selecting participants or sites is a recognized and legitimate form of inquiry and can yield meaningful and useful results. This method has been put to use in the following thesis and serves as the basis of inquiry.

Government documents are analyzed for content relating to security planning and anti-terrorism in purposefully selected cities and compared to the ideal North American case of Washington D.C.. The case study approach lends itself well to the goals and objectives of the research presented in this thesis. It allows for a broad analysis of the nature of security planning in Canada and their comparison to what is happening elsewhere. Interviews with security planners and traditional planners were not conducted for several reasons. Time constraints did not allow for an extensive series of interviews and due to the nature of security planning, interviews with security professionals regarding the plans for urban defense were not realistic given their sensitive nature. Major databases relating to planning and terrorism were examined in the course of data collection. Key search terms were used to locate relevant scholarly articles, reports and books. Key search terms and databases used can be found in Appendix E. The research focuses on planning changes after September 11, 2001 however historical example sand information pertaining to the development of urban defense systems and fortifications ranges back over thousands years beginning with the

agglomeration tendencies of early civilizations their development into more complex forms of social order and communal defense.

### **4.3 Documentation**

The selection of documents is directly related to the cities examined in the research. The Planning Act and equivalent policy for every province in Canada is analyzed as well as the official Plan for each city. Secondary plans relating in any way to security in the cities examined are also analyzed. Additionally other documents from academic and professional sources were used as well as a selection of news articles relating to specific terrorist attacks. The Risk Management Series from the Federal Emergency Management Agency provided a large amount of information and was the foundation for elements of the thesis.

### **4.4 Policy Analysis**

Government policies including Provincial Planning Acts, Municipal Official Plans, Federal Canadian Acts, and government policy from Washington D.C. was examined for policy relating to security planning and anti-terrorism design. Documents were scanned for content pertaining to these categories and relevant material is noted and commented on.

## **Chapter 5 Results**

The first set of results addresses the research questions and the objective of understanding the Canadian planning response post 9/11 and the current landscape of security and planning in the selected case study cities. To provide relevant context, the provincial policy scale is first presented and discussed. Provincial policy is reviewed to uncover mandates and policies relating to terrorism preparation by the municipalities as well as support provided by the provinces. Thirdly the case study cities are examined to determine what actions they are taking to increase security and place anti-terrorism measures in their communities. Finally the archetypical security and anti-terrorism planning case study city of Washington D.C. is presented and Canadian examples are compared and contrasted to it.

### **5.1 The Planning Act**

Section 2 of the Planning Act states;

“The Minister, the council of a municipality, a local board, a planning board and the Municipal Board, in carrying out their responsibilities under this Act, shall have regard to, among other matters, matters of provincial interest such as... the protection of public health and safety” (Planning Act, R.S.O, 1990, amended 2011). Although dealing with the threat of terrorism is a federal matter, it is expected that some policy from provincial governments would reflect greater emphasis security and matters of life safety. What is reflected in provincial policy are general statements of safety and health which focus on ensuring a clean water supply, good public health and requirements for cities to plan for expected emergency and disaster scenarios.

The Planning Act requires that municipalities and planners be conscious of the health and safety threats to their respective cities and regions. This does clearly place some onus on the planner to protect urban centers against threats of mass violence. However the threats of terrorism and higher level security concerns are not specifically mentioned in the Planning Act. When we consider the multitude of other areas of planning and municipal affairs which are mandated and reinforced by the Planning Act, it is not unusual to find that security and terrorism concerns do not find their way into lower level municipal documents such as Official Plan, secondary plans or even in city wide security plans which tend to deal with conventional crime and natural hazards. Grouping health and safety into a single point also diminishes the relative importance of each and diminishes specificity related to the two very important issues of municipal planning.

Additionally section 3-17 of the Planning Act further outlines the roles and responsibilities of municipalities and planners with respect to safety in cities. It states:

Standards for health and safety remain in force

(17) The provisions of any general or special Act and any by-law passed there under respecting standards relating to the health or safety of the occupants of buildings and structures remain in full force and effect in respect of residential property situate within an area of demolition control (Planning Act, R.S.O, 1990, amended 2011).

While this has very little relevance on the threat of violence and terrorism within cities it does provide useful data for the analysis of how terrorism has affected the role of the planner in Canada. It demonstrates that planners have retained their traditional roles in safety and security in the post September 11, 2001 world. A decade after the worst terrorist attack in

North American Ontario planners have not addressed the growing and relevant concern of terrorism and mass violence. The excerpts from the Planning Act demonstrate how the Province of Ontario sees planners playing a role in the safety of their communities. While it is unlikely that it would be discouraged of planners to investigate solutions and mitigation measures for mass violence given their numerous roles it is unlikely that they would peruse this avenue of professional investigation.

Looking at the 2011 Revised Planning Act in Ontario has demonstrated that security concerns have not been downloaded from the province to the municipalities in any meaningful way. Planners are expected to look after the general health and safety of their communities however higher level security concerns remain the responsibility of the province and federal government. However this is not unique to the province of Ontario. Manitoba for example has no reference to security in their entire Planning Act and mentions safety in the following capacity as a municipal responsibility:

62.2(3) The drinking water and wastewater management plans must

- (a) provide the analysis undertaken to confirm if the existing drinking water and wastewater services have sufficient capacity to accommodate any projected development set out in the development plan; and
- (b) set out the ways in which the planning district or municipality will ensure that, in the provision of drinking water and wastewater services,
  - (i) health and safety will be protected,
  - (ii) the environment will be protected,
  - (iii) the capacity and sustainability of the sources of water on which the services rely will not be exceeded, and
  - (iv) water conservation and water use efficiency will be promoted.

(Planning Act, R.S.O, 1990, amended 2011).

This again clearly demonstrates the lack of emphasis which provinces have placed on security and safety as being part of the municipality's roles and responsibilities.

However it cannot be said that there is no precedent for involving urban planners in higher level security concerns in North America. While the Canadian experience has been one of leaving planners to their traditional roles, US security and urban planning have been fused together in a variety of areas to create a more well rounded and well protected urban environment, however the reason for this are far different from those in Canada. American cities have a distinct advantage in upgrading their security systems and policy due to large federal grants which are available to government organizations, cities and companies which meet the criteria. In many places security grants are becoming part of the local economic strategy as they can be applied toward infrastructure developments and other futures in the urban landscape (Jackson, 2007). While there is more collaboration between local levels of government and federal security agencies in the United States planners as a group are not as well acquainted with the issues which security planning creates in their cities. While there is some precedent such as Project Homeland in the United States which incorporate local and municipal affairs into the security planning most Canadian municipalities have not adopted their own anti-terrorism or security plans. Another persistent problem in sharing information is the mandate of many security agencies especially federal powers in the United States which prevent them from sharing information with local governments contributing to the silo effect which is so prevalent in planning and government in general. Encouraging communication between local and higher levels of government will be an important factor in the future protection of urban areas and the integration of urban planning and municipal and regional level planners into the higher level security framework. While there are few mandates or requirements placed on the province by the federal government there are



precedents of federal transfers of authority and resources to municipalities from federal agencies in the United States. Using a similar system to a larger degree in Canada may produce positive results in Canada and develop municipal infrastructure and antiterrorism resources further.

## **5.2 Provincial Overview**

The following section provides an analysis of the provincial policy across Canada's ten provinces with respect to planning. Documents were reviewed and relevant sections pertaining to safety and security were analyzed to determine their impact on security planning at the municipal level in each province. Across the provinces it became evident that higher level security concerns associated with terrorism, mass violence or the like were not specifically mentioned and the nature of security responsibility delegated to the municipal level remained quite low. Measures to combat congenital crime were not mentioned in any of the planning related documents. However most provinces have overarching or umbrella policies which allow planners and the local government to pass laws and create advisory councils pertaining to the general health, safety and welfare of the citizens of their community. While there are no specific concerns which are addressed in any of these documents they do provide some room for the municipalities of Canada to take initiative and developed their own security master plans as some cities have attempted. Through the analysis of the provincial documents I found that most municipal level concerns relating to safety and security involved insuring a clean drinking water supply and the preparation of natural disaster management strategies where required, most centered on local flooding. Other references to the handling of local wildlife concerns, municipal building safety

pertaining to fire and collapse also appeared in several documents. While these have little bearing on the higher level security environment these polices do demonstrate again the attitude which the provides have taken in allowing or mandating the securing of cities against acts of violence at the municipal level.

### **5.3 The Provincial Policy Statement 2005**

The Province of Ontario thought the powers of the Minister of Municipal Affairs and Housing issues policy regarding matters of provincial interest in land use planning. These polices provide a general outline for the municipalities to base their plans on. Municipalities are required to be consistent with the policies detailed in the Provincial Policy Statement 2005. With regard to safety and security the PPS protects the people of Ontario through broad policies such as the one listed below.

*“The Provincial Policy Statement, 2005 protects Ontario communities through policies directing development away from areas of natural or human made hazards where there is an unacceptable risk to public health or safety, or property damage”* (Citizens Guide the Planning Act, 2010 p 4).

The PPS like many other general planning policies does not fully address the possibility of terrorism within the city. The PPS does have some general polices which are aimed at protecting the health, safety and well being of people however they fail to acknowledge the planner as active member of the security field. The case study of Washington D.C. demonstrates how urban planners have been incorporated into the security planning framework and how they are contributing to mitigating and preventing terrorism in urban areas. Although it has been argued that security should be part of the urban planning agenda (Coaffee and Wood, 2006, Axworthy et al. 2006, Coaffee, 2009), it is clear that the PPS draws

no such conclusion. The expert from the Provincial Policy Statement 2005 below demonstrates the general sentiment and onus which the PPS bestows on Planning in the province of Ontario.

*“It is equally important to protect the overall health and safety of the population. The Provincial Policy Statement directs development away from areas of natural and human-made hazards, where these hazards cannot be mitigated. This preventative approach supports provincial and municipal financial well-being over the long term, protects public health and safety, and minimizes cost, risk and social disruption”* (Provincial Policy Statement, 2005 p 3).

While the PPS does not specifically or generally address higher level security concerns, it does advocate for general preparation and emphasizes the importance of preventative action in all possible planning scenarios as demonstrated in the preceding excerpt.

### Alberta

The Municipal Government Act of Alberta allows municipalities to pass bylaws with respect to the safety of local residents. Part 2 section 7a states

council may pass bylaws for municipal purposes respecting the following matters:

(a) the safety, health and welfare of people and the protection of people and property

(Province of Alberta, 2010).

### British Columbia

The British Columbia Local Government Act does not mention terrorism, security or safety in any form other than permitting local governments to alter the density of land developments to benefit the health and safety of local residents.

### Saskatchewan

The Saskatchewan Planning and development Act makes little reference of safety and none to security. However section 45 which outlines the purpose of zoning bylaws states that:

#### Purposes of zoning bylaw

” The purposes of a zoning bylaw are to control the use of land for providing for the amenity of the area within the council’s jurisdiction and for the health, safety and general welfare of the inhabitants of the municipality” (Statutes of Saskatchewan, 2007).

This section provides the municipality with the ability to make site specific evaluations and enforce security concerns within their area of influence to a small degree. However there is no direct mention of security concerns in the act.

#### Manitoba Planning Act

The MPA makes no reference to security concerns and has only one reference to public safety with respect to drinking water and ensuring its quality.

#### Ontario

The government of Ontario has been placed more thought on the safety and security of citizens in their planning act. Under section 2 municipalities are required to have regard for the protection of public health and safety. This section requires that security concerns be thought about during the planning process. Section 24 of the Ontario Planning Act requires “(24) In considering a draft plan of subdivision, regard shall be had, among other matters, to the health, safety, convenience, accessibility for persons with disabilities and welfare of the present and future inhabitants of the municipality” (Government of Ontario, 2012).

#### Quebec

The Province of Quebec is the only province in Canada which has a dedicated chapter in their municipal type act to safety. Section 8 on safety is transcribed below. This section provides an excellent interpretation of how some provinces view the municipality's role in determining the safety and security of local municipalities. There is no mention of higher level security of even of conventional crime. Although an entire section of policy has been devoted to safety the level of security involved is very low and thought of mass violence has obviously not been a consideration.

#### New Brunswick

The province of New Brunswick like most other province has little in their provincial policy which would place security concerns at the top of municipal planning considerations like Alberta there is a single overarching policy which allows municipalities to create advisory committees and commission to determine the safety concerns on a given subject.

#### Nova Scotia

The Nova Scotia Municipal Government Act like many other provinces has the given municipalities the ability to Power to make by-laws for the purposes of health and safety section 172 a and b below demonstrate this. The section states:

172 (1) A council may make by-laws, for municipal purposes, respecting

(a) the health, well being, safety and protection of persons;

(b) the safety and protection of property

(Office of the Legislative Counsel, 1999)

#### Newfoundland and Labrador

Newfoundland and Labrador's Urban and Rural Planning Act does not have any mention of security, safety or perception of any kind relating to crime, terrorism or general safety in it which municipal council and municipal planners can use to establish grounds on which to plan for mass violence. This is not to say that planners and municipalities are forbidden from doing so however there is not mandate for municipalities to do so in any meaningful way as seen in other provinces throughout Canada.

### Prince Edward Island

PEI's Planning Act has little reference to safety and security like the rest of Canada but does have a section which requires developers to demonstrate safety of access and emergency access in their plans before construction of a given project may proceed. These design criteria may prove to be a useful tool in helping to mitigate terrorist related episodes should one ever occur on the island. The same section also requires that developers provide "method of fire protection and other emergency services; and (i) additional information as the Minister considers necessary. The final blanket policy allows site specific concerns to be dealt with however as a whole the province expects little in terms of security planning from its municipalities or their planners (Legislative Council, PEI 2010).

Reviewing the planning and municipally significant acts of each of Canada's provinces demonstrates again how higher levels of government are not concerned with having their local municipalities involved in higher level safety issues. The few cities in Canada which have had any attempted to develop their own security plans to address these concerns have done so largely on their own out of a feeling of necessity. This system is especially important for midsized cities to consider due to the lack of funding and

independent security agencies which are present in Canada's most populous cities such as Toronto and Canada's centre of government in Ottawa. Some cities such as Hamilton Ontario have attempted to develop their own master security plan in the post September 11, 2001 world however their proposed plans were never adopted and the program was shut down due to budgetary concerns. This has left cities such as Hamilton and others of similar size relatively unprotected compared to their more populous neighbors. While the threat of actual attack is relatively low in these areas and the threat to the lives of average citizens is relatively low there are site specific concerns in many mid-sized Canadian cities which warrant further attention. Research in Motion's headquarters and hub in Waterloo Ontario provides an excellent example. Terrorist related violence at such a facility could hamper communication networks, kill many people and have adverse effects on the local and wider economy.

