INTERCHANGE INTERVENTION: INHABITING URBAN HIGHWAY INFRASTRUCTURE

by

Mohammed Imtiaz Ashraf

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CONTENTS

Abstract iii

Acknowledgements iv

Chapter 1: Introduction 1

- The Current State of the Urban Environment 1
- Future of the City 3
  - Network Societies 6
  - Movement in a Narrative of Sequential Events........ 7
  - Program 10
  - Theoretical Context. 12

Chapter 2: Site........ 14

- Historical Site Analysis 14
- Demolition or Preservation? 17
- Interchange Analysis 19
  - City of Networks........ 19
  - Spatial Typologies........ 25
  - Urban Highway - Sensory Experience........ 27
  - Inhabitation form Three Perspectives 31
  - Movement - Network - Program - Sequence 32

Chapter 3: Design........ 37

- Redirection of Traffic........ 37
- Addition of Program and Connections........ 40
  - Program........ 40
  - Phases........ 42
  - Sequence. 44
  - Form 47
  - Cut - Extend - Attach - Fill........ 48

Chapter 4: Conclusion 85

Appendix........ 86

References 97

ABSTRACT

Urban highway infrastructure in North America has been singularly designed for the automobile, severing parts of the urban fabric, blighting our once-thriving city centres and resulting in spaces that are void of the human scale. The Cogswell Interchange in Halifax, Nova Scotia, Canada is such an infrastructure, cutting through the downtown core and heritage district.

This thesis investigates the Cogswell Interchange in an attempt to animate and enliven a dead urban space, reducing traffic and bringing new activity and life to the street. Reappropriating parts of vehicular infrastructure for cyclist and pedestrian use and creating a variety of activities and programs (gallery, gym, restaurant, park) enables an increased connectivity for pedestrians and cyclists and brings a more human-scale urbanity to the site.

The infrastructure itself becomes a framework upon which to build, revisioned as an active, vibrant place which people can experience with a renewed sense of wonder and appreciation.

ACKNOWLEDGEMENTS

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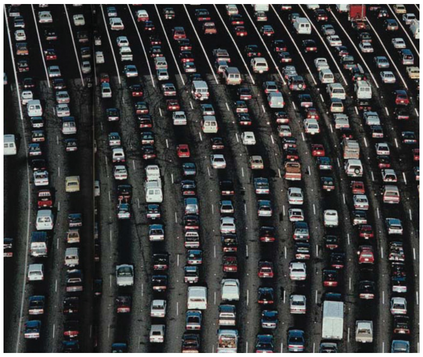
CHAPTER 1: INTRODUCTION

THE CURRENT STATE OF THE URBAN ENVIRONMENT

There has long been a fascination with the automobile and technology. In the 1920s, the automobile was seen as the way of the future as traditional city neighbourhoods were destroyed in favour of freeways. Le Corbusier in *City of Tomorrow and its Planning* stated that “Speed lies on this side of mere dreams: it is a brutal necessity” (Le Corbusier 1971, 15). The post-war 1950s in North America saw a boom in automobile ownership and highway construction as suburban life grew in popularity. Highway design in the 1960s was a science devoted to the efficient movement of people and goods, and was given great attention in an attempt to improve the experience of drivers. Kevin Lynch in *The View From the Road* describes it as “a dramatic play of space and motion, of light and texture, all on a new scale” (Appleyard 1964, 3). With the oil crisis of the 1970s the dominance of the automobile was put into question. Some cities placed public transportation ahead of the automobile, but the vast majority of North America continued to build major roads and urban highway infrastructure. Although there are notable examples of a reversal of this trend, such as bicycle-friendly Portland, OR, our cities today continue to be defined by the automobile.



Dependence on the automobile results in worsening state of traffic, Detroit (The Detroit Bureau 2013)

Integration of infrastructure supports co-existence of bicycles and vehicles, Portland (Land 8 2013)

With the modernist view of the city as a machine came planning for the machines of the city. Planning for people and city life was devalued in favour of an “efficient” and “modern” city. The scale, speed and accessibility of our built environment has been designed for the automobile and the result is an alienating and inhuman experience for people.

From suburban homes to city workplaces people are shuttled in their automobiles from private enclosed space to private enclosed space with little contact with other people or the immediate environment. There is a lack of public space, public life and activity on the streets – the streets being a place that once defined the city. With little interaction amongst people the urban experience, once dynamic and active, has become, even in smaller cities, a disengaging and disconnected one.

This decline of city life has led to a gradual emptying of city centres, as businesses and people move to suburban areas in search of newer developments, wider spaces and cheaper rents. The social and economic impact of this urban decay is potentially devastating as cities continue to deteriorate and fail.

Highway #1, Los Angeles
(Burtynksy 2003)

Empty streets of Tokyo
(Nakano 2000)

