Activating the Edge: Revitalizing the Downtown through the Adaptive Reuse of Front Street Parkade in New Westminster, British Columbia

by

Jason M. Horner

Submitted in partial fulfilment of the requirements for the degree of Master of Architecture

at

Dalhousie University Halifax, Nova Scotia March 2016

© Copyright by Jason M. Horner, 2016

CONTENTS

Abstractiii
Acknowledgementsiv
Chapter 1: Introduction1
Overview1
Urban Revitalization2
Adaptive Reuse2
Active Lifestyle3
Thesis Question3
Chapter 2: Context4
Greater Vancouver Regional District4
City of New Westminster5
The Parkade9
Analysis
Urban 11
Site15
Chapter 3: Pre-Design
Precedents18
Chapter 4: Design22
Design Goals22
Design Method22
Urban Strategy22
Site Strategy26
Building
Chapter 5: Conclusion
References46

ABSTRACT

This architectural thesis seeks to examine how the adaptive reuse of an inactive parkade through the creation of a hub for an active lifestyle can facilitate the revitalization of down-town New Westminster, BC. The proposal seeks to develop a strategy for urban connectivity and active programming within the layers of an existing infrastructure. It integrates pedestrian, bicycle, water and public transportation networks reaching an inclusive and diverse activity hub in the downtown core. While the methodology for adaptive reuse is specific to the Front Street Parkade, with a series of subtractions and transformations to create a 'people place' for a post-car culture, the proposal raises the possibility of similar interventions elsewhere.

Keywords: Adaptive Reuse, Urban Revitalization, Active Lifestyle

ACKNOWLEDGEMENTS

To Sarah Bonnemaison and Talbot Sweetapple, thank you for your mentorship. Your advice and support were instrumental to the completion of this thesis.

To my friends and family, thank you for your support and encouragement during this challenging period of my life.

To the love of my life, Jenna, I could not have done any of this without you.

CHAPTER 1: INTRODUCTION

Overview

The growth of the 'car culture' in the 1950s is attributed to the urban sprawl and decentralization of many North American cities. This resulted in the decline of downtown commercial activities in many cities. In addition to the proliferation of 'car culture' was the subsequent 'car park.' A necessary accessory to the automobile lifestyle, the 'car park' became part of the enticement for businesses to draw customers. "As the expanding use of automobiles drew the life out of city centers in the 1960s and 1970s, some downtowns tried to compete with suburban shopping centers by offering easy parking" (Bain et al. 2012, 20). As a result, these parking spaces were strategically located to provide convenient access to downtown amenities. Typically located at commercial destination points, the car park is ideally located to become adaptively reused in another effort to revitalize the downtown.

New Westminster is a city that has suffered from these problems as evidenced in the increase in vacant lots, structures and unleased downtown commercial spaces. Known historically as the main commercial corridor of the city, Columbia Street in the 1960s undertook a downtown renewal project which resulted in the construction of a large adjacent open-air parkade (Wolf 2005, 182). A symbol for the renewal of downtown, the Front Street Parkade failed to live up to the ideals of the 1960s and now faces imminent demolition.

In addition to this, many North American cities, including New Westminster, are now facing a post-industrial era and are left with questions on how to address new opportunities of a 21st century urban fabric. Having culminated in a disconnect between the waterfront and downtown, through the layering of infrastructure and industry, places such as New Westminster are facing the compounded effects of a post-industrial waterfront coupled with a diminishing reliance on the automobile as a primary mode of transportation.

This thesis will explore opportunities for urban revitalization through the adaptive reuse of a historically symbolic parkade in an attempt to reconnect the urban fabric, diversify the downtown and establish an active city landmark providing a hub of activity in the heart of New Westminster.

Urban Revitalization

The revitalization process allows for the "exploitation and diversification of elements, combined in recurrent or original ways, where the past and contemporary coexist, and where ancient culture blends with new forms of fruition; where the evolution of the urban fabric takes place by integration, substitution and connection, often on abandoned lots and urban voids" (Giovinazzi and Moretti 2010, 57).

Urban revitalization has a relatively short history and one that establishes it's position in contrast to the large scale destructive urban renewal projects of the 1950s. Urban revitalization seeks to repair and reactivate the existing urban fabric and has been characterized as an approach that promotes adaptively reusing existing elements, prioritizing the human scale and emphasizes pedestrian and bicycle transportation over the automobile (Ley 1987, 47).

As a methodology to revitalize downtown New Westminster, I will examine ways in which the Front Street Parkade can be adaptively reused within an existing context, so that new life and activity may be established from a historically symbolic and underutilized structure.

Adaptive Reuse

Adaptive Reuse is a process for reusing an existing building, structure or site for a purpose other than which it was initially intended. Opportunities of this process include maintaining historical continuity and sense of place. In this process "the architectural problem can be defined as the problem of the relationship of the old to the new" (Bollack 2013, 21). The architectural response requires the development of a methodology that addresses the dissonance between historical continuity and the physical requirements of a new program.

As part of the revitalization of downtown New Westminster through the adaptive reuse of the Front Street Parkade, a historical continuity will be maintained. While the use of the structure as vehicle parking will become repurposed, some of the original structure will be preserved, while some elements will be removed, added or modified to suit new programs. As an underutilized space within the city, this project proposes the transformation of an inactive space into an active one. By promoting human powered modes of transportation (walking, biking, climbing, swimming, kayaking) the adaptive reuse project intends to flip the symbolic dimension of the parkade on its head.

Active Lifestyle

As the prioritization of the automobile and parking is in decline, urban centres are undergoing a transformation into places that support more active lifestyles. This is manifested in the urban setting through both active transportation and programming.

Active transportation is defined by Health Canada as "any form of human-powered transportation – walking, cycling, using a wheelchair, in-line skating or skateboarding" (Health Canada, 2014). By reestablishing support for these human powered means of navigating the urban fabric, active lifestyles will be promoted. This strategy will examine existing transportation networks between the downtown, waterfront and adjacent neighbourhoods, and will propose new connections between, or in addition to, those already identified. Supplemental to active transportation is the consideration of its auxiliary requirements such as end of trip facilities. These are characterized as short term storage, change rooms, showers and associated maintenance facilities.

