Strengthening the City Armature:

a Design Study of Elgin Street and Confederation Square in Downtown Ottawa

BY
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ABSTRACT

Confederation Square is an iconic landmark in downtown Ottawa located at the northern end of Elgin Street. It is a memorial site commemorating Canadian soldiers who served during the First and Second World Wars. Located at the centre of the city and surrounded by other important sites, the square is a city node that becomes a gate to Parliament Hill and is a focal point where the view terminates from Elgin Street.

This report presents the opportunity to strengthen the urban armature that links Parliament Hill and the city by creating a strong pedestrian-oriented axis that runs along Elgin Street and Confederation Square. The objectives of the project include creating an Underground War Museum and a tunnel system with open spaces that integrates the existing urban fabrics into a whole. The project deploys different research methods including field observation, case studies, and the development of an original design proposal. However, the proposal should not by any means be interpreted as an end-point; rather, it should be used to create a vision of the site to generate feedback. Since Confederation Square is a unique feature in Ottawa, the design of the project cannot be applied elsewhere directly, but the idea of using open public space and a pedestrian network as urban armatures has potentially universal applications.

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INTRODUCTION

This Urban Design and Housing Research Report explores how to strengthen Elgin Street as an existing urban armature in downtown Ottawa into a network of pedestrian-oriented public spaces. This report employs both theoretical research and empirical case studies. However, the real focus of the report is Confederation Square, which is located on the northern most part of Elgin Street. This report includes a design proposal for the square and its intent is to strengthen the urban armature linking Parliament Hill to the city's downtown core.

Since the population boomed after World War II, many of the cities in North America have been torn down and rebuilt. Many existing urban fabrics were demolished and replaced by high rise owner-occupied apartment buildings with superblocks. This can be seen as a reflection of Le Corbusier's idea to tear down the existing city fabric and rebuild it in a more rational and efficient form. However, many problems have been raised by the combination of towers and superblocks, especially from the urban perspective. For example, superblocks are largely self-contained and lack connections both to the surrounding streets and to adjacent blocks which create inconveniences for pedestrians. The superblocks are enormous in size

as compared to the average block size of 4 acres in the city of New York, and no shortcuts can be created within the blocks. It negatively impacts pedestrians, who have difficulty circulating, and their movement is interrupted by those superblocks.

The combination of towers and superblocks can be seen as a solution to increase the density responding to the urban population boom; however it also has to be designed in a way that considers pedestrian walkability and urban connectivity rather than just to use the perimeter walls to define its boundary. The postwar tower complexes in superblock configuration and the massive urban infrastructures are usually not in human scale and not pedestrian-friendly. They need to be retrofitted rather than demolished since there are too many of them and we find them everywhere in our daily lives.

The main idea of this report is that through specific changes to public spaces we can enhance the pedestrian walkability and also strengthen the link between the city and important landmarks. In Ottawa, it is very important to address the connection to Parliament Hill, since it is one of the most significant

sites in the nation. The design of the project cannot be applied directly elsewhere, because it is very site specific. Yet, the general strategy of using a public-space and the pedestrian network as urban armatures to strengthen the connectivity of urban landmarks, heritage sites, monuments and landscapes can be applied elsewhere.

Structure of the Report

The report consists of a written document and a series of diagrams, drawings and images. The written portion is divided into four primary chapters. The first chapter introduces a brief background of Ottawa, which focus on the downtown core. Chapter 2 is a literature review that considers other scholars' works that is relevant to the content. Chapter 3 presents an analysis of precedents, with real cases and also school projects. The final chapter provides a detailed description of the site, program, and a design proposal.

Research Methods

Research for this report took three interrelated forms. Firstly, a literature review was undertaken for readers to understand the basic terms and different strategies used in urban design, as well as the circumstances and variations in which terms and strategies are mixed. Secondly, thorough documentation and analysis of the site was undertaken to identify its potentials and limitations. This included site visits and extensive photographic documentation. Finally, design itself was employed as a form of research to experiment with the potentialities of the site. The design proposition, then, is not only the result of research but was itself a form of research. In this regard the design component of this report should not be interpreted as a definitive solution to a fixed set of issues and programmatic requirements. Rather, it is proffered of one of a number of possible scenarios for the possible future development of the site.

CHAPTER ONE: A Brief Introduction to the City of Ottawa and Parliament Hill

Landmarks play an important role in a capital city, since they provide citizens with a helpful point of reference for orientation and are themselves significant spaces for meaning making. According to Lynch and his book *The Image of the City (1960)*, Parliament Hill can be defined as a landmark in Ottawa. It is not only the most significant building complex in the city and even nationwide, but it is also the highest building in downtown Ottawa—one that represents government power. The gothic style architectural complex can be easily noticed from far away and can be used as a way for individuals to better understand and navigate the built environment.

The tower of the Centre Block is called the Peace Tower, it is the dominant feature on Parliament Hill, and the most widely recognized symbol of Canada, one that represents liberal democracy and the core Canadian values of peace, order, and good government.[1] Parliament is open to public, and visitors are welcome to observe and watch proceedings in the House of Commons and the Senate when they are in session, although certain roles need to be obeyed.[2]

Fig 1.1
Canada Day Celebration at Parliament Hill

Fig 1.2
Yoga on Parliament Hill

One could argue that Parliament Hill is a landmark that helps individuals orient themselves, but it is not necessarily a place that people go to. Parliament Hill is used for government purposes; there is no reason for city dwellers to access it on a daily basis. However, there is much evidence that proves that Parliament Hill is a different case. There are various activities happening there that give people reasons to go. On July 1st, city dwellers celebrate the birth of Canada, and Parliament Hill is the place to go for the nation's biggest annual event. A traditional giant party is held on the front lawns of Parliament Hill, and it features various performers throughout the day. In the evening, the Parliament serves as a backdrop for a lightshow with fireworks, making it the focal point of Canada Day celebrations.

In addition to these big events, Parliament Hill is also a must see tourist spot that attracts a significant number of tourists. According to CTV News, there are about three million people that visit Parliament Hill each year—a number even bigger than the population of the city of Toronto. Many of these people are business visitors meeting MPs or government officials, but at least 1.5 million are tourists.[3] Citizens also go camping and have yoga classes on the front lawns

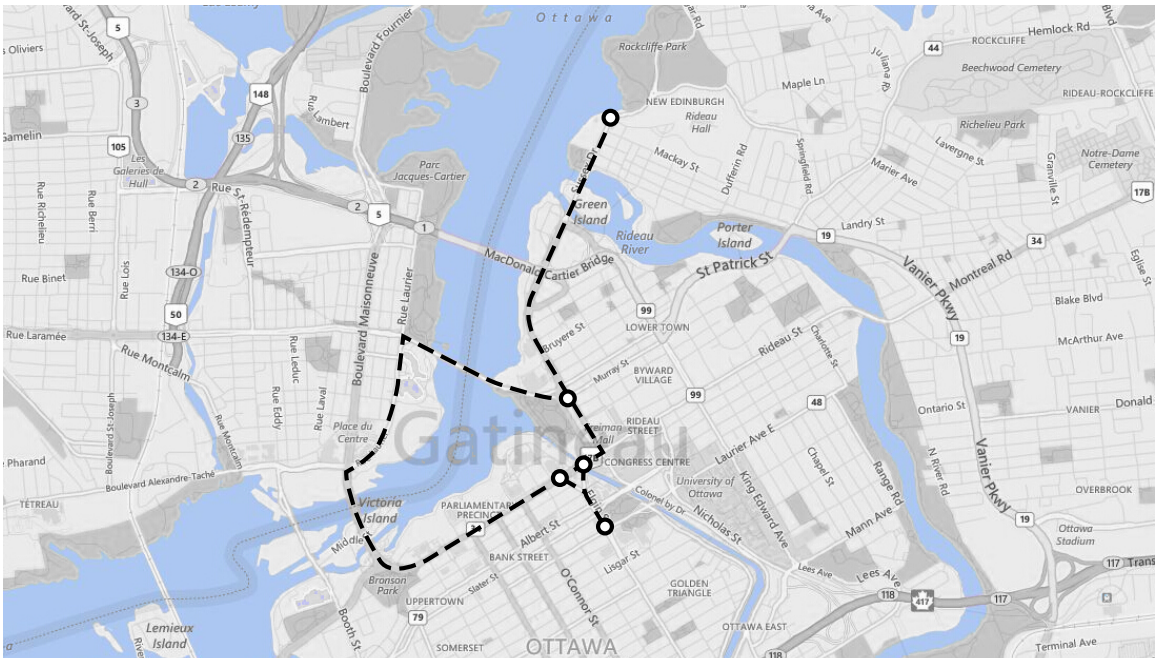
when the weather is nice. The Ottawa River Pathway, which is located at the back of the Parliament, is a popular destination for jogging and other forms of entertainment.

The architectural elements of the Parliament reflect its symbolic importance as the heart of the nation. In fact, the view of Parliament Hill is well preserved by the National Capital Commission (NCC), which was implemented in the 1950s. The NCC plays a pivotal role in ensuring that the view of important sites, buildings, monuments and landscapes are not obstructed. These endeavors ensure that the Capital Region is a source of national pride by making the view of Parliament Hill from Confederation Boulevard one of its main concerns.

The Capital's ceremonial and discovery route, Confederation Boulevard, encircles the downtown areas of Ottawa and Gatineau. The route of Confederation Boulevard, an NCC initiative, connects many sites and symbols of national significance, including Parliament Hill, the Supreme Court of Canada, as well as museums and other heritage sites.[4] Positioning Parliament Hill as a central component of

Confederation Boulevard reaffirms its importance in the city at large.

Fig 1.3
The Route of Confederation Boulevard
▬ ▬ ▬ *The Route*



The City Axis

Fig 1.4 The Grande Axis in Paris

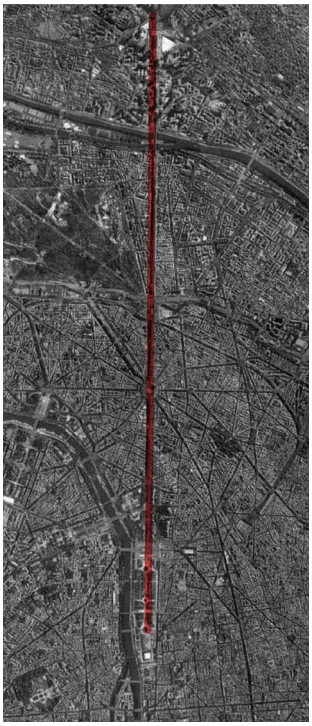
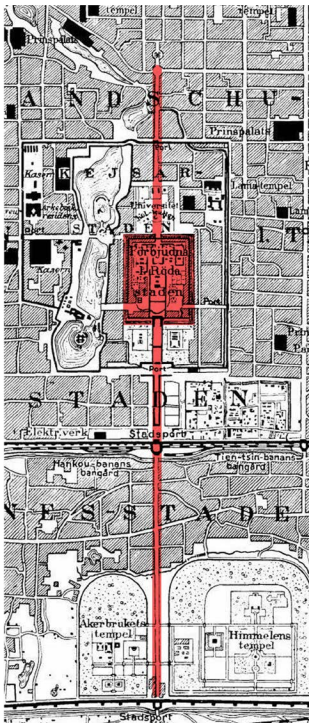


Fig 1.5 The Central Axis in Beijing



The central axis is a powerful urban design tool that helps address the hierarchy in a built environment. Two typical examples are the Grande axis in Paris and the central axis in the city of Beijing. The Grande axis starts at the centre of the Louvre and stretches all the way to the Grande Arch at La Defense and eventually extends past the periphery of the city to the suburbs. Meanwhile, Beijing's central axis starts in the south at the Yongding gate, runs through the Forbidden City, and finally ends at the Drum tower in the north. The most important pavilions of the Forbidden City are set right on the axis to emphasize their importance. In both cases, the axes become powerful statements; they do not only depict the story and reflect the history of the cities but also create a strong relationship between historical significances and the urban environment.

When standing in front of Parliament Hill, one can easily observe its symmetry. The Peace Tower is set right on the axis making its symmetry all the more obvious; this emphasizes the power of the building. The positioning of the East Block and the West Block, which mirror each other, create the central axis.

However, this axis does not continue along Metcalfe Street all the way to the Museum of Nature. Because of the disconnect at the Metcalfe Street intersection, the relationship between Parliament Hill and the city is weakened. In fact, the main entrance of Parliament Hill faces Terry Fox Square rather than Metcalfe Street. However, because of its poor design, Terry Fox Square is rarely visited and no activities are held there. The moment when Parliament Hill meets the city is awkward; the joint undermines the strength of the axial relationship.

Fig 1.6
Metcalfe Street is a city axis that connects Parliament Hill and the Museum of Nature.

Fig 1.7
The Awkward Joint

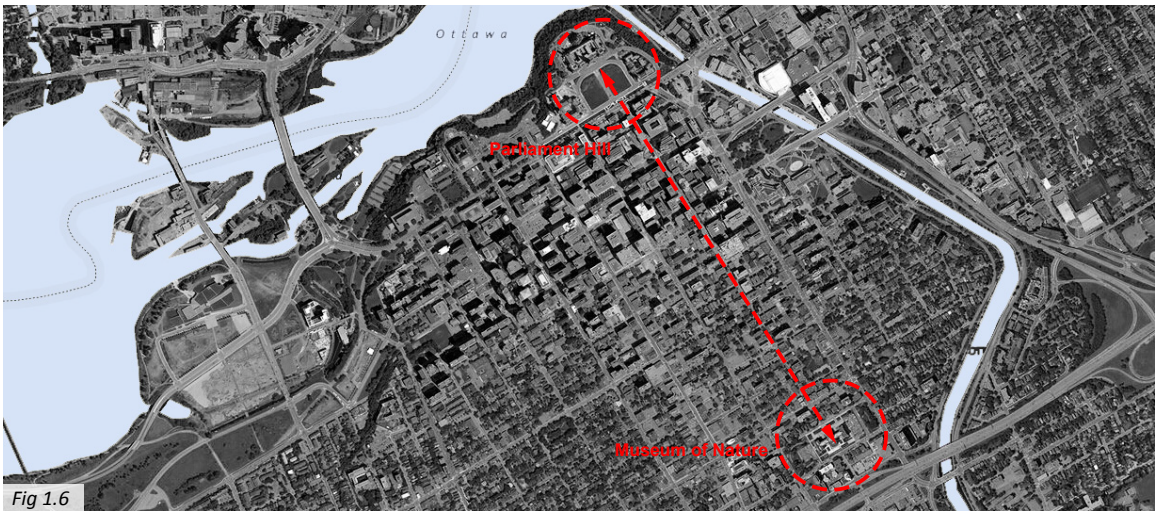


Fig 1.6

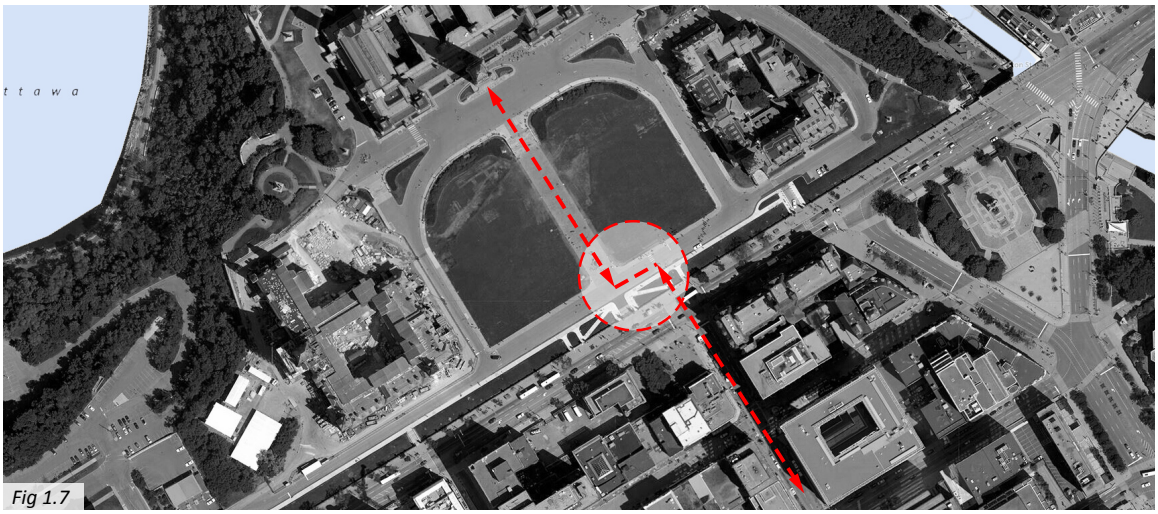
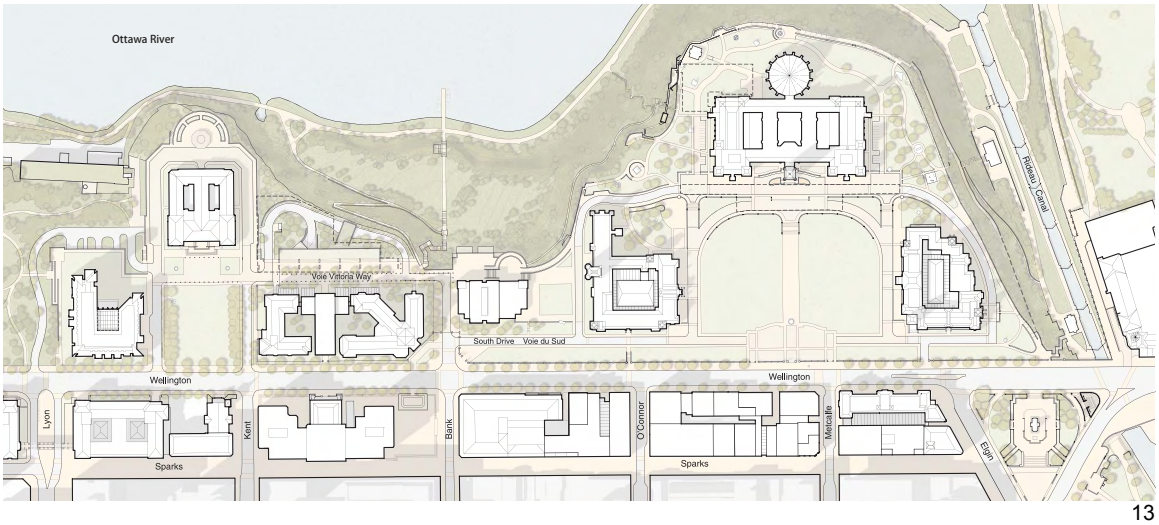


Fig 1.7

Besides the central axis, the gridiron plan is another urban planning tool for organizing the city and the built environment in downtown Ottawa is laid out by the gridiron plan and controlled by this urban design strategy. Wellington Street acts as the edge for the grid plan and Parliament Hill, which on the north-west side of the street has its own architectural language and style, unlike the modern office towers in downtown which all have rectangular shapes with the four identical facades; however, the Gothic style Parliament Building seems more picturesque and can be viewed obliquely from different locations, especially the Peace Tower, since it has the highest position in the city. As well as limiting the height of buildings to those shorter than that of the Peace Tower, this iconic landmark can be noticed easily from the distance. The view to Parliament Hill is well persevered and to improve the pedestrians' accessibility from the city is the next step.