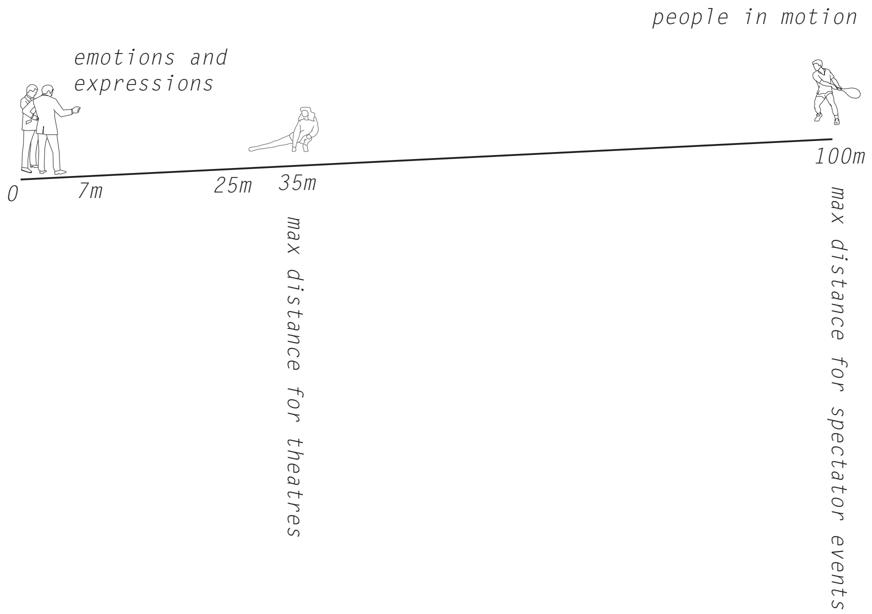
FUTURE OF THE CITY

> Contemporary culture is unfolding in the movement of the restless streets of the busy metropolis rather than in the isolated, controlled and serviced environment of a wired dwelling. (Gandelsonas 2008, 6)

To read the city at a human scale, it is necessary to experience the city at a human speed. Driving in an enclosed vehicle at 50 km/h reveals momentary fragments of a city, sheltered from the true life of the city. Paul Virilio states that the car has become a prosthetic, that “the world is no longer on the scale of our bodies, but on that of our machines” (Solnit 2000, 258). Automobiles encourage a reading of the built environment as landscape rather than landmark (Schwarzer 2004, 72), whereas pedestrians are afforded more time in experiencing their immediate surroundings. Jan Gehl compares 5 km/h cities such as Venice with 100 km/h cities like Dubai, with faster-moving cities offering very little to the pedestrian’s experience of navigating the streets.

The act of walking has therefore become a reaction against the speed and alienation of the post-industrial and post-modern “loss of space, time and embodiment” (Solnit 2000, 267). Walking and cycling are ways of resisting the speed of modern life and reclaiming control over one’s personal experience with one’s environment. Slowing one’s movement allows one to experience the details and particularities of the built environment rather than seeing it merely as a landscape. One’s interaction with one’s immediate environment is more intimate at a human scale rather than that of the scale of the machine, as the space one occupies is decreased to the space surrounding one’s body.

It is the life and activity one experiences on the streets that is an indicator of the success of public life in a city. Having a wide variety of activities accessible within a short walking distance adds to the density and excitement of street life. However, it is not skyscrapers that bring this type of urban density, but the medium-rise density of cities like Paris that provide a closer relationship to active street life. Heights up to the 5th floor allow people to participate in street life (Gehl 2010, 42) and this type of horizontal, rather than vertical density is more conducive to our horizontal social field of vision allowing for more interaction at street level (Gehl 2010, 41).

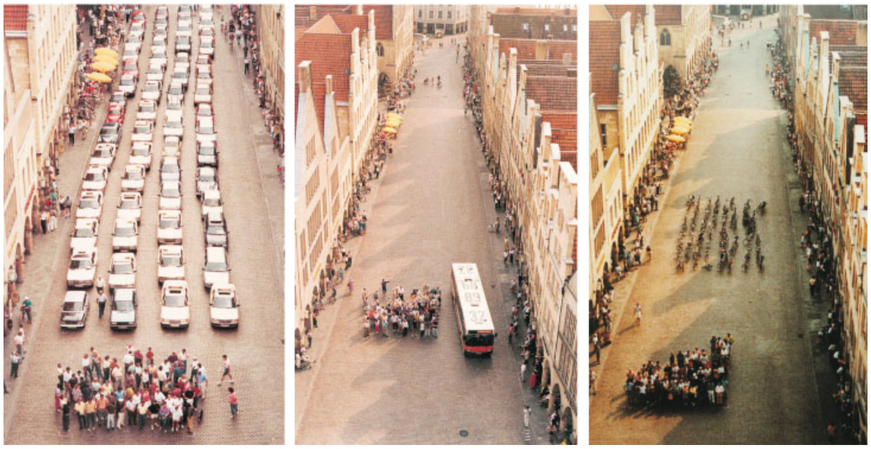


Social field of vision

When walking, one is able to recognize people in motion at 100 metres, which Gehl states is the limit of our social field of vision. It is also the maximum distance for spectator events, whereas the maximum distance for viewing in theatres is 35 metres. At closer distances of 25m or less we begin to detect emotions and expressions (Gehl 2010, 37). When a variety of activities or events are situated in this range of distance and scale, pedestrians are able to experience a dynamic urban environment.

Events and activities designed for the scale of pedestrians such as public spaces for meeting and gathering, recreational and leisure spaces, cafes and parks all add to the liveliness of a city. Dense and active cities provide many such social and cultural opportunities for the public, but they also promote health and well being (Gehl 2010, 6). Events and activities located within close proximity of one another allow people to walk and cycle to and between these events rather than drive. By encouraging people to walk and cycle, the sedentary life that has taken hold of North America can be discouraged in favour of a return to a more active and social life.

Automobiles are still a part of North American life and can co-exist with a greater number of pedestrians and cyclists on the streets. The balance, however, must be shifted in favour of the latter for the economic and environmental sustainability of our cities. Reducing our dependence on automobiles results in less pollution and less valuable space in the city consumed by car traffic. Densification of city centres also reduces the negative effect of sprawl, diminishes the need for automobiles and supports an active and healthy society.