#### **5.4 City of Toronto Official Plan**

The city of Toronto has a variety of plans regarding the development of the city and the security systems which are meant to defend it. Examination of these documents has occurred here beginning with the official plan for the city as well as thematic plans and other relevant municipal literature.

Official plans constitute the backbone of municipal and regional planning policy. Other supplementary or thematic plans play an important role in the development of cities and their planning policy however the official plan sets broader policy for cities and is common amongst municipalities and regional municipalities in Canada whereas secondary plans can be made on an ad hoc basis. By that extension the official plan provides the best piece of

analytical information available for the research on the affects of terrorism on municipal planning policy. Other mechanisms for ensuring compliance with urban design standards such as by-laws have relevance in creating secure cities. These however are done on a small scale and must conform to the overall OP. They may have use in addressing site specific concerns on high value targets and may be necessary to secure areas for terrorist attacks. Toronto's planning policy presents some remarkable circumstances in Canadian planning policy which should also be addressed in the anti-terrorism planning policy for the area. It is home to the Toronto Stock Exchange, many government offices; it is the seat of provincial power and home to many of Canada's largest corporations as well as a large urban population. However the official plan for the City of Toronto does little in addressing the issue of potential terrorism. This may be due to the framework in which the city operates. Due to its large size and various services as well as the influence of provincial and federal mandates segments of Toronto's security have their own dedicated security management system. For example; Exhibition Place, the Toronto Zoo, Toronto Parking Authority and the Toronto Transit Commission all have separate security agencies which. This form of organization creates a staffing and logistical issue which degrades the security of the city as a whole. Having a more integrated approach to security planning with more centralized bodies collaborating would allow for the better sharing of information, resources and expertise within the city. This is similar to the role of regionalism. The jurisdictions mentioned above are an example of disjointed services which have the potential to collaborate to a greater degrees to ensure security in Toronto. They are also major gathering areas, making them appealing targets for terrorist activity. These concerns, while not addressed in the City of



Toronto Official plan are mentioned in the City Wide security plan which was proposed in 2008, however the project was never finished and Toronto remains without an integrated security plan featuring planning standards and design practices leaving individuals facets of the city to evaluate their own risks and plan accordingly. Survey evidence from the Emergency Preparedness of Canada report (2008) has determined that Toronto has emergency preparedness strategies in place. However they have been developed by the local police department in conjunction with provincial, federal agencies as well as in cooperation with New York City police agencies (EPC, 2008) The fact that anti-terrorism planning is not more integrated in the Metro Toronto area is not surprising nor is the fact that municipal planning staff has not addressed it in their own plans. The City of Washington D.C. had similar issues until the development of their own security plans and the creation of the National Capital Planning Commission's Urban Design and Security Plan. This is in large part due to the fact that terrorism response falls within the mandates of the national security agencies (Stewart, Pichet & Sneddon, 2010). As mentioned the realm of security planning has largely been deemed the responsibility of other departments (EPC, 2008).

The City of Toronto for example has an office of Security and Life Safety Unit (Facilities & Real Estate Division) which oversees security concerns in the city. The office is responsible for corporate security in the city which has an important role in safeguarding public property; however terrorism in Toronto is not mandated to them. However larger security concerns such as acts of terrorism and the possibility of mass violence have not been addressed by the City of Toronto's planning department in any meaningful way. This is to say that there are no public sources of information available which are aimed at preventing or mitigating the

affects of mass violence at a municipal level in the city. While other government agencies within the provincial and federal government have assessed the security risks in Toronto from the perspective of terrorism the city itself has done little to address the issue themselves and has implemented no policy design guidelines to mitigate terrorist attacks. A survey of municipal literature ranging from planning documents to other internal municipal documents has found that security planning with respect to terrorists and mass violence has not been well considered in the Toronto landscape (EPC, 2008). In 2007 when the Federal Government asked “How prepared is your community to respond to a major emergency or disaster”, Toronto Responded: “Prepared” out a list of the following options: Prepared, Somewhat prepared, Unprepared, Do not know. However, planning officials were not involved in the preparation of the emergency response plans in place in Toronto The dominate reasons for may be the availability of funding or lack thereof, the perceived low threat level in the city and the federal mandate on the subject security related to terrorism as highlighted by the EPC report (EPC, 2008).

However as Inspector Robert Stewart of the Criminal Intelligence Service branch of the Vancouver Police stated at the Proceedings of the 2010 Special Senate Committee on Anti-terrorism “Although combating terrorism falls within the prescribed mandates of our national security agencies such as CSIS and the RCMP, I hope to point out the critical role that local law enforcement plays in the overall national security environment” (Stewart et al, 2010 p 2). While the police have a different role than planners potentially would in defending against terrorist activity, the emphasis on local responses by Inspector Stewart provides a stepping stone for planners to enter the realm of security planning like never before. This is important

considering that while, the city of Toronto has experienced almost no terrorist activity which has been made public, and schemes to destroy structures and kill people within the city have been uncovered. Police forces have been successful in thwarting any attempts by would be terrorists within the city. As such the level of necessity can be perceived to be very low in Toronto and its metropolitan region. This takes the onus off the planner and places it far at the back of their thoughts as they go about their daily duties and perform the traditional roles associated with urban planning in the area. This lack of thought at the municipal level and amongst planners is reinforced by the fact that the city has separate security agencies responsible for its various municipal systems, venues and departments, leading to a lack of coordination and a shifting of the burden as well as possibility uncertainty of responsibility.

The expert below from the City of Toronto City Wide Security Plan staff report in 2009 demonstrates this well,

*“In the case of Agencies, Boards, and Commissions (ABCs), there are ABCs without any dedicated security management and a few with dedicated security management including Exhibition Place, the Toronto Parking Authority, the Toronto Transit Commission, and the Toronto Zoo. These ABC’s have dedicated security management and programs because of unique operational, physical, and legislative security requirements, as well as, for the most part very defined property limits. There exists little coordinated security between ABC’s and between ABC’s and Corporate Security” (City of Toronto 2009, City Wide security Plan Staff Report p 4).*

Urban planning in the City of Toronto has done little to address the issues associated with mass violence and problems which exist do to a lack of collaboration between municipal jurisdictions and reinforces the perspective that the threat whether real or perceived has done little to influence Toronto planning policy and urban form in the decade following the terrorist attacks in New York on September 11, 2001. This is not at all surprising

considering the relative peace which Toronto and Canadian cities in general have experienced. Toronto municipal level policy lacks urban design guidelines and transportation security measures in the dense downtown core to prevent explosive attacks. Municipal planning literature has failed to reveal any guidelines or initiatives to prevent these sorts of attacks. The existence of various agencies boards and commissions may be degrading the overall security environment by creating a complex system of beurocratic departments. These ABCs were not investigated in full due to the lack of public information and their emphasis on corporate security at site specific levels as opposed to lager municipal wide planning being investigated here.

### **5.5 City of Ottawa**

The City of Ottawa not unlike the city of Toronto has done relatively little with respect to the amendment of their official plans to address the threats presented by terrorism in the area. This area is especially important considering the presence of the Federal Government, United States Embassy and other foreign and domestic government agencies which are geographically clustered in core areas and throughout the city. The absence of security planning by municipal employees and in the planning policy of the city is not surprising. Investigation into the sources of security planning documents discovered separate agencies within the municipal, provincial and federal government structures which have the mandate of protecting urban areas from terrorist activity. Similar to the case of Toronto, Ottawa has separate agencies which deal with the security of specific areas. Additionally, embassies have their own security staff and policy to respond to threats of violence against them. Investigation into the city of Ottawa's planning policy regarding terrorism and urban security

determined that the threat of mass violence had little effect on the city's planning and similar to Toronto there has been little affect on the urban form of the city due to the threat of mass violence. In fact the design guidelines for high profile buildings in Ottawa do not have any mention of terrorism or security. There is a singular reference to safety in the form of bird safety (City of Ottawa, 2008). While federal acts such as the Emergency Management and Civil Protection Act have placed mandates on cities to prepare for emergencies, anti-terrorism design and policy has not merged with the official plans and design guidelines of the City of Ottawa. Planning clearly has a role to play in anti-terrorist defenses as demonstrated by the planning taking place in Washington D.C. The lack of action may be in part due to a lack in willingness to alter the historic nature of parts of Ottawa. An unwillingness to alter heritage structures and create architecture of fear is a common complaint for those who oppose physical security changes in cities (Ellen, 1997). Additionally as previously stated in the case of Toronto the Federal government has identified that terrorism is a low priority objective for municipalities to deal with (EPC, 2008). Ottawa does have an emergency preparedness plan in place to deal with a variety of disaster scenarios. However, among the responsibilities of the municipality response to terrorist related threats is not listed or mentioned (City of Ottawa, 2010). The municipality itself is taking steps to respond to the possible threat of terrorism in the nation's capital with new projects aimed at stopping chemical, biological, radiological, nuclear and explosive (CBRNE) threats in the city. In 2012 the city began a pilot project of combined RCMP and local police assets to respond to the mentioned CBRNE threats (Hurley, 2012). However, the contents of the plan mention terrorism only once in reference to forensic investigation. The

CBRNE Plan for the City of Ottawa has one anomaly among other documents of this nature. It specifically mentions the role of the planning department in the event of a CBRNE event (CBRNE Task Force, 2008). Planning, transit and the environment are placed in a single category and listed as a support service (S) whose duties during a CBRNE event are as follows.

1. Deputy City Manager, or representative
  2. Support response activities at the site
  3. Ensure consistent dissemination of public information
  4. Assure the continuity of services at a city-wide level
  5. Coordinate activities as a whole
- (CBRNE Task Force, 2008)

While this task is important in dealing with a CBRNE event in the city, the report mentions no preventative measures or anti-terrorism measures of any kind. It is a response plan and as such all city departments are listed with various duties and levels of involvement attached to the respective departments. The issue of anti-terrorism or security planning i.e. proactive preventative and mitigation measures does not appear in publically available City of Ottawa literature, plans or policy including the OP of design guidelines for the various areas of the city. Planning, it appears has not been taken seriously as an anti-terrorism tool in Canada's Capital.

With respect to general preparedness the city of Ottawa listed itself as 'Somewhat Prepared' when asked: "How prepared is your community to respond to a major emergency or disaster" (EPC, 2008). Additionally the city of Ottawa cited that their ability to plan and prepare for disaster scenarios was hampered by industry not being willing to share sensitive information out of fear that it would be available to the public (EPC, 2008). Ottawa has identified deficiencies which prevent it from accurately analyzing its landscape and prepare however among those planning is not mentioned. Literature review has revealed that anti-terrorism

planning in the form of alterations to the built environment are valuable urban defense mechanism (Davis 1992, FEMA 426, 2003). The City of Ottawa has not made these changes via planning policy or initiatives in the municipality.

## **5.6 City of Montreal**

The City of Montreal has extensive experience dealing with terrorist activity. The crisis with the Front de libération du Québec (FLQ) waged a bombing, terrorism and deformation campaign in Montreal from 1963 until 2001. The level activity which the FLQ engaged in varied over the years since its creation, however terrorist targets included McGill University and English businesses many of which were bombed or fire bombed. Despite the presence of terrorist activity in the Province of Quebec, in the City of Montreal and on site specific targets the master plan for the city has done little to address the issues which decades of domestic and foreign terrorism has brought to the city. This however is not to say that no changes to the security of the area were made in that time. Montreal police established an anti-terrorism unit which was successful in the arresting of terrorists and ending much of the violence in the province and in the City of Montréal. Analysis of the City of Montreal planning documents discovered that there was little reference to public safety and none related to preventing or mitigating terrorist attacks. There are many references to safety throughout the Montreal Master Plan however information and policy related to safety centers around proper lightning in urban areas, traffic safety, pedestrian and cyclist safety. Montreal has indentified that it has a counter-terrorism plan in place and that is considers itself “Prepared” according to survey results (EPC, 2008). The case of Montreal is similar to the previously mentioned cities in that police are the primary agency involved in terrorist

related emergencies and that planning policy and practice are not used as mechanisms to prepare preventative measures against terrorist attacks.

### **5.7 City of Edmonton**

The City of Edmonton has the issue of security permeates through their Municipal Development Plan. The MDP governs growth in the City of Edmonton over a ten year period and is reviewed at regular intervals similar to the official plans review for the city of Toronto and Hamilton. What is uncommon in the policy and initiatives of other Canadian cities but which does exist in the MDP for the City of Edmonton are references to site specific and urban design policies and infrastructure pieces which can aid in the securing of the municipality against various form of crime and potential terrorism. The policies listed below demonstrate forward thinking in the area of security and safety which is not common amongst municipal plans in other areas of the country.

- Retrofit City owned buildings and public spaces to improve the safety and security of users and encourage owners of private buildings to do the same.
- Support community efforts to apply the Safety Audit Guide for Crime Prevention.

While there is no direct mention of defeating terrorism some of the strategies adopted by the municipality are in line with other anti-terrorism documents such as those presented by FEMA in their Risk Management Series of publications. Design ideas such as aesthetically pleasing planters to act as vehicle barriers, retrofitting of buildings and controlling traffic are common themes that run through both documents. While the intention may not have been to prevent or mitigate large scale attacks the city has developed some strategies to deal with



common issue in urban places as they relate to terrorist activity, mainly the creation of barriers to explosive threats. Edmonton has made safety and security one of the key tenants of their MDP stating that the purpose of the downtown portion of the MDP is to

*“Ensure development in the Downtown, The Quarters Downtown and the surrounding central core neighbourhoods features unique, context sensitive and enduring designs and promotes public safety and security” (City of Edmonton, 2006 p 15).*

While the language of the section and policies laid out in it are aimed toward conventional crime prevention and ensuring accessibility of all people some elements of higher level security thinking are developed in the plans.

When asked “Is a disaster or state of local emergency caused by an act of terrorism a concern for your community?” The City of Edmonton responded “yes” and cited that it had a counter terrorism response plan; however it did not provide the details or name of the plan (EPC, 2008). The City did cite that Police, Fire, Paramedic, public health, local emergency management organizations and the municipal government were involved in the response plan however the province and federal government was not consulted in its creation (EPC, 2008). Additionally City of Edmonton urban design guidelines have not mentioned of anti-terrorism or higher level security strategies (Nebozuk, Kaba, Carlyle, Huberman, Whetzel & Gillet, 2005). There are references in the secondary plans the CPTED principles being applied however designing for terrorist attacks and specific policy and practices are not mentioned in Edmonton planning literature. (city of Edmonton, 2004). Overall while Edmonton has some policy and design measures in place to deal with safety in the city it does not have measures in place to address the terrorist concern which it identified as being concerned with (EPC, 2008; City of Edmonton, 2004).