Secondly, active lifestyles can be enhanced through the creation of a hub that supports various aspects of mental and physical health. Programs such as recreational sports, clinics, education, could serve to supplement the existing functions of a downtown and establish a diverse community hub.

Antithetical to the function of a car park is its facilitation of an active lifestyle. Seen as an inactive space, the adaptive reuse of a car park for an active lifestyle hub attempts to subvert the rational-functional planning of the 1960s into a new era of accessible and active communities.

Thesis Question

Can the adaptive re-use of the Front Street Parkade, through the integration of an active lifestyle hub within the urban fabric, be a catalyst in changing the image of the downtown to a post-car culture?

CHAPTER 2: CONTEXT

Greater Vancouver Regional District



- New Westminster

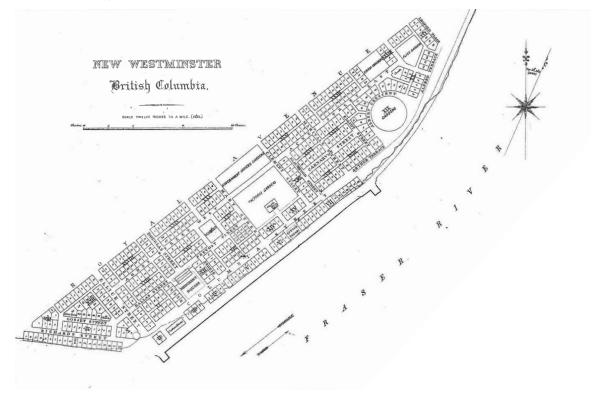
Map of Greater Vancouver Regional District (iMapBC 2015)

New Westminster is located in the Greater Vancouver Regional District (GVRD) along the water's edge of the temperate Pacific coast with the nearby back drop of the Coast Mountains. The GVRD encompasses the historic Fraser River Delta and has a population of just over 2 million people (GVRD 2016). The panorama of the mountains around the area provide numerous recreational opportunities in addition to providing shelter from the cold northern winds and trap rainfall which helps create a mild and lush environment. The Pacific Coastal Ocean and Fraser River provide natural port area's that contribute to the local economy and also create many water-based recreational activities.

The GVRD is a major transportation and shipping corridor for the lower mainland and the Asia-Pacific region. As part of the GVRD, New Westminster's location along the shores of the Fraser River position the city as a major thoroughfare. The convergence of truck, rail, and water transportation in New Westminster are dominant factors in the development and urbanization of the city.

City of New Westminster

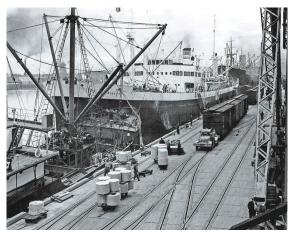
The oldest city in Western Canada, New Westminster is sited in its relation to the waterfront. It's prominent slope and location at a fork on the north side of the Fraser River was considered well situated for defence against attack from the Americans to the south during colonial times (Mather and McDonald 1958, 15). Established in 1858 by Colonel Moody, the city was planned with a rectangular street grid not uncommon to many cities founded through British imperialism.



New Westminster city plan - 1861 (Wolf 2005)

Once the location was chosen, the Fraser River quickly became the life-blood of the city. Industries were established along the waterfront acting as nodes between which resources from the land were delivered and processed and eventually transported.

The most important element of the city was once it's waterfront. A port for the transportation of goods and people, it's industrial, commercial and domestic functions were vital for the initial growth of the city. The establishment of the Canadian Pacific Railway in 1885 accelerated the growth of New Westminster, opening new transportation routes for the flow of goods.



Waterfront industry - 1938 (Wolf 2005)

As the commercial corridor of the city, paralleling the natural contours of the topography, Columbia Street gained it's prominence as the major retail and commercial centre in New Westminster. It's location between the waterfront and adjacent neighbourhoods made it easily accessible for both suppliers and residents.

During the 1950s, a paradigm shift into the automobile era along with the popularization of department stores saw a decline of Columbia Street. The proliferation of the automobile coupled with cheaper, more easily developable land located further in-land would begin to lure shoppers away from the downtown core (Wolf 2005, 178).



View of Columbia St. looking West - 1918 (Wolf 2005)

In more recent times, industry along the waterfront has largely disappeared and some of the remaining industries no longer use the river as an integral component of their operations. Infrastructure, such as the railroad, that was developed to service this industry continues to exist but has become more of a transport corridor to service other parts of the GVRD.

Since the decline of industry in the 1970s, parts of the waterfront have seen an urbanization with residential development and parks along the south end of the harbour. Some areas however have remained undeveloped and largely isolated from the commercial corridor.

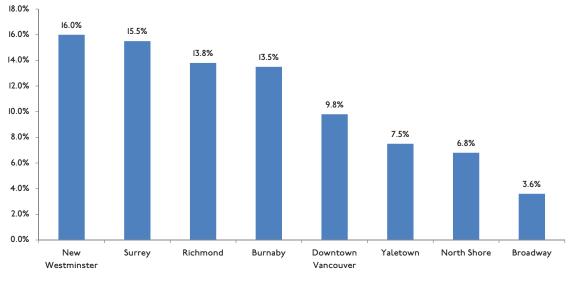


Current waterfront conditions

With the decline of industry and commerce in the downtown, employment in the area has transitioned from industrial manufacturing and retail to sales, service and professional office sector work. Despite this transition, the office vacancy rates for New Westminster remain some of the highest in the GVRD, with approximately 16% unleased spaces within the city. Despite the surplus of vacant spaces, only 19% of residents in New Westminster work within the municipality (Avison Young 2015).