Fig 1.8
Wellington Street as a divider, with a rigid arrangement on the south and a more organic organization on the north.



Elgin Street and Confederation Square

Within the core of the city of Ottawa, several places can be identified as areas where the city can be discovered and studied. Elgin Street is an ideal street to experience the city. The street is located on the south-east side of Parliament Hill, which begins at Wellington Street in Confederation Square on the north and ends at the Queensway on the south. Along the street, various historical heritage sites and other significant sites can be found, such as the National Arts Centre, British High Commission, Lord Elgin Hotel, Ottawa City Hall, etc. Since the street penetrates the downtown core, modern office towers are located on the north part of the street. When walking along Elgin Street, buildings from different time periods can be experienced that reflect the history of the city. Among those significant sites, Confederation Square is a unique site, since it is not a building, but a plaza, an open space, a place of history, excitement, memory and intersections within the city.

Rather than viewing Confederation Square as the beginning or termination of Elgin Street, the square is more like a node which gathers people from

different directions. As a triangular plaza, the plaza fits into the asymmetrical nature of the surroundings, and Elgin Street becomes its axis that runs through the plaza. The three angels give gestures that try to reach the three directions and ties together its nearby sites, such as Parliament Hill, the Fairmont Chateau Laurier, the Rideau Centre, the National Arts Centre, etc. Steven Wolba, a master of architecture student who did a study on Confederation Square and in his thesis *Dwelling in the Shadows of the Night: Diurnal and Nocturnal Vedute,* he states:

> "As a site, the triangular plaza is the beginning or termination of many neighbourhoods, and it is a zone that addresses its surroundings but does not distinctly belong to any one in particular. Similarly, it is an important node within the city and within the loop of Confederation Boulevard and does not define itself as being a building, landscape, or public space that borders on any one road in particular. Instead, it is an island that bridges the gap between several zones that it reaches out to and connects. It is bordered by Wellington Street to the north, and Elgin Street to the south-east and south-west

edges, as a split street that wraps around the plaza."[5]

Fig 1.9
The stairs, which leads to the canal

One fact which needs to be mentioned is that Confederation Square is not only a node, the beginning of the street, but it also serves a function as an entrance to the Rideau Canal. The east corner comprises stairs that lead to the canal. The canal has played an important role in the city's history; it was built in 1832 and used for military purposes, although the military function was soon abandoned. The canal is still used frequently in the summer for boating and in the winter for skating.

Fig 1.10
Geographic Location of Ottawa

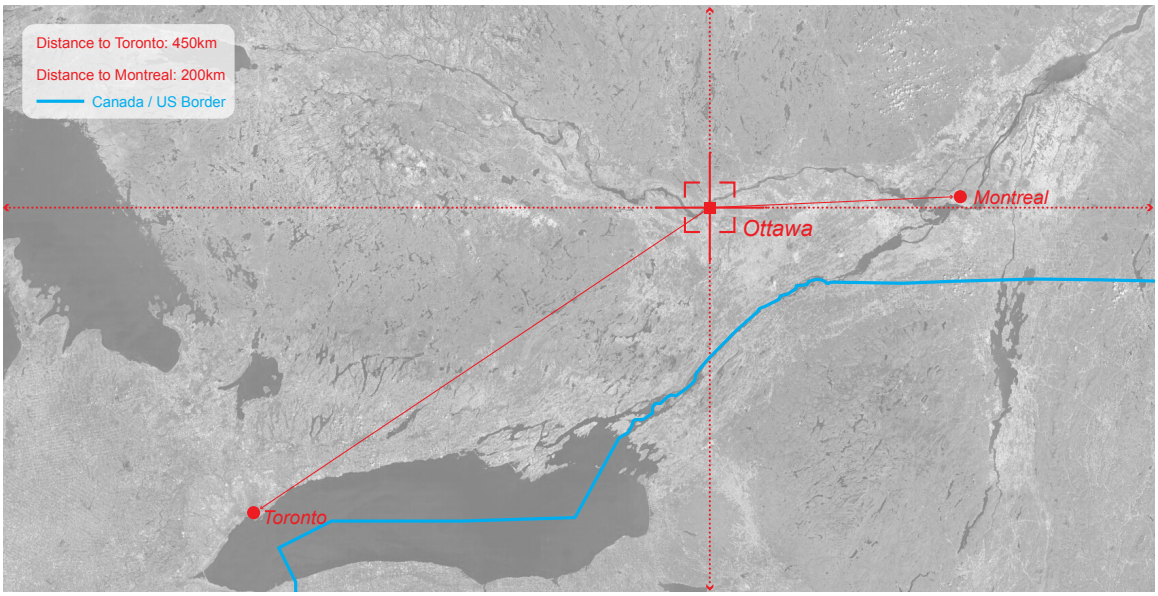


Fig 1.11
The Site

Fig 1.12
The Site and Its Surroundings

The Rideau Canal links neighbourhoods as a network system

Fig 1.13
The Starting Point of the Skate-way with Confederation Square on the Top Left

Fig 1.14
Rideau Canal as the "Road" Network

In winter, when the cold winds descend upon the region, it is the signal for skating to begin, and it can be seem as one of the most popular sports in the city. The residents of Ottawa strap on their skates and enjoy skating on the frozen canal. The Rideau Canal Skateway holds the Guinness World Record as the world's largest naturally frozen ice rink, with a total length of 7.8km.[6] People skate on the canal for entrainment but also for transportation purposes as well. It is possible for one to depart from the downtown core near the University of Ottawa and skate all the way to Carleton University, and it is even more efficient than public transportation since no traffic is involved. Skaters are free to exit from the canal in the middle of the way, and a network for the community is created.

Though these seasonal methods of transportation and use are significant, of equal or greater importance is the role the canal plays as a reference point for physical and visual orientation within the city. Although it does not consistently follow clearly defined cardinal points, the canal remains a physical orientation phenomenon

that largely defines neighbourhoods according to which side of the canal they are on. The Rideau Canal is more effective at defining a personal “mental map”, even though it is below ground level, but it is open enough to see the landmarks on the ground plane. The pedestrian and bike paths as well as parkways that run parallel to the canal weave through the fabric of the city and rely on the canal as a frame of reference for those travelling along it. Additionally, not only does the Rideau Canal serve to frame and define neighbourhoods, it frames significant buildings along the way, as well as aspects of the Canadian landscape and indigenous vegetation.[7] The canal is very similar to Elgin Street; both of them transport people from the external parts of the city to the downtown core or vice versa, and both of the “road” networks meet each other at Confederation Square.

The importance of Confederation Square has now been revealed and various functions have been demonstrated. It is a place in central Ottawa for the War Memorial and also for people to gather and conduct social activities. Because of its unique geographic location and triangular shape, it becomes an anchor in the downtown and links the neighbourhood as a whole. It is the beginning or termination of Elgin Street,

but it also leads people to the canal. This report will utilize Confederation Square as a project site, since it has tremendous potential for experimenting with the possibility of enhancing the walking experience for pedestrians, and it can also act as a gateway to Parliament Hill.

Endnotes:

1 "Peace Tower" March 5 2015 Government of Canada September 1 2015 http://www.tpsgc-pwgsc.gc.ca/collineduparlement-parliamenthill/batir-building/centre/tour-tower/tour-tower-eng.html

2 "Visit Canada's Parliament" 2014 PARLIAMENT Of CANADA September 1 2015 http://www.parl.gc.ca/Visitors/visit-e.html#live-debates

3 "Parliament Hill tourist facilities overwhelmed" May 6 2007 CTV NEWS August 10 2015 http://www.ctvnews.ca/parliament-hill-tourist-facilities-overwhelmed-1.240173

4 "Confederation Boulevard" National Capital Commission Ottawa-Gatineau: Canada's Capital Region August 12 2015 http://www.ncc-ccn.gc.ca/places-to-visit/confederation-boulevard

5 Wolba, Stephen. Carleton University. Dwelling in the Shadows of the Night: Diurnal and Nocturnal Vedute Ottawa. 2014. 37

6 Ken W. Watson "Rideau Attractions" 1996-2015 Rideau Canal World Heritage Site August 10 2015 http://www.rideau-info.com/canal/attraction.html

7 Wolba, Stephen. Carleton University. Dwelling in the Shadows of the Night: Diurnal and Nocturnal Vedute Ottawa. 2014. 21

CHAPTER TWO: Literature Review

This chapter reviews other scholar's works and ideas, it also provides explanation for some of the terminologies that used frequently in urban planning. The chapter is divided into three parts: Gridiron Plan and Urban Armature, Total Urban Design: National Capital Commission, Public Open Space and Gated Community. The three categories aid readers to get familiar with the context for the design proposal that is described in chapter 4.

Gridiron Plan and Urban Armature

The gird system and the urban armature are two powerful urban design methods frequently used in urban planning to help organize the city and enhance the overall experience of the city.

Gridiron Plan

The gridiron plan is a very helpful and reliable urban design technique in terms of city making. One of the most famous examples is New York, where the grid iron pattern was laid out nearly 200 years ago; it and has proved to be an efficient basis of the development

of a successful city.[1] The pattern of the grid of roads in a town or region is a kind of play board that sets out the rules of the game. The rules outline the kind of game; but the players should have the opportunity to use their individual skills to the fullest whilst playing it.[2]

The downtown area of Ottawa, which is bounded by Bronson Avenue to the east and Queen Elizabeth Street to the west was designed by using the grid system. This core area is consisted of a series of straight roads crossing each other at right angles to formulate rectangular blocks, some of which are used as public and green spaces. Kent, Bank and Elgin Streets are the three most well-known south-north oriented streets in the area that bring people from the city to downtown. These streets have become important movement structures for the street network. The advantages of the grid are its efficiency and simple to design. It also provides properties that are easy to subdivide and to sell. The plan could be quickly laid out by using simple technology and, most importantly, it is easy to describe, record and remember. Despite the fact that the gridiron system is simple, it is also efficient, robust and has produced places with a varied and vivid character.[3]

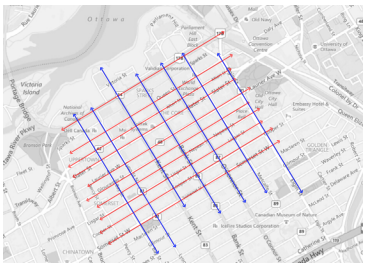


Fig 2.1
Downtown Ottawa is laid by the grid system.

Orthogonal geometry also assists pedestrian movement. The grid system facilitates orientation, and its intersections with the choice and directness of route to desired destinations.[4] The idea of building setback from the pre-war period has been abandoned. In modernist architectural design and urban planning, most of the office towers in downtown areas are designed with continuous floor slabs, which maximize the leasable space. Some of the towers are pulled back from the periphery of the blocks, breaking the role of traditional street orientation. By doing so, the streets could have more lights and semi-private courtyards in the rear of the buildings could be created. This arrangement aims to provide social interaction among people and make the street more pedestrian friendly. What's more, some of the office towers are set on a block plinth so that the bottom part of the tower could match with the surroundings and overwhelmed office towers would not be seen at street level.

Another advantage of the grid system is that, if needed, the blocks could be easily combined to create superblocks to maximize the leasable space. Built in 1939, Rockefeller Centre is one of the typical examples of city superblock development. It was a business centre, which occupied three full city blocks

within which existing fabrics were torn down, leaving the lot empty for soaring office towers. Some roads were closed to create the superblock to introduce new traffic circulation. For modernist urban design, Rockefeller Centre was the shape of the planning which was expected. The city was moving from mix use to single use, and the development of land parcel was transformed from single block to superblock. Even though the city of Ottawa does not have such mega structures in the downtown area, the gridiron plan design definitely gives the potential for future development.

On the other hand, the rigid grid system also has some drawbacks and suffered a lot criticism. One of the critiques is that the grid system is a rigid imposition on the natural landscape, it is not an organic growth of the city and it is too artificial. Frederick Law Olmstead, a famous landscape who designed central park in New York stated that

> “The time will come when New York will be built up, when all the grading and the filling will be done and the picturesquely varied rocky formation of the island will have

> been converted into formations for rows of monotonous straight streets and piles of erect buildings”[5]

Many scholars including Jacobs believes that any kind of order seems to be inconsistent with organic development of cities is an outcome of the activities of living and planning is restrictive and imposition.[6] The gridiron plan is a man-made order which impositions on a landscape and destroys the city natural growth.

What’s more, the gird planning is used to deny elemental disturbance prompted by geography. In Sennett’ s “American Cities: *The Grid Plan and the Protestant Ethic*,” the author considers Chicago as a typical example to demonstrate the idea. In cities like Chicago, the grids were laid over irregular terrain; the rectangular blocks obliterated the natural environment, spreading out relentlessly no matter what hills, rivers or forest knolls stood in the way. The natural features which could be leveled or drained, were the obstacles which nature put against the grid; the irregular course of rivers or lakes was ignored by these frontier city planners, as if what could not be harnessed to this mechanical, tyrannical geometry did not exist.[7] Sennett

believes that the American grid plans are the sign of a modern form of repression that rejects the specific places by building naturally.

However, ‘organic’ growth, without the structuring element of some kind of framework, can create confusing and inefficient networks of public space. And, finally, it is only through the understanding of that structuring framework that we can open up the range of choices and opportunities for future development.[8] Thus, the grid system plays an important role for city organization and is a useful tool for urban design. The rectangular shape helps maximize the block size and provides the building with a regular form and minimizes disputes over lot boundaries. Blocks can also be combined and subdivided on demand. Cities based on grids can have more regular arrangements, which helps with organization of the city and facilitates movement for pedestrians.

Urban Armature

Besides the gridiron design technique, another useful tool for organizing the city is urban armature, which can be seen as a way of understanding the city and as an

aid to design. The streets that act as urban armature are usually the busiest. They are the broadest, and they connect the city to its hinterland. Both citizens and visitors are likely to travel along them to reach the heart of the city. Shops that are located on the busy streets with flourish. Dominating the vistas down these streets are large religious and civic buildings, many of which surround the open spaces to which the streets lead.[9]

One of the most fundamental functions that a street needs to provide is the movement structure for both vehicular transportation and active transportation. However, for an urban armature, it not only considers pedestrian movement and automobile movement, but also needs to take rapid transport into consideration.

Elgin Street, the urban armature in downtown, Ottawa, connects the city and the Parliament Hill. The street is designed to control traffic that runs south-north orientation. The bus 5 and 14 routes go on Elgin Street, which serves as public transportation for the community. The Mackenzie King bus terminal station is located on the Mackenzie King Bridge, just on the east side of Elgin Street. The terminal bus station

mainly serves the Rideau Canal shopping complex and the University of Ottawa. The termini, as a major bus station in downtown, Ottawa, is a key node in the armature. As such, the scale is changed. A Large volume of pedestrian movement is often associated with the node.[10] The Mackenzie bus terminal station is a significant element in its own right, often considered a specialized zone. Elgin Street, as an urban armature, encompasses the main components of the movement structure.

Various open spaces, parks and squares are attached to Elgin Street. Confederation Square is the most iconic in the region, and is located on the north end to the street. The monument square was built to commemorate the Canadian soldiers who died in both the First and Second World War. It is a space of community; a space of informal meetings; a place to promenade or to sit and observe, an opportunity for display, a place to see and be seen.[11] Therefore, Confederation Square is not merely a memorial place, but also an open space in the city where social activities occur.

The armature is also articulated to give scale to the city. The armature will break the experience of the city

pieces, or localities, each of which has its own scale. It may also be experienced at different speeds.[12] When approaching Elgin Street from south to north, the street widens for twice and the vehicular lane changes from 4 lanes to 6 lanes. Travellers can sense this when walking from the residential district to the commercial business district.

According to Erickson, the armature can operate at a variety of scales. As one moves across the landscape of the city from one district to another, a district rhythm is established. Each district has a centre and a character of its own. The process for defining the armature will be similar at differing scales. Each district will have its own armature and the dominant features of these will combine to make the city-wide armature. Likewise, the features of a district armature will form the focus of a smaller armature at the neighborhood scale.[13]

The gridiron plan and the urban armature are both useful urban design devices that set up the framework to influence subsequent decision making. Elgin Street as the north-south urban armature that links the city and Parliament Hill, it also gives scale to the neighborhood in which it stands.