## **5.8 City of Kingston**

The city of Kingston, once Canada's Capital and moved for security reasons to Ottawa, stands as Canada's 40<sup>th</sup> largest city with respect to population. It has a unique security environment being home to one Canada's two university degree granting military academies, The Royal Military College, several other Canadian Forces facilities, Queen's University a major Canadian University and a population of 123 000 people. The OP for the City however, does not address any concerns related to terrorism or any sort of mass violence.

Section 5 of the City of Kingston Official Plan entitled "Protection of Health and Safety" has a goal statement of

*"To manage natural and human-made hazards in a manner that protects human life and health, avoids adverse effects on living areas and sensitive uses, and avoids, minimizes or buffers sources of pollution so that the quality of life in Kingston will be improved and sustained over the long term" (City of Kingston, 2006 p 64).*

Reading the section determines that man-made hazards references pipeline, the development of former gas stations, existing and former landfills and the like. There are no references to higher level security plans or any evidence of thought of a terrorist threat in the city. Other documents examined have determined that an emergency management planning is place and was last updated in 2010. The plan however does not address security concerns in the form of anti-terrorism strategies or design guidelines for preventing or mitigating terrorist related activity. The plan is largely aimed at emergency response rather than preventative measures and focuses on issues such as evacuation, distribution of medical services and aid, provisions of emergency food, lodging and clothing and other post incident response measures (City of Kingston, 2010) When asked how prepared the city was to face a disaster scenario by the Federal government, Kingston responded that it was "somewhat prepared" but could be

overwhelmed in the event of a disaster (EPC, 2008). It responded “Yes” when asked if the threat of terrorism was considered in the city and identified that it is in the progress of developing a counter-terrorism plan for the city. The plan has not yet been made publically available or has not been completed as of the date of this thesis.

### **5.9 City of Winnipeg**

The City of Winnipeg has a further developed body of policy than most municipalities in Canada. Section 01-2 of the OP for the City of Winnipeg is entitled Safety and Security and has a set of guidelines and priorities as well as implementation policies to ensure safety in the city. The OP states that:

The Official Plan for the City of Winnipeg has The City of Winnipeg has a collaborative, broad-scaled and complete approach to safety and security that is making this a safer city.

This balanced approach seeks to: Foster social development and to collaborate on addressing root causes of crime.

- Build strong relationships between communities, safety stakeholders and emergency personnel and law enforcement officers.
- Build community safety capacity.
- Provide a focused and effective community police presence.
- Apply urban design that reduces the opportunity for crime to occur and that increases residents’ sense of safety.
- Ensure that emergency preparedness, response and recovery support and services are available.

The policies and ideas presented in the OP from Winnipeg are devoted to preventing and mitigating conventional crime in the city. There is no mention of terrorism or higher level security thinking. Despite this some of the ideas and policies presented in the Safety and security section of the OP may lend themselves to preventing or mitigating terrorist attacks

however there has been no demonstration of this in the OP. It may be the case however that Winnipeg has developed its Safety and Security chapter based on its high crime rate relative to the rest of Canada. Winnipeg has the third highest crime rate in Canada and this may be the motivation for the city to develop nearly unique public safety policy in a Canadian municipality (Statistics Canada 2010). What is most striking about this the fact that continued crime over years may have led to the development of a safety and security chapter in the Winnipeg OP however years of terrorism in Montreal has not done the same for security planning at the municipal level in Montreal. This demonstrates the divide which exists in the security planning world and may demonstrate the boundaries which currently exist in the planning world with respect to security and safety. When asked if the city of Winnipeg considered terrorism a concern for the community the municipality responded “yes” but identified that it did not have a counter-terrorism plan in place citing that it did not have the resources to work on one (EPC, 2008). However when asked How prepared is your community to respond to a major emergency or disaster? The city of Winnipeg answered “prepared” out of a list of the following choices Prepared, Somewhat Prepared, unprepared, do not know (EPC, 2008). The OP for the city along with its urban design guidelines for Downtown Winnipeg only site safety as it is concerned with pedestrian safety as a concern in the core area. Terrorism and security are not mentioned and there are no specific guidelines for anti-terrorism design in either document. While some concerns have been worked into the OP as stated above, terrorism does not make its way into the planning of the City of Winnipeg. (City of Winnipeg, 2005).

## Chapter 6 Discussion

### **6.1 Security Planning Changes Post September 11, 2001**

In the decade following the September 11, 2001 attacks Canadian planners have continually advocated for denser cities which are naturally more vulnerable to explosive threats and where many more lives can be taken in a successful terrorist attack. Additionally, developers have followed the demands and desires of the Canadian community and have continued to build condominium towers through major Canadian cities. This is however not necessary popular amongst all security planners. Some advocate for more decentralized cities in order to diffuse the threat presented to urban areas (Scott, 1969). In contrast to this there are others who believe decentralization does not necessarily provide safety (Schneider, 2001)

One notable change in the Canadian policy in the September 11, 2001 world has been the creation of the Emergency Management and Civil Protection Act. While the Act has been in existence since 1990 amendments have been made as recent as 2009. In 2002 the federal government updated that Act, giving more responsibility to municipalities. The Act mandates that municipalities prepare emergency management plans as outlined in sections 2.1 and 3 of the Act which are copied below:

Municipal emergency management programs

**2.1 (1)** Every municipality shall develop and implement an emergency management program and the council of the municipality shall by by-law adopt the emergency management program. 2002, c. 14, s. 4.

Same

**(2)** The emergency management program shall consist of,  
(a) an emergency plan as required by section 3;

- (b) training programs and exercises for employees of the municipality and other persons with respect to the provision of necessary services and the procedures to be followed in emergency response and recovery activities;
  - (c) public education on risks to public safety and on public preparedness for emergencies; and
  - (d) any other element required by the standards for emergency management programs set under section 14. 2002, c. 14, s. 4.
- Hazard and risk assessment and infrastructure identification

(3) In developing its emergency management program, every municipality shall identify and assess the various hazards and risks to public safety that could give rise to emergencies and identify the facilities and other elements of the infrastructure that are at risk of being affected by emergencies. 2002, c. 14, s. 4.

This places some onus for the protection of Canadian cities against terrorism on municipalities themselves; however the Act does not specially mention terrorist activity except that it allows municipalities to refuse disclosure of information contained in their emergency management program if it could identify vulnerabilities and prove injurious to Canadians. The Act gives municipalities the power and mandate to plan for terrorism in one regard. However it requires that terrorism be identified as a threat by that municipality before it can be planned for. The emergency plans of major Canadian municipalities are not available publically. Terrorism and emergency protection has not made its way into the official plans of Canadian cities nor secondary plans which are publically available.

Section 3 of the Act weakens the mandate to plan for terrorist activity in Canadian cities. It states “In developing its emergency management program, every municipality shall identify and assess the various hazards and risks to public safety that could give rise to emergencies and identify the facilities and other elements of the infrastructure that are at risk of being affected by emergencies.” This requires cities to identify the risk of terrorism as a potential risk to public safety in their area. If they do not, there is not further mandate to take this

specially into account when preparing emergency plans for the municipality unless it is specifically mandated to them by the Lieutenant Governor.

While the conditions established in the Emergency Management and Civil Protection Act create a possible avenue of exploration for cities to better secure themselves against terrorist threats, little policy has been enacted to create physical changes which will secure the city against terrorism. Planning policy and standards have not greatly in the examined cities to include anti-terrorism measures as they have in the Case of Washington. Ideals such as those outlined in the FEMA Risk Management Series have not been adopted by Canadian cities as a standard demonstrating that while the EMCP Act allows terrorism to be taken into consideration at the local level the mandate has remained largely federal as demonstrated by the testimony of Inspector Robert Stewart before the Senate mentioned previously.

The Act does allow cities to plan for terrorism and goes so far as to provide funding for the creation of emergency plans via provincial mechanisms. The Act states “The Lieutenant Governor in Council may by order authorize the payment of the cost of providing any assistance that arises under this Act or as the result of an emergency out of funds appropriated by the Assembly.” It also allows for compensation of personal property lost due to the implementation of an emergency plan by the province allowing the municipality to avoid costs incurred due to development and implementation of an emergency plan. While this compensation is not guaranteed by the Act it does create a mechanism for cost recovery and compensation. This demonstrates that Canada has responded to the threat of terrorism in the post September 11, 2001 world however those responses have not translated into changes in urban planning policy and practice as they have in Washington D.C..

The Canadian Federal Government also responded to the events of 9/11 by creating the Anti-Terrorism Act. The Act is largely aimed at police organizations and the expansion of their powers, the prevention of money laundering and other legal issues regarding, trials and the gathering of information. It was created in 2001 however, many of the powers outlined in the act expired in 2007. It is similar to the United States Patriot Act but does not have an effect of the urban planning of Canadian cities.

Other areas have also taken the issue of security planning seriously following the terrorist attacks of September 11, 2001. Along with Washington Los Angeles has taken preliminary steps to protect its tall structures from the threat of explosive attacks (Archibald, Medby, Rosen & Schachter, 2002). The Building Owners and Managers Association of Greater Los Angeles (BOMA) commissioned the Rand corporation to analyze the threat to Los Angeles' core area tall buildings. While the study concluded with recommendations and an analysis of the threat to the city, what is most striking about the research conducted by Rand was that it was commissioned by business owners rather than the municipality or other government agencies (Archibald et al, 2002). This is a clear demonstration of the seriousness of the threat and the measures which some private businesses were willing to take following September 11, 2001. Appendix D provides a more detailed description of Canadian policy and governmental responses to the events of September 11, 2001.

## **6.2 Case study: Washington D.C.**

In order to answer the research questions presented earlier which states that an ideal security planning context exists and that Canadian cities are yet to achieve that level of security an archetypical model must be recognized. This research as well as other academic works has



determined that Washington D.C. provides the detailed model of comparison which will act as the benchmark to determine the state of security planning in Canada. This is further supported by Richard Schneider (2004) where he states

*“Preventative Strategy, in the context of anti-terrorism land use and urban design, is epitomized by the National Capital Planning Commission’s recently released plan for Washington D.C.’s monumental core area which contains a large number of potential terrorist targets” (Schneider, 2004 p132).*

Washington D.C. has a population of approximately 620 000 people as of 2011 with a work-time population of over one million due to daily commuters. Its metropolitan region is home to some 5.6 million people. It is the Capital of the United States and acts as a center of governance for the country. Washington was chosen as the archetypal case study due to its size, position, governmental importance and due to the purposeful security planning which has occurred in the city and especially due to collaboration between traditional urban planners and other security professionals. Additionally it has been identified in academic literature as both a target and as an archetype of anti-terrorism planning (Schneider, 2004, (Coaffee, 2006). What’s more, Planners, architects, engineers and other general security experts have been involved in creating policies and plans which specifically address security and terrorism related concerns in the city. These plans and policies provide the bases for comparison between the purposefully sampled Canadian cities and the ideal city of Washington D.C. being presented here. Washington D.C. exemplifies the actions and success which urban planning can achieve when mandated to focus on anti-terrorism or security planning.

The City of Washington D.C. demonstrates ideal security planning in the North American context. It has security concerns expressed throughout the official plan and has developed secondary plans to address the city's security and anti-terrorism needs. Washington D.C. demonstrates many ideals with respect to policy and initiative taken by a municipality to secure itself. Additionally it demonstrates the gap which exists between Canadian cities and the ideal presented in the city of Washington D.C.

Today's global cities have become a target for terrorism (Coaffee and Wood 2006).

Governments and their agencies have opted to fortify their cities because of the ongoing war on terror and the very real threat that urban areas across the world will be struck by more terrorist attacks. In the face of real or perceived threats action is often seen as necessary to attacks. In the face of this many of the ideals and notions of what a city is are often swept aside as the issues of defense and security trumps all others (Coaffee, 2003). Despite its obvious importance, it is necessary to balance elements of security with notions of livability, aesthetics and the general feeling one gets when they walk the streets.

The idea of fortifying a city in times of war is not a new notion. It has occurred for centuries and is likely to continue. However, today's wars against terrorism, drugs, organized crime and the like demand a new type of fortification, one which is long lasting and a permanent part of the physical and psychological landscape. In the past cities such as Washington D.C. were fortified against real or perceived threat; first in 1812, then again during the Civil War and World War II. In all of these instances, the planners, architects, government officials and other key decision makers met with little resistance as they enacted change. These events in history saw the American capital, a symbol of freedom and justice transformed into a

fortress. Military installations surrounded the White House, National Mall. Many public spaces were commandeered in the name of national defense to house troops and equipment. Despite these drastic changes to the built environment there was little outcry from the public. This may be largely due to the temporary nature of these fortifications and the notion of known threats in the form of traditional armies and enemies.

Today's war on terrorism demands permanent installations which will not impede the public's ability to conduct its business and come and go as it pleases. The necessity of permanent constructs comes from the long term threat faced by contemporary cities (Savitch, 2003). Unlike wars in the past which had definite ends and periods of peace the nature of today's terrorism demands a constant vigil by security forces and subsequently requires robust and perpetual physical barriers to terrorism. It is necessary to balance the issue of security with the issue of keeping public space public and beautiful. Contemporary writers such as Lisa Benton-Short and Jon Coaffee have made it clear that it is not simply enough to design out terrorism in cities; the streets must still belong to the people and should inspire and evoke feelings of safety, freedom and endless possibility, not imminent attack (Benton-Short, 2007; Coaffee et al 2009). While the task of seamless and subtle integration is difficult it is necessary to ensure that planners are not overzealous in their implementation of security features in public areas which cause fear or anxiety. In order to establish this urban defense, planners must be subtle in many of their implementations blending security elements into the fabric of the urban landscape without impeding the public's ability to use that space. Imagine the streets of Washington D.C. should people not be able to assemble in protest and make themselves heard. The goal is not to create a culture of fear and control but rather an ongoing

free culture nearly invisibly protected without obstructions as not to create unnecessary fear (Benton-Short, 2007; Coaffee et al, 2009). This is further emphasized by Coaffee, O'Hare and Hawksworth (2009) where they state:

*“While security regimes may attempt to ‘transmit’ feelings of safety and security through the built environment and to reassure the public, the ‘reception’ of these very same messages may be ‘lost in translation’. Ironically, for example, security features can arouse feelings of fear and anxiety by drawing attention to the fact that one’s safety and security is threatened. As such, it is argued that the strategies of the past will not meet the needs of contemporary cities” (Coaffee et al, 2009).*

This demonstrates the need for a seamless integration of security infrastructure into the urban realm where attention is not drawn to it and where it can be seen to serve dual functions.

Some example of physical barriers in the form of planters, trees and other previously detailed in the previous sections exemplify this principle. This is especially important given the need for permanent installations according to many security planners.

The wars we are currently engaged in have no foreseen end and no defined enemies. As such it will not suffice to create rings of steel and fortifications around monuments, government institutions and financial centers (Coaffee et al, 2009). Contemporary urban planners have a new toolbox filled with an array of subtle tactics which will help mitigate the potential effects of terrorism without impeding the public’s ability to do as they will and without invoking fear.