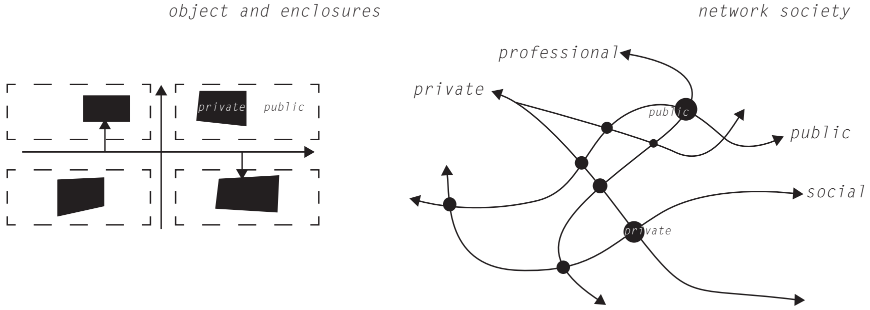


Amount of space required for the same number of passengers by car, bus or bicycle. (Muenster 2013)

NETWORK SOCIETIES

Modern city planning often attempts to organize and regulate cities through the creation of objects and enclosures (Kuma 2008, 114). However, in today's society of control, enclosures are not needed or desired (Sumrell 2007, 47). Such a conservative view of the city is no longer relevant for today's modern city which calls for an openness and transparency and is better described as a network society. This interrelated network of paths and movement and the culture of the network permeate the everyday life of the city (Varnelis 2009, 153). As Kengo Kuma describes network societies, they can be seen as non-hierarchical horizontal networks that lack boundaries or enclosures (Kuma 2008, 112). In such a network without fixed or determined paths, users are given freedom of movement within the network. The goal in such a network is this freedom - a change from a highly controlled and directed environment for vehicles and the passengers enclosed within them to an open and variable space.

The modern network not only involves movement and physicality, but also social and personal networks, blurring the line between work and leisure, private and public. On a large scale, these various networks co-exist simultaneously in the city and work together as a system.

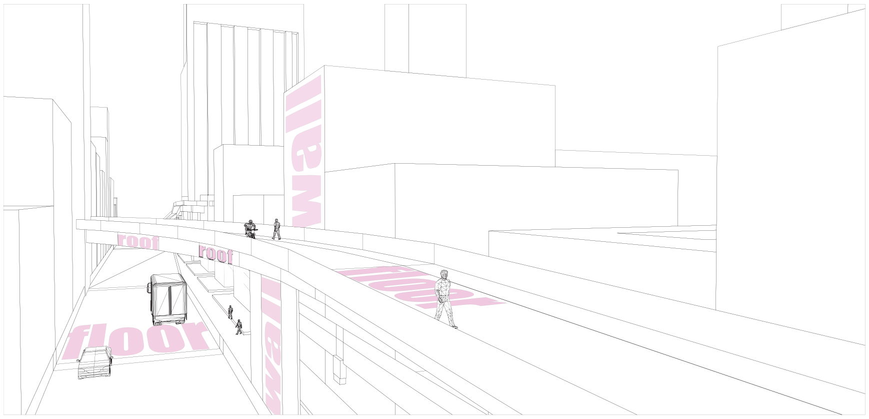


City of objects and enclosures vs. network society

MOVEMENT IN A NARRATIVE OF SEQUENTIAL EVENTS

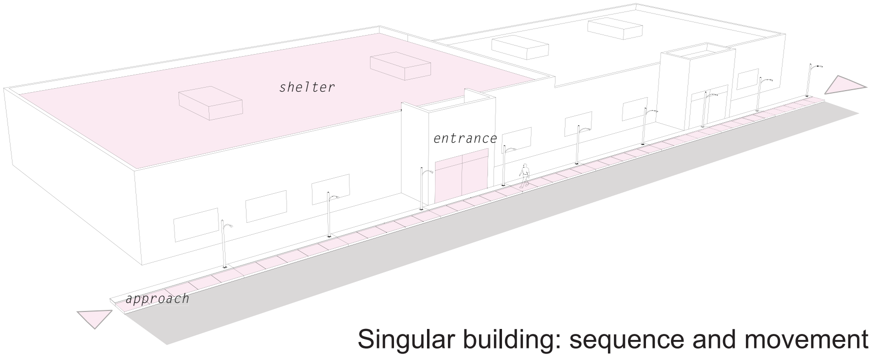
> The networks of these moving, intersecting writings compose a manifold story that has neither author nor spectator, shaped out of fragments of trajectories and alterations of spaces: in relation to representations, it remains daily and indefinitely other. (de Certeau 2011, 93)

Tschumi states that “architecture begins with movement. One enters a building, climbs stairs, goes from one space to another, and that network of routes is what constitutes architecture” (Walker 2006, 27). The relationship between events and movements is that “movements are the intrusion of events into architectural spaces” (Tschumi 1994a, 111) and when one moves in these architectural spaces, “our bodies not only move in but generate spaces produced by and through their movement” (Tschumi 1994a, 111). In that sense the entirety of our built environment can be interpreted as event-based architecture. Rooms in the city exist formed by walls of buidlings and other enclosures, and our movement within the city is an intrusion into these architectural spaces. Approaching, entering, resting and moving within various elements of the city, whether buildings, infrastructure or open spaces are all acts of interacting with architecture.