Total Urban Design: National Capital Commission

Urban design is really a process of shaping the city and making connections between people and places. Jon Lang, an emeritus professor of architecture at the University of New South Wales and a renowned scholar in the field, argues that all work in urban design falls into one of four generic types which vary according to the procedures that are followed and/or the degree of control that designers (working as individuals or in a team) have over the creation of a product:

> Total urban design, where the urban designer is part of the development team that carries a scheme through from inception to completion.
>
> ALL-of-a-piece urban design, where the urban design team devises a master plan and sets the parameters within which a number of develops work on components of the overall project.
>
> Piece-by-piece urban design, in which general policies and procedures are applied to a precinct of a city in order to steer development in specific directions.

> Plug-in urban design, where the design goal is to create the infrastructure so that subsequent developments can “plug in” to it or, alternatively, a new element of infrastructure is plugged into the existing urban fabric to enhance a location’s amenity level as a catalyst for development.[14]

Even though the borders between categories are fuzzy and sometimes overlap, depending on the circumstances, total urban design and plug-in urban design are the project types that fit the objectives of this research report.

Total urban design is a combination of large (in geographical area or number of buildings) architecture and landscape architecture. It involves the design of both the public realm and the buildings that frame it. A team of people working as an individual unit retains total development and design control.[15] The plan for Canada’s Capital, overseen by Jacques Gréber in 1950, was a typical example in terms of total urban design. After World War II, the architect was directly commissioned to develop a plan for Ottawa by Prime Minister William Lyon Mackenzie King, the

goal of which was to make the city become worthy of the future greatness of Canada. It was the first comprehensive plan for Ottawa in the National Capital; the infrastructure and buildings were designed as a unit by the team and many of the details of the design were later completed by transportation engineers, architects and landscape architects who formed part of the team.[16]

Gréber and his team also laid out a new urban armature for the Capital, including structural elements to highlight the prominence of Parliament Hill, the major national buildings, the network of green corridors radiating out from the centre towards Gatineau Park and the Greenbelt. The proposal also sought to improve tourist attractions, facilities and service, providing better access to the Capital and encouraging cooperation with provincial and municipal jurisdictions as well as with the community.[17] All of the endeavours can be seen as an enhancement of the urban environment.

According to Gréber's general report submitted to the National Capital Planning Committee, he considered Elgin Street and suggested that what could be done to improve the current situation. With respect to buildings

facing Elgin Street, between Slater and Sparks, he made the following recommendations:

> Their alignment should correspond with that of the middle facade of the Lord Elgin Hotel, and their heights should follow as closely as possible the cornice line already imposed by the Langevin Block, the Post Office and the wings of the Lord Elgin Hotel. Again, there is no question of enforcing similar architectural treatment, but, in volume and design, the facades of future buildings should maintain the unity of this important street. An exception could be made of the building which is destined to occupy the site facing the new bridge, which might be the National Theatre, as indicated in the plans. As the bridge is on the axis of the block between Slater and Albert Streets, the building in front could appropriately break the line of the general composition on this side of Elgin.[18]

Gréber proposed that the buildings between Slater and Sparks Streets facing Elgin Street should have the same setback and building height to provide a sense

of spaciousness and balance to the composition.

Gréber's plan seemed ideal and promising by the time; however, it received many criticisms in the following decades. In an online history resource, critic Alexandre Laquerre suggests that the report was doomed to be disliked because it called for certain buildings to be demolished on the basis of their age or lack of importance in order to satisfy Gréber's car-centric approach. This meant that some treasured heritage buildings were demolished, including the well-known Roxborough Apartments, Bates Apartments and the old post office.[19]

Also, regarding urban planning, Gréber proposed the implementation of a greenbelt which would prohibit 'tentacular' linear city extensions and therefore curb undesirable growth patterns.[20] However, the development of the satellite cities, such as Kanata, Orléans and Barrhaven, meant that Ottawa found itself in competition with these suburban municipalities for residents and industries.

Another criticism is that Gréber's report tried to reduce the street parking as much as possible so that parked

cars would not prevent the flow of traffic, a traffic-management strategy that was popular in the postwar years. Because of this, it was suggested to increase the number and capacity of parking lots set back from the street.[21] Large surface parking lots in downtown neighbourhoods are now considered unacceptable as 'dead space' where crimes and vandalism can occur.[22] In terms of public transportation, the report suggested that the tramway lines should be removed; according to Gréber, they did nothing but slow traffic and worsen congestion.

In hindsight, we can see that this 'total urban design' scheme was too broad in terms of scale, embodying many problematic assumptions and neglecting important details which altogether made the project unsuccessful.[23] This 'catastrophic failure' of total urban design is not limited to Ottawa; it has happened worldwide.[24] The drawbacks for total urban design gradually start to be revealed as the main leader or the development team has total control of those projects and has a completely free hand to do whatever they wish. Many details are neglected during the process and the final result is questionable.

Fig 2.2
The Demolishing of the Pruitt-Ig-oe Project-One of the Typical Examples of Total Urban Design

Plug-in urban design refers to the design and implementation of an infrastructure project to obtain some catalytic reaction. It focuses on the strategic buildings or infrastructure components of a city. There are two types of this kind of design project. The first type involves the provision of the infrastructure of, usually, a precinct of a city or suburb and the selling of sites into which individual developers can plug buildings, whereas the second type involves plugging the infrastructure into an existing urban fabric to enhance its amenity value.[25] In other words, the plug-in urban design strategy can be seen as a retrofit or a modification to improve the current urban situation.

The strategies of both total urban design and plug-in urban design have to work together so that they can overwrite the drawbacks and contribute to each other. Under the control of Gréber's total urban design idea for the National Capital Region, the current appearance of Elgin Street could be seen as an outcome of his general report. The design proposal with improvements of the street for this report is categorised as the second type of the plug-in urban design. This urban design strategy refers to the situation where elements of infrastructure are plugged into an existing city in the hope of spurring new developments or providing

some public amenities. The elements of infrastructure may be links, places or buildings providing for special uses that will, it is hoped, have a catalytic effect on surrounding property development.[26]

The goal for NCC is that “responsible for designing, building, maintaining and preserving federal assets in the Capital region in a way that will inspire Canadians with pride.”[27] However, National Capital Region is designed with in a broad view in which the factor of human scale has not been taken into consideration. The city is designed for people, and people are the key component in terms of city making. The design proposal which is demonstrated in the next chapter emphasizes on the factor of human scale and creates a more proper scaled environment.

Public Open Space and Gated Community

Outdoor activity is influenced by a number of conditions. Physical environment is one of the factors that influence the activities to a varying degree in many different ways. According to Jan Gehl, a Danish architect and also an urban designer who believes that there are three types of outdoor activities which

can be defined, each of which places very different demands on the physical environment: necessary activities, optional activities and social activities.[28] By walking along Elgin Street, one can immediately note that there are various public spaces along the street, and different kinds of activities which are happening depending on the weather conditions.

Necessary activities include those that are more or less compulsory – going to school or to work, shopping, waiting for a bus or a person, running errands, and distributing mail. In other words, all activities in which those involved are to a greater or lesser degree required to participate.[29] Due to the extremely long and cold winter in Canada, no matter how well the outdoor space is designed or planned, no one actually wants to experience the outside in winter, and the street usually becomes empty. Parks are covered by snow, children play at home, people are waiting for the bus at the bus shelter. At this time, there is not much to see on Elgin Street and the street only serves the function of walking.

This experience is changed when the weather gets better, as there are optional activities that people may

pursue if the time and place make it possible. This category includes such activities as taking a walk to get a breath of fresh air, standing around enjoying life, or sitting and sunbathing. These activities take place only when exterior conditions are optimal, when weather and place invite them. This relationship is particularly important in connection with physical planning because most of the recreational activities that are especially pleasant to pursue outdoors are found precisely in this category of activities.[30] There is an analysis that Gehl developed and tested based on an investigation of where pedestrians stopped on the street and what they stopped to look at. Fewest stops are noted in front of banks, offices, showrooms and dull exhibits. Conversely, a great number of stops were noted in front of shops and exhibits that had a direct relationship to other people and the surrounding social environment, such as photography exhibits, clothing stores and toy stores.[31]

In the summer, the southern part of Elgin Street is very busy since many restaurants, shops and bars are located on this side. People sit on the sidewalks with their coffee, children play next door, people watch a hockey game at the bar and elders take a walk in the nearby park. The relationship is important

in connections with physical planning, because that most of the recreational outdoor activities are pleasant to pursue outdoor.

As Gehl mentions, social activities are all activities that depend on the presence of others in public spaces. This can include children at play, greetings and conversations, communal activities of various kinds, and finally- as the most widespread social activity- passive contacts, that is, simply seeing and hearing other people. Social activities occur spontaneously, as a direct consequence of people moving about and being in the same spaces. This implies that social activities have a strong link with the necessary and optional activities, and is supported by both activities that are given better conditions in public spaces.[32]

The type of social activities varies when walking along Elgin Street, depending on the context in which they occur. The south part of the street is the residential area, near to school, where there are a limited number of people with common interests or backgrounds. Social activities in public spaces can be quite comprehensive: greeting, conversations, discussions, and play arising from common interests and because

people know each other, if for no other reason than that they often see on another.[33] When travelers walk towards to Parliament Hill from south to north, the urban setting gradually changes from a residential area to a commercial business area. Smartly-dressed office workers take a smoking break at the entrance of a modern office tower, and tourists are guided by a tour leader to visit the National Arts Centre. For Elgin Street, it is the place where necessary, optional and social activities occur together and in an interwoven pattern. Outdoor activities do not begin with a single category of activities but conceivable combinations of motions.[34]

When talking about Elgin Street, Confederation Square has to be mentioned, as it has a very significant meaning as a memorial place for soldiers who died in the world war. In the winter, people also use the stairs on the northeast corner to access to the Rideau Canal for skating and tourists come to visit the monument and sculptures.

Cliff Moughtin, an emeritus university professor believes that one of the most important elements of city design is the square or plaza. A square or plaza is

both an area framed by buildings and an area designed to exhibit its buildings to the greatest advantage.[35] The most successful city squares, though they may have a dominant function for which each is known and by which they may be classified, are often those which sustain activity through the diversity of uses in the surrounding buildings. In other words, a great plaza should react to the world around, including the built environment, and is intimately and irrevocably connected to the ways in which we perceive the human body.[36] Confederation Square has a strong connection to Parliament Hill which has an important function in the context of urban design, including location proximity.

There have been a number of attempts to classify the form which the squares may take. Two of the most influential theories are outlined by Paul Zucker and Camillo Sitte. From his work on squares, Zucker is able to distinguish five archetypal forms: the closed square where the space is self-contained; the dominated square where the space is directed towards the main building; the nuclear square where space is formed around a centre; grouped squares where spatial units are combined to form larger compositions; and the amorphous square where space is unlimited.[37]

Confederation Square can be categorized as a closed square since its triangular square is surrounded by vehicular roads with heavy traffic flow. This makes the square isolated and difficult for people to gain access. The overriding quality of this spatial type is a sense of enclosure, which is the purest expression of a sense of place: the centre. It is here that order is created out of the undifferentiated chaos of the world beyond. The square is an outdoor room and with the room it shares the quality of enclosure, the key to which is the treatment of its corners. Generally speaking, the more open the corners of the square the less the sense of enclosure, the more built up or complete they are, the greater the feeling of being enclosed.[38] Although Confederation Square is open to the public the wide roads keep the square enclosed to a certain degree. People see it, but have a hard time getting there.

Gated Community

The controversy over the desirability of openness and interaction with the urban environment versus the increasing popularity of the “gated community” restricted access, demonstrates the need for a radical debate on the shape and the position of the institution

in relationship to its urban context.[39] Parliament Hill is a typical example which demonstrates the idea of “superblocks” of a gated community. Because of the location of Parliament Hill, where the north side is bounded by Ottawa River, people can only approach to site from the south. This is very similar to a gated campus where accesses are strictly controlled.

As a gated community with superblocks, they are largely self-contained and not permeable for pedestrians to access and problems have been created. Many scholars have criticized on this urban configuration. For example, Abramson, D. B. (2008). *Haussmann and Le Corbusier in China: land control and the design of streets in urban redevelopment.* Journal of Urban Design, 13(2), 231–256. Also, in Sandalack, B.A., & Nicolai, A.s’ *Urban Structure Halifax. An urban design approach*, the authors state that:

> “This type of development has destroyed the human scale, and reduced permeability, variety and pedestrian comfort, as well as some of the visual qualities of the area. Many small lots, with many entries, ensured street life, and provided a comfortable

> human scale. Large developments remove pedestrians from the street through a few entries, thus destroying the liveliness of the street."[40]

The gated community and superblocks cannot be all demolished, since they are everywhere in our lives, retrofitting and modification are the solutions. In Schmitt's *Three Conditions for Successful Campus Planning*, the author suggests three critical points which are considered important and useful for developing a successful academic campus or civic institutions and those three factors can also apply to government buildings. The three factors are a shared vision, complementary programmes, and an integrated sustainability concept.[41]

The first challenge in the design of a new corporate or academic campus or government buildings is to establish a shared vision, rather than immediately focusing on new buildings or an urban master plan. The participants confirmed that only the existence of a clear vision can lead to buildings or structures that will attract people from around the world. It also became evident if some workshops that it is the diversity of

interrelated programmes based on a shared vision that will define the quality of the institution rather than the total number of the buildings.[42]

The second challenge in the design of a new corporate or institution is to arrive at an early decision on complementary programmes to support life, rather than defining monofunctional programmes.[43] Since Parliament Hill is a famous tourist spot which attracts thousands of people daily, various tourist routes are designed within Parliament Hill for tourists to appreciate and understand the context. Tourists can also go up to the peak of the Peace Tower to have a view of the city. As well, the library that is located at the rear of the centre block on Parliament Hill is the main information repository and research resource which also helps to bring life to this government complex.

The third challenge in the design of an institution for the twenty-first century is an integrated sustainability concept. Being part of the city vision from the very beginning, integrated sustainability has developed into a feature of increasing societal, financial, scientific importance. Society expects modern architecture not only to define itself but also to demonstrate what

sustainability could mean in practice.[44]

This chapter provides basic concept and theory for the three categories, which are Gridiron Plan and Urban Armature, Total Urban Design: National Capital Commission, Public Open Space and Gated Community. Case Studies are discussed in the following chapter.

Endnotes:

1 Erickson, B. (2001). *The 'armature' and 'fabric' as a model for understanding spatial organisation*. In M. Roberts & C. Greed (Eds.), Approaching urban design: the design process (pp. 21-38). Harlow (England): Longman / Pearson Education. 22

2 Martin, L. (2007 [1972]). *The grid as generator*. In M. Carmona & S. Tiesdell (Eds.), Urban design reader (pp. 70-82). Oxford and Burlington MA: Architectural Press. 72

3 Erickson, B. (2001). *The 'armature' and 'fabric' as a model for understanding spatial organisation*. In M. Roberts & C. Greed (Eds.), Approaching urban design: the design process (pp. 21-38). Harlow (England): Longman / Pearson Education. 23

4 Ibid

5 Martin, L. (2007 [1972]). *The grid as generator*. In M. Carmona & S. Tiesdell (Eds.), Urban design reader (pp. 70-82). Oxford and Burlington MA: Architectural Press. 71

6 Ibid

7 Sennett, R. (1990). *American cities: the grid plan and the Protestant ethic*. International Social Science Journal, 125, 269-285. 272

8 Martin, L. (2007 [1972]). *The grid as generator*. In M. Carmona & S. Tiesdell (Eds.), Urban design reader (pp. 70-82). Oxford and Burlington MA: Architectural Press. 72

9 Erickson, B. (2001). *The 'armature' and 'fabric' as a model for understanding spatial organisation*. In M. Roberts & C. Greed (Eds.), Approaching urban design: the design process (pp. 21-38). Harlow (England): Longman / Pearson Education. 24

10 Ibid. 29

11 Ibid. 31

12 Erickson, B. (2001). *The 'armature' and 'fabric' as a model for understanding spatial organisation*. In M. Roberts & C. Greed (Eds.), Approaching urban design: the design process (pp. 21-38). Harlow (England): Longman / Pearson Education. 32

13 Ibid

14 Lang, Jon T. *Urban Design: A Typology of Procedures and Products*. Oxford: Elsevier/Architectural, 2005.

15 Ibid

16 "Plan for Canada's Capital" 2011 Capital Planning Ottawa-Gatineau: Canada's Capital Region 18 January 2015 http://www.ncc-ccn.gc.ca/publications/planning-future/plan-canadas-capital-1988

17 National Capital Commission Plan for Canada's Capital Ottawa 1988

18 Jacques Gréber National Capital Planning Committee General Report Ottawa 1950. 254

19 Alexandre Laquerre "*Gréber Plan*" 2015 Ottawa past & present 26 March 2015 http://www.pastottawa.com/greber/

20 Ibid

21 Ibid

22 "How Parking Lots Became the Scourge of American Downtowns" June 5 2014 CITYLAB April 22 2015 http://www.citylab.com/commute/2014/06/how-parking-lots-became-the-scourge-of-american-downtowns/372207/

23 Trancik, R. (1986). *Finding lost space : theories of urban design*. New York: Van Nostrand Reinhold

24 The Pruitt- Igoe housing project in the US which designed by renowned architect Minoru Yamasaki in 1950 was another example to demonstrate. By the time when it started to build, the architectural forum titled it "the best high rise apartment" of the 1951. However, the Pruitt-Igoe housing project did not reach the goal but far behind. Residents were not willing to live in the poorly designed, badly equipped high rise apartments. Eventually, the notorious Pruitt-Igoe project got demolished in 1972.