### **6.3 Demonstrating the Ideal Washington D.C.**

Since September 11, 2001 the Washington National Mall has been secured against terrorist attacks through the use of various urban design, and passive/active security measures.

According to scholars the National Mall demonstrates the ideal in urban development and

design to prevent terrorist attack and retain the aesthetics and function of the area (Schneider, 2004). This new form of planning comes from a position of being perceived as poor planning and being ridiculed by visitors and residents alike (Coaffee et al, 2009).

*“Initiatives in Washington D.C. were unpopular with visitors and planners, and it has been asserted that ‘the nation’s capital has become a fortress city peppered with bollards, bunkers, and barriers’ owing both to a lack of funding for ‘anything nicer’ and a lack of strategic coordination between policymakers (Benton-Short, 2007, Coaffee et al, 2009).*



**Figure 12: Security around the Jefferson Memorial post September 11, 2001. Media outlets would state that occurrences such as this made the United States look like a "nation of fear" contemporary planning and technology seeks to prevent such occurrences while maintaining security. Source: Benton-Short 2006**

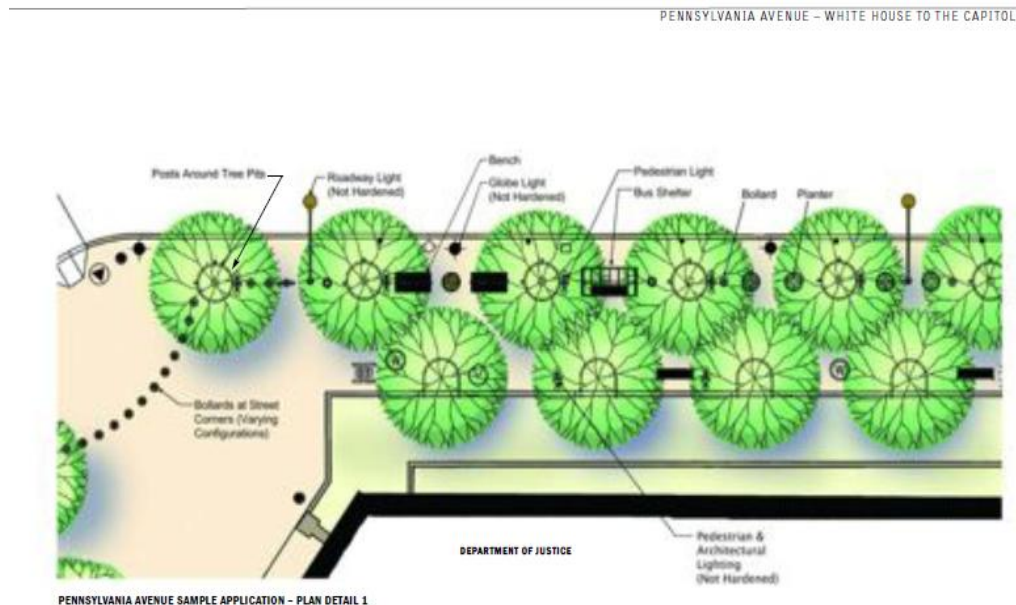
Following the 9/11 attacks Washington D.C. was secured with mass amounts of jersey barriers, fencing and militaristic type security measures. Examples from the new and

reformed plan which aim to prevent militaristic type defensive measures and retain aesthetics and community ideals are demonstrated below. Figure 13 demonstrates some of the aesthetically appealing forms of target hardening and visually softer defensive measures which are being proposed for the Pennsylvania Avenue area in Washington D.C. New materials and innovations in security infrastructure area allowing areas to remain secure while preventing fortress style architecture from dominating the landscape. The example below as well as the National Capital Districts District Redevelopment Plan strongly reinforces many of the ideas and recommendations for site defense presented by FEMA as detailed in the above sections. The plan outlined by the national Capital Commission provides an excellent example of plans which could be developed at the municipal and regional level in Canadian Cities. What is important to note is that the NCC security plan was developed much like official plans and secondary plans which are required in every Canadian city. Stakeholder input was taken into consideration and local planners and consultants developed the plan based on the needs and wants of the community. This is completely within the scope and means of local planners in Canadian communities. Considering the role which secondary plans and urban design already play in Canadian municipalities, what is missing is the mandate and will to create secondary security plans such as those seen in Canadian cities relating to other issues such as transportation, economic development, urban design and other local secondary plans or the integration of security into existing plans such as those listed above the OPs for respective communities. The goal statement presented by the NCC demonstrates an attainable goal for many Canadian cities. It states;

*“The goal of The National Capital Urban Design and Security Plan is to seamlessly incorporate building perimeter security into a beautifully designed streetscape. The Plan broadens the palette of perimeter security elements into an attractive streetscape, including a range of street furnishings and elements, such as streetlights, walls, planters, fences, and seats. These elements have been studied to determine the feasibility of “hardening” them so that they function as both amenities and as components of physical building perimeter security. The structural design, spacing, shape, and detailing of the perimeter security components must be designed to address the required level of protection for a particular building” (NCPC, 2004 p9).*

This statement clearly outlines goals and criteria which planners at the municipal and regional level are able to understand, implement, design, build, maintain and monitor.

Below, diagrams have been clipped from the plan and demonstrate the visual portions of the plan which were developed by planner and consultants. The language and diagrams present in the redevelopment plans for Washington bear a striking resemblance to secondary plans developed in Canadian cities.



**Figure 13: An example of a possible redesign for Pennsylvania Avenue in Washington D.C. which integrates new design concepts which retain aesthetics while creating a secure perimeter and preventing the entrance of vehicles and creates a clear line of demarcation.**  
**Source: The National Capital Urban Design and Security Plan 2002**

The above diagram demonstrates one possible redesign for Pennsylvania Avenue leading to the White House in Washington D.C.. This diagram demonstrates site specific changes which planners are making to protect a historic and important public realm in the United States. Developing these site specific plans are excellent examples of how changes to the public realm can make the city a safer place and even improve the aesthetic character of the area in the process. It is a demonstration of progressive planning in the security planning field, incorporating design measures which are pleasing to the eye but which also have added security benefits. These changes are not so dissimilar to earlier planning movements including city beautiful, Broken Window Theory, and Defensible Space Theory all of which were planning movements from the past and which held the idea of safety and aesthetics at their core.

In conjunction with its plans for public areas the City of Washington D.C. has also incorporated security measures into their comprehensive plan for the city. (the comprehensive plan is much like a Canadian official plan in most cities), Washington D.C. presents a new and innovative example of security planning which could be replicated in Canadian cities. The excerpt below from the transportation chapter of the Washington D.C. Comprehensive Plan demonstrates how security concerns have permeated throughout their plans and how guidelines have been created to deal with security concerns throughout the city.

*“The District is planning a series of preferred truck routes; a zone in the heavily congested and security-sensitive downtown area, from which large trucks would be prohibited during the business day; and truck prohibitions on all other roads unless travel on the street is*



*necessary for the truck to reach its destination. The truck system will be planned in consultation with federal agencies” (Washington D.C. Comprehensive Plan, 2007 c7 p27)).*

This one instance demonstrates the thought being placed in security and the cooperation between various levels of government in securing the city against various threats. Security concerns are addressed in the subsections of the plan and demonstrate clear thought on the subject. In addition to the plans and policies mentioned, Washington D.C. has a district response plan with an expressed purpose: “The DRP establishes the framework for District government entities to respond to, recover from, and mitigate an emergency in a methodical and efficient manner that protects life and property and ensures public safety” (DRP, District of Columbia, 2011).

Washington demonstrates an idealized example for Canadian cities to follow. The official plan of Washington D.C. has a variety of section and chapters relating to security including those which try and implement stronger security measures in the community and others which are aimed at creating cities which are safe and livable. The following excerpt demonstrates one such concern, trying to balance aesthetics and security. Section D-3.2 of the Washing D.C. CP opens with;

*“Security has always been a factor in the design and development of Washington, D.C., particularly around government and military facilities. The influence of security on the landscape has taken on new significance in the last five years, however. Some of the anti-terrorism measures implemented since 2001 have adversely affected the visual quality of the city. For example, the barriers around the city’s monuments and closure of key streets around the US Capitol convey a harsh and militaristic image that detracts from the beauty of the city’s most important structures. The reality is that security-conscious design is here to stay. The challenge facing the city now is to accommodate security needs without conveying the image of a city under siege” (Washington D.C. Comprehensive Plan, 2007 c9 p32).*

It has demonstrated consideration of various security concerns at multiple levels and has policies and practices in place which address both the protection of the public and private realm while retaining aesthetic appeal and function within the city. It has demonstrated a commitment to produce urban forms which are conducive to living and working in and has done so in a largely historical and heritage planning situation. What makes Washington D.C. an excellent example for security planning is the comprehensive nature of security in Washington. The Washington D.C. website for example has a Public Safety Page which provides information on various safety threats including: bioterrorism, emergency planning, evacuation routes, Terrorism as well as other safety and security concerns. This is unlike the Canadian examples which have been analyzed and demonstrates the strong security foundation which has been created in Washington. The language of the plans recognizes the deficiencies which have existed in the past and the processes necessary to remedy the effects of the hasty action taken in the immediate post September 11, 2001.

Comparing the selected cities to the case study of Washington D.C. brings to the surface many of the deficiencies which exist in the planning framework of Canadian cities. There is a clear separation of anti-terrorism planning and thinking in the Canadian government and fractured provincial, regional and municipal level security forces. The case study of Washington D.C. has demonstrated that planners are capable of bridging this gap and creating safe urban environments which deviate away from architecture of fear (Ellen, 1997). As the creators of the Urban Design and Security Plan for Washington D.C. stated the system which was in place following September 11, 2001 was a fractured one with few agency members'

communication to one another. Canadian cities have a similar disconnect as do regional and municipal level police forces. What the case of Washing D.C. demonstrates is the ability to overcome this logistical and policy problem and create sound and viable plans for the protection of the urban realm while allowing it to retain its character and appeal. What is also demonstrated in the Washington D.C. case is the prevalence of urban planning in the creation of anti-terrorism plans. The policies and plans which are present in Washington were developed in a similar fashion to plans here in Canada with input from stakeholders, analysis by experts and the formulation by planners and others. The Urban Design and Security Plan for Washington D.C. specially mentions that the plan was made with input from professional planners and as stated the language, graphics and maps found in the plan and in the Washington D.C. Comprehensive Plan and extremely similar to those found in OPs and secondary plans in Canada. The conclusions from this evidence are now easily made. Canadian planning divisions in municipalities, regions, provinces and in private firms have the skills necessary to develop security plans in a logical and meaningful way however federal mandates and a lack of perceived responsibility at lower levels of government stands in the way of locally developed security strategy. Evidence from Washington's national capital redevelopment which included work from planner and municipal officials demonstrates that the profession is open to security planning and that practitioners are capable of learning and adapting to the changing nature of urban development and special circumstances. However, there is confusion amongst municipalities as to who holds responsibility for the development of terrorism response plans and where the funding should come from. (EPC, 2008) In order to have locally created secondary plans or have security

planning incorporated into official plans planners must arm themselves with knowledge, best management practices and technology which have been presented in this thesis and local political will must push forward the idea that anti-terrorism planning can be conducted locally and can make meaningful contributions to the security environment without compromising the necessary and amiable qualities of the city.

## **6.4 Discussion: Reactions to September 11, 2001**

### **6.4.1 Discussion: Academic Response**

Following the events of September 11, 2001 some academics warned of an end of urban life as we knew it (Eisinger, 2004). Some scholars and prolific writers on urban affairs warned about a return to citadel cities with dense fortification networks and persistent surveillance along with a flight to the diffused suburbs (Marcuse, 2002; Berube and Rivlin, 2002; Frainstein 2002; Kantor, 2002). Other writers would argue that the overall affect of September 11 on city life would be negligible (Savitch, 2003). Some authors such as James Harrington and Phillippe martin (2002) would argue that cities are far more resilient than other scholars believe and that the agglomeration tendencies of business would prevent mass diffusion and decentralization. They argued that the benefits of agglomeration would overcome what Eisinger call the “tax of terror” (Eisinger, 2004; Harrington and Martin 2002). September 11, 2001 created a variety of opinions on anti-terrorism planning in urban areas and how it should be conducted. Many academics would argue for more security while others spelled the end of dense urban life as we know it. Debate continues, however the discussion launched by September 11, 2001 has demonstrated that terrorism and planning are not relegated to spate silos and that low frequency high impact manmade disasters such as

terrorist attacks are conceivable and plans should be in place to react and prepare for them (Coaffe et al 2004, Chenoweth and Clarke 2010).

#### **6.4.2 Discussion: Government Response**

The Immediate government response to the attacks also plays an important role in assessing the impact on urban form in cities. American cities belonging to the American League of Cities reported the immediate securing of water supplies, placing of guards at critical transportation infrastructure facilities and government buildings. Additionally hospitals were placed on standby for mass causality events and officials gathered to discuss emergency plans (Eisinger, 2004; Pionke, 2001). Research by Pionke (2001) following the attacks of 9-11 discovered that 81% of American cities with a population of 100 000 people or larger had a terrorism response plan in place and 56% of cities 10 000 -100 000 citizens had terrorism response plans in place. Similar surveys conducted by the Canadian Government first in 2004 and again 2007 found that Canadian cities are not well prepared and that few of the municipalities surveyed (92 municipalities with 20 000 people or more were surveyed) were prepared to respond to various threats including terrorism. In fact according to the Emergency Preparedness Report published in 2008 by the Federal Government (referred to as EPC hereafter) only 36% of Canadian cities surveyed had a counter-terrorism plan in place (EPC, 2008). Additionally only 61% of Canadian cities reported even considering a “disaster or state of local emergency caused by an act of terrorism as a concern for their community” (EPC, 2008). The report moves onto mention that the 36% of cities which reported having terrorism plans in place by be even lower given that Canadian cities do not see terrorism as a risk to their communities (EPC, 2008). The survey and report by the Federal government

determined that emergency events are low frequency and high risk events which Canadian cities are generally ill equipped to handle (EPC, 2008). The report goes on to mention the following:

*“Emergency preparedness is a vital issue for municipalities, but it is not one of these omnipresent issues. It is largely hidden in the shadows as people go about their everyday lives. Most municipalities are simply unlikely to siphon off their own budgets for major overhauls to emergency preparedness – even if a reassessment has shown that they should. Emergencies are low probability, high-impact possibilities. Most homeowners purchase insurance for low-probability, high-impact events, which is the rational thing to do. But somehow that often doesn’t translate into politics, and a lot of emergency prevention money doesn’t get spent until after a disaster, when emotions, rather than reason, rules the day. Unless a municipality can attract a timely injection of federal or provincial funds for emergency preparedness when a clear case can be made for improvements, those improvements will either not be made, or will not be made when they should be made” (EPC, 2008).*

The 92 polled Canadian municipalities report a lack of funding and experts necessary to properly protect their cities. Major staffing complaints were reported in 2004 and again in 2006 when both phases of the survey were completed. The report also determined that “The roles federal, provincial and municipal police play during emergencies are not always clear, particularly if terrorism is involved” (EPC, 2008). The survey of Canadian cities has discovered that terrorism is not of great concern to Canadian municipalities and that relatively few municipalities are preparing for the possibility of terrorist attack in their community. Following the September 11, 2001 attacks in New York City the Canadian Government created Public Safety Canada which has the mandate of keeping Canadians safe from a wide range of threats (PSC, 2012). Many municipalities in Canada have also expressed concern around the availability of expertise in their communities concerning security and anti-terrorism mitigation. When this issue is compared to the American examples a stark difference can be seen.