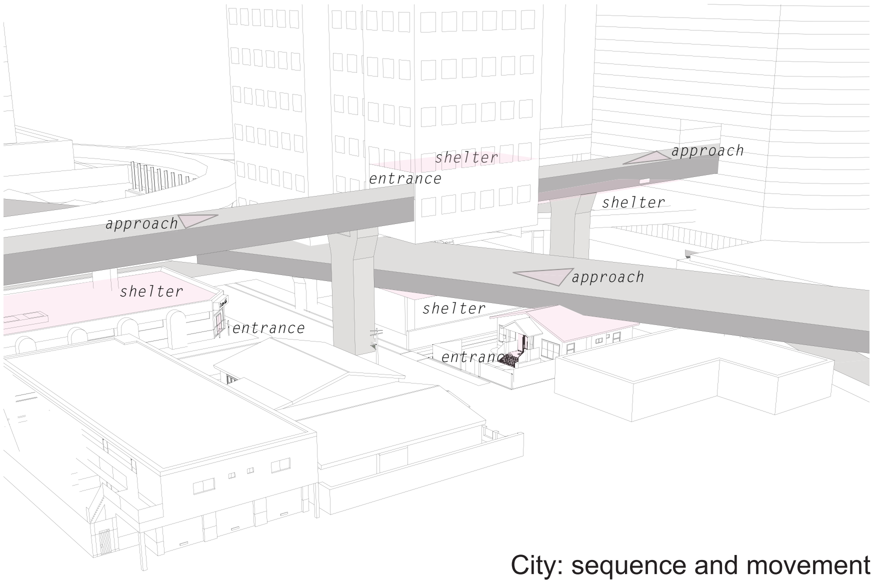
Elements of the built environment as floor, wall, roof

Perceiving a building as an isolated object, a given sequence of events can be prescribed. A person approaches and enters the building from a set path and inhabitation occurs in a predictable manner.


shelter
entrance
approach

Singular building: sequence and movement

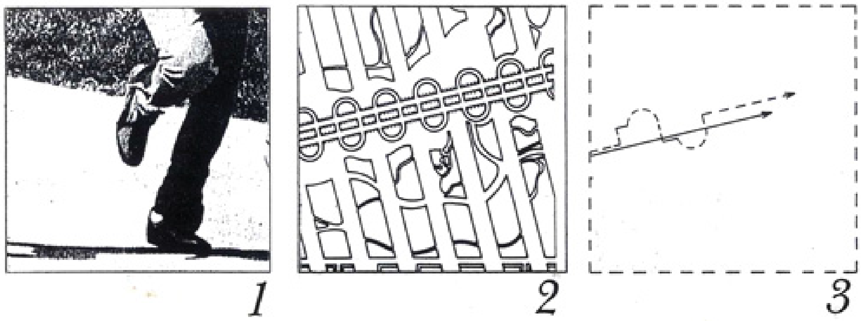
At the scale of the city, however, buildings do not exist as isolated objects but function in concert with one another. Shelter from one building may act as the entrance for another, boundaries between them are undefined and movement occurs in all directions. The complexity of the urban environment supports the idea of architecture not as a collection of icons and objects, but rather a network of interrelated inhabitable spaces.


shelter
approach
entrance
shelter
approach
approach
shelter
shelter
entrance
entrance

City: sequence and movement

Traveling through the various networks of infrastructure, movements generated by bodies inhabiting the architectural spaces create their own individual sequence of events. Architecture that is non-linear, like circular buildings, grid cities, accumulations of fragmentary perspectives and cities without beginnings or ends produce scrambled structures where meaning is derived from the order of experience rather than the order of composition (Tschumi 1994a, 161).

These architectural sequences that are created do not refer only to actual buildings, but the implied narrative that is present along any given route (Tschumi 1994a, 163). Buildings and the events that inhabit them are part of this composition, but it is the route that is more important than any given place along it (Tschumi 1994a, 163).



Vectors of movement, from Manhattan Transcripts (Tschumi 1994b)

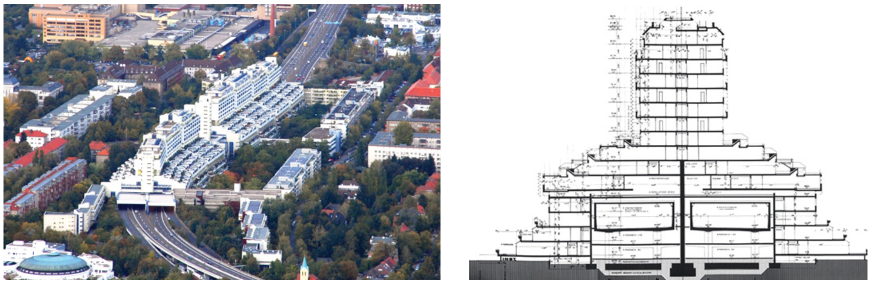
The actions, movements and multitude of experiences that are simultaneously occuring make up a collection of narratives in the city. The intertwined paths of our footsteps give shape to spaces, weave them together and form a real system whose existence makes up the city (de Certeau 2011, 97). The city, therefore, can be seen as a collection of these individual walking narratives. The rhythm of walking generates a kind of rhythm of thinking, and the passage through a landscape echoes or stimulates the passage through a series of thoughts (Solnit 2000, 5). Our collective thoughts and motions as we live our day-to-day life comprise the life of the city.