Completed in 2014, New Westminster's Anvil Centre remains unleased

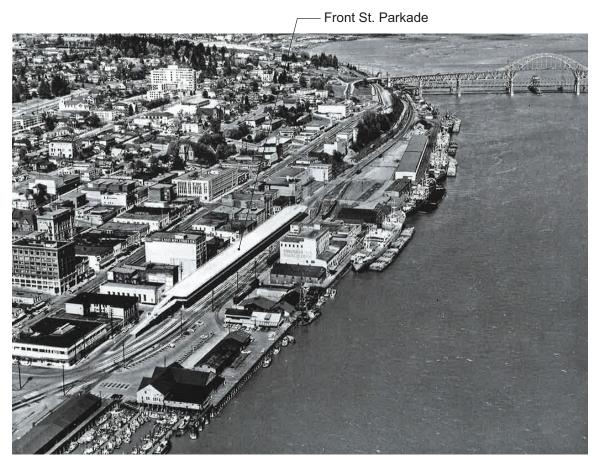


Unleased office space (Avison Young 2015)

By improving the network of paths for human powered transportation and providing endof-trip facilities at a community hub within the center of an existing transportation corridor, the intention is to encourage alternative modes of transportation in an effort to revitalize the downtown.

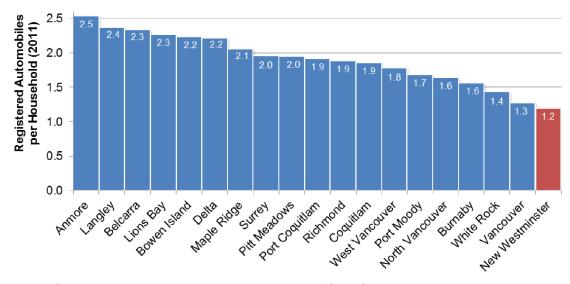
The Parkade

Columbia street (a.k.a. Golden Mile) has always been the main commercial corridor and is considered the heart of the downtown. As the automobile became ubiquitous in 1950s North American culture, a decline in downtown activity ensued. An attempt to counteract this decline resulted in the construction of the Front Street Parkade, a monolithic, multi-storey, multi-block structure, that was placed downtown between Columbia Street and the waterfront. Although unsuccessful in it's intent, the parkade became symbolic of New Westminster 1960s urban renewal.



Aerial view of Front St. Parkade - 1959 (Wolf 2005)

Currently, New Westminster is shifting away from the automobile era as evidence by a decline in vehicle ownership. With the lowest car ownership in the GVRD, New Westminster residents own on average 1.2 vehicles per household. A Downtown Parking Strategy Report indicates a general decline in ownership overtime with the expectation that this downward trend will continue (City of New Westminster 2013, 84).



Car ownership per household by municipality (City of New Westminster 2013)

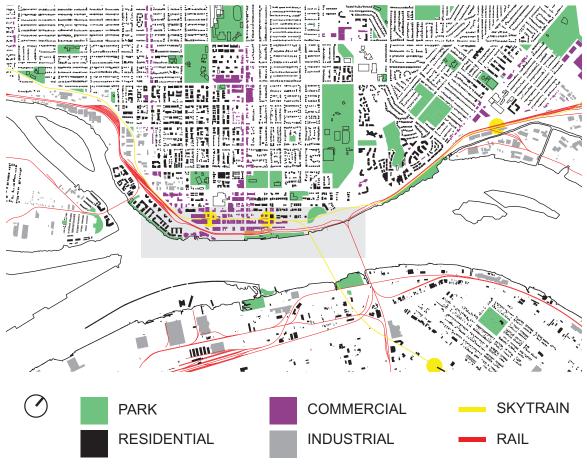
The parking study also showed the Front St. Parkade as significantly underutilized (City of New Westminster 2013, 38). This led the city to pursue the demolition of a portion of the parkade south of 6th St. with long term aspirations to demolish the remainder of the parkade. Along with shifting modes of transportation, New Westminster continues to grow in population. The result is a greater need for accessible public amenities within the downtown.

The site is located above Front St. between the historic commercial corridor of Columbia St. and an active railway. The unrealized ambitions of the Front Street Parkade has not only become symbolic of past failures to revive activity in the downtown, but is now perceived as a barrier to the future success of the city. Good or bad, this parkade has a strong sense of place within the city.

Analysis

Urban

New Westminster is mixture of residential, commercial and industrial zoning as shown in the illustration below. As a transportation hub, it is a thoroughfare for the railway, truck traffic and Skytrain routes. The Columbia Street Sytrain Station is located one block from the Front Street Parkade, where two major routes converge, connecting both Coquitlam (north-east) and Surrey (south-east), via New Westminster, to Vancouver.





In addition to the decline of downtown, New Westminster suffers from the layering of strong edge conditions that sever the downtown from the waterfront. As defined by Kevin Lynch, edges are the linear elements not considered as paths, usually the boundaries between two kinds of areas (Lynch 1960, 62). In the context of non-automobile oriented movement in downtown New Westminster, the edges that contribute to the fragmentation

are rail, truck traffic routes and a steep topography. It is the confluence of these edge conditions that have contributed to the disconnect and subsequently the diminished social activity within the downtown.



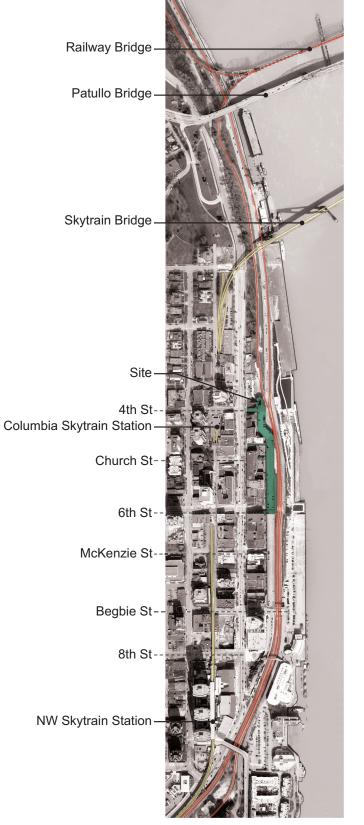
Major traffic corridor along the Fraser River

Interestingly, the steep grade change that negatively affects accessibility to the waterfront also provides an opportunity to overcome the remaining edges conditions as the sufficient height difference allows the possibility of bridging across the rail and truck traffic routes to provide waterfront access.



Steep grade change at the terminus of 4th St.