25 Lang, Jon T. *Urban Design: A Typology of Procedures and Products*. Oxford: Elsevier/Architectural, 2005.

26 Ibid

27 "About the NCC" 2014 NCC September 2 2015 http://www.capcan.ca/

28 Gehl, J. (1996). Excerpts from *Life between buildings : using public space* (pp. 10-31). Copenhagen: Arkitektens Forlag.11

29 Ibid

30 Ibid.12

31 Ibid.31

32 Ibid.14

33 Ibid

34 Ibid.16

35 Moughtin, C. (2003). *Urban design: street and square* (3rd ed.). Oxford: Butterworth Architecture.87

36 Ibid.88

37 Ibid.99

38 Ibid

39 Christiaanse, K. (2007). Campus to city : urban design for universities. In K. Hoeger & K. Christiaanse (Eds.), *Campus and the city: urban design for the knowledge society* (pp. 45-57). Zürich: GTA Verlag.47

40 Sandalack, B. A., & Nicolai, A. (1998). Urban structure Halifax. An urban design approach. Halifax: TUNS Press.36

41 Schmitt, G. (2007). Three conditions for successful campus planning. In K. Hoeger & K. Christiaanse (Eds.), *Campus and the city :urban design for the knowledge society* (pp. 25-33). Zürich: GTA Verlag.25

42 Ibid

43 Ibid.30

44 Ibid.32

CHAPTER THREE: Case Studies

When talking about Parliament Hill in Ottawa, one can immediately identify similarities to the city of Montreal and Mont Royal. Even though Mont Royal is a bucolic and “natural” space in the city, while Parliament Hill is a formal complex of buildings and public space, they share common key characteristics. Both landmarks are located in the downtown area and provide people with the great view of the city. They are both the cities’ most famous tourist attractions, with thousands of people visiting very day. In Montreal, strengthening the link between the city and mountain is important, and this is what the city has been trying to do for the past 50 years. This chapter will use the Montreal as a prototype and will apply some of the strategies to Ottawa.

McGill College Street and the Studio Proposal

McGill College Street is a street oriented north-south in the Montreal’s downtown area, which connects Place Ville Marie, the city’s commercial node, and McGill University, the city’s institutional node. Most studies of Montreal’s urban planners and architects focus on the view up the street to the mountain. The reason that the view is so fine, in comparison with all

the other parallel streets, is because of the openness of the lower campus of McGill University which affords an unrestricted view of both the eastern profile of Mont Royal and the Cross on the summit.[1] Various interventions were been done to McGill College Street historically and these interventions aimed to create a lively and beautiful space for people. However, the street still seems to be problematic after a field-reconnaissance study.

Fig 3.1
McGill College Street with McGill University to the North

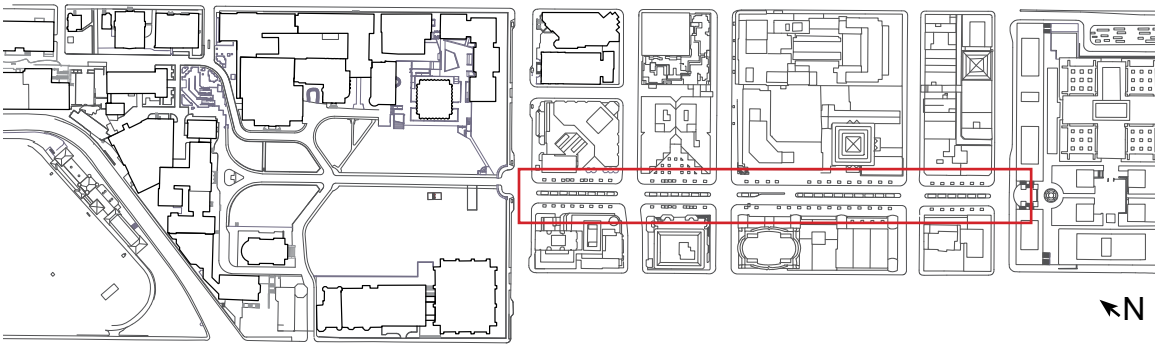
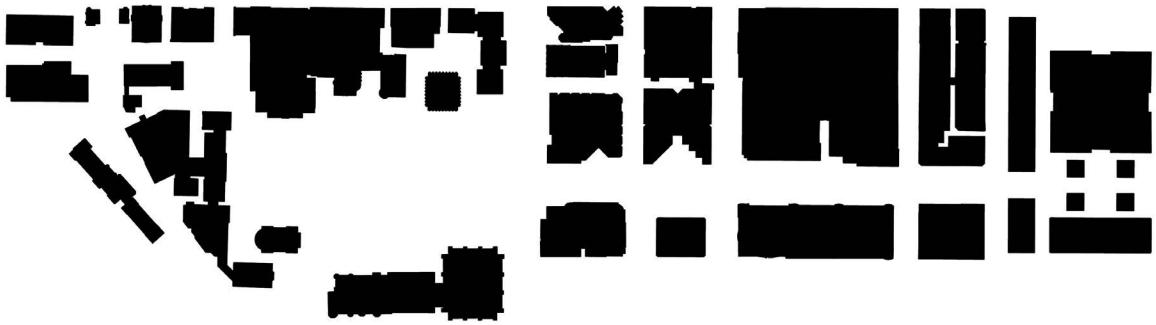


Fig 3.2
Figure Ground Study of McGill College Street



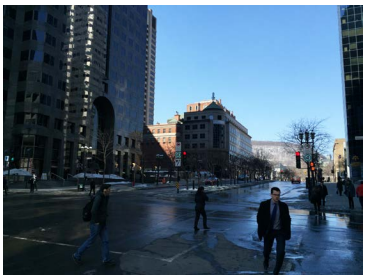


Fig 3.3
An enormous shadow is cast on the street because of the highrise office towers and people must walk in the dark.

Fig 3.4
Since it is a business district, a lot of service is needed. A single parked mail truck blocks the way for pedestrains.

For McGill College Street, modern office towers are dominating the street. An office construction boom on both sides of the street was in full progress with the Place Ville Marie construction, the era was one of excitement in new office design tends. Various office towers were raised up and a tremendous leasable office space was provided. In order to maximize the leasable area, the idea of building setbacks was abandoned, which led to the fact that the street had no light. The scale is not appropriate when walking on the street; the buildings are tall and the street is wide. The street is mostly covered by shadows because of the towering office buildings on the east side.

Fig 3.5
A bench is covered with snow.

Fig 3.6
People only use the outdoor space for smoking.

Due to the setback from the street, some open spaces are created for the public; however, the spaces are poorly designed so that no one wants to use them. The buildings are tall and the spaces are awkward. The wind blowing in between the tall buildings is strong, which makes the spaces not pleasant to stay in. Urban furniture, such as benches, is rarely provided; people can only use the edges of the planters as sitting spaces. The only possible occupants who use the space are the businessmen who go out for a smoke when they take a break. The strong wind, smell of smoke and the fact that there is no place to sit make these public spaces poorly designed places.

Fig 3.7
This series of images was captured at an awkward building corner on McGill College Street. It was fun to stay for a while; however, no other outdoor activities could occur here for a longer period of time because of the wind.

Fig 3.8
The highly reflective windows of the shopping mall waste the opportunity for window shopping and the advertising which is pasted on the windows is obsolete.

Even the Eaton shopping center which is located on McGill College Street offers the opportunity of display windows to make the street more vivid and lively; however, the highly reflecting glass windows make people barely see inside, not to mention window shopping. McGill College Street is a typical business street that has no interest for people to see. Especially after 6pm, the street is even quieter and deader and only necessary activities occur. Because of the nature of the business street, there are not many outdoor activities to catch people's attention.

One interesting thing to note is that when students get off from the McGill metro station, they tend to use the shortcut to go to school rather than walk on McGill Collage Street. In winter, most of the students chose go inside of the buildings and exit from Sherbrooke Street in order to avoid the harsh temperature outside. Walking inside the office buildings can be seen as a way to kill the street life. In summary, a lot of efforts have been put in enhancing the overall experience of the street, but the final outcome is not desirable.

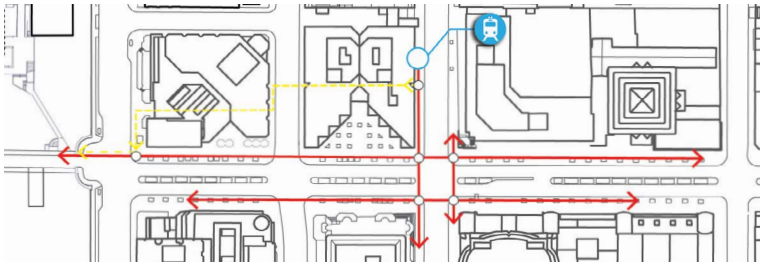


Fig 3.9
Circulation for students who use the interior shortcut.

Indoor Circulation

Outdoor Circulation

Fig 3.10
The Roddick Gates

Fig 3.11
The sign when someone enters the university.

The story changes completely when people enter the McGill University and the Roddick Gates act as a divider to McGill College Street. It is a new adventure behind the gates. In April 2008, McGill University approved a physical master plan that calls for commitments to sustainability and environmental stewardship. The idea was to eliminate most of the parking and vehicular traffic on the lower part of the downtown campus and also altered McTavish Street into a pedestrian friendly zone. The reason for making the lower campus a walk-bike zone was that thousands of pedestrians cross the McGill downtown campus every day, and the university had experienced a number of incidents involving collisions between traffics and pedestrians in recent years.[2] By limited the vehicular access and controlled cyclists, it allowed people to move comfortably through the campus and provide a quiet environment for students to study.

Green open spaces are attached to both sides of the campus central drive and the built environment changes from the modern office towers to Victorian architecture. The floor heights are much reduced to give an appropriate scale. People walking in the campus can enjoy the nice scene. They can also stop at the sculpture of James McGill and take a picture of

it. Sometimes, soccer or hockey games are happening in the field and it is always nice to see it when passing by. Various activities are occurring inside the campus which make the environment much more pleasant.

Fig 3.12
The McGill Beach in Summer

Fig 3.13
People sit on the stairs when the grass slope cannot be used in winter

A grass slope is located in the central place of the campus and attaches to the school's main axis with easy access, students utilize the space for sunbathing, reading and communicating. The grass slope is in a comfort angle for people to sit on and the north-south orientation of the slope makes an ideal position for reading. The façade of the Redpath Museum acts as an epic background for the space and protects people from wind, all of which make the "McGill Beach" an ideal public space for outdoor activities not only for students but also for city people. However, it is not possible to use the slope under the extreme cold weather conditions, since no one wants to be outside and the slope is too slippery for activities to happen.

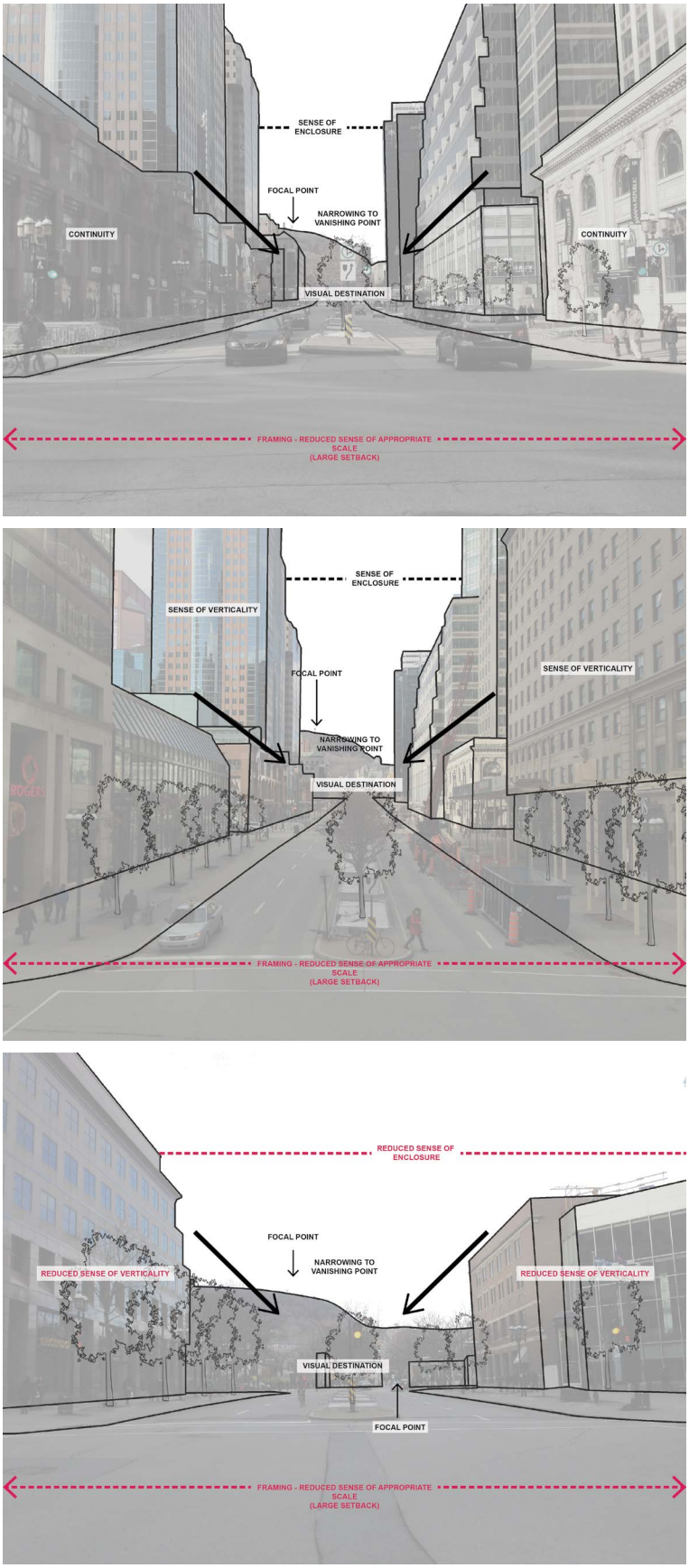


Fig 3.14
This series of diagrams depicts what one sees when walking along McGill College Street.

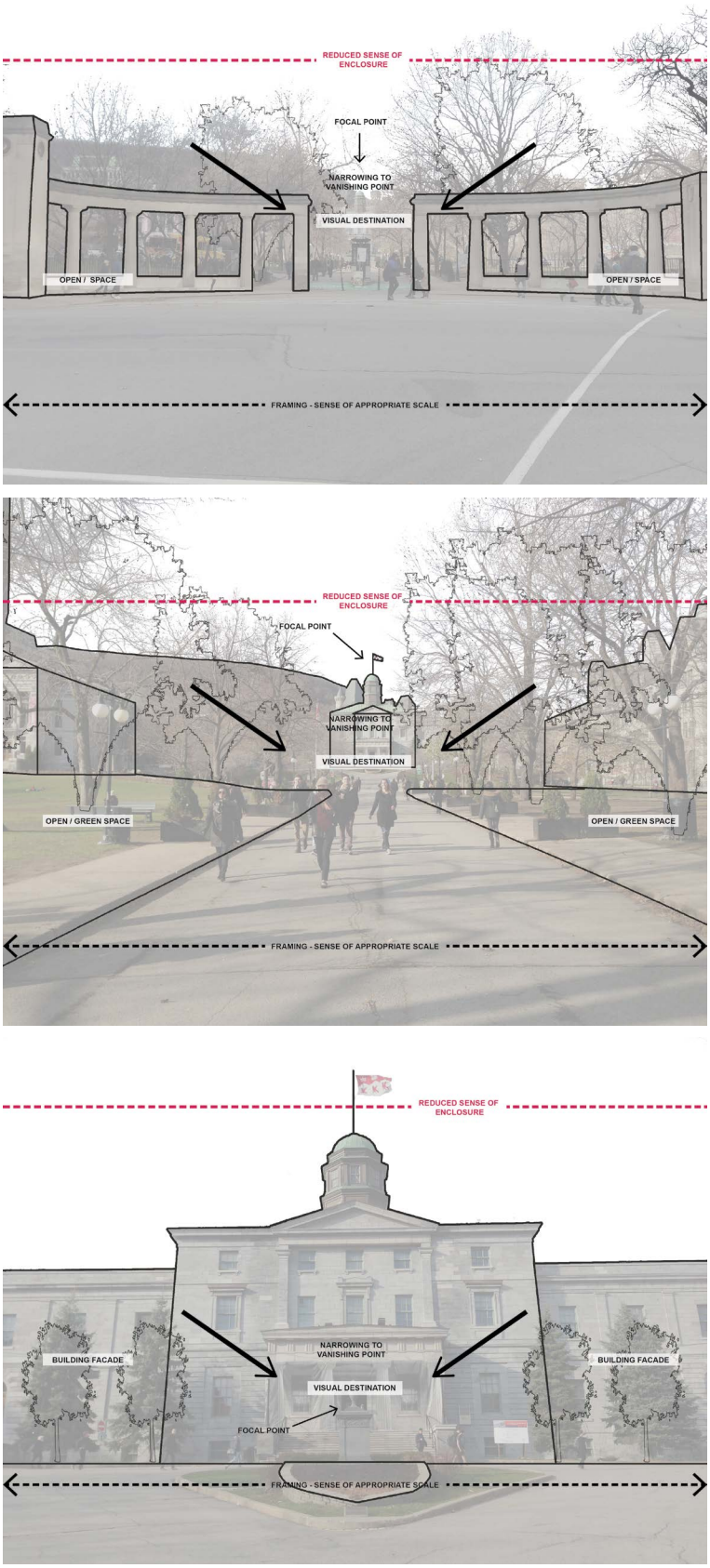


Fig 3.15
This series of diagrams depicts what one sees when entering McGill University.