PROGRAM

> Tokyo and New York only appear chaotic. Instead they mark the appearance of a new urban structure, a new urbanity. Their confrontations and combinations of elements may provide us with the event, the shock, that I hope will make the architecture of our cities a turning point in culture and society. (Tschumi 1994a, 159-160)

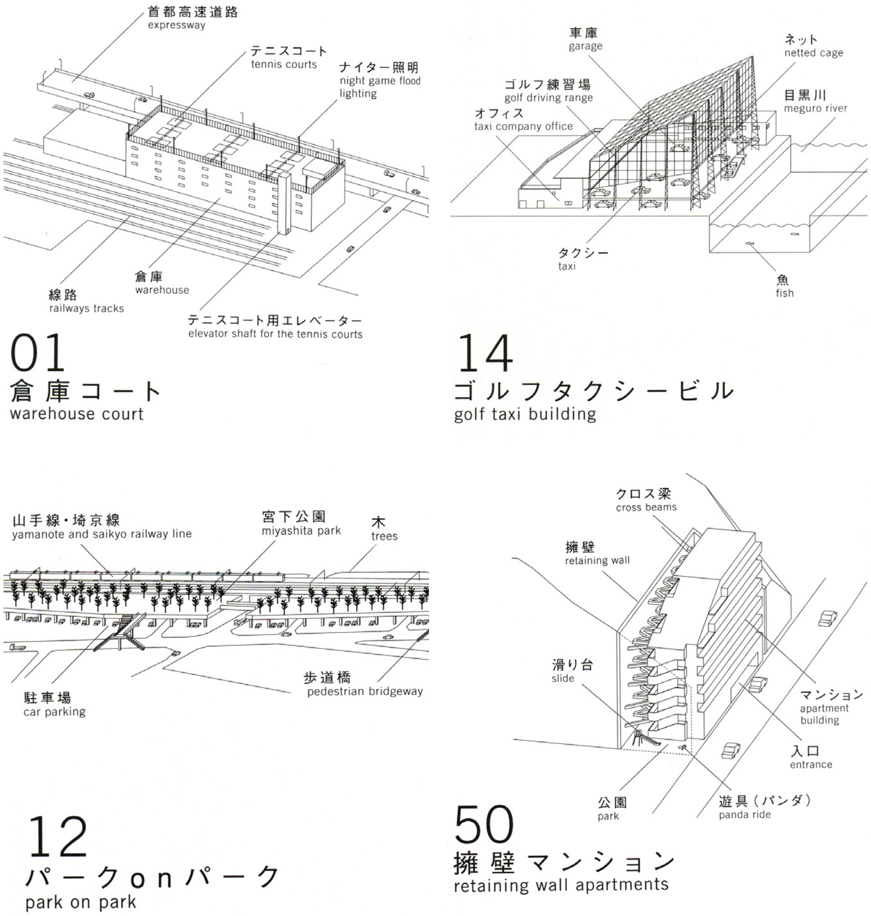
Tschumi states that “there is no architecture without program, action, event” (Tschumi 1994a, 3). But what activities are appropriate for a specific site? Tschumi suggests that we should “challenge cultural expectations through cross-programming (Walker 2006, 19). By inserting unexpected and unfamiliar program into the city we can begin to question the definition of what constitutes a city, what a city could be and how it should operate. Instead of serving a conservative society that acts upon our cities, we are able to have the city itself act upon society (Tschumi 1994a, 7) and as a result come to new social and urban structures. Viewing any urban area of a city as a microcosm of that city, any number of events can be imagined to take place in any given area.

Mixed-use environments have existed throughout history and thrive because of their diversity and density. In the 1970s, megastructures such as the Autobahnüberbauung Schlangenbade Strasse, designed by Georg Heinrichs, brought together diverse programs (residential, commercial, office) within a single structure, much like modern skyscrapers today attempt to create vertical cities. The Autobahnüberbauung, built over the A100 Autobahn in Berlin, also incorporates vehicular transportation networks.



Autobahnüberbauung Schlangenbader Strasse
(Petty Design 2012)

Looking to the example of Tokyo as a city that has grown very densely in a seemingly unplanned fashion, it is an amalgam of programs and events that find their place in leftover and void spaces within the city. These types of organic cities grow over time based on the existence of everyday activities and situations (Gehl 2010, 55). The guide book, *Made in Tokyo*, illustrates examples of unusual juxtapositions of program that exist in symbiotic or parasitic relationships with one another, such as rooftop tennis courts above a warehouse, an elevated park above a parking garage, a driving range built above a taxi parking garage and an apartment building attached to the side of a retaining wall. Such unexpected, unconventional and even seemingly conflicting juxtapositions of program suggest new urban and social structures that could be possible in any urban area.


首都高速道路
expressway
テニスコート
tennis courts
ナイター照明
night game flood lighting
線路
railways tracks
倉庫
warehouse
テニスコート用エレベーター
elevator shaft for the tennis courts
車庫
garage
ネット
netted cage
ゴルフ練習場
golf driving range
オフィス
taxi company office
目黒川
meguro river
タクシー
taxi
魚
fish
山手線・埼京線
yamanote and saikyo railway line
宮下公園
miyashita park
木
trees
駐車場
car parking
歩道橋
pedestrian bridgeway
クロス梁
cross beams
擁壁
retaining wall
滑り台
slide
マンション
apartment building
入口
entrance
公園
park
遊具（パンダ）
panda ride

01
倉庫コート
warehouse court

14
ゴルフタクシービル
golf taxi building

12
パークonパーク
park on park

50
擁壁マンション
retaining wall apartments

Examples of unconventional program in Tokyo
(Kaijima 2012)

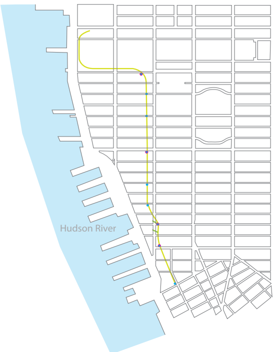
THEORETICAL CONTEXT

Attempts at revitalizing urban areas through a tabula rasa approach often lead to uninspiring and generic developments devoid of any character or relationship to context. Rem Koolhaas states that a “resurrected urbanism must entail to accept what exists instead of the fantasies of omnipotence and control” (Carbonell 2011, 47). The context and history of a site are what define its character, and only by relating to this context can one hope to avoid the banality that many modern developments suffer from. In designing for the future of our cities we must ask ourselves: is the end goal a regulated and orderly society in which traces of history have been erased or one which learns and grows from its existing reality working with both negative and positive aspects of its current environment?