An analysis of the urban edges below show the existence of converging and divergent boundaries along the waterfront. Areas with a sufficient grade change and relatively short distance between waterfront and downtown were identified as opportunities in determining an ideal site for an urban intervention.

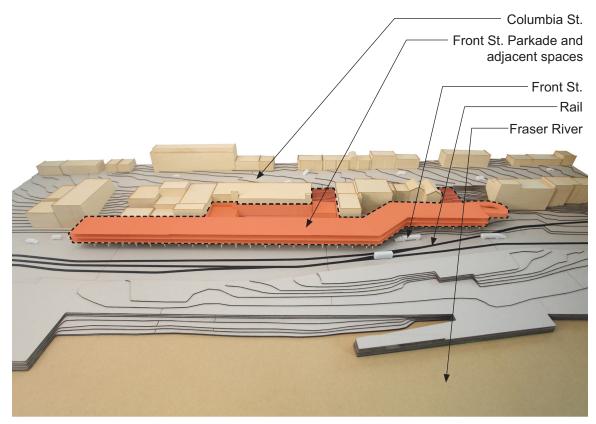




Map of downtown with additions by the author (Google Maps)

Site

This urban analysis of edge conditions makes an argument for the Front St. Parkade as a suitable location for an urban intervention. A monolithic, linear structure, the parkade presents an opportunity for adaptive reuse, serving as a major connection between the downtown and the waterfront. Elevated directly above Front St. and accessible at different levels via Columbia St., the parkade can mediate the barriers currently fragmenting the urban fabric.



Aerial view of site



View of parking structure from waterfront park



Adjacent underutilized spaces

As an underutilized site, the parkade and it's adjacent space serve as a testing ground for this thesis. By proposing to transform an inactive space into an active one, by promoting human powered modes of transportation and active programing, the adaptive reuse of the parkade would result in the inversion of it's historical symbolism. As a failed urban renewal project bordering the edges of the urban fabric, this site presents an opportunity to activate and connect the downtown and waterfront.

CHAPTER 3: PRE-DESIGN

Precedents

Expo 2010 Danish Pavilion, Shanghai, China



Aerial view of the Danish Pavilion (Bjarke Ingels Group 2015)

The Danish Pavilion by Bjarke Ingels Group was built for the 2010 Expo in China. The Pavilion was designed to highlight aspects of Danish culture and in particular, biking. The building highlighted human powered modes of transportation and provided an opportunity for people to bike through the exhibit in a continuous loop. The interaction between these modes was highlighted by the relative lack of separation between bicyclists and pedestrians.



Interior view of the pavilion (Bjarke Ingels Group 2015)

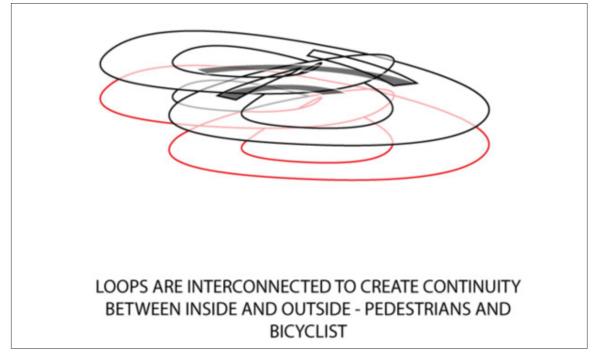


Diagram of movement through pavilion (Bjarke Ingels Group 2015)



Climbing on exterior of adaptively reused silo (Archdaily 2015)

An adaptive reuse of a sugar silo in Montreal, the *Allez-up* climbing gym is conversion of an unused industrial structure adapted to create a unique recreational facility. Of interest is the strategy to not only reuse the silos, but also the use of space between the structures as well. The architectural strategy connects old and new to create a unique architectural experience.



Floor plan of climbing gym showing insertion strategy (Archdaily 2015)

Olympic Sculpture Park, Seattle, WA

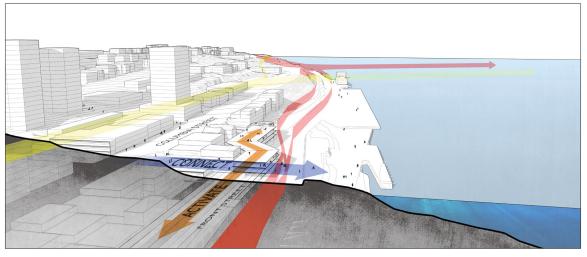
Located along the waters edge, this project creates a continuous connection between downtown Seattle and it's waterfront. Despite the existing infrastructure that once severed the urban fabric, this project was able to bridge across those boundaries to provide safe and uninterrupted pedestrian access through the urban fabric. Using the local topography to their advantage, Weiss/Manfredi were able to sculpt the landscape through the creation of a series of 'switch-backs' that minimize the slope while allowing for a significant overall grade change, thus traversing the rail and highway infrastructures below.



Olympic Sculpture Park (Weiss/Manfredi 2015)

CHAPTER 4: DESIGN

Design Goals



Design parti

The parti of this thesis is to revitalize the downtown through connecting and activating the edge of the urban fabric. By designing active spaces in the downtown through the creation of an activity hub centered around human modes of transportation and recreational programing it is expected that the underutilized spaces can be made more inhabitable. The disconnect between the downtown and waterfront can be mitigated with new pathways promoting human powered modes of transportation. The adaptive reuse of the inactive parkade serves as a means to extend the edge by connecting people to the existing waterfront parks. These goals will be achieved by developing programmatic and formal strategies that address both existing conditions and propose new ones.

Design Method

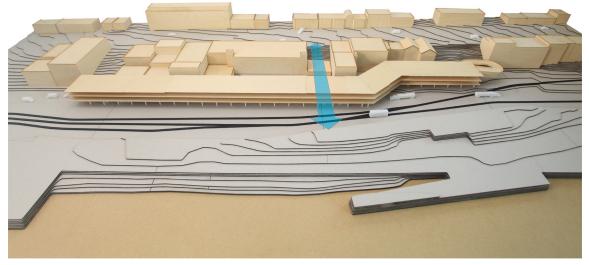
The design method addresses the urban scale through connecting and activating, and the site scale through cutting, inserting, and sound attenuation methods.