FEMA and a variety of organizations have published work on terrorism mitigation strategies and while the work is comprehensive and enlightening much of the literature on the subject lacks advice surrounding the topics of protecting support infrastructure and quarantining individuals in the event of a successful attack. In the wake of contemporary terrorism it is not simply enough to guard our population centers. In the past planners and security experts focused on “designing out terrorism” especially in urban centers and around financial institutions where economic and social damage can be the greatest (Coaffee 2006). The idea that asset management must cover a broad range of structures and areas is more important today than it has been in the past due to the targeting of civilian structures by terrorists. This is especially true for outlying urban infrastructure which may become the next major target of terrorist activities. Unlike major cities which have a multitude of eyes, ears and video cameras the outskirts of cities where many critical structures and systems lie remains nearly ungraded. The lack of activity and security in these areas forces planners to reassess the three layers of defense and plan a secure environment for urban support infrastructure. This will likely focus on stop and deterrent and deflection tactics with perhaps some supplementary reinforcement. Moving forward into the future defense planners will need to address these issues, especially in regards to structures such as dams, power plants and water treatment facilities. The scenario where mass numbers of people are dying of an unknown malady and where experts are unsure why may be just around the corner as terrorist’s aptitude for poisoning water improves. This would likely incite hysteria, mistrust and cause loss of life and economic damage. It also shuts down many of the operations within a city which require water such as hospitals (da Conceicao, 2009). As the technology and scientific skill of

terrorist organizations improves more sophisticated delivery and dispersal methods of death agents will likely become available to them. The future may require more than simply bollards, and turntables to help mitigate attacks, a holistic shield of protection and organization which envelopes cities and supporting infrastructures may be called for (Bosher, 2009). In order to protect support infrastructure planners would have to carefully analyze the three layers of defense and implement selected tactics and constantly assess new technological solutions which are available. Much of these selected tactics will likely be implemented on a need and ease of implementation bases as previously mentioned. They will also have to focus on preventing various types of attacks and should be broad in their protective scope. It may be necessary to employ nearly all the aforementioned tactics to protect urban support infrastructure, and depending on the severity of the threat perhaps level 4 and 5 measures which require years of planning, funding and development.



## Chapter 7 Conclusions

This thesis has demonstrated that planning; through the implementation of infrastructure and passive security as well as policy changes has the ability to make urban areas safer by deterring, preventing or mitigating terrorist attacks. The case study of Washington D.C. demonstrates real world changes which urban planners are making in order to combat the threat of terrorism in their local areas and that planning has the capacity for security planning. Works by Oscar Newman, most notable his Defensible Space Theory (1972) demonstrate that through manipulations in built form and morphology planners can play a role in the securitization of cities. Further dialogue and work by Deborah Cowen, Amy Sicilano and Neil Smith demonstrate that planners are actively studying security planning and applying it in municipal settings in Canada. Their conclusions demonstrate that while terrorism falls under the realm of national security, it is “being managed within urban space in a number of different forms” (Cowen, Sicilano and Smith 2010). With respect to the post September 11, 2001 world, this thesis has revealed that while the federal government took immediate and long term measures to ensure security in Canada (detailed in Appedix E), municipal level security initiatives are rare and under developed. Some information on security planning measures taken by major municipalities is unavailable due to the secret nature of the information; however surveys of Canadian municipalities have revealed that most do not have terrorism response plans in place and many consider the financial and technical burden of preparing for terrorism to be a poor use of scare resources. This conclusion leads to the next; Security planning in Canada is under developed when compared

to countries such as Great Britain and the United States. The Case study of Washington D.C. demonstrates this well. This information plays directly into the previous conclusion which this thesis draws; many Canadian cities have not prepared themselves due to fiscal and expertise based restraints. When compared to other countries Canadian standards and practices fall short. Research in this thesis has demonstrated that municipal and regional planning in the United States is much more security focused and the link between federal institutions and local municipalities is much stronger.

The review of U.S. policy documents in this thesis has revealed that there is great potential that urban planning policy and the implementation of area and site specific anti-terrorism planning can prevent and mitigate terrorist attacks. In line with the scope of this thesis the case study of Washington D.C. demonstrates the planners and the planning profession have the capacity to meaningfully contribute to the security of cities. American planners have been doing so for some time being forced to refer to Department of Homeland Security guidelines when making major design decisions. Mandated consideration has forced planners in the United States to consider security planning in their urban designs and is creating a new generation of planners which is more security savvy and perhaps critical of the securitization of the city. While the same requirements have not been made of urban planners in Canada, American policy and practice have demonstrated that urban planning has the capacity to incorporate security planning into it. The Creation of urban security zones in major U.S. cities as well as requirements to consult department of homeland Security design guidelines demonstrate that planners have the ability to participate in security planning and can be an integral part of the effort to create safe cities. American policy and government

publications demonstrate that urban planning and the alteration of the built is being used as a tools tool to deter, prevent and mitigate terrorist attacks. However, stark differences reveal themselves between the Canadian case and the American experience with security planning in cities. There is larger cooperation between cities and the federal government in the United States and funding opportunities which allow municipalities to receive funds for anti-terrorism infrastructure and studies. Additionally the American experience with terrorism has been much more severe than in Canada. Events such the Oklahoma City bombing which killed 168 individuals as well as the September 11, 2001 attacks along with greater public and private interest in anti-terrorism planning have created a more security focused local governments that in Canada. The example of Las Angeles provides an excellent example, where 40% of the city has been designated a secure zone and where the Building Owners and Managers Association of Greater Los Angeles privately commissioned security studies of tall structures in down town Las Angeles (Nemeth, 2009). Canadian security planning has been largely driven by governments and focuses heavily on government owned facilities such as ports, rail lies and transportation networks. Canadian security planning has also largely involved policy and practice changes without changes to the built environment in many cases such as the arming of Sky Train guards in British Columbia and Canada Border Services agents at border crossing. This is not to say that there have been physical changes in Canadian cities however their scale and public visibility as well as affect on people's daily lives has not been as great. One need only look at the mentioned changes to the National Mall in Washington or the creation of "rings of steel" following September 11, 2001 around national monuments and perceived high value targets. The Canadian planning experience

has not seen a such a centralized mandate for security considerations nor has the federal-municipal relationship on the subject been developed to the same degree as it has in the United States. Again, the American contextual differences have greatly influenced their perceptions of a secure environment and their experience with terrorism may be the leading factor in the more stringent security environment which has come into existence in the United States post September 11, 2001 but which has not manifested itself to the same degree in Canada during the same time frame. This thesis has also demonstrated that federal publications such as those published by FEMA have placed tools in the hands of local officials who are better able to apply micro analysis to their most vulnerable urban weak points and areas of profound vulnerability. The work of planners and other officials working in Washington D.C. demonstrates this well. However comprehensive Canadian examples of similar work, collaboration and attention to the issue of security are not readily present. This may serve a disservice to the Canadian people who do not have local officials engaged in the security conversation as their American counterparts are. However objectivity must also bring forward the argument that more security is not necessarily better in the Canadian context. Funding for programs, studies, education, and implementation of strategy devoted to anti-terrorism is not necessarily the best use of scarce resources in every Canadian municipality. Some are more vulnerable than others and some are more likely targeted than others. As with many aspects of governance and life resources are often be used to do the greatest good possible. In the northern areas of Ontario for example there is little concern over the possibility of a terrorist attack and scarce resources are more badly needed to protect

against natural hazards. Ted McCullough Community Emergency Management Coordinator and Fire Chief for North Bay Ontario reported to the federal government that;

*“There should be more emphasis put into projects that reflect the real need of communities . . . There has been too much emphasis given to HUSAR and PERT and those types of entities with the focus on terrorism. It has come abundantly clear over the past few years that the real threat to municipalities is the weather. If you look at the costs associated with disasters within the country it has not been terrorism but mother nature. This is not to say that we cannot be diligent in our efforts towards terrorism but to many people are profiting from it and to much money is being spent on it when the real killer has been the weather.”*  
(EPC, 2007)

Only 36% of Canadian municipalities have reported to the federal government that there is a counter terrorism plan in place in their community (EPC, 2007). Of those, the federal government suspects that many of the plans have not been updated in some time. What the testimony of officials such as Chief McCullough demonstrates is the general lack of perceived threat which many Canadian municipalities have toward terrorism in their locale. This opinion is not shared by all municipalities especially larger cities such as Toronto which have experience with terrorism in their local area. One important distinction surrounding the topic of anti-terrorism planning in Canada is its association with emergency management. The goal of this body of research has not been to critically analyze the response of EMS personnel to terrorist attacks or deal with the aftermath of an attack but to analyze policies, procedures, laws and case studies to investigate how terrorism has changed Canadian urban planning and how changes in the built environment can prevent and mitigate terrorist attacks. A common misconception is the notion that anti-terrorism planning is intimately connected with counter terrorism which is its own and unique element. While the testimony of professionals such as Chief McCullough brings forth valid points on the allocation of funding what is often misconstrued in the anti-terrorism debate is its ability to be seamlessly

integrated into the fabric of urban areas with little more funding than which already exists. Site plans, building permits and the like must pass through analysis and inspection in Canadian municipalities as it stands. Street furniture, bollards, planters, trees and other features of public areas are carefully analyzed and placed as part of the redevelopment processes across Canada. With more information available and strong mandates in place planners can easily apply simple principles such as increasing standoff distance and

Analysis of the Canadian landscape and its comparison to what academic literature has called the “ideal” in Washington D.C. has revealed that Canadian cities are taking far fewer steps in preparing urban areas against the threat of terrorist attack. Information gathering by the Canadian government in 2004 and again in 2008 has revealed that most Canadian cities do not have “counter terrorism” plans in place and that many Canadian cities simply do not have the resources to adequately deal with the threat that they may face. Additionally many Canadian municipalities are simply not concerned with the threat of terrorism in their local area. Other threats to public safety such as extreme weather have been cited as being more of a concern to their communities. This is especially true in smaller Canadian municipalities where the threat of terrorism is considered very low.

Despite the level of or perceived or realized threats across the spectrum of Canadian cities the affects of terrorism on urban areas has clearly been demonstrated throughout history and in recent events such as the attacks in New York in 2001. Terrorism successfully disrupted the commercial space market in the city leading to a diffusion of offices and commercial activities through the New York area. Additionally the attacks caused massive loss of life and disrupted the global economy. What has also been demonstrated in the aftermath of

attacks such as this and others around the world is the importance of built environment changes in order to mitigate the effects of terrorist attacks in urban areas. The City of Washington D.C. has demonstrated this well in the built form changes as demonstrated in the above section and the diagrams and in Appendix A below which demonstrates new technology and built form changes which are helping to mitigate and prevent terrorist attacks in urban areas. However new changes in the built form are far different from the “rings of steel” witnessed areas such as Washington D.C. post September 11, 2001 or in London during the IRA crisis. The emphasis on new security especially passive security is the minimization of architecture of fear and overt displays wherever possible. New seamless integration into the built environment where stark concrete barriers are replaced by planters, hydraulic bollards and generally more aesthetically appealing barriers and other forms of invisible protection. What has also been demonstrated through the development of municipal security plans such as those developed in Washington D.C. is the contribution which planners can make in securing the urban environment against terrorist threats while ensuring functionality and esthetics are retained. They offer balance and can make significant contributions and have intense local knowledge. Planners have the skills necessary to prepare their respective environments against many of the threats presented by terrorism. This is especially true making changes to the form of a city and altering or adding to the existing infrastructure. Following the events of September 11, 2001 the Canadian government took various methods to secure Canada against the threat of terrorism however these initiatives are not well reflected in the planning policy of the Canadian provinces or in the policy of regional and municipal government. This thesis, through the analysis of the security planning

landscape in Canada has revealed that most cities do not have terrorism response plans in place nor do most cities consider it a reliable threat to the safety and well being of their residents or infrastructure. While many Canadian cities have addressed emergency management in their local policy and some cities have considered the threat of terrorism to their municipality, communication between security planners and traditional urban planners has been low. This may be one of the reasons that Canadian security planning has not matched the preparation and planning of ideally planned cities such as Washington D.C. as previously demonstrated. However, despite the lack of the security planning being implemented in Canadian cities by traditional urban planners many municipalities have argued that terrorism is not a significant threat to their jurisdiction and have opted to allocate their resources elsewhere. Some municipalities have also cited a lack of local knowledge on the subject as a reason for being deficient in their terrorism preparedness. On the policy and academia side of the planning debate planning trends such as smart growth which have advocated for more dense forms of urban living have been called into question in the face of terrorist attacks. Study by the Center for Immigration Studies cited terrorism as one of the factors contributing to decentralization in the United States. The post September 11, 2001 report states “If indeed both residents and workers in tall buildings around the country feel insecure after the toppling of the twin towers at the World Trade Center, it is possible that demand for the construction of future skyscrapers will decline.” Contrasting policies opinions on the subject have divided some practitioners of the security profession, leaving some calling for more decentralized cities and lower levels of firm agglomeration (Beck, Kolankiewicz and Camarota, 2003).



## **Chapter 8 Future Research**

Future research on the topic of urban planning and urban security against terrorist attacks and how it affects planning policy and subsequently urban form will involve a variety of facets.

Future research will proceed from secondary research which has demonstrated that mass violence and terrorist attacks are unlikely to greatly affect the form of cities and have done little to change the face of urban planning in Canada and more broadly in North America.

Although the United States has a much stronger security culture and the emphasis on localities dealing with higher level threats is somewhat greater.