Projects that preserve the legacy of an industrial (or other) past, regardless of whether or not it has had a positive effect on the city, are more successful in terms of interest and character. One recent example is the High Line (2011), which has revitalized the entire Meatpacking District of New York City and has led to several significant commercial and residential developments. Four years prior, the Olympic Sculpture Park in Seattle was conceived for a former industrial site, linking the waterfront to the downtown, successfully transforming a brownfield site into a popular cultural destination in the city. The first example of an elevated park is the Promenade Plantée in Paris (1980), designed overtop a disused railway line, now linking several green spaces within the city.

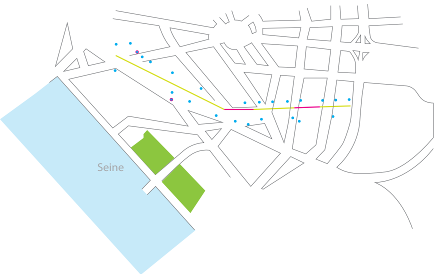
Industrial or derelict areas of a city contain vast potential for revitalization through the introduction of cultural, commercial and recreational activities for public life. Dynamic frameworks such as these exist and, taking advantage of the opportunities of the existing situation, can act as a catalyst for growth and development.

Highline, New York City, USA
(Design Applause 2013)

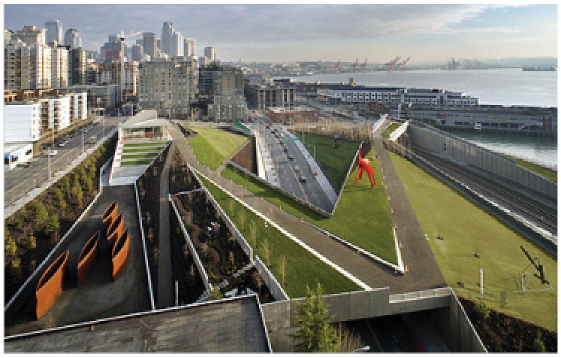

Hudson River

Highline, New York City, USA

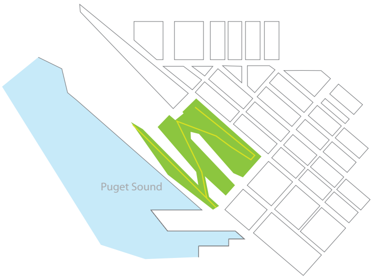
Promenade Plantée, Paris, France
(Local Nomad 2013)



Promenade Plantée, Paris, France

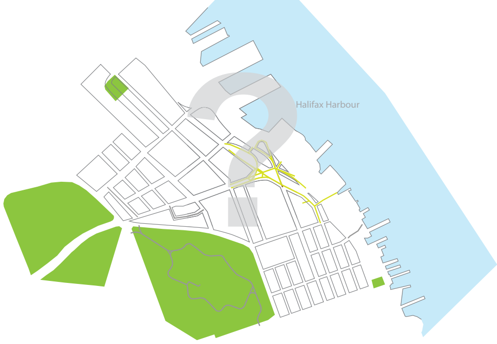


Olympic Sculpture Park, Seattle, USA
(Weiss/Manfredi 2013)


Puget Sound

Olympic Sculpture Park, Seattle, USA

Cogswell Interchange, Halifax, Canada


Halifax Harbour
?

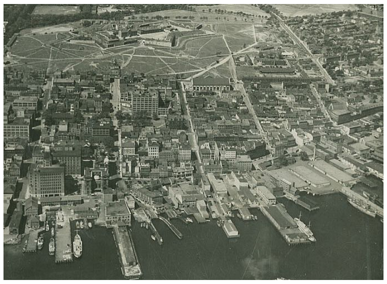
Cogswell Interchange, Halifax, Canada

Examples of adaptive infrastructural regeneration

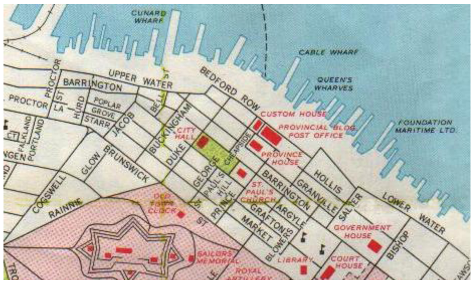
CHAPTER 2 - SITE

HISTORICAL SITE ANALYSIS

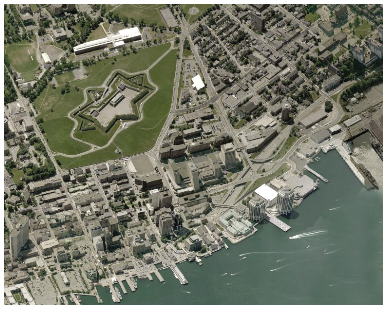
Although the Cogswell area is currently an underdeveloped transportation corridor, it began as a small residential area in the 1700s. Over the next 100 years it developed into a mixed-use area comprised of four city blocks. By the 1950s the area had become a thriving neighbourhood connecting lively Gottingen Street in the North End to downtown. As Halifax grew and ideas of modernism took hold, urban renewal led to the development of vehicular infrastructure that was intended to increase efficiency, movement and connection within the city. Though the intention was to eventually connect the north and south of the peninsula with the waterfront expressway “Harbour Drive”, the project was never completed due to massive public protests. What was built in the early 1970s and still remains is Phase 1: the Cogswell Interchange. What resulted from this “modernization” was the demolition of several city blocks of the closely-knit urban fabric and the decline of the North End.