Urban Strategy

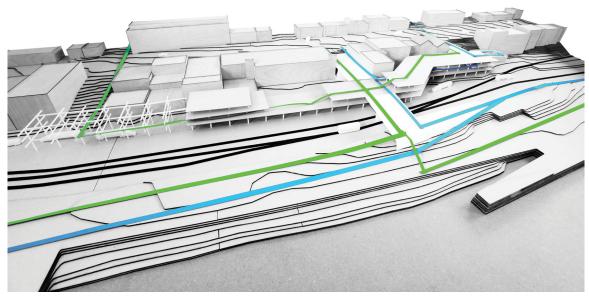
Connecting

Connecting the downtown to the waterfront includes the exploration of both vertical and

horizontal movement of both bicycle and pedestrian traffic via the repurposed parkade. The edge conditions, specifically the topography and active rail and truck routes are a significant factor in the circulation strategy of the site. Key features to consider are separate pedestrian and bicycle pathways in addition to access from both Front Street and Columbia Street. Of particular concern is the navigability of the parkades three floor levels and how bicyclists and pedestrians commute through the building. This process will include the use of existing and new ramps to facilitate the flow of active modes of transportation between the building and site.



Proposed connection between Columbia Street and waterfront above the railway



Early exploration of pedestrian and bicycle routes

Activating

Indoor rock climbing is also a metaphor for this adaptive reuse project because it is about looking for opportunities in a difficult environment. The urban strategy of seeking out a confluence of edge conditions is a notion fundamental to rock climbing. In climbing it is the edges that are sought out as an opportunity to connect and move through space, thus resulting in a program that focuses on physical movement which is antithetical to the purpose of a car park.



Connecting the edges - movement through space

Often taking the form of pilgrimage, the rituals of climbing expand to include preparation, travel, performing, and a multitude of social interactions. Much like climbing, the adaptive reuse of the front street parkade proposes to incorporate aspects of daily life beyond just recreation. As part of ones daily rituals, the building is intended to support alternative modes of transportation. For many, the commute to work has become a ritual in its own right. The paths that are taken, the stops that are made, and relationships that are developed are often confined to the experience of the automobile. Alternatively, this building will allow for daily rituals designed to engage people from the moment they begin their commute, to their sense arrival within the downtown.



By extension of creating an active space, the program will include other recreational activities that support a range of ages and abilities. Active programing will include facilities to support active modes of transportation. The end of trip facilities will include bike and water commuter resources such as lockers, change rooms, showers, storage, maintenance, and rentals. Other active programs will include walking paths, climbing, swimming, playground, childcare and yoga studio space. By incorporating active programing with active modes of transportation the intent is to improve the connection between the downtown and the waterfront while creating a more desirable place in the city.

Site Strategy

The site strategy focused on ways to create spaces for people, as opposed to spaces for automobiles. Through the use of cutting, inserting and sound attenuation methods, new spaces suitable for people were created.

Cutting Method

The car park is an array of columns supporting repetitive decks. In its purist form, the parking structure is a hypostyle and, although finite, gives the impression of being limitless. (Henley 2007, 23)

To create human spaces, strategies were developed to modify the existing structure to suit new programs. Part of this process of modification involves cutting away sections of the repetitive structure to make way for new surfaces and volumes. As a first step in the process of adaptive reuse, this cutting strategy intends to prolong the life of the structure and is driven by the urban strategy of activating and connecting the downtown to it's waterfront.

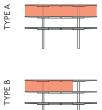
Removing portions of the parkade floor plate facilitates new traffic flow, allows light to penetrate deeper into the structure, and enable visual connections between programs and floor levels.

Below is a matrix of possibilities based on the homogenous, extruded section of the existing parkade built out of concrete. Those possibilities include removing entire floor plates or portions, as well as numerous combinations.