Future exploration of the topic will involve more primary research, gathering information from practicing planners and security experts as to why the conclusions of my research have occurred. Movement toward more primary research will be the natural evolution of my research which required secondary research as a foundation given the lack of prior research on the subject and the issue of gathering security information. Information gathering on the subject of terrorism will be difficult to come by given the secretive nature of much of it and the general unwillingness of security planning practitioners to speak openly about their experiences and thoughts on the subject. However with extensive time and effort as well as more cross border analysis it may be possible to gather a sufficient amount of primary information as a researcher. With this fact in mind I foresee the breadth of my research widening to a greater degree to perhaps focus on more conventional crime or focusing my attention on other areas of the world which do not share Canada's record of peace and prosperity. A comparison and contrast or independent research into conflict zones such as

Afghanistan, the Korean border area, Iraq or other areas with a long history and continuing mass violence may provide a more fruitful study area for the effects of terrorism on urban planning. Additionally I may choose to focus on the North American context to an even greater degree looking at the fortification of sensitive areas such as government agencies, political centers, military bases etc. A site specific contrast against the general Canadian policy and North American landscape examined in this paper may provide more information on how smaller more defined areas are coping with the threat. Additionally there is the possibility of examining other effects of terrorism on urban life such as the psychological effects of fortress architecture, the economic burden protection places on the public and other facets of terrorism preparation which can be directly related to urban planning. Another area of future research will revolve around the security planning which higher levels of government are doing on behalf of municipalities and regions through tout Canada, how this varies across provincial jurisdictions and how federal agencies are managing the planning of secure environments in Canada against terrorist threats.

I believe that far more information exists on this topic seeing as relatively little is being done at the municipal and regional levels across Canada. How these agencies are operating and determining the form of Canadian cities could provide a multitude of useful information however the sensitive nature of some of it may preclude further research in this area by outside researches which are not part of the security establishment. Additionally, local security can also be examined from an emergency management point of view and from a police perspective to determine how they are responding to the threats which Canadian cities face and how this affects the overall form and function of Canadian cities.

## Chapter 9 Postface

Government agencies need to be aware of the threats which face critical facilities such as water treatment stations, electrical grids and the like. Equally important is the planning for the successful execution of these types of attacks. Contingency plans are necessary as there will be a successful attack on vital facilities at some point in time. In line with the cliché, we must recognize that it is not a question of if but when. Proper planning of response infrastructure and an emergency personnel strategy will be essential in minimizing the loss of life and economic damage which will follow one of these major attacks. I believe that it is of vital importance that future research on the subject focus on not only protecting urban support systems such as the electrical grid, potable water supply and essential facilities but also plan for the destruction or disturbance of these systems.

Policy makers must also be aware of the evolving nature of terrorist's tactics. Just as our sciences and experience evolve and improve so too will theirs. We must address the issues of protecting our urban support systems. These essentially consist of: the electrical grid, potable water supply, transportation networks and response services (police, fire etc.). Successful attacks on targets such as these achieve the main goals of terrorists in causing death, damage and fear but they also make the urban environment more vulnerable. This is especially important to consider in the light of mass, multi-coordinated attacks as seen in the attacks on the London's underground and bus network. Disruption of the power supply could provide the necessary distraction and cover to carry out a very destructive and dangerous attack. One key point to be addressed is the necessity of auxiliary power for support services. Since the

majority of services run off the standard power grid a single blow to a junction station, power plant or other key piece of the grid could wipe out our ability to detect incoming threats, address poisoned water or coordinate operations such as police and hospital services. Much of our urban area's vigilance relies on an uninterrupted power supply; disabling power to a major urban center will not only cause chaos, but also limit our ability to react to a more severe threat. Terrorist attacks on cities have required a stealthy and subtle approach in order to deliver explosives and chemical or biological packages to a site. Interruption of communication and visual aids would give a well organized terrorist cell the opportunity to deliver packages of significant destruction. It may also be prudent for policy makers to investigate the possibility of attacks on communication infrastructure such as cell phone towers and control stations. While there is little concern for loss of life around these assets it may be that their destruction is the beginning of a coordinated attack. If communications and lights are disabled in urban areas terrorists could have variable free range of a city. It may be that as terrorists study urban centers and find their weak points that they begin targeting life sustaining and economy sustaining infrastructure. Destruction of water and electrical infrastructure has been discussed above. However, decision makers must be aware of the aftermath effects of such attacks. Imagine a Québec winter with no electricity or Toronto's Bay Street with no communication ability. Quick response is necessary, as well as recognition of natural and human conditions which may exacerbate the damage and chaos of a terrorist attack (Molotch and McClain, 2003).

Policy makers must also be aware of our city's inability to quarantine sections of urban areas and groups of people in the event of a chemical, biological or radiological attack. If carried

out successfully these types of attacks have a high degree of potential to kill or injure people especially in areas with a high population density. Many of these types of attacks especially biological weapons could rely on residents of a city as a delivery device. Since initial attacks panic and scatter people the potential to spread a communicable illness is limitless. In these cases disguise, reinforcement, and dispersion tactics will not be sufficient to prevent these attacks. It will require the outright prevention of an attack. Stopping a terrorist from deploying their device or completely containing the munitions, chemical etc. is the only sure way to stop these attacks. Mitigation of these forces should focus on stop tactics and in some cases deterrent and deflection tactics depending on the value of the asset.

Much of the academic literature on the subject of anti-terrorism has focused on mitigating blast damage; however future events may see the rise in biological and chemical attacks as seen in the Tokyo subway sarin gas attacks in 1995. In the event of these successful attacks our cities must be able to restrict the movement of residents and ensure that contamination does not spread. Limiting people's ability to move in a city is a difficult issue with many calculated decisions. Major urban areas need the ability to suspend the movement of residents and visitors, preferably without impeding emergency services ability to perform their duties. Solid, built-in infrastructure for such an event will not be available for an entire city. It is also unlikely that a city's streets could be secured effectively in a short period of time. It may be that a city's structures act as quarantine buildings in themselves. Since even the largest of towers have only a few exist near or below ground level it would be easier and more effective to prevent people from leaving a structure. This may require the reinforcing of doors and windows at lower heights; however, it is the most realistic and effective way to

contain people following an outbreak or contamination. Some minor emphasis on reinforcement tactics along with organization and fast implementation of stop tactics in the form of deployable barriers and security personnel may be the solution to effectively quarantining an urban population. This does however; leave the issue of people on the street. It would be necessary to guide them into nearby secure structures, using broadcast and emergency personnel. It is my belief that terrorist tactics will evolve in the future and that our urban support systems will become a target of advanced tactics and weapons. As such I believe that future research on defending these assets is necessary as well as preparing for their interruption or destruction and the quarantining of mass numbers of people in urban centers. My personal research and investigation will be on this topic as I continue my studies in the field of urban defense and terror mitigation.

My research has found that planning policy will likely be largely unaffected by terrorist events around the world or even in Canada. That is not to say that planning will not at all be affected by security concerns however municipal and regional planning policies will likely remain largely unaffected in the face of terrorism. I believe this to be especially true if there is a relatively sporadic level of violence in urban areas associated with terrorism.

#### Recommendations: Integrating the Planner into the Security Framework

These recommendations are derived from the examination of the the role of the planner in the Canadian, American, British examples discussed in this Thesis. They are built on the idea that traditional urban planners have a strong role to play in security planning and the overall safety of cities. They are also derived from the policy changes implemented in the United States following September 11, 2001, namely that of municipalities taking a larger role in

implementing security driven changes to the built form of their cities. Washington's National Mall redesign provides an excellent example of this. Additionally, these recommendations are drawn from the relatively low amount of activity and conversation surrounding terrorist threats in cities as well as from the absence of it in official and secondary plans of municipalities.

As mentioned planners hold a unique position in the security network. They have the position of being far enough removed from security concerns that they can weigh the consequences of actions or inaction with respect to security and are not so far removed that they cannot see the tangible benefits and necessity for planners to become involved in the security planning of their local areas. In order for planners to become more involved in the security planning network it will likely be necessary that they force their way into the often closed door profession. However it will be important for planners to analyze the effects which such an increase in professional scope can have on the urban fabric of localities and specifically on the urban form of cities as a consequence. The planner is in a unique position in that he or she can better understand than most the consequences to urban form which increased security can have in a city and how that will affect the form of the city and consequently its economic, psychological and social condition. This ability is the prime reason why planners need to be better included into the security planning dialogue. If their opinions and analysis are taken seriously by higher level security agencies and higher levels of government they have the ability to act as a balancing force in the security industry which often sees safety as trumping almost all the factors of human life in cities. I argue that while security concerns are paramount in cities the employment and creation of security systems in

urban areas must be done tactfully and with respect to the existing urban form, the urban form which is trying to be developed in the city and the economic, social and psychological conditions which exist. Additionally the planner must determine if planning for security concerns such as terrorism is a progressive form of planning or simply an ineffective way at dealing with a social conditions rather than a technical problem which can be solved through effective management. I argue that the issue intersects both spheres. Siciliano and Rantisi in their forward of the 2007 Progressive Planning Journal demonstrates well the ambivalence which exists in the planning world when considering security planning in our urban areas in the post September 11<sup>th</sup> world.

*“This issue of Progressive Planning examines the intersection of security and planning from a variety of perspectives. But rather than simply focus on whether or not security initiatives are effective planning tools the articles pivot on the question of why we have such security initiatives at all. This is an important distinction in an age where terrorism is perceived as a permanent condition that must be planned for and managed, not a problem that has emerged out of particular social conditions and historical relations. Indeed, terrorism is seen as a part of “everyday life” and just another “risk” to be planned for. Thus, technocratic solutions, often uncritically imported and adapted from defense planning at national levels, are promoted as the way to manage these risks, while more fundamental and structural issues of inequality and uneven development remain unchallenged”*

The two authors go on to demonstrate how security concerns in Canada are shifting land use issues to the security realm in the post 9/11 world and how this can impact urban form. They state:

*Capitalist strategies of accumulation provide the social and economic context for security initiatives. Several contributions in this special issue address the role that planning plays in how space is restructured, governed and ‘secured’. Dorries, for example shows how a Six Nations protest over contested land on a residential subdivision in southern Ontario has been characterized as a security concern rather than a legitimate policy and planning issue by both the state as well as mainstream media. In attempts to provide credibility to this framing, the protesters in some instances are labeled as ‘terrorists’, to situate this event within dominant discourses of security in a post 9/11 world”*



With restrictions on how space is governed and the intersections of security concerns with traditional land use concerns planners are inevitable going to find themselves dealing with security issues in the coming years. This will be especially true of terrorist threats, either perceived or real if they come to be a part of everyday life in not only Canada but North America as a whole. Despite the aforementioned ambivalence of planners to become involved in what some would deem to be outside of the realm of urban planning. Despite ones views on the progression of planning and whether it should or should not interact with security planning issues related to terrorism and mass violence in cities the fact remains that security agencies have developed a strong presence in many cities and there is a belief that the threat of terrorism in cities is real. These realizations should force planners to realize that if unchecked serious changes to urban form can arise. History has demonstrated that mass violence has had little effect on the population of a city other than those who are killed in the violence and that actual violence will do little to affect the urban form of cities. The response to that violence has the greatest impact on how the city functions and how urban form is affected by it. If planners are unwilling to step into the realm of security planning they could be left out of the decision making situations which directly affect the form of cities actors Canada. Therefore there must first be willingness on the side of planner to participate in the security planning conversation and force their way into the profession. In order to force their way into the profession I believe that must take a more active role. This would involve research on how security concerns are affecting the profession and cities. Demonstrations of how security concerns have affected urban form, a greater emphasis on the subject in urban planning schools; even offering a sub specialty in the subject as has become common in other

areas such as urban design, transportation planning, economic development, international development and others would encourage learning and conversation on the subject.

Scholarly publications would also go far in legitimizing the planner as an effective member of the security team. Practicing planners also have a great deal of influence on the subject.

Including security concerns in the development of official plans or secondary plans would allow the concerns of planners regarding security concerns to seep into the collective profession and seeing as these plans are approved by higher levels of government, it would give a direct mandate to the municipal and regional planners who are so close to the ground.

A combination of government mandates along with legitimizing the profession through academic channels would strongly develop the security aspects of urban planning especially in young planners making their way through universities. From my research I have also noticed an aversion amongst planners to study topics which exist outside of the conventional planning policies or those which are emerging in schools. In order to increase interest in the subject and have planners focus more attention on it, academics and practitioners will have to make it their business to bring the subject of security planning into the planning mainstream.

Recommendations:

My research has demonstrated that relatively little is being done at the municipal and regional level in order to prevent acts of mass violence. The following recommendations are made in order to create more robust and prepared cities:

1. The development of regional plans for terrorist attack mitigation through regional and municipal means
2. The education of planners on the subject of security planning

3. A greater degree of internal cooperation on disaster mitigation and preparedness between provincial, regional and municipal levels of government, as well as the agencies within the umbrella organizations
4. Provincial mandating, requiring official plans to address relevant security concerns in Canada's urban areas similar to guidelines developed by the Department of Homeland Security in the United States
5. Cities should develop site specific guidelines for structures and areas of importance to ensure adequate security measures are taken
6. Complete risk analysis of municipality in order to allocate limited resources as necessary

The completion and implementation of these strategies would better prepare Canadian cities for a variety of scenarios and increase their robustness. Their implementation would operationalize many of the principles and ideas being presented by leading planners and security planners in North America and around the world and would capitalize on the skills which planners and municipal officials bring to the security planning table. It is therefore generally recommended that cities take greater initiative in their own protection and that planners force their way into the security profession for the benefit of their localities and the country as a whole.

## Appendix A

### FINDINGS OF 2007 EMERGENCY MANAGEMENT SURVEY

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|           |   |     |    |
|-----------|---|-----|----|
| <b>2d</b> | Does your community involve industry when conducting its risk assessment?                             |     |    |
|           | Yes   | 65% | 60 |
|           | No  | 32% | 29 |
|           |   |     |    |
| <b>2e</b> | Is a disaster or state of local emergency caused by an act of terrorism a concern for your community? |     |    |
|           | Yes   | 61% | 56 |
|           | No  | 38% | 35 |
|           |   |     |    |
|           | If yes, does your community have a counter-terrorism response plan?                                   |     |    |
|           | Yes   | 36% | 33 |
|           | No  | 30% | 28 |

## **Appendix B Common Tactics used by Terrorists**

In light of the numerous and deadly terrorist attacks which are taking place around the globe it is necessary that urban areas be prepared to face the very real threat of a terrorist attack. The following chapter will provide a review of the tactics currently in place in many urban areas to mitigate the effects of a terrorist attack and will supplement this with recommendations and advisory briefs on where urban protection needs to head in order to be effective and what is vulnerable in the urban environment. The purpose of this section is to provide an overview of standard practices in defending urban areas and more importantly to recognize deficiencies in urban defense and understand how to create an environment which is permanently guarded against threats but which stray's away from the rings of steel and fortress architecture of the past. The following will assess the five types of defense tactics and their active and passive elements in conjunction with the spatial analysis of the three layers of defense. The combination of these three systems provides a comprehensive base of knowledge to understand how defensive strategists analyze the built environment and choose response measures to real or perceived threats. Knowledge of this area helps planners better understand the issues surrounding anti-terror planning and what is deficient or vulnerable in cities.