Fig 3.16
The Royal Victoria Hospital and Mont Royal

Inspired by the work that has been done in ARCH 603 (Urban Design + Housing Studio) this fall with fellow students, the project was to repurpose the Royal Victoria Hospital (RVH) since the institution will be relocated in the upcoming years.[3] The RVH is an architectural landmark set in the picturesque landscape of Mont Royal and one of the major tourist attractions in Montreal. In Montreal the hospital and healthcare system have been developed to a greater extent within the last few decades. And RVH has achieved a prestigious position with numbers of modern technologies and a massive infrastructure. However, due to the technological advancement and wider demands, RVH is no longer capable of supporting very contemporary requirements. That is why, the concerned authority decided to move the hospital function to a new infrastructure within 2015 and the RVH has been almost empty since May 2015. In this regard, the city authority has been thinking of accommodating a new and effective function for this giant infrastructure.

The hospital is situated on the north side of Pine Avenue with no connection to the surrounding buildings, but on the other hand, the hospital acts as a gate to the mountain. Repurposing of hospital facilities is very challenging; especially in the case of a

historic structure, it is more critical. Apparently, the new function should underscore the historical importance of the site and make it an attractive destination for Montrealers as well as for local and international visitors. The work process followed three basic steps: review, repurpose and reclaim. In the first, an in-depth study is made in order to analyze the existing site and its buildings. Afterwards the decisions will be made regarding heritage conservation, zoning, accessibility and circulation, urban spaces and landscape. Finally, the result expected would be to create the opportunity to celebrate the proud history of RVH and the great presence of Mont Royal.

As a result, the studio project utilizes the opportunity to experiment for the possibility of connecting the RVH and the McGill's lower campus by creating a tunnel that will goes underneath Pine Avenue and connects the Strathcona Anatomy and Dentistry building and front RVH main plaza. By so doing, a north-south axis can be created for the linkage. The proposal of an axis is interesting in the way that it links the RVH, the mountain and McGill's lower campus as a whole. This offers a great opportunity that the studio proposed axis and the existing McGill College Street can be combined so that it creates an entire pedestrian walk path that connects Place Ville Marie and Mont Royal.

Fig 3.17
The studio project was done by a group of four students. This master plan shows the RVH with its surroundings, which including the McGill campus and Mont Royal. The plan also indicates the proposed axis and the two plazas.

Fig 3.18
The plan shows the ground level building plan, and also explains how the axis will work through the RVH main building.

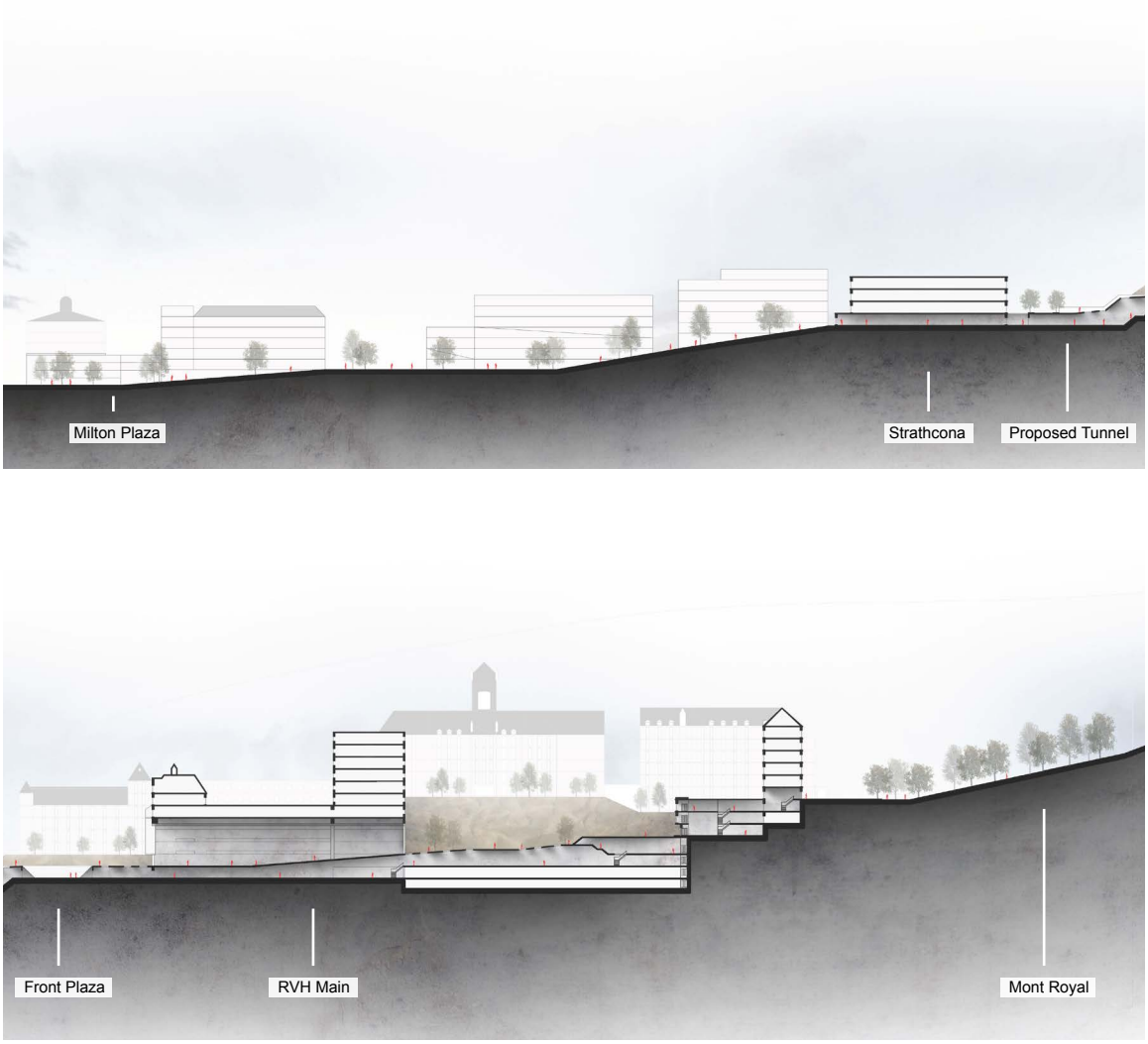


Fig 3.19
The section cuts from the Milton Plaza to Mont Royal, it shows the underground tunnel that connects the Strathcona building and the RVH main building. Pedestrians could walk all the way to the mountain from the Milton Plaza by utilizing this proposed axis.

Urban Design Charrette

There was an interuniversity charrette of urban design held by McGill University and the University of Montreal in February 2015. The title was “Rue University: Between City and Mountain, a Reinvented Link.” The fundamental idea was that the city of Montreal was considering the future of other north-south streets that connected the downtown to the mountain besides McGill College Street and McTavish Street. This time, it was University Street. At its upper end, this street coexisted with two important landmarks of the city, the RVH and Mont Royal. It served as an important link between the city and the mountain which could be seem as another urban armature. For this charrette, a group of students were expected to propose urban designs that were innovative, inspired by the spirit of the place, respond to the heritage value of the site and offered an important newgate way to the mountain.

For our team, we proposed that the University Street become a shared street that connects Avenue du Parc, so that the street would no longer be a dead end. We also proposed a cultural hub with combined programs on Mont Royal to invite people to go there,

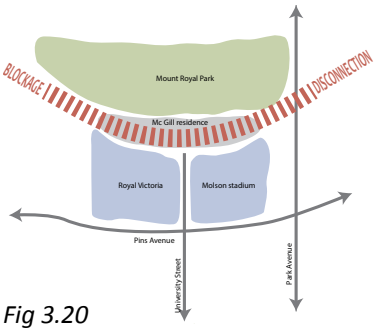


Fig 3.20
Diagram Analysis for the Current Situation of University Street

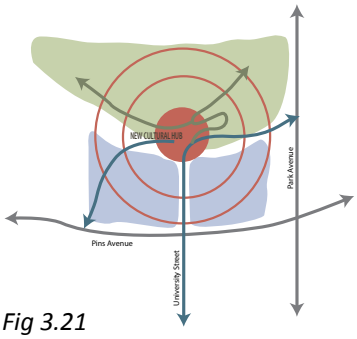


Fig 3.21
The diagram reflects the creation of a new cultural hub as an attraction to drive the public to the park and also creates vehicular and pedestrian connection towards the park using the new cultural hub.

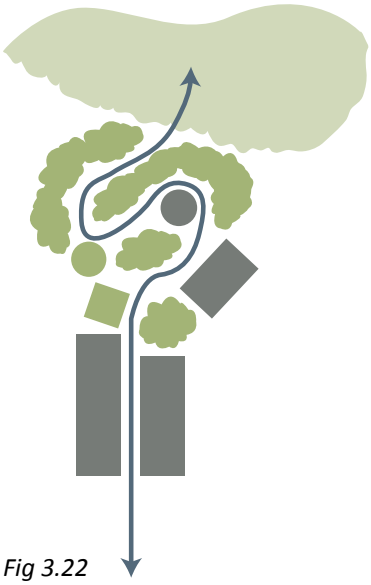


Fig 3.22
Reflection of Olmsted philosophy through the new design of University Street and an alternation between built and planted environment.

which would bring life to the mountain. Other main design ideas are listed as follows:

- Opening University Street as a gateway to Mont Royal Park

- Creating a cultural hub as a complement to the existing draw and spirit of the mountain; the hub will house a hotel at its economic center, supplemented with a plaza, a museum, light retail stores and restaurants / cafés

- Placing the node at the foot of the Mont Royal Park, which extend the mountain in the direction of the downtown core

- Alternating between the built and natural environment, this redesign incorporates a meaningful reflection of Frederick Law Olmsted's "genius of the place" philosophy

- A high- rope activity park provides a unique point of natural immersion and recreation for city dwellers and tourists alike

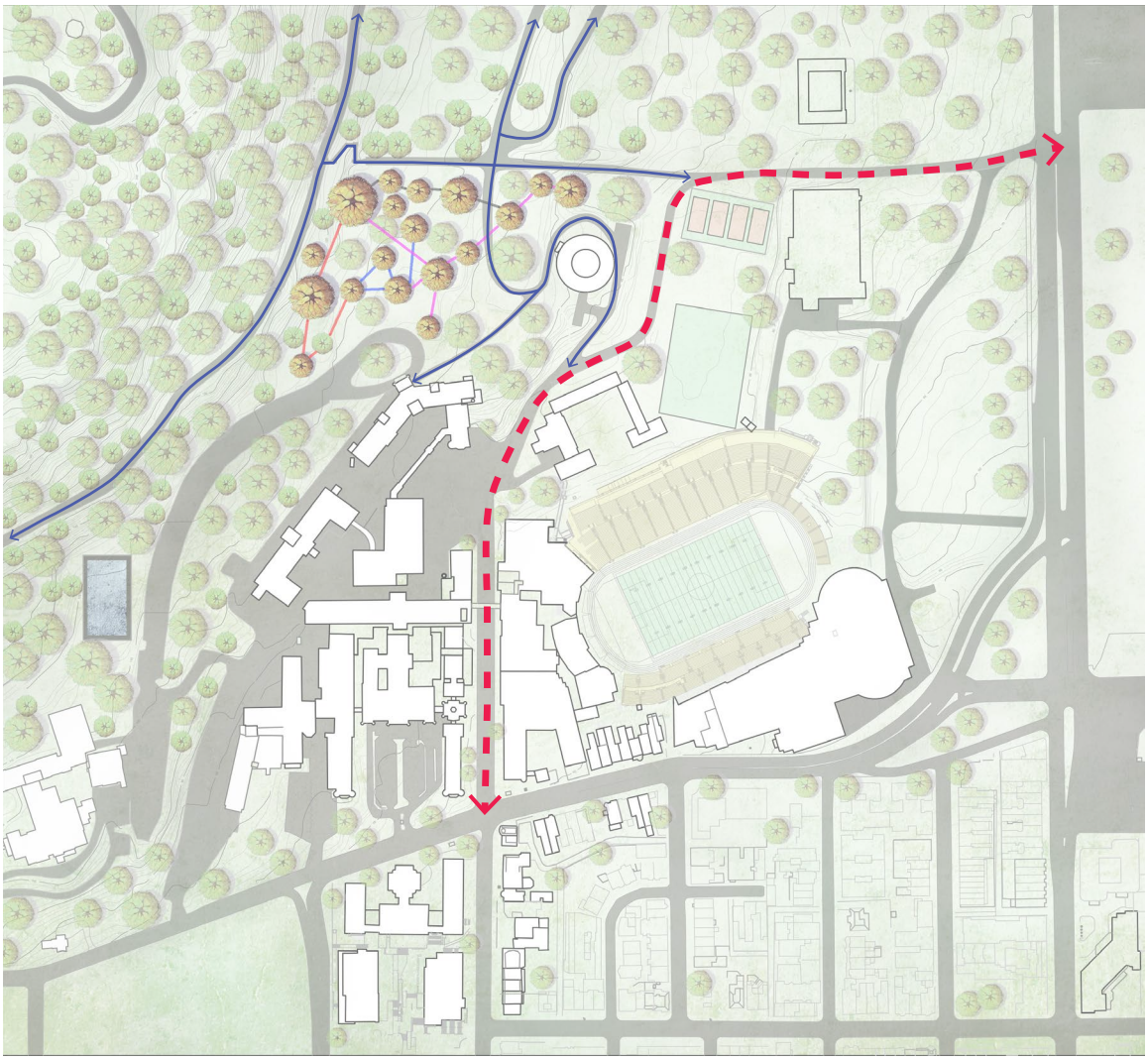
- Vegetated curb extensions along streets create an image of a biodiverse and green urban promenade

All of these proposals aim to make University Street more pedestrian friendly and strengthen the link between the city and the mountain.

Fig 3.23
The master plan proposes that University Street can be connected to Park Street with the cultural hub on the mountain.

Pedestrain Walkway

Vehicular Circulation



The Pine-Park Interchange

The previous two case studies were hypothetical projects developed in the creative space of university studio courses, but several real interventions have been implemented to strengthen the link between Mont Royal and the urban fabric and specifically to enhance the overall walking experience. Various interventions have been done over the past 50 years including McGill College Street, Avenue du Parc, and the McTavish Street project, which is now underway.

Fig 3.24
Location of the Interchange

The reconstruction of the Pine-Park interchange is a typical example to demonstrate. In the early 90s, the overpass and tunnel near the Mont Royal Park used to separate two key parts of the city along the north/south axis: downtown (especially the McGill Ghetto) and the Plateau (especially Parc Avenue). It also separated the city along the east/west axis, with the McGill Stadium and McGill University student life buildings on one side and the vibrant St-Laurent Street on the other.[4]

The intersection at Pine and Parc has a significant meaning for Montreal since it was the main gateway

Fig 3.25
The Pine-Park Interchange (before)

Fig 3.26
The Pine-Park Interchange (after)

from downtown to the green spaces of Mont Royal Park from which Montreal took its name. However, a lot of criticism was raised when the structure got built. The overpass and tunnel were not beautiful structures; their thick, grey graffiti-covered walls clashed with the great landscape of the mountain.[5] Yet, most importantly, the structure was not pedestrian friendly which was very dangerous for people to walk. These criticisms caused the demolishing of the Pine and Park intersection. The city of Montreal replaced the Avenue Des Pins interchange with an intersection on a human scale to facilitate access to Mont Royal. It would also be a more representative of gateway to downtown Montreal. Huge investment was invested in this project, which made the intersection safer for pedestrians, cyclists and motorists.[6] The demolishing of the infrastructure actually helped strengthen the urban armature by linking the mountain to the downtown flank of Mont Royal, and creating a strong pedestrian-oriented network.

New Pedestrian Walkway from the Mountain to the River

The rebuilding of the Pine and Park intersection was just a start. In February 2015, CTV Montreal released a piece of news stating that Mayor Denis Coderre said that Montreal will build a new promenade going from Mont Royal to the St. Lawrence River.

According to the CTV website, the proposed route will cut through the heart of downtown Montreal, leading from the mountain steps at the intersection of Peel Street and Pine Avenue down to the Old Port. The project, at a cost of $42 million, will be one of many projects celebrating Montreal's 375th anniversary. Pedestrians are a priority for the project, and it will be completed by May 2017. By then, the mayor explained, the route will have transformed the downtown area with greenery, wider sidewalks and upgraded sewers. However, about 89 parking spots will be lost in the downtown core. The mayor said they will replace them by increasing parking in other areas.[7] A lot of things have been compromised and sacrificed in order to make the project a success. However, it is necessary in order to make the city more pedestrian friendly and to shift the focus to active transportation.

Fig 3.27
The Proposed Walkway Render1

Fig 3.28
The Proposed Walkway Render2

Both of the school work and the real projects demonstrate the importance of connecting the city and the mountain as a whole, the walkability for pedestrian is also emphasized. And so, these projects ask, what inspiration can Ottawa and Parliament Hill gain from Mont Royal and Montreal, considering that they are in a similar situation?

Endnotes:

1 Wolfe, J. M. (1991). Concerto grosso. In K. Gerecke (Ed.), The Canadian City (pp. 147-162). Montréal: Black Rose Books.149

2 "Campus Planning: Circulation" 2015. McGIll University March 13 2015 http://www.mcgill.ca/campusplanning/planning-services/campus-planning/circulation

3 Nazmul Islam, Vladlena Mikulchik, and Priscila Krayerkrauss are the other three students who were involved in the ARCH 603 studio project.

4 "A Successful Destruction" 04 August 2013 SWELL 22 April 2015 http://swell.lpmo.com/a-successful-destruction/

5 Ibid

6 "REDEVELOPMENT OF THE INTERSECTION OF AVENUE DU PARC – AVENUE DES PINS" Ville de Montreal December 10, 2014 http://ville.montreal.qc.ca/portal/page?_pageid=901%2c1445676&_dad=portal&_schema=PORTAL

7 "New walkway from the mountain to the river" February 25 2015 News Montreal March 16 2015 http://montreal.ctvnews.ca/new-walkway-from-the-mountain-to-the-river-1.2252886

CHAPTER FOUR: Design Proposal

Pedestrian walkability, urban connectivity for active transportation, and creating a more human scale environment are the key ideas for case studies as demonstrated in the previous chapter. This chapter presents a design proposal for Confederation Square, for which those concepts are synthesized and implemented.