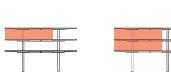


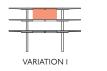






MATRIX





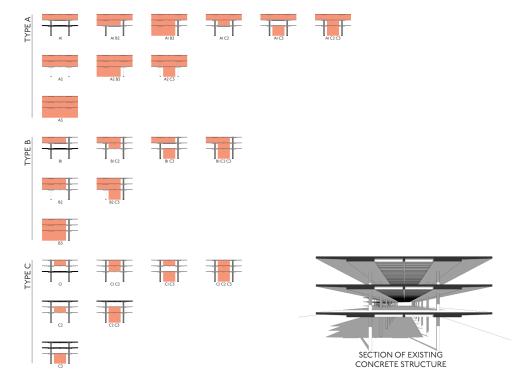
TYPE C

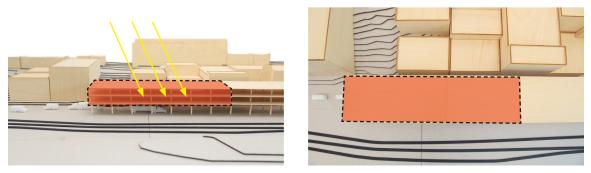


_

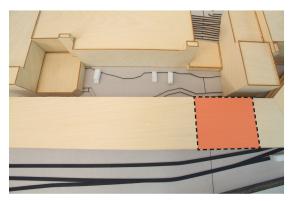


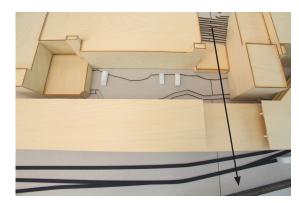
PERMUTATIONS



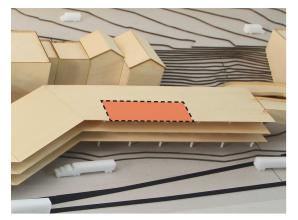


Cutting strategy to daylight existing storefronts





Cutting strategy to connect downtown to waterfront



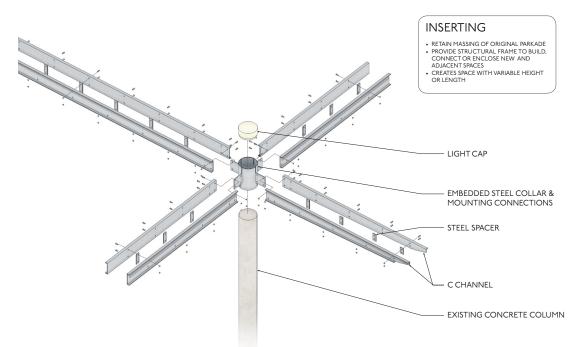


Cutting strategy to connect between floor levels

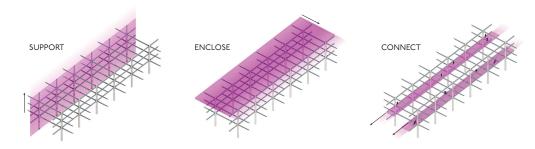
Inserting Method

In addition to the cutting strategy, this thesis proposes a common architectural form that responds to the need for new and different spaces based on the urban and site strategies. The typical steel assembly shown below offers possibilities to connect, enclose and support new spaces, all within the existing structural grid established by the inherent repetitiveness of a linear parkade.

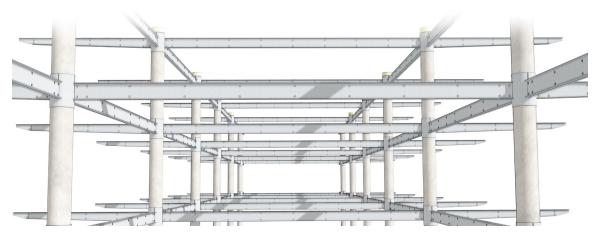
The structural insertion also maintains the original massing of the parkade structure while providing a framework upon which new programming can be inserted. This includes programming to support active modes of transportation such as end of trip facilities (lockers, change rooms, showers, storage, maintenance, rentals, paths/ramps) in addition to active programming (climbing, swimming, playground, yoga studio).



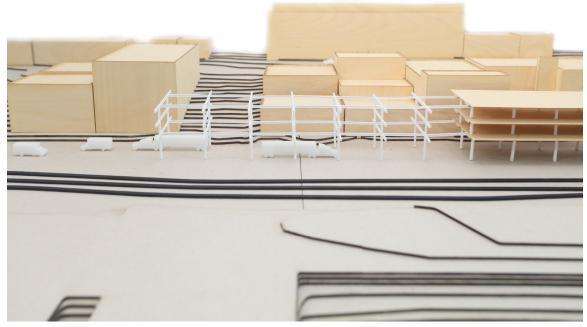
TYPICAL ASSEMBLY OF THE OLD (CONCRETE) AND THE NEW (STEEL)



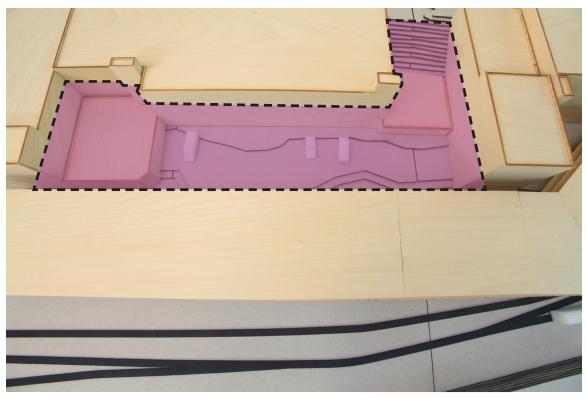




Inserting method



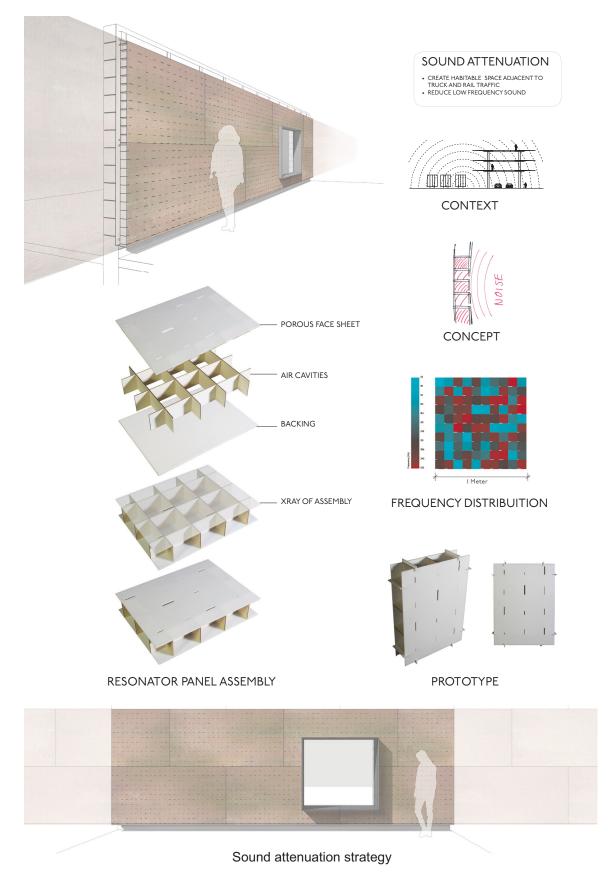
Insertion of structural framework to maintain massing



Adjacent spaces to be supported by structural framework

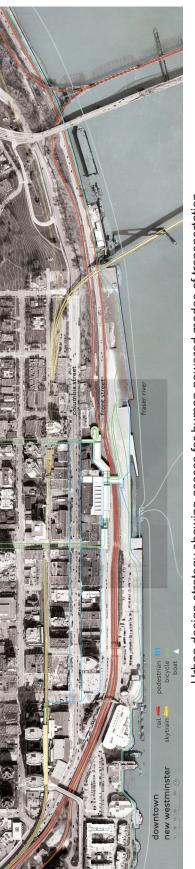
Sound Attenuation

A strategy to reduce noise means developing a wall panel system for sound attenuation. Of particular concern is the low frequency sounds generated by rail and truck traffic that are adjacent to the building. The wall panel system shown below utilizes many small cavities with variable sized perforations that act as individual Helmholtz resonators. The random distribution of these tuned resonators allow for the reduction of noise levels within a frequency range specific to it's context.