### Overview of the threat

The nature of terrorism and explosive attacks grants attacking forces guaranteed success over time. Law enforcement and active security must succeed 100% of the time against their terrorist enemies who only have to succeed once in order to accomplish their goal. This daunting task all but guarantees a successful terrorist attack on our cities. The goal of anti-terror planning experts is make it as difficult as possible to carry out a successful terrorist attack and to dampen the effects of an attack when one occurs.

Contemporary terrorist attacks take many forms and involve varying levels of expertise, planning and organization (Coaffe, 2010). They can be as simple as tossing a hand grenade into a shopping center or as complex and well thought out as the events of September 11,

2001. Despite their many forms they can be generalized into four main categories, none of which are mutually exclusive of one another.

#### Small arms attack/ urban warfare

Example: Mumbai India November 29, 2008

These attacks are fast paced in execution but often drawn-out over time. They often involve siege style attacks on urban centers such as the attack seen in Mumbai India in 2008. This style of attack usually targets people or structures of significance in urban areas. The goal is often the elimination of a single high profile target or the seizure of structural assets in order to strike fear into people. The attacks in Mumbai India targeted high profile hotels which housed a variety of people from around the world. Their bloody nature and targeting of foreigners may be seen as an attempt to discourage travel and foreign influence.

#### Explosive attacks

Examples: Oklahoma City Bombing April 19, 1995

Explosive attacks aim to cause as much damage and loss of life as possible in a localized area. Since it is often difficult to accumulate enough explosives in an area to do cause mass damage and destruction with single explosion terrorists often target portions of structures which will cause a great amount of collateral damage from building collapse or falling debris. The Oklahoma city bombing in 1995 which killed 168 people and injured 680 more, is an example of a well planned and executed urban explosive attack. The explosion itself killed few people; however, the progressive building collapse which followed crushed many people resulting in a large loss of life.

#### Chemical and biological attacks

Examples: Sarin gas attack, Tokyo subway March 20, 1995

Due to their nature chemical attacks are among the most difficult to prevent. They are however among the most difficult to execute as well. Chemical or biological attacks can take a variety of forms from anthrax powder in envelopes as was the case in the United States to the release of nerve agents as witnessed in the Tokyo subway attacks in 1995. Chemical and biological attacks are most effective when deployed indoors (generally speaking) poor air circulation and large numbers of people in close quarters make ideal targets for chemical and biological attacks (DHS, Biological attack 2004, DHS, Chemical Attack 2004). They can be delivered in a variety of forms from inhaled poisons to contagious pathogens. Unlike many other attacks bio-chemical attacks require rare material and scientific expertise in order to effectively create and deploy a successful attack. Since chemicals and biohazards can be hidden in small quantities and in many cases are not detectible by conventional security systems, effective response measures are necessary to combat this threat. These can range from quarantine strategies to installation of advanced HAVC systems to filter air.

#### Nuclear/Radiological attacks

Among the most potentially devastating, nuclear and radiological attacks have the ability to cause mass damage and destruction to urban areas in a matter of seconds. Not all radiological threats come in the form of a nuclear bomb. Since material and proper expertise to fabricate and transport an appropriately seized nuclear device is rare, I believe that it is far more likely for a dirty bomb attacks to take place. The threat of a nuclear bomb exploding in an urban area is real; however there are virtually no defense mechanisms which can be implemented to prepare a city for such an attack. Prevention is the only option in this case. This involves a sophisticated network of tracking, intelligence and technology devices capable of detecting a nuclear threat before it reaches its target. With respect to the far more likely scenario of a dirty bomb attack however, responsive measures can be established in order to mitigate the effects of such a device. For all intensive purposes a dirty bomb is simply a piece of dangerously radioactive material combined with an explosive. The explosion shatters the material creating a radioactive dust or cloud (DHS, Radiological Attack 2004, DHS Nuclear Attack 2005). The cloud, while extremely dangerous has mostly local effects and will not

severely damage the built environment or cause mass death like a nuclear bomb. In the event of a dirty bomb explosion immediate response is necessary. This involves planning for medical emergencies which are likely to follow; ensuring hospitals are stocked with radiation medication and having a trained and rapidly deployable hazardous material response units. Radiological attacks unlike siege or explosive attacks cannot be easily defended against by altering the built environment; it is largely in the hands of human beings. Detection and prevention are the best mitigation methods.

While all types of terrorist attacks are dangerous and aimed at destroying lives and property the most common and often most effective attack has been explosive attacks (Coaffee, 2009). The widespread availability of explosive material combined with the advent of mass numbers of suicide bombers has made explosive attacks the deadliest form of terrorism across the world. In combating these dangers many issues have arisen with respect to the changes in urban form which develop. They are explored in greater detail in the following section.

#### Review of anti-terror tactics

The following section will describe the different tactics used to mitigate terrorist attacks in urban areas. The focus has been placed on explosive attacks due to their frequent nature as described above however; many of the tactics can be universally applied.

#### Stop tactics

Goal of Stop Tactics: to completely protect all assets and structures inside a designated perimeter with passive physical barriers and active defense.

Stop tactics matrix rating: level 1:

Can be rapidly deployed within a short period of time.

Within minutes security and response personnel can be at a scene or intercept a would-be attacker before an attack is executed.



Physical barriers can be in place shortly thereafter usually within 1-2 hours of an event or quickly beforehand if a threat is detected permanent long term options available.

Unlike other forms of mitigation stop tactics aim is to prevent would be attackers or their munitions from reaching their target. Successfully planning an area to prevent an explosive attack from occurring involves careful examination of the three layers of defense beginning with the first layer. Stop tactics are in many ways the traditional form of anti-terror mitigation. They aim to solidify standoff distance and make it as difficult as possible to harm to an asset. In the event of an explosive attack stop tactics aim to absorb blast damage with barriers and prevent explosives from reaching their intended target. When confronted with chemical and biological threats the goal of stop tactics is simply to prevent intruders from breaching the protected barrier and draw attention to those who are attempting to intrude and do harm. When combined with security personnel the systems described below can effectively prevent a terrorist attack or foil it by wasting its munitions on nonliving, non-vital systems such as physical barriers and open space.

Deterrent/deflection tactics:

Goal of Deterrent and Deflection Tactics: The goal of these types of tactics is to put forth an obvious display of strength and protection in order to deter a would-be attack from attempting to destroy an asset.

Deterrent and deflection tactics matrix rating level 2:

Some aspects of this defense are rapidly deployable such as mass numbers of security personnel. However, to more fully deter an attack a formidable display of force is necessary and therefore takes longer to deploy.

Jersey barriers and sandbags can be in place within hours and personnel within minutes. Fully secured structures can take months to years of planning and implementation in cases where long-term deterrents are necessary.

By making obvious displays of strength, protection and resilience terrorist attacks are discouraged by either the difficulty of successfully bombing a target or by the likelihood that they will be caught. This type of tactic is best reserved for the most precious assets. The nature of deflection and deterrent tactics simply discourages attackers from attempting to destroy the structure; consequently it deflects their attention elsewhere. The result is that a successful display of force and protection causes terrorists to pick a weaker target. Since this type of anti-terror defense does not cause terrorists to be caught or fail in their actions but simply encourages them to go elsewhere it is best reserved for targets which are not expendable.

Deterrent and deflection tactics can vary in type and design and can include both active and passive defense systems. Those who aim to deliver destructive devices to an asset will evaluate their target before acting. Making overt displays of strength can discourage terrorists from targeting a given asset. Examples can be seen around the world, but are usually reserved for military installations and government operations centers. Cheyenne Mountain, Fort Knox and the White House provide excellent examples of structures which employ deterrent and deflection tactics to prevent an attack on them. Since they are considered so secure and their content is so highly valued it has been deemed necessary to offer them an unprecedented level of protection. Assets such as these usually employ security personnel both visible and hidden to deter and prevent an attack. Since people can react and be trained to recognize elements which do not belong as well as react to a situation their usefulness in protecting an asset is unparalleled. However, people make mistakes, can be bribed, coerced or killed. Passive elements such as walls, fences, razor wire and the like are fool proof. While they can be destroyed and bypassed they still deter potential attackers by lowering the chance of success.

### Dispersion tactics

Goals of Dispersion tactics: to prevent destruction of an entire system by separating its individual elements

Dispersion tactics matrix rating level 3:

Requires months to years of planning to create a secure and disperse facility. However it is possible to erect a functional facility in the form of tents and mobile operations vehicles within days and even hours if resources are rapidly available.

This form of mitigation seeks to place potential targets as far apart from each other as possible to reduce damage to multiple units. By taking targets of interest and placing them far away from other structures the risk of a catastrophe is reduced. The potential target can also be dispersed into many different areas so that an attack against it would never do any significant damage. This tactic seeks to compartmentalize targets and damage preventing the complete destruction of an asset. This tactic does not work well in cities where structures are tightly packed together and separation of a single target into smaller, separate units is not possible. Structures which have employed this tactic include the Pentagon as well as most air and naval bases. Separating critical systems prevents collapse of the entire system as a whole. This is vitally important for military installations and government structures and is one of the main reasons that they are few tall, tower like military and government buildings. The vulnerability of these types of structures to progressive collapse, (which is often the largest cause of death and damage caused by an explosive attack) makes them unsuitable for these purposes. Dense urban areas often do not have the luxury of dispersing their contents over a large area as such some important assets which choose to locate themselves in a large tower may separate their individual departments or assets, placing them in various parts of the structure to minimize the potential that a single attack could destroy all of the protected assets. While explosive attacks may or may not destroy the entire structure, this tactic may be more useful in the event of a chemical or biological attack aimed at an asset contained in a large structure.

### Reinforcement tactics

Goal of Reinforcement Tactics: These tactics simply harden structures physical properties making them more difficult to destroy. The goal is to absorb blast energy and protect vital

parts and systems of a structure to minimize damage in the event of a successful attack and to prevent progressive collapse.

Reinforcement tactics matrix rating level 4:

Requires months to years of structural reinforcement and pre construction preparation as well as many skilled and educated individuals to analyze and investigate best methods of approach.

Key elements of reinforcement tactics:

- Design key structural elements to withstand the effects of a severe blast
- Design structures to withstand localized structural failures without causing progressive collapse
- Reinforce vulnerable sections of structural support
- Limit column spacing
- Select explosive resistant materials

The goal of reinforcement tactics is not to prevent an attack from occurring but rather to have structures withstand the brunt of an explosion and remain functional and relatively undamaged. This is not to say that a structure will be completely unfazed by a large explosion. Reinforcement tactics aim to ensure that there is no collapse of the structure which often leads to far more deaths than the actual explosion, that there are redundant structural systems in place, so that the structure can redistribute the weight of itself in the event that a key support is destroyed.

A major focus of reinforcement tactics is to ensure that localized damage will not compromise the integrity of the entire structure. Since blast rapidly dissipates with distance it is extremely important that the local effects of a blast do not affect the overall support systems of a structure. Structures, especially their outer frames should be designed accept localized failure without initiating progressive collapse (FEMA 427, 2003). Collapse in structures causes far more loss of life than explosive damage does, terrorists know this and will target structural elements in order to topple buildings (FEMA 427, 2003).

## Disguise tactics:

### Goals of Disguise tactics:

- mask vulnerable parts of structures,
- make resilient parts of structures seem weak
- Create decoy parts of a structure which have no real value but appear to be easy targets to strike.

### Disguise tactics matrix rating level 5:

Months to years of planning and construction to fully implement successful disguise tactics on structures in urban centers as well as many skilled and educated individuals to analyze and investigate best methods of approach.

These tactics aim to mitigate the damage caused by a carried out attack. There is no emphasis placed on preventing the actual attack from occurring but rather the goal of such tactics is to ensure that the energy released by an explosive attack is wasted. These forms of blast mitigation are excellent for structures which are currently in place. They allow structures to be retrofitted to prevent their complete destruction. Similar to the previously mentioned deterrent and deflection tactics, disguise tactics aim to alter the location that a blast or attack will occur in order to waist its energy. This tactic often employs architectural disguise in order to achieve its goals. Tactics such as artificially widening pillars to make them appear more difficult to destroy, creating seemingly unguarded targets of opportunity which have no structural value, creating large seemingly important areas where blast damage would rapidly dissipate or large approach section to structures such as covered car ports, and unused internal space are examples of how blast damage can be mitigated in urban settings.

## **Appendix C Canadian Federal Government Responses to Terrorist Threats**

Federal government responses to the threat of terrorism in Canada have been different from those found in the United States. One of the main body which manages disasters in Canada and ensures preparedness, Public Safety Canada provides an excellent example and comparison agency to similar federal agency in the United States such as the Federal Emergency management Agency FEMA. Following September 11, 2001 the Government of Canada restricted the Canadian federal emergency agencies and created Public Safety Canada (PSC, 2012). The mandate of the organization is to prepare and respond to various disasters which can affect the Canadian population. Unlike FEMA however PSC has not released the same volume of publications nor the same type of publications as its United States Counterparts. While high level broad scale thinking between the two organizations has similarities in goal statements, overall objectives and the like way in which they communicate to lower level governments and the information they provide is strikingly different. With respect to the effects on local anti-terrorism planning and security FEMA has published what it calls the Risk Management Series. The publications outline specific strategies which can be used on small scales to prevent and mitigate the effects of terrorist attacks in the city. Such local level recommendations are not present in readily available Canadian policy or publications. This is not to say that FEMA material is not relevant to Canadian cities but it demonstrates the difference in federal thinking and the role the federal government sees municipalities making the in the defense against potential terrorist attacks.

However this is not to say that the Canadian government has not made contributions toward the safety of its citizens in urban areas.

Since September 11, 2001 the Canadian Government has taken a variety of steps to further increase the security of the nation. Major initiatives include;

- the creation of the Canadian Air Transport Security Authority which is responsible for screening baggage and passengers.
- Broadened information security sharing among Canadian security agencies to prevent the financing of terrorist activity
- Created the Canada Border Service Agency with increased information sharing and enhanced cooperation between international agencies as well as armed the 5685 front line Canada Border Service Agency Officers
- Created Canada Command which coordinates military resources for domestic security
- Brought into law the Anti-terrorism Act which has had 26 people charged under it thus far with 14 convictions
- Created mechanisms to identify individuals or groups who are associated with terrorism and compiled a list of 44 groups which are identified as terrorist entities under the Criminal Code
- Redeployment of 2000 federal police officers to national security duties
- Creation of special cabinet committee on security and anti-terrorism formed under Chrétien government

Other changes following September 11, 2001 have also been made to protect the health and safety of Canadian. The Transportations of Dangerous Goods Act is one such representation.