Mental mapping is about understanding how and why people perceive a place in the way that they do. In the early 1960s, Kevin Lynch published a study of people's perceptions of the city entitled *The Image of the City,* which uses a method derived from environmental psychology. Lynch aims to develop a structure within which individuals' mental maps could be classified and used as a means of developing design ideas on the city scale. Lynch proposed that the urban environment can be categorized into five different elements that can help to understand the city. Those elements are a significant feature of the urban environment that facilitates orientation.[1] The five elements are listed as follows:

Path:

Paths are routes through which the observer moves; e.g. roads, footpaths, railways and walkways. Paths

can often be the strongest organizing element in people's perception.

Landmarks:

Landmarks are usually defined as a simple physical object, such as a church spire, a tower, a dome or a hill. They are not necessarily places to be entered but serve as a point of reference.

Edges:

Edges are liner elements not used or thought of as routes. They may either join two recognizable areas as a "seam," or may act as a barrier between recognizable areas. Edges may take the form of intensely busy roads, railway lines, cuttings and canals.

Districts:

Districts are medium to large elements of a city that observer walk into. They have an identifiable set of characteristics that might be related to use or architectural style. A district may be defined by what is exterior to it.

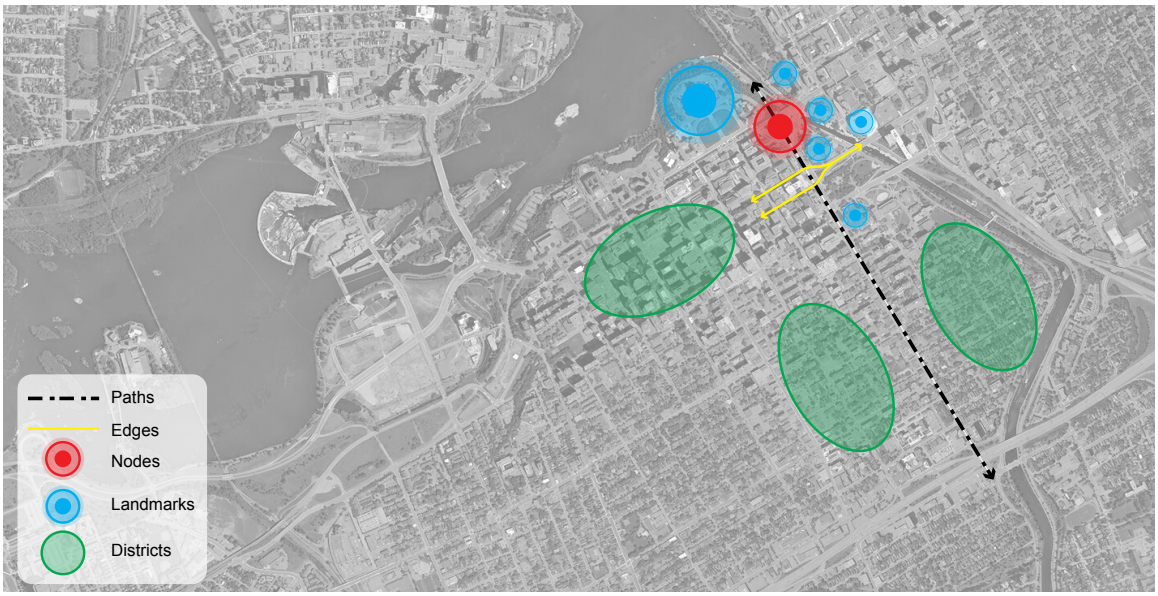
Nodes:

A node is a point to or from which an observer might be traveling that provides an event on the journey. It is characteristically a major junction or interchange. It can also be a meeting of paths and, in some cases, a node provides a concentration of activities; thus, the node is the core of a district.[2]

The Five Elements along Elgin Street

The five elements are fundamental for understanding the city and can be used as a guideline for site analysis. Elgin Street and its surroundings is an ideal model for demonstrating these five elements.

Fig 4.1
The Five Elements along Elgin Street



Path (Elgin Street):

The street itself is a path that can be considered one of the most important urban elements; it runs between two distant points and connects people for interaction. Unlike other north-south oriented major streets in the downtown core, Elgin Street is itself a social gathering space.

Fig 4.2
People are celebrating on Elgin Street.

Fig 4.3
People gathered around Confederation Square.

In February 2007, when the Ottawa Senators beat the Sabres in Game 5, people flocked to Elgin Street in celebration. After the Senators won Game 3 of the Final, fans celebrated on Elgin Street once again, and the street became a gathering place for fans of the Ottawa Senators. An approximately 1 mile long stretch of Elgin Street was closed by Ottawa Police and mounted with TV screens for celebration. In fact, in 2010 the Ottawa City Council formally passed a motion designating Elgin Street as “Sens Mile.” Each time the Ottawa Senators made the playoffs, special signs were erected along the route for indication.[3]

This was a huge event for the city, especially for ones who loved hockey. The Sens Mile official website states:

> “Every game night, until the Sens Bring home the Cup, all Sens fans are invited to be out cheering on our boys on Elgin Street… Decorate your cars, paint your faces, ask residents in apartment buildings lining the street to hang Sens flags out their windows or on balconies, encourage local business on the strip to decorate their windows, to put up big screen TVs, basically turn Elgin Street into a sea of red and rock the centre of the city as we cheer our team…”[4]

These events of celebration are strong examples that Elgin Street is a well-designed public space for social gathering and activity. It is not only the various open spaces attached to the street that promote collective interest and shared activity, but also the street itself.

Landmarks (Elgin Street):

Various important sites and landmarks can be found along Elgin Street, especially near Confederation Square. Parliament Hill is one of the most iconic landmarks in the area, as it attracts thousands of tourists daily and becomes a must see tourist spot

in the city of Ottawa. Besides Parliament Hill, other landmarks such as the Museum of Nature, Fairmont Chateau Laurier, Ottawa City Hall and the National Arts Centre are also iconic and can be easily noticed for orientation.

Fig 4.4
View to Parliament Hill from Gatineau

Fig 4.5
Government Conference Center

Fig 4.6
Ottawa City Hall- Modern Wing

It is interesting to notice that even though many landmarks are concentrated along Elgin Street, especially near Confederation Square, they each have their own architectural language and style. The style and design of the buildings on Parliament Hill are typically Gothic. The Centre Block is in the style of Gothic Revival and the East and West Blocks are of a Victorian High Gothic style. Not far from the Parliament and located just near the canal is the Government Conference Centre, which was designed by architect Ross and MacFarlane. The building was previously used as a train station, but the function was altered for government use in the late 1960s. The building, with its symmetrical shape and Doric columns, is in the Neo-classical architectural style. The National Arts Centre and the modern wing of the Ottawa City Hall, which located on Laurier Avenue, can both be considered as modern architecture. These well-known landmarks have different purposes and architectural languages. However, the buildings play into the equation of the

composition of the surrounding area and fit each other harmoniously. All of this makes Elgin Street an ideal place to view architecture of different time periods with varied architectural styles.

Edges (Elgin Street):

The Transitway and the bus stations located along it compose the Transit Oriented Development system in Ottawa. The Transitway has a total length of 27km and many of the roads are above or below the grade of normal streets. Overpasses, bridges, and trench highways, rarely intersect directly with regular traffic, making it possible for buses and emergency vehicles to continue at full speed even during rush hour.[5] Because of its quick movement and enhanced efficiency, the Transitway is a successful implementation of bus transit in the city. However, these express roads run into the community, dividing neighbourhoods and creating a huge negative impact on active transportation.

The infrastructure of the Transitway, which includes overpasses, bridges and trench highways designed specifically for buses, acts as a barrier to pedestrians who are unable to cross it. Therefore, the Transitway

becomes an “edge” within the urban fabric. According to the 580 CFRA report, the downtown is near its capacity for dealing with transit, and the volume of buses running through the downtown portion of the Transitway along Albert and Slater streets is negatively affecting the city. An increase of ridership west of downtown has caused the volume of buses running west on Albert Street to reach 180 buses per hour in the afternoon peak period.[6] The width of Albert and Slater streets at the Elgin Street intersection, the proximity of these intersections, and the rapid bus movement in this location threaten the lives of pedestrians. The Transitway interrupts the flow of pedestrian movement and destroys the continuity of Elgin Street.

Fig 4.7
Transitway runs into the community and divides it into two.

Fig 4.8
Albert and Slater Streets at the Elgin Street Intersection

Fig 4.7

Fig 4.8

Districts (Elgin Street):

Elgin Street runs through two districts, with the residential district in the south, and the commercial business district in the north. When walking along the street towards Parliament Hill from the south, it can be easily noticed that the surrounding environment is changed because of the increasing size and height of the buildings when residential houses change into office towers. The street widens twice from south to north with the first part widening at the Elgin and Lisgar intersection and the second part widening at the Elgin and Laurier intersection, and the road changes from 4 to 6 lanes. When one moves around and experiences the city, the increasing size of the buildings and the street gives a clear distinction between the two districts, and eventually the view terminates at the War Memorial at Confederation Square.

Nodes (Elgin Street):

Finally, Confederation Square is a node for which people need to pass through in order to access the upper part of town from Elgin Street. In *The Image of the City,* Lynch found the node to be one of the

elements by which a city is recognized and understood. The node is an important element which gives the city “imageability” or a strong image. As Lynch mentions,

> “Nodes are points, the strategic spots in a city into which an observer can enter, and which he is traveling. Or in other words the nodes are…the conceptual anchor points in our cities”[7]

Confederation Square is interesting in a way that it is used for all of the necessary, optional, and social activities. Functionally, the square not only acts as a gate to Parliament Hill but also an entrance to the Rideau Canal. These characteristics give the square enormous potential for enhancing the walkability and connectivity of Elgin Street, and links Parliament Hill and the city as a whole.


Fig 4.10


Fig 4.9


Fig 4.11


Fig 4.12

Fig 4.9
Site Overall View

Fig 4.10
National War Memorial with the Tomb of the Unknown Soldiers at Front

Fig 4.11
View to Elgin Street from Confederation Square

Fig 4.12
View to Parliament Hill from Confederation Square


Fig 4.13


Fig 4.14


Fig 4.15

Fig 4.13
Tourists at the site in the winter

Fig 4.14
A place for people to take a rest at the square.

Fig 4.15
View to Government Conference Center with the Entrance to the Stairs

Design Proposal

The basic idea of the design proposal is to create a war museum that is located under the plaza and can be used as an exhibition place for both World War I and World War II. The National War Memorial which stands in the middle of Confederation Square is a symbol to pay tribute to Canadian soldiers who have served in times of war, and the proposed Underground War Museum is the place that visitors can go for an in-depth tour for the wars. The underground museum is consisted with two stories, the upper storey is used for World War I and the lower storey is used for World War II. Both of the National War Memorial and the Underground War Museum work together and depict the stories for Canadian soldiers during the wars.

Confederation Square is a ceremonial centre that is used for memorial. It has significant meanings with heritage value, therefore, any changes, add-ons and modification is strictly prohibited. This explains the reason to put the war museum under the National War Memorial with the Tomb of the Unknown Soldier so that the museum becomes invisible and will not distract views from any directions to the square. Meanwhile, it

also preserves the existing memorial, which is above ground.

Fig 4.16
The East Corner

Fig 4.17
The West Corner

Fig 4.18
The South Corner

As a triangular site, the three corners become ideal places for museum entrances. For the current situation, the east corner is comprised of stairs for people to access the Rideau Canal, whereas the west corner is surrounded by raised planters with trees and some benches. However, this corner does not address any relationship to Parliament Hill, and the connection has been neglected. The south corner, which faces Elgin Street is the worst, as nothing can be found there. Because the National War Memorial is the focal point of the view from Elgin Street, it is understandable that it is needed to make sure nothing is blocking it. However, in terms of space creating, the space is not properly used in such important site. Unlike the other two corners, at least both of them have their functions: one is used for the entrance to the Rideau Canal and the other is used for green space for people to take a rest; the south corner is completely wasted.

The proposal is to turn both the south corner and the west corner of Confederation Square into sunken plazas which also serve the function as museum

entrances. The third museum entrance would be located on the second landing of the stairs on the east corner for people who come from the Rideau Canal. The sunken plazas are multi-functional, for example the one on the south corner, with the view to Confederation Square is well preserved from Elgin Street because of its underground location. It serves the function as a museum entrance, meanwhile it is also an ideal space for social gathering and celebration. The retaining wall helps to prevent people from wind, separates the traffic from above, and creates a semi-enclosed space. When people are down in the plaza, people have a choice; they may either enter the museum, or go up to the surface, or they can simply stay there for a rest.

Fig 4.13
It is difficult for people to access the square from all the directions.

As previously mentioned, the position of Confederation Square is at the centre of the city; however this important anchor is hard for pedestrians to access. It is more like an island that is surrounded by wide streets with intense traffic. As a memorial site with monuments, people see it rather than want to go there. How to bring people to the site and invite them to the museum becomes another challenge.

The solution is to build three tunnels that connect to the two sunken plazas. One tunnel entrance will be

located on Wellington Street and connects to the west sunken plaza. It facilitates the way for pedestrians who want to access Parliament Hill without intersecting with surface traffic, and it also helps to address the relation between Parliament and Confederation Square. The other two tunnels will be connected to the south sunken plaza with one entrance on Sparks Street and another on Elgin Street, which is in front of the National Arts Centre. The length of each tunnel is limited and controlled to avoid dangerous moments, such as being mugged, when people are walking inside. The tunnels help enhance the connection between Confederation Square and the city, and they also reinforce the continuity and walkability of the streets.

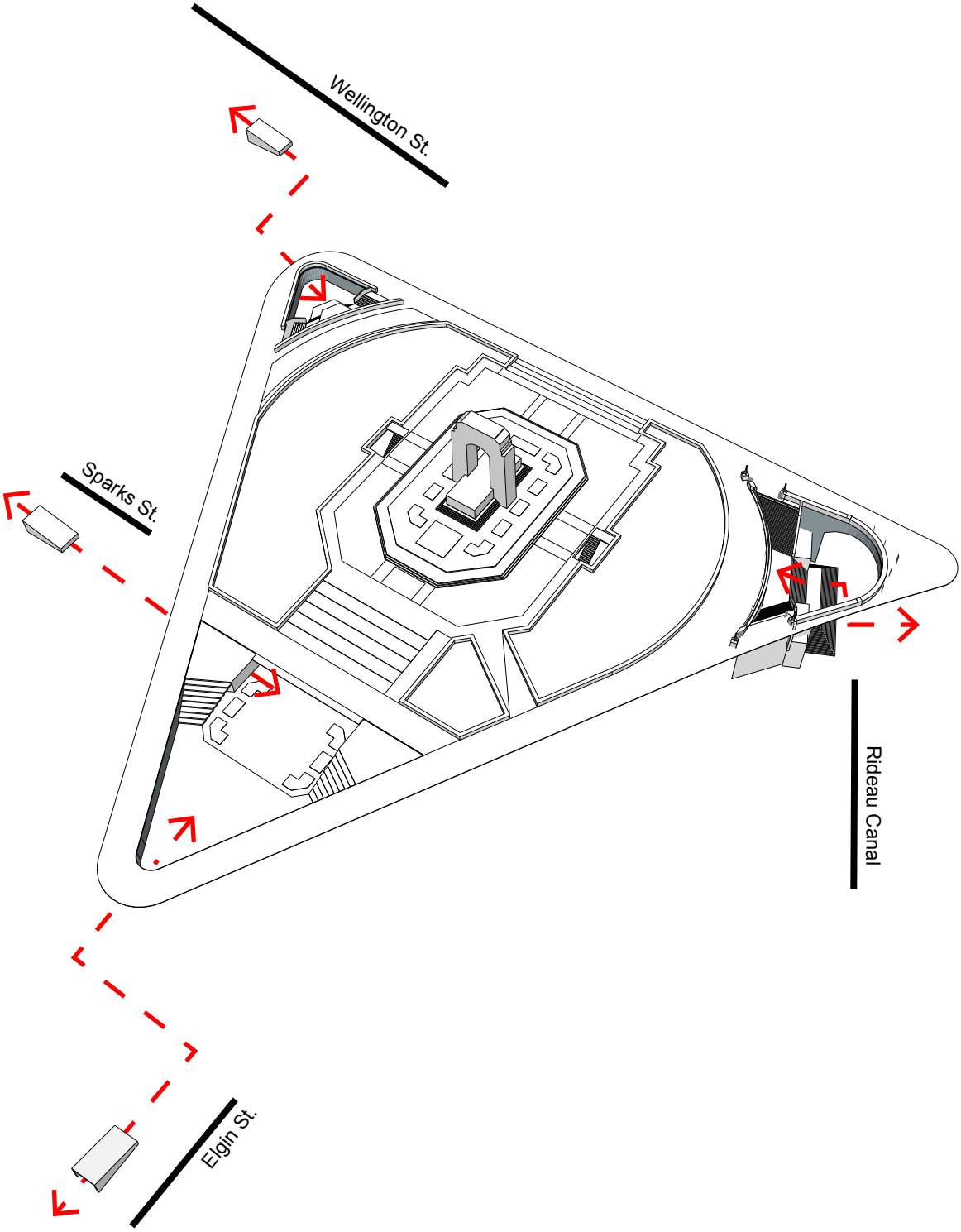


Fig 4.20
The Indication of the Tunnel System

Tunnel Path with Museum Entrance

When talking about the interior of the Underground War Museum, the Confederation Line as known as the Ottawa's light rail transit (LRT) has to be mentioned. The Confederation Line began being constructed in 2013 and will take shape over the next five years. Once built, it will be a significant part of OC Transpo's integrated transit network, which connects to the existing Bus Transitway at Tunney's Pasture Station in the west and Blair Road in the east, and to the O-Train at Bayview Station. Within the total 12.5 km route, the 2.5 km which runs in the downtown core will be underground to ease congestion, and three stations, Lyon, Parliament, and Rideau Stations will be located underground in the new downtown tunnel.[8] Confederation Square can not be used as a station because of its heritage value, however, the design proposal tries to incorporate the LRT and the idea is that the LRT portion that runs under the site will be used for war displays, and the entire hall will be lit up.