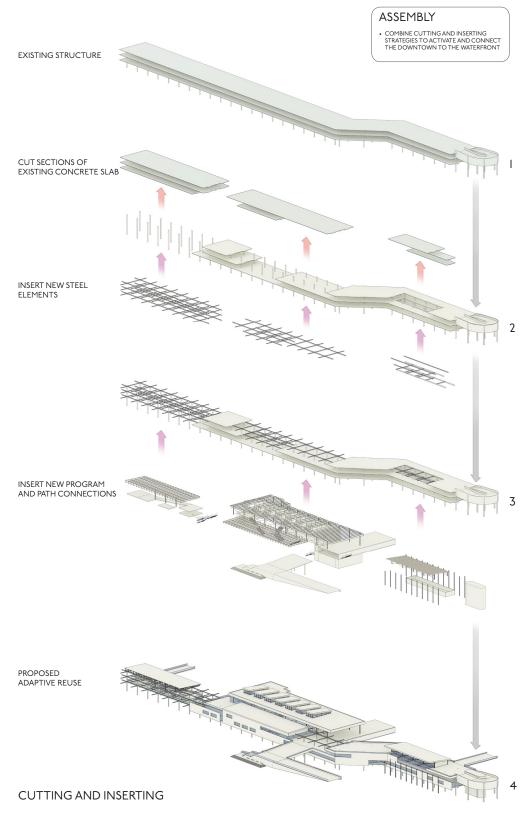


Building

The building design is the culmination of urban and site strategies. By connecting through human powered modes of transportation and activating through a variety of recreational programs, the design establishes a relationship between the urban strategies of connecting and activating that is experienced throughout the building.

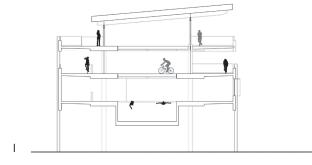


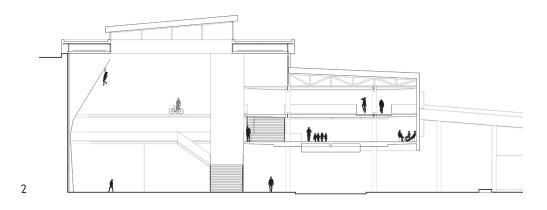
Urban design strategy showing access for human powered modes of transportation