Changes have forced rail carriers to reevaluate how and where dangerous goods are transposed resulting in new management practices which prevent rail cars bearing dangerous goods from being in too close proximity to one another and new mandates on the type of rail cars which can be used for the transportation of dangerous goods. The Federal government of Canada's actions following the September 11, 2001 attacks number more than those listed and explained above. Appendix C provides a larger list of initiatives taken and polices enacted in the wake of the terrorist attacks of 2001.

## **Appendix D: Canadian Anti-terrorism Initiatives**

The following appendix is taken from the Government of Canada website and represents listed initiatives taken to protect Canada following the September 11, 2001 terrorist attacks.

It was last updated in February 2003. It can be accessed via the following link

<http://www.dfait-maeci.gc.ca/anti-terrorism/canadaactions-en.asp>

Backgrounder: Canada's Actions Against Terrorism Since September 11

The Government of Canada acted swiftly in response to the September 11 attacks and to the global threat of terrorism.

Within 45 minutes of the terrorist attacks on New York City and Washington, D.C., Canada began accepting 224 diverted planes and more than 33 000 passengers and aircrew in airports across the country. In small communities like Gander, Newfoundland and Labrador, 12 000 people were accommodated, although the local population is only 10 000.

Prime Minister Jean Chrétien established the Ad Hoc Cabinet Committee on Public Security and Anti-Terrorism, chaired by John Manley, the Minister of Foreign Affairs, to review policies, legislation, regulations and programs across the Government to strengthen all aspects of Canada's approach to fighting terrorism and ensuring public security.

The Government of Canada quickly implemented its Anti-Terrorism Plan, with five clear objectives:

1. to prevent terrorists from getting into Canada;
2. to protect Canadians from terrorist acts;
3. to bring forward tools to identify, prosecute, convict and punish terrorists;
4. to keep the Canada-U.S. border secure and open to legitimate trade; and
5. to work with the international community to bring terrorists to justice and address the root causes of terrorism.



The Government of Canada is supporting this plan by introducing strong new legislation and investing \$7.7 billion to fight terrorism and reinforce public security.

### **Putting More People, Technology and Capacity in Place**

- Canada invested \$280 million in immediate measures -- such as enhanced policing, security and intelligence -- in the wake of September 11.  
Key initiatives included:
- fast-tracking a fraud-resistant Permanent Resident Card for new immigrants;
- more front-end security screening for refugee claimants;
- increased detention capacity;
- increased deportation activity;
- hiring of new staff to enforce upgraded security at ports of entry;
- redeployment of over 2000 federal police officers to national security duties;
- technology upgrades, equipment purchases and training to increase capacity to:
- prevent, detect and respond to existing and emerging threats to national security;
- share information among criminal justice and other agencies; and
- undertake coordinated domestic and international law enforcement responses and target cross-border criminal activity;
- purchases of antibiotics to increase the national emergency stockpile system;
- purchases of sensors and detection and other equipment and enhancements for the national network of laboratories.

Budget 2001 builds on these initiatives through a comprehensive set of measures designed to keep Canada safe, keep terrorists out and keep our border open. It provides a total of \$7.7 billion over the next five years to enhance security for Canadians and make Canada's borders more secure, open and efficient. The Budget includes major investments to:

- equip and deploy more intelligence and front-line investigative personnel, improve coordination among agencies and boost marine security(\$1.6 billion);
- improve screening of immigrants, refugee claimants and visitors (including detention and removals), for the quicker determination of refugee claims and for new fraud-resistant Permanent Resident Cards (\$1 billion);
- improve critical infrastructure protection, emergency preparedness and response and expand anti-terrorism capacity for the military (\$1.6 billion);
- create a new air security organization, assign armed undercover police officers on Canadian aircraft, purchase explosives detection equipment and enhance policing (\$2.2 billion); and

- enhance border security and improve the infrastructure that supports major border crossings to ensure the legitimate flow of goods and people (\$1.2 billion).
- Canada and the United States have increased vigilance regarding North American airspace through our joint participation in NORAD (the North American Aerospace Defense Command). Canada has made available additional CF-18 fighter jets to patrol our shared airspace.

### **Preventing Illegal Migration and Efficiently Managing Legitimate Travel**

Canada and the United States place the highest priority on ensuring our borders are safe and efficient in order to facilitate the \$1.9 billion in daily trade across our shared border.

On December 3, 2001, the governments of Canada and the United States signed a Joint Statement of Cooperation on Border Security and Regional Migration Issues. Canadian and American efforts will focus on deterrence, detection and prosecution of security threats, the disruption of illegal migration and the efficient management of legitimate travel through:

- integrating Canadian officials on the U.S. Foreign Terrorist Tracking Task Force;
- reviewing visitor visa policy;
- developing joint units to assess information on incoming air passengers;
- increasing the number of Immigration Control Officers overseas;
- developing common biometric identifiers for documents;
- developing a Safe Third Country Agreement;
- expanding the Integrated Border Enforcement Teams; and
- reinvigorating Project North Star.
- Placing Immigration Control Officers overseas is a unique Canadian approach, which has been successfully adopted by others, to stop terrorists, criminals and other undesirables. In the past six years, Canadian immigration control officers abroad have stopped more than 33 000 people with false documents before they boarded planes for North America (over 6000 this year alone).
- The Integrated Border Enforcement Teams target cross-border crime through an integrated law enforcement approach that brings together agencies at all levels in Canada and their U.S. counterparts.

### **Strengthening Laws**

The Government of Canada has introduced key pieces of legislation.

The *Anti-Terrorism Act*, introduced on October 15, includes measures designed to:

- identify, prosecute, convict and punish terrorists;
- provide new investigative tools to law enforcement and national security agencies; and
- ensure that Canadian values of respect and fairness are preserved through stronger laws against hate crimes and propaganda.

Measures include:

- defining and designating terrorist groups and activities;
- tougher sentences for terrorism offences;
- making it a crime to knowingly participate in, facilitate or contribute to a terrorist group;
- making it a crime to knowingly collect or give funds in order to carry out terrorism;
- making it easier to use electronic surveillance against terrorist groups; and
- within carefully defined limits, allowing the arrest and detention of, and imposition of conditions of release on, suspected terrorists to prevent terrorist acts and save lives.

Canada has ratified 10 of the 12 counterterrorism conventions of the United Nations. The new *Anti-Terrorism Act* will allow Canada to ratify the remaining two.

The ***Public Safety Act***, introduced on November 22, will amend some 18 federal laws to further strengthen the Government's ability to protect Canadians, prevent terrorist attacks and respond swiftly if a significant threat should arise. Highlights include:

- security requirements for the design or construction of aircraft, airports and facilities;
- screening people and goods entering restricted areas;
- making it an offence to engage in any behaviour that endangers the safety or security of a flight or persons on board;
- requiring air carriers or those operating aviation reservation systems to provide basic information on specific passengers or flights when it is needed for security purposes; and
- amendments to the *Immigration Act* to speed implementation of measures, including:
  - suspending or terminating refugee determination proceedings if there are reasonable grounds to believe that the claimant is a terrorist, senior official of a government engaged in terrorism or a war criminal;
  - denying wanted persons the ability to evade justice by going to a country of their choice rather than to the country where they are wanted;
  - imposing stiff increases in penalties for people smuggling; and
  - giving immigration officers the authority to arrest and detain foreign nationals in Canada who are unable to satisfactorily identify themselves.

In addition, **amendments to the *Aeronautics Act*** will maximize the effectiveness of the aviation security system and ensure that Canada continues to have one of the safest aviation systems in the world.

### **Rooting out Terrorists and Their Networks**

Canadian law enforcement, security and intelligence organizations are collaborating and actively participating in the largest international investigation in history to root out and dismantle terrorist support networks in all their forms, wherever they exist.

Canada acted swiftly in support of UN Security Council Resolution 1373 to freeze the assets of those who commit or facilitate terrorist acts and to prohibit the provision and collection of funds for terrorist activities. Canadian financial institutions have frozen the \$344 000 associated with the 100 individuals and groups designated under the United Nations Suppression of Terrorism Regulations.

The Government has invested an additional \$63 million since September 11 in the Financial Transaction Reports Analysis Centre of Canada (FINTRAC) to expand its capacity to stop possible funding of terrorists.

### Military Contribution

Canada committed direct military support for the U.S.-led international campaign against terrorism. The Government of Canada has contributed the following resources to the Canadian operation, known as Operation Apollo:

- 2000 Canadian men and women of the Canadian Forces;
- a Canadian Naval Task Group (two frigates, a destroyer and a supply ship), which is on station in the Arabian Sea;
- another Canadian frigate, which is integrated with a U.S. Carrier Battle Group;
- Canadian aircraft to conduct airlifts in the region; and

- a 1000-strong light infantry unit, which is on seven days notice for possible deployment within an international stabilization force.

### **Diplomatic Activities and Humanitarian Aid**

Canada is working with other countries, individually and multilaterally, to broaden the coalition to fight terrorism and to foster the establishment of a broadly representative, accountable, stable, inclusive and multi-ethnic administration and government in Afghanistan and aid in the reconstruction of that country.

Canada is uniquely positioned as a member of the G8, NATO (North Atlantic Treaty Organization), the United Nations, the Commonwealth, La Francophonie, the Organization of American States -- among other international organizations -- to advance the anti-terrorism agenda; it also participates at nearly every summit and important international gathering.

Canada has provided \$16 million in emergency assistance to Afghanistan since September 11. This is in addition to the more than \$12 million contributed this year prior to the crisis and the more than \$160 million provided over the past 10 years.

### **APPENIX 6 Tourist population-Temporary Population**

Historical evidence, as well as more recent terrorist attacks in the 1990s and 2000s, demonstrates that the tourist population of a city dramatically decreases when there is a perceived threat of violence (Llorca-Vivero, 2007). Tourist populations can greatly contribute to the economic success of cities and help develop the local urban form. Hotels, convention centers, stadiums, resorts and other tourist infrastructure. are all geared toward the tourist population and the profits which are generated from this transient population. The interruption of a flow of tourist populations to an urban destination via terrorism can have a

profound effect on the future develop of an area and therefore its urban form. As Llorca-Vivero (2007) states:

*“One of the more evident consequences of terrorist attacks in a specific country is that people may perceive this country to be risky. Therefore, apart from the direct destruction of infrastructures or the existence of victims, uncertainty seems to be a key element of the indirect cost associated to this phenomenon. This may be particularly true for tourism.”* (Llorca-Vivero, 2007 p171).

Recent research by Coshall (2005) has demonstrated that tourist populations tend to rebound more quickly than was first thought. This is encouraging considering the implications which a laggings tourist population can have on the economic growth of an area. Additionally, the effects of tourism can affect local urban form by way of stagnating the population growth often associated with tourist destinations. However when tourists are directly targeted the rebound of the tourist population may not be as rapid, although evidence of this causal relationship is difficult to obtain. Keeping this in mind it is important to also realize that the nature of the local area is also very important in determining if an act of terrorism will specifically target tourists. As Lepp and Gibson (2003) explain citing Aziz (1995):

*“One of the most infamous acts of terrorism against tourists occurred in Egypt in 1997 when gunmen killed 71 tourists outside of Luxor. Indeed, tourists are often the specific targets of terrorist organizations. In Egypt”* (Lepp & Gibson, 2003 p 607), *Aziz (1995) explained tourism has come to represent capitalism and conspicuous consumption and an attack on tourists signifies ideological opposition to these western values”* (Aziz, 1995 p 23).

Therefore when considering the Canadian context, the nature of multiculturalism in Canada and regional differences, attacks specifically targeting tourists may not be as likely however, as stated an attack of any kind can dramatically affect the perceived threat of a terrorist attack and therefore the volume of tourists which a city receives. Additionally Studies by Mullins 1991, 1994 found that cities characterized by having large tourist populations and supporting industry experienced rapid population growth, rapid employment growth and a large class of

self employed people. These demographic characteristics can affect the way in which cities form and how land use planning is conducted. The interruption of this industry by terrorists over a long period can significantly change the urban form of a city. This becomes especially true when tourist capital investments are destroyed by terrorists seeing as not all tourist destinations are 'sun and sea' destinations. The information provided on populations can directly reflect how planning is conducted in cities especially with when allocating resources. It also demonstrates another area of condition for urban planning when thinking broadly about security in the city.

## Appendix E Key Search Terms and Databases

1. Active defense
2. Anti-terrorism
3. Anti-terrorism planning
4. Biodefense
5. Blast mitigation
6. Canadian anti-terrorism planning
7. Canadian security planning
8. Cities and warfare
9. Corporate agglomeration
10. Corporate security
11. Counter terrorism
12. Defensive Cities
13. Emergency management
14. Force protection
15. GIS terrorism Modeling
16. Homeland security
17. Infrastructure hardening
18. Layered defense
19. NBC threats
20. Passive defense
21. Perceived risk
22. Resilience
23. Risk management
24. Security and design
25. Security planning
26. Smart growth
27. Target hardening
28. Terror resistance
29. Terrorism
30. Terrorism management
31. Terrorism response management
32. Terrorism response planning
33. Terrorist mitigation
34. Terrorist target selection
35. Urban anti-terrorism planning
36. Urban defense
37. Urban IED threats
38. Urban resilience
39. Urban security
40. Urban sprawl
41. Urban terror
42. Urban VBIED threats

### Key Research Databases used:

1. American City
2. Annals of Regional Science
3. Annals of Tourism Research
4. Avery Index to Architectural Periodicals
5. British Journal of Criminology
6. Canadian Broadcasting Corporation
7. Canadian Journal of Urban Research
8. Canadian Journal of Urban Research
9. Defense and Peace Economics
10. Economic Policy Review
11. Federal Emergency management Agency
12. Geobase
13. Housing and Policy Debate
14. International Journal of Urban and Regional Research
15. International Political Sociology
16. International Relations
17. Journal of American Planning association
18. Journal of Infrastructure Systems
19. Journal of Monetary Economics



20. Journal of the American Institute  
of Planners
21. Journal of the American Planning  
Association
22. Journal of Urban and Regional  
Research
23. Journal of Urban Economics
24. Local Environment
25. Municipal Engineer
26. National Academic Press
27. New York Times
28. Political Research Quarterly
29. Princeton Architectural Press
30. Progressive Planning Journal
31. Public Administration Review
32. Security Dialogue
33. Social Science Computer Review
34. Terrorism and Political Violence
35. the Institution of Civil Engineers-
36. Theory Culture & Society
37. Theory, Culture and Society
38. Transportation Research  
Information Service
39. Urban Affairs
40. Urban Affairs Review
41. Urban and Regional research
42. Urban Design and Planning
43. Urban Land Institute
44. Washington D.C. Center for  
immigration Studies
45. Web of Science

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