When the trains pass, passengers can see the displays on both sides that are related to the war. The lighted hallway, makes them aware that they are passing under Confederation Square to give them a point of reference. Visitors who are inside of the Underground War Museum can also see what is happen under, with the displays and the trains. Even though the hallway

is not accessible to people since it is not the entrance to the LRT, the displays, and the lights create a strong feeling for the war memorial, not only for people who are at Confederation Square, but also for people who ride the LRT.

The heritage of Confederation Square will be preserved due to the Underground War Museum tunnel system, which does not change any appearance of the site above ground. It also ensures the view from any direction to the site will be the same as usual. By doing so, two layers with celebration and gathering spaces are created at the site, with one on the surface with the National War Memorial statue and the other one underground, either inside the museum or at the two sunken plazas.

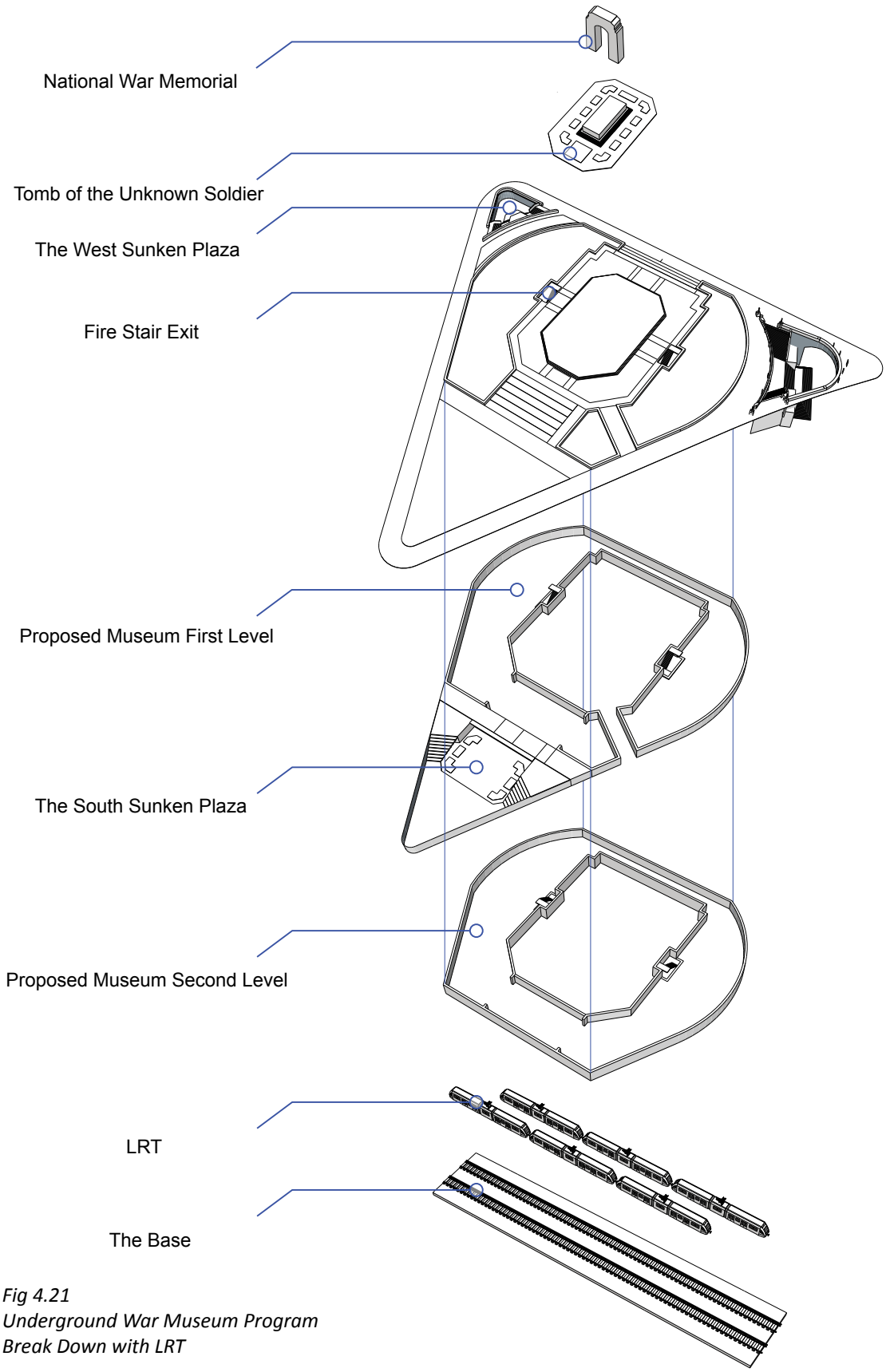


Fig 4.21
Underground War Museum Program Break Down with LRT

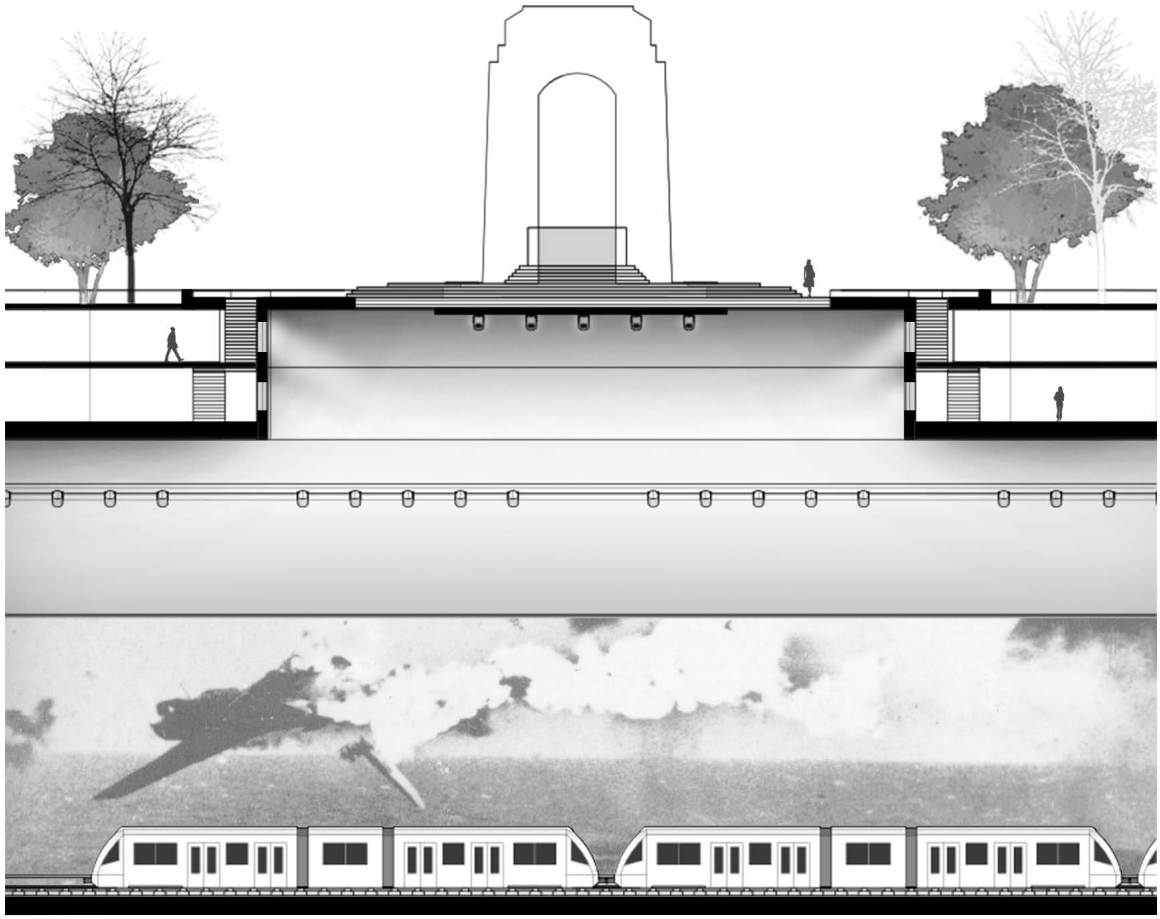


Fig 4.22
Ortho Section

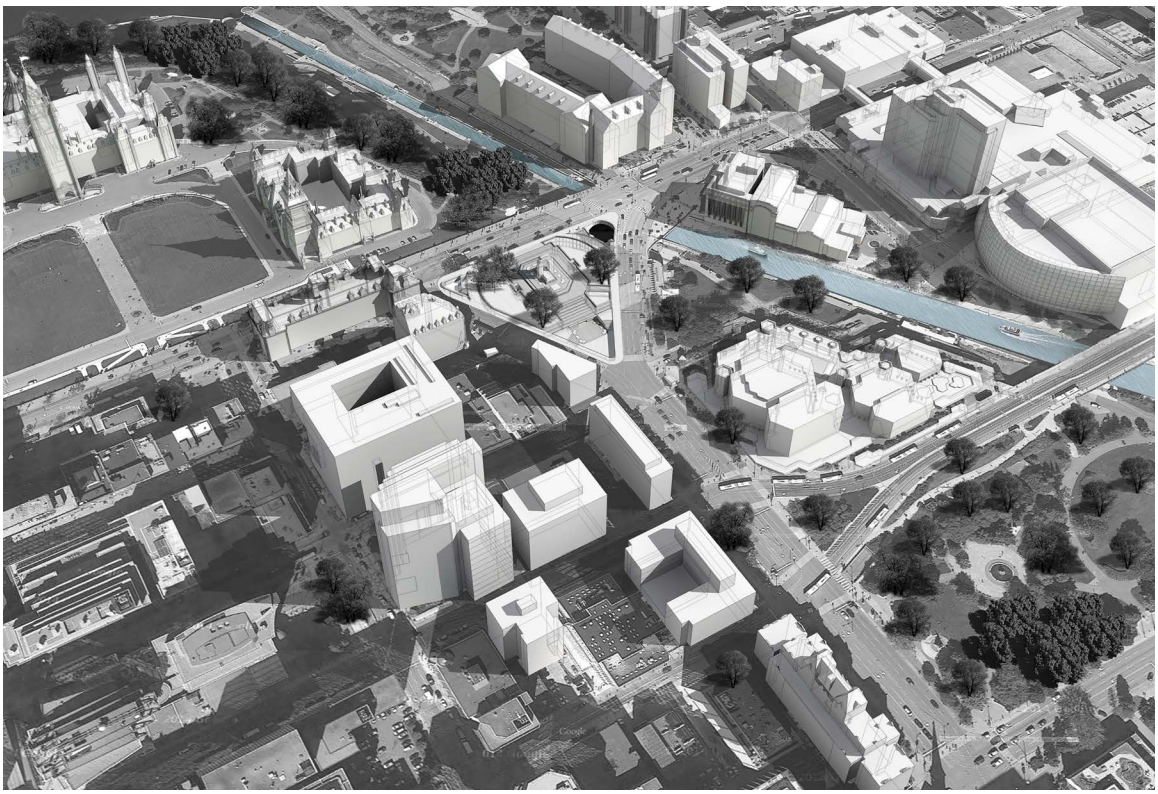


Fig 4.23
Site Birdseye View 1

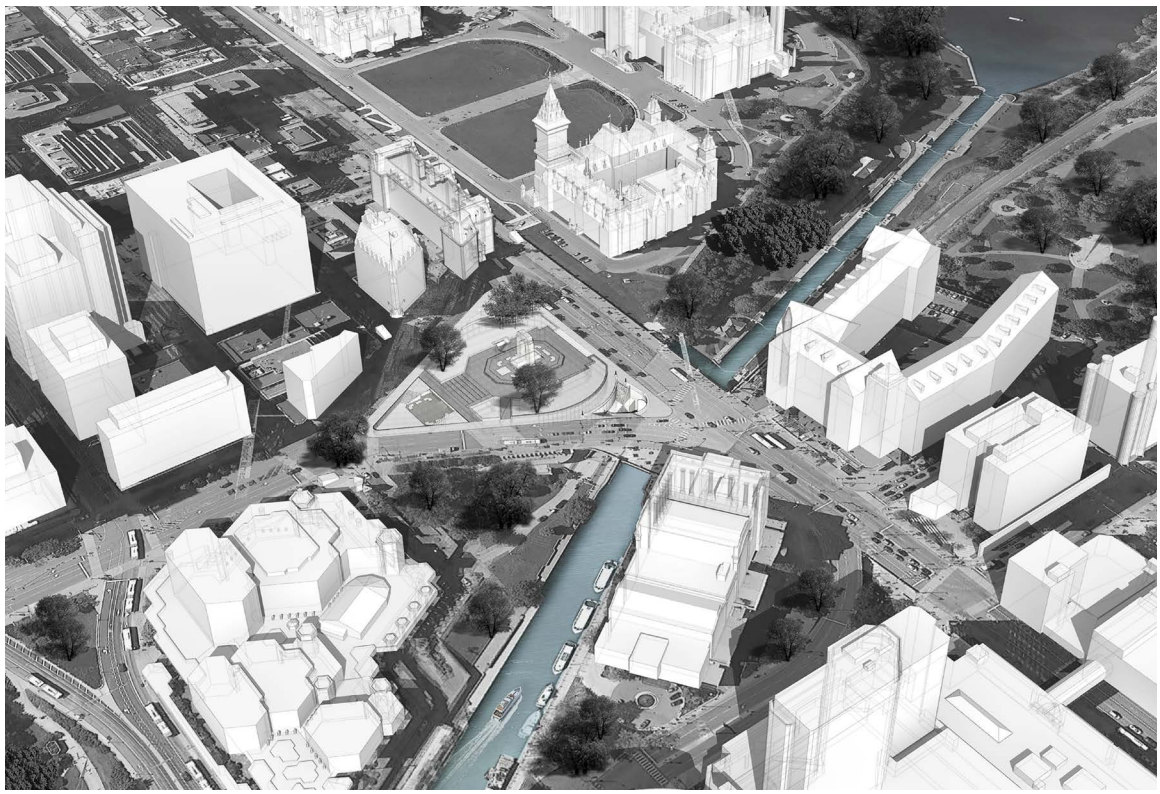


Fig 4.24
Site Birdseye View 2

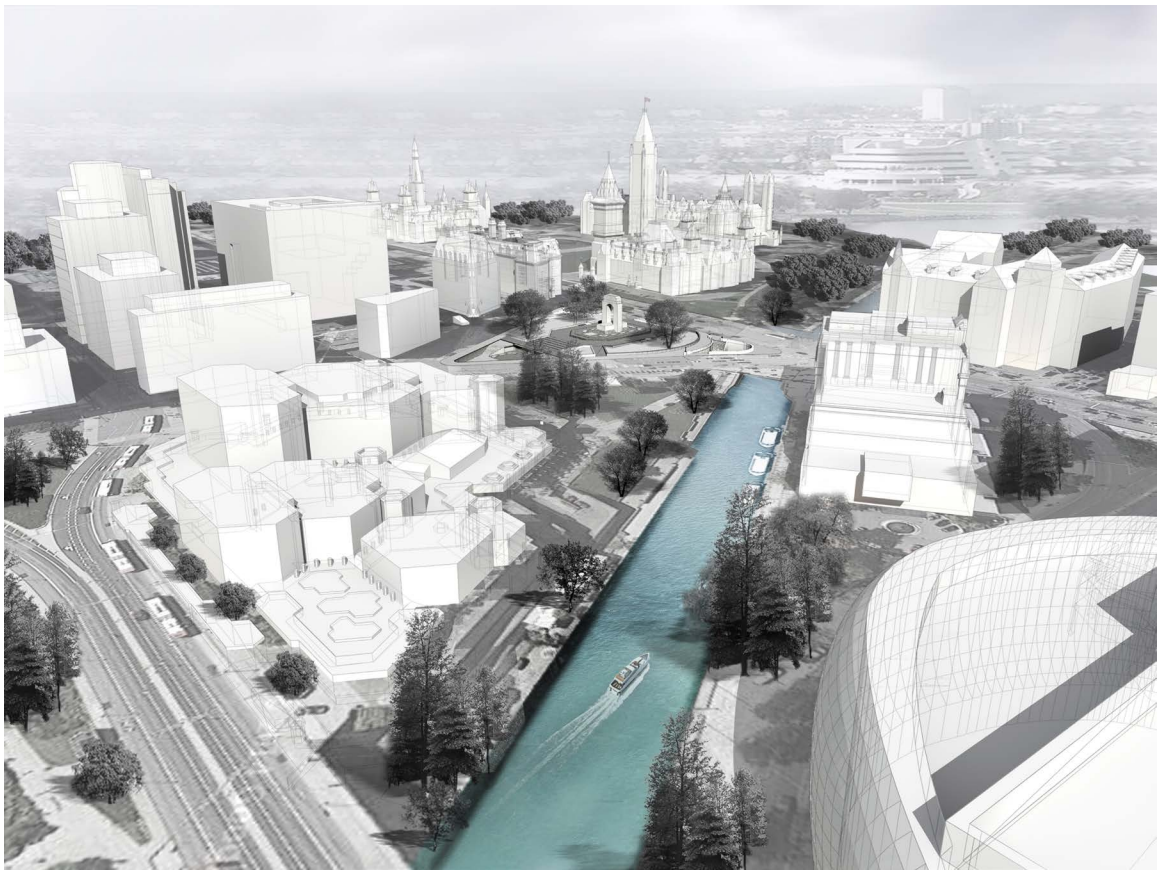


Fig 4.25
Confederation Square with Its Surrounding Sites

Fig 4.26
View to the Site from Elgin Street with Nothing Blocks It

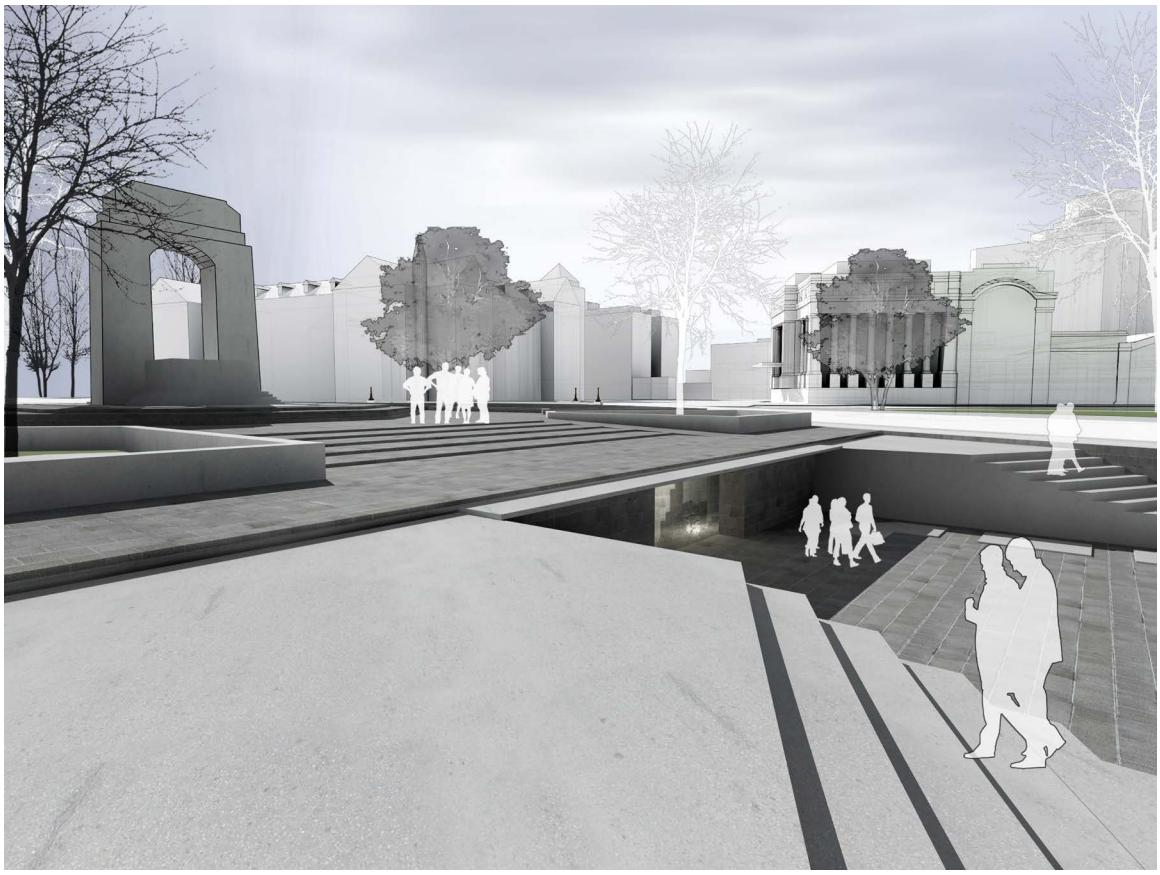


Fig 4.27
The Proposed South Sunken Plaza with the Museum Entrance

Fig 4.28
Views to Parliament Hill and the National War Memorial from the Sunken Plaza

Fig 4.29
People walk along Elgin Street with the Tunnel Entrance on the Left

Fig 4.30
In the LRT Hall, with War Displays on Both Sides and Underground War Museum Above

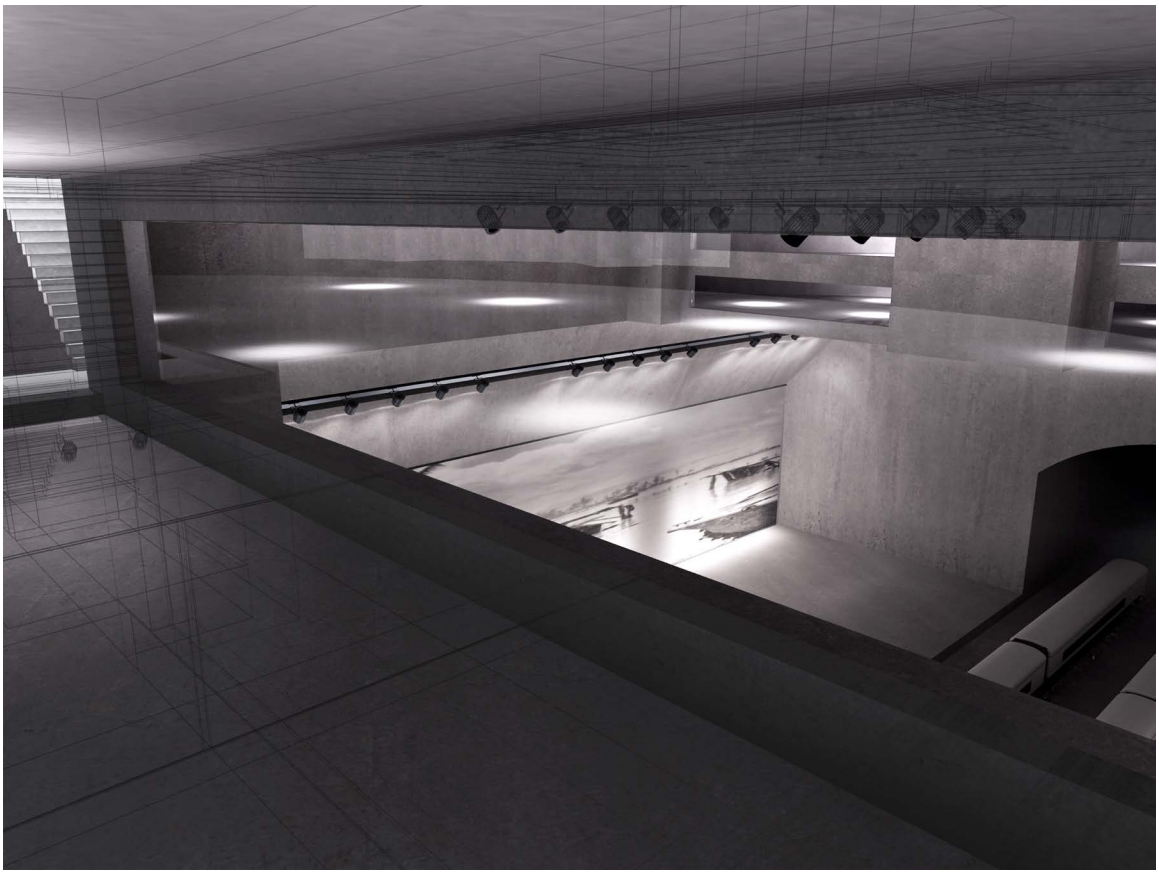


Fig 4.31
View to the LRT Hall from the War Museum

Fig 4.32
Perspective Section

Endnotes:

1 Erickson, B. (2001). *The 'armature' and 'fabric' as a model for understanding spatial organisation*. In M. Roberts & C. Greed (Eds.), Approaching urban design: the design process (pp. 21-38). Harlow (England): Longman / Pearson Education.33

2 Ibid

3 "Elgin Street (Ottawa)" June 2013 WORLD PUBLIC LIBRARY May 15 2015 http://netlibrary.net/articles/elgin%20street%20(ottawa)?&words=canada.%20parliament

4 "Ottawa Senators" 2012 wikia April 14 2015 http://icehockey.wikia.com/wiki/Ottawa_Senators

5 "Transitway" July 30 2015 WIKIPEDIA August 15 2015 https://en.wikipedia.org/wiki/Ottawa_Rapid_Transit

6 "Fewer Buses on Albert and Slater?" May 21 2009 PUBLIC TRANSIT IN OTTAWA August 15 2015 http://www.transitottawa.ca/2009/05/fewer-buses-on-albert-and-slater.html

7 Moughtin, C. (2003). Urban design: street and square (3rd ed.). Oxford: Butterworth Architecture.89

8 "Confederation Line" 2015 OTrain August 2 2015 http://www.ligneconfederationline.ca/

CONCLUSION

The report has examined an approach to a heritage site with significant meaning in Ottawa. As outlined at the beginning that pedestrian walkability is now an important issue needs to be addressed in urban planning, the design proposal aims to make the city more human scale and pedestrian-friendly, as well as creating a positive quality, which includes permeability, variety, and vitality of the streets. Chapter 1 offers a brief introduction to the city and its context while chapter 2 reviews some urban terminologies and other scholars' ideas of urban planning. Chapter 3 is the case study chapter with both real and school projects.

The design portion of the report, described in chapter 4, explores the future possibility for Confederation Square, which includes creating a walkable sequence of open spaces that integrate existing urban fabrics and the city as a whole. Meanwhile, it also maximizes connectivity for active transportation and creates human scale neighbourhoods and environments. The proposal should not be interpreted as definitive or by any means inevitable. More than the outcome of research, it should be understood as a form of research. It is very important to understand the heritage value and preservation of the site and that the square is also a memorial place. Any modification might be prohibited by the city. However, creating a vision of the site is the

best way to generate feedbacks, and the attempts to create an Underground War Museum, tunnels, tunnel entrances is to test if Confederation Square as a city node can maximize its function.

At the present time, Confederation Square is just a memorial place with some open space. It does not address its relationship to surroundings, and is difficult for people to access. The design helps to provide a scope that the site can be used to help strengthen the link between Parliament Hill and the city, meanwhile also improves the connectivity and walkability of Elgin Street. The design of the project is very site specific and cannot be applied directly elsewhere, but the general strategy of using open public space and the pedestrian network as urban armatures can be applied somewhere else.

REFERENCE LIST

"A Successful Destruction" 04 August 2013 SWELL 22 April 2015 http://swell.lpmo.com/a-successful-destruction/

"About the NCC" 2014 NCC September 2 2015 http://www.capcan.ca/

Abramson, D. B. (2008). Haussmann and Le Corbusier in China: land control and the design of streets in urban redevelopment. Journal of Urban Design, 13(2), 231–256.

Alexandre Laquerre "Gréber Plan" 2015 Ottawa past & present 26 March 2015 http://www.pastottawa.com/greber/

Battery Park City. Landscape and Urban Planning, 26, 35-54.

Bentley, I., Alcock, A., Murrain, P., McGlynn, S., & Smith, G. (1985). *Responsive environments*. London: The Architectural Press.

Blakely, E. J., & Snyder, M. G. (1998). Forting up: gated communities in the United States. Journal of Architectural and Planning Research, 15(1), 61-xx.