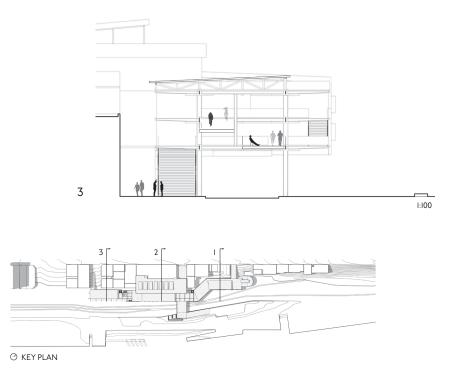


Application of cutting and inserting strategy

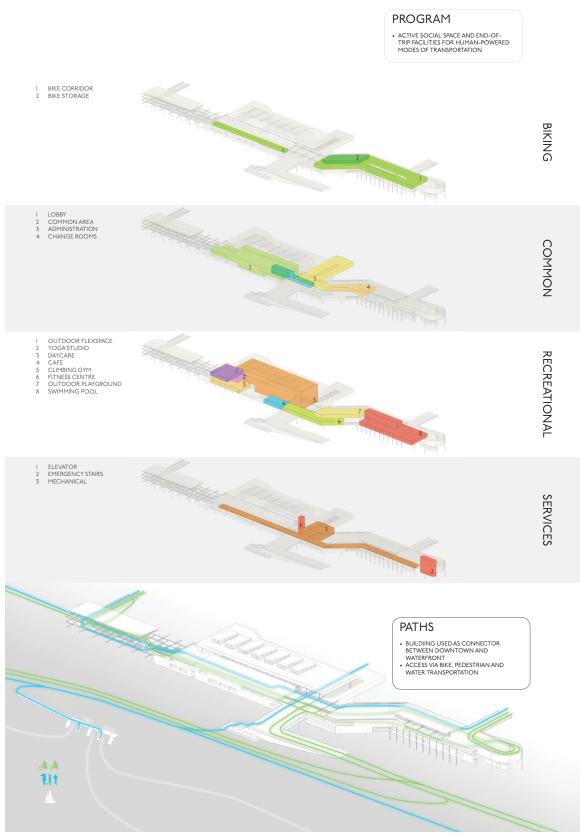




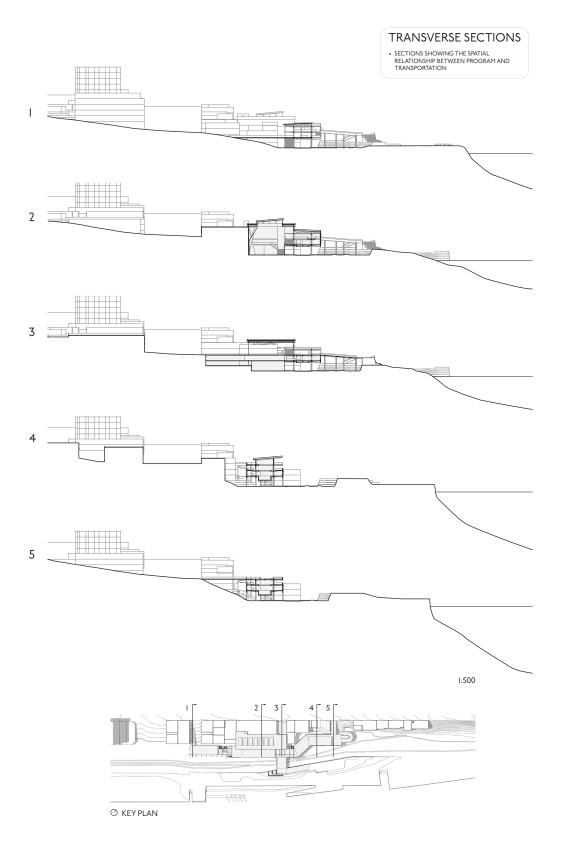




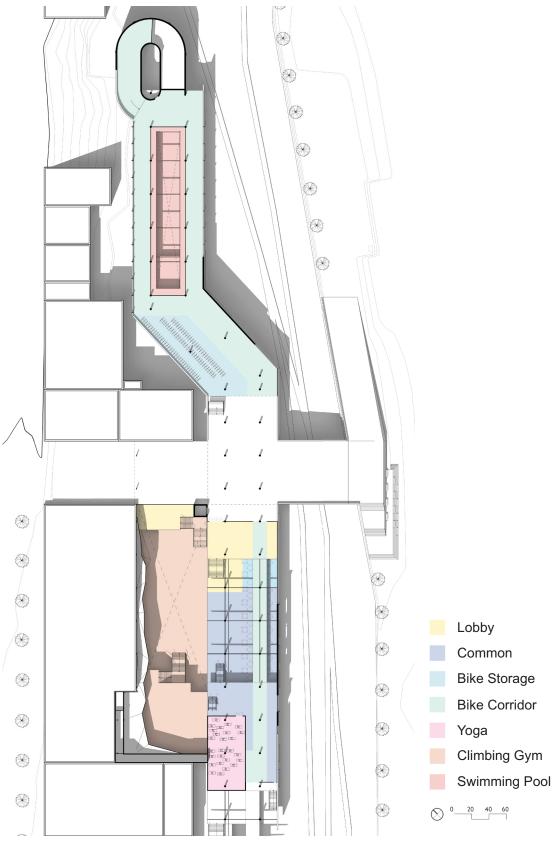
Program and transportation relationships



Path and program diagrams



Spatial sections through proposed building



Main floor plan



Bike and pedestrian approach from the south directly above Front St.

The images above and below are examples of how the building may be accessed from either the downtown or the waterfront.



Approach from the Fraser River



Climbing gym and common area

The images above and below highlight the relationship between old and new. It shows the interaction between various modes of transportation and the new active programming that is inserted within and adjacent to the adapted structure.



Swimming pool with bike route overhead





Aerial perspective of proposed design



Waterfront perspective of proposed design

CHAPTER 5: CONCLUSION

In conclusion, this architectural thesis addresses the revitalization of downtown New Westminster through the elements of adaptive reuse and active lifestyle.

The adaptive reuse strategy was to look at underutilized structures within the downtown, specifically the front street parkade, and to develop a method of architectural intervention that allowed for the repurposing of an obsolete structure.

The architectural response to the parkade was to flip the symbolism of an inactive parking structure on it's head, thereby activating the space by providing the programming necessary to do so. This included recreational programs as well as developing the structure as a transportation hub which facilitates human powered modes of transportation through introducing new paths/connections between downtown New Westminster and the waterfront.

Although the methodology proposed in this thesis is specific to the Front Street parkade, the problems facing New Westminster are common to many North American cities and therefore raises the possibility of similar interventions elsewhere.

REFERENCES

- Archdaily. 2015. "Allez Up Rock Climbing Gym." Accessed September 12. http://www. archdaily.com/477963/allez-up-rock-climbing-gym-smith-vigeant-architectes
- Avison Young. 2015. "Metro Vancouver Office Market Report Mid-Year 2015." Accessed October 10. http://www.avisonyoung.com/research/research-reports
- Bain, Lesley, Barbara Gray, and Dave Rodgers. 2012. *Living Streets: Strategies for Crafting Public Space.* New Jersey: John Wiley and Sons.
- Bjarke Ingels Group. 2015. "Expo 2010 Danish Pavilion." Accessed December 5. http:// www.big.dk/#projects-xpo
- Bollack, Francoise Astorg. 2013. Old Buildings New Forms: New Directions in Architectural Transformations. New York: The Monacelli Press.
- City of New Westminster Plannning Department. 1966. City of New Westminster: Urban Renewal Study.
- City of New Westminster. 1983. Answers About New Westminster's Downtown and Waterfront Redevelopment Program.
- City of New Westminster. 2013. "Downtown Parking Strategy." Accessed October 23. http://www.newwestcity.ca/database/files/library/2013_06_05_NWDPS_Final_Report___RELEASED.pdf
- Gehl, Jan. 2011. Life Between Building: Using Public Space. Washington: Island Press.
- Giovinazzi, Orianna, and Marta Moretti. 2010. "Port Cities and Urban Waterfront: Transformations and Opportunities." *TeMALab Journal of Mobility, Land Use and Environment*, Vol.3-SP10:57-64
- Google Maps. 2015. "New Westminster, British Columbia." Accessed August 1. https:// maps.google.ca/
- GVRD. 2016. "About The Greater Vancouver District." Accessed February 20. http://www. gvrd.com/vancouver_bc_canada/index.html.
- Health Canada. 2014. "What is Active Transportation?" Last modified November 4. http:// www.phac-aspc.gc.ca/hp-ps/hl-mvs/pa-ap/at-ta-eng.php
- Henley, Simon. 2009. The Architecture of Parking. New York: Thames and Hudson Inc.
- iMapBC. 2015. Map. Accessed August 13. http://www.data.gov.bc.ca
- Joint Review Committee. 1977. A Regional Town Centre for New Westminster: Action Program Report.

- Ley, David. 1987. "Styles of the Times: Liberal and Neo-Conservative Landscapes in Inner Vancouver, 1968-1986." *Journal of Historical Geography*, v13 n1:40-56.
- Lynch, Kevin. 1960. The Image of the City. Massachusetts: The M.I.T. Press.
- Mather, Barry, and Margaret McDonald. 1958. *New Westminster: The Royal City*. Vancouver: J.M. Dent & Sons Ltd.
- Weiss/Manfredi. 2015. "Seattle Olympic Sculpture Park." Accessed September 25. http:// www.weissmanfredi.com/project/seattle-art-museum-olympic-sculpture-park
- Wolf, Jim. 2005. *Royal City: A Photographic History of New Westminster, 1858-1960.* Surrey: Heritage House Publishing Company Ltd.