Downtown Halifax, c. 1935
(Nova Scotia 2013)


CUNARD WHARF
CABLE WHARF
QUEEN'S WHARVES
FOUNDATION MARITIME LTD.
UPPER WATER
BEDFORD ROW
BARRINGTON
PROCTOR
PROCTOR
ST
LA
HURD
POPLAR GROVE
STARR
JACOB
BELL ST
BUCKINGHAM
FALKLAND
PORTLAND
CT
GOTTINGEN
CITY HALL
DUKE
CUSTOM HOUSE
PROVINCIAL BLDG.
POST OFFICE
PROVINCE HOUSE
CHEAPSIDE
GEORGE
GLOW
BRUNSWICK
COGSWELL
RAINNIE
OLD TOWN CLOCK
ST PAUL'S HILL
PRINCE
ST. PAUL'S CHURCH
BARRINGTON
GRANVILLE
HOLLIS
ARGYLE
GRAFTON
MARKET
BLOWERS
SALTER
LOWER WATER
GOVERNMENT HOUSE
BISHOP
SAILORS MEMORIAL
LIBRARY
COURT HOUSE
ROYAL ARTILLERY

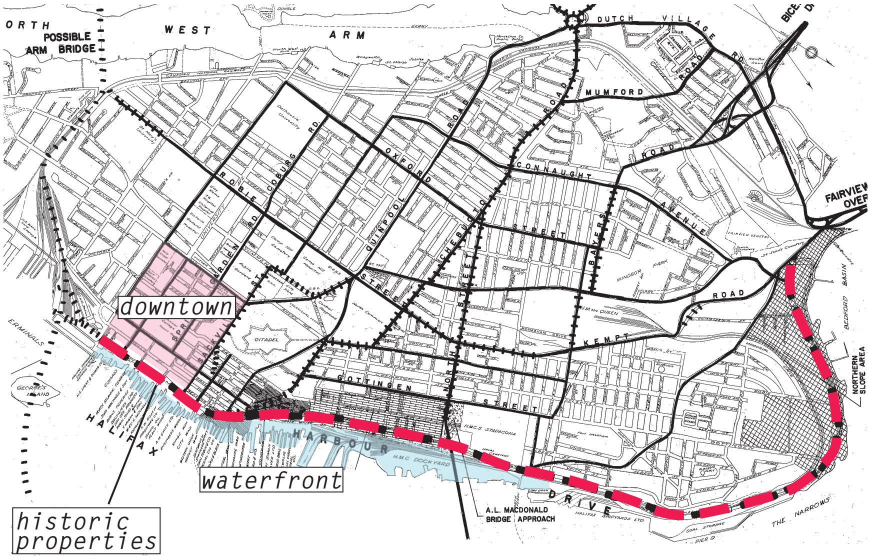
Downtown Halifax, c. 1962
(Halifax History 2013)



Downtown Halifax, 2013
(Bing 2013)

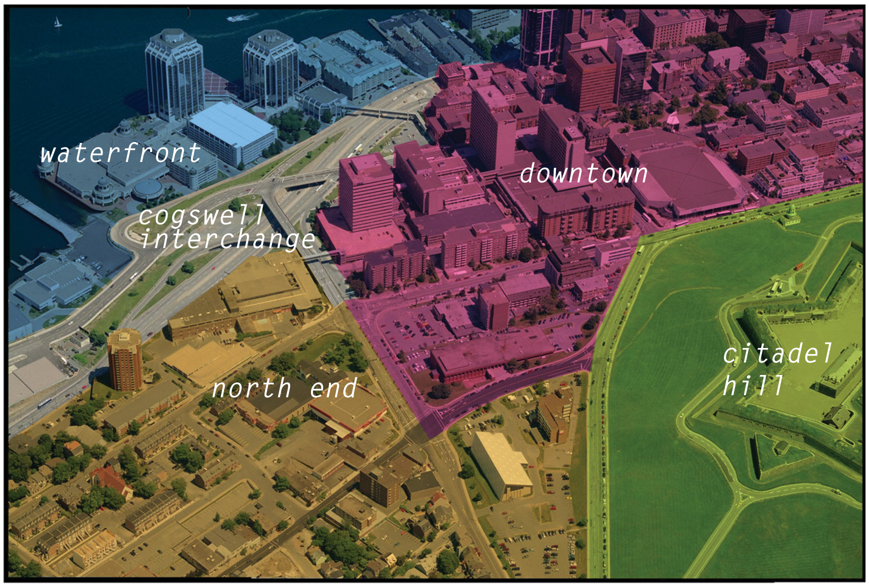
Downtown Halifax, 2013
(Google 2013)

The proposed Harbour Drive would have caused the demolition of the historic properties along the south-eastern end of the peninsula, cutting off downtown Halifax from its waterfront.


NORTH WEST ARM
POSSIBLE BRIDGE
DUTCH VILLAGE RD
MUMFORD ROAD
CONNAUGHT
FAIRVIEW OVER
ROBIE
COBURG RD
OXFORD
QUINPOOL
CHEBUCTO RD
NORTH STREET
AGRICOLA STREET
ROBIE STREET
ROAD
KEMPT
GOTTINGEN
CITADEL
BEDFORD BASIN
NORTHERN SLOPE AREA
HALIFAX HARBOUR
DRIVE
A.L. MACDONALD BRIDGE APPROACH
THE NARROWS
downtown
historic properties
waterfront

Proposed Harbour Drive, 1963
(Halifax Regional Municipality 2013)

Although Harbour Drive did not cause the destruction it might have, what resulted from the construction of the Interchange is the separation of the North End from downtown, as well as the disconnection of the waterfront from the rest of the city.


waterfront
cogswell interchange
downtown
north end
citadel hill

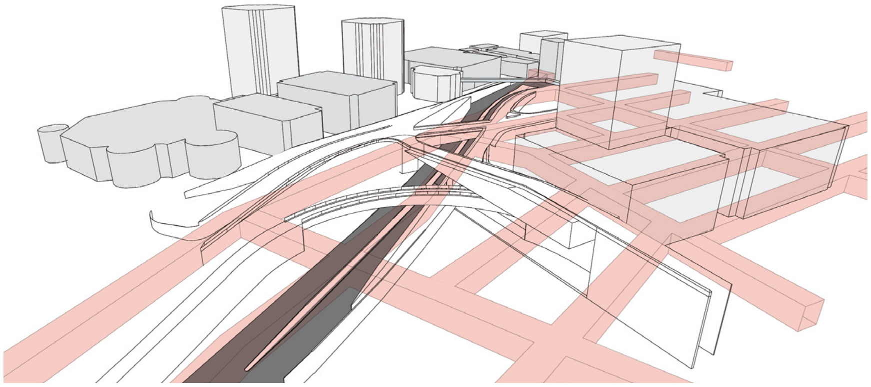
Interchange disconnection
(Bing 2013)

Layering the historic streets under/over the newer paths of the Cogswell reveals patterns of movement established long before the Interchange was built. The former streets that occupied the Cogswell area: Jacob Street, Proctor Street, Proctor Lane, Hurd's Lane, Poplar Grove, Starr Street and Bell Street were lined with homes, shops, warehouses and public buildings and carried many pedestrians to and from downtown.

These historic patterns as well as current patterns of movement extend far beyond the scope of the Cogswell to the entire length of the peninsula. Analysing this superimposition of patterns and paths reveal the importance of the Cogswell area in relation to the entire city. In addition, former paths indicate locations where physical connections are now lacking.

Jacob St and Brunswick St
(Nova Scotia 2013)

Duke St construction, 1967
(Nova Scotia 2013)

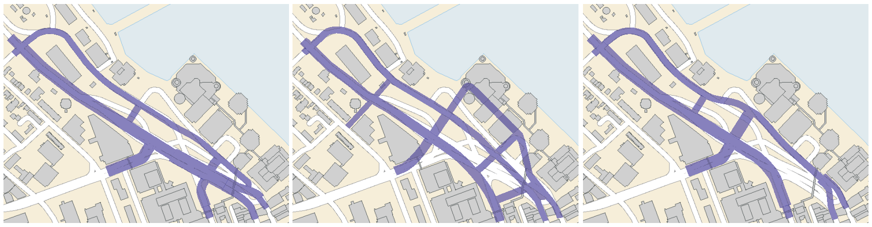


Historic streets layered with current paths of the Interchange

DEMOLITION OR PRESERVATION?

The way cities are built is apparent in their layout and operation. Haussman’s broad boulevards supported military control of the population, while compact medieval cities supported functions of trade and commerce (Gehl 2010, 9). A city with massive highway infrastructure at its centre clearly disregards the rights of pedestrians and cyclists and the human activity and animation that accompany these modes of movement.

The Cogswell Interchange has long been considered a blight on the landscape of Halifax and there have been several calls for its removal since it was first built. Three notable plans for the redevelopment of the Cogswell lands have been proposed by firm Vaughan Engineering (2001), design committee HRM by Design (2008) and the Halifax Regional Municipality (HRM) in 2010. All call for the demolition of the Interchange and a return to more traditional traffic patterns.



Vaughan Plan 2001

HRM by Design Plan 2008

HRM Plan 2010

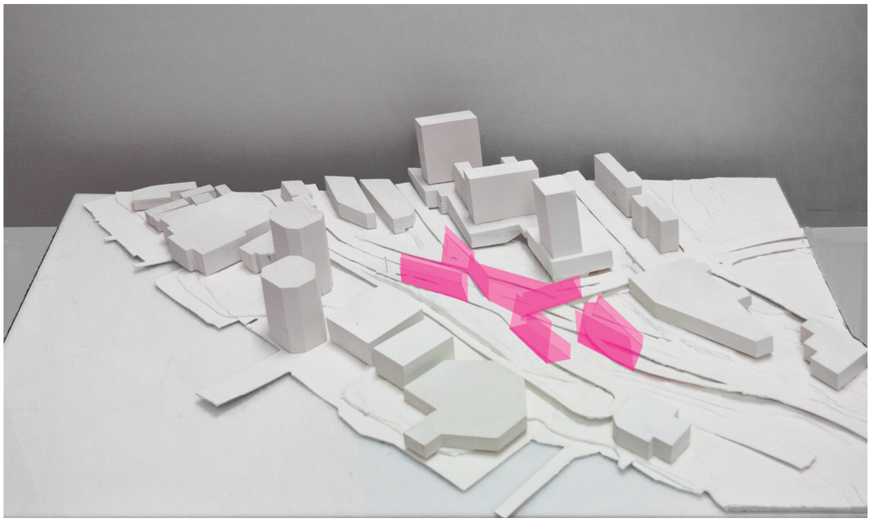
(Halifax Regional Municipality 2013)

Criticisms of the plans from the HRM website include the discontinuity of Barrington Street (Vaughan Plan), the high grade required to connect to Barrington Street from Cogswell Street (HRM Plan) and