Bristol, K. (1991). The Pruitt-Igoe myth.*Journal of Architectural Education, 44*(3), 163-171.

Çalışkan, O. (2010). *Urban gateway: just a symbol, or more?* Reappraising an old idea in the case of Ankara. Journal of Urban Design, 15(1), 91-122.

"Campus Planning: Circulation" 2015. McGIll University March 13 2015 http://www.mcgill.ca/campusplanning/planning-services/campus-planning/circulation

Christiaanse, K. (2007). Campus to city : urban design for universities. In K. Hoeger & K. Christiaanse (Eds.), *Campus and the city:urban design for the knowledge society* (pp. 45-57). Zürich: GTA Verlag.

"Confederation Boulevard" National Capital Commission Ottawa-Gatineau: Canada's Capital Region August 12 2015 http://www.ncc-ccn.gc.ca/places-to-visit/confederation-boulevard

"Confederation Line" 2015 OTrain August 2 2015 http://www.ligneconfederationline.ca/

"Elgin Street (Ottawa)" June 2013 WORLD PUBLIC LIBRARY May 15 2015 http://netlibrary.net/articles/elgin%20street%20(ottawa)?&words=canada.%20parliament

Erickson, B. (2001). *The 'armature' and 'fabric' as a model for understanding spatial organisation*. In M. Roberts & C. Greed (Eds.), Approaching urban design: the design process (pp. 21-38). Harlow (England): Longman / Pearson Education.

"Fewer Buses on Albert and Slater?" May 21 2009 PUBLIC TRANSIT IN OTTAWA August 15 2015 http://www.transitottawa.ca/2009/05/fewer-buses-on-albert-and-slater.html

Gehl, J. (1996). Excerpts from *Life between buildings : using public space* (pp. 10-31). Copenhagen: Arkitektens Forlag.

Goheen, P. G. (1993). *The ritual of the streets in mid-19th-century Toronto*. Environment and Planning D: Society and Space, 11(2), 127 - 145.

Gordon, D. L. A. (1993). Architecture: How not to build a city--implementation at Battery Park City. Landscape and Urban Planning, 26, 35-54.

Grant, J. (2007). Two sides of a coin? New urbanism and gated communities. Housing Policy Debate, 18(3), 481-501.

"How Parking Lots Became the Scourge of American Downtowns" June 5 2014 CITYLAB April 22 2015 http://www.citylab.com/commute/2014/06/how-parking-lots-became-the-scourge-of-american-downtowns/372207/

Irazábal, C. (2006). Localizing urban design traditions: gated and edge cities in Curitiba. Journal of Urban Design, 11(1), 73-96.

Jackson, P., & Kitchin, R. (1998). Editorial: applying cognitive mapping research. Journal of Environmental Psychology, 18, 219-221.

Jacques Gréber (1950). National Capital Planning Committee *General Report* Ottawa

Ken W. Watson "Rideau Attractions" 1996-2015 Rideau Canal World Heritage Site August 10 2015 http://www.rideau-info.com/canal/attraction.html

Kolson, K. (2001). *Big plans: the allure and folly of urban design*. Baltimore: Johns Hopkins University Press.

Lang, Jon T. (2005). *Urban Design: A Typology of Procedures and Products*. Oxford: Elsevier/Architectural Press.

Lynch, K. (1981). *Good city form*. Cambridge MA: MIT Press.

Lynch, Kevin. (1960).*The Image of the City*. Cambridge, Mass.: MIT Press.

Martin, L. (2007 [1972]). *The grid as generator*. In M. Carmona & S. Tiesdell (Eds.), Urban design reader (pp. 70-82). Oxford and Burlington MA: Architectural Press.

Moughtin, C. (2003). *Urban design: street and square* (3rd ed.). Oxford: Butterworth Architecture.

National Capital Commission (1988). *Plan for Canada's Capital* Ottawa.

"New walkway from the mountain to the river" February 25 2015 News Montreal March 16 2015 http://montreal.ctvnews.ca/new-walkway-from-the-mountain-to-the-river-1.2252886

"Ottawa Senators" 2012 wikia April 14 2015 http://icehockey.wikia.com/wiki/Ottawa_Senators

"Parliament Hill tourist facilities overwhelmed" May 6 2007 CTV NEWS August 10 2015 http://www.ctvnews.ca/parliament-hill-tourist-facilities-overwhelmed-1.240173

"Peace Tower" March 5 2015 Government of Canada September 1 2015 http://www.tpsgc-pwgsc.gc.ca/collineduparlement-parliamenthill/batir-building/centre/tour-tower/tour-tower-eng.html

"Plan for Canada's Capital" 2011 Capital Planning Ottawa-Gatineau: Canada's Capital Region 18 January 2015 http://www.ncc-ccn.gc.ca/publications/planning-future/plan-canadas-capital-1988

Ramadier, T., & Moser, G. (1998). Social legibility, the cognitive map, and urban behaviour. Journal of Environmental Psychology, 18, 307-319.

"REDEVELOPMENT OF THE INTERSECTION OF AVENUE DU PARC – AVENUE DES PINS" Ville de Montreal December 10 2014 http://ville.montreal.qc.ca/portal/page?_pageid=901%2c1445676&_dad=portal&_schema=PORTAL

Reps, J. W. (1965). *The Making of Urban America,* Princeton University Press.

Sandalack, B. A., & Nicolai, A. (1998). Urban structure Halifax. An urban design approach. Halifax: TUNS Press.

Schmitt, G. (2007). Three conditions for successful campus planning. In K. Hoeger & K. Christiaanse (Eds.), *Campus and the city :urban design for the knowledge society* (pp. 25-33). Zürich: GTA Verlag.

Sennett, R. (1990). *American cities: the grid plan and the Protestant ethic*. International Social Science Journal, 125, 269-285.

Trancik, R. (1986). *Finding lost space : theories of urban design*. New York: Van Nostrand Reinhold

"Transitway" July 30 2015 WIKIPEDIA August 15 2015 https://en.wikipedia.org/wiki/Ottawa_Rapid_Transit

Tversky, B. (2003). Structures of mental spaces: How people think about space. Environment and Behavior, 35(1), 66-80.

Vale, L. J. (Ed.). (1992). *Architecture, power, and national identity*. New Haven: Yale University Press.

Vale, L. J. (1993). *Capitol complexes: urban design and national security*. Journal of Architectural and Planning Research, 10(4), 273-283.

"Visit Canada's Parliament" 2014 PARLIAMENT Of CANADA September 1 2015 http://www.parl.gc.ca/Visitors/visit-e.html#live-debates

Webster, C., Glasze, G., & Frantz, K. (2002). Guest editorial: The global spread of gated communities. Environment and Planning B: Planning and Design, 29, 315-320.

Wolba, Stephen. (2014). Carleton University. *Dwelling in the Shadows of the Night: Diurnal and Nocturnal Vedute*. Ottawa.

Wolfe, J. M. (1991). Concerto grosso. In K. Gerecke (Ed.), The Canadian City (pp. 147-162). Montréal: Black Rose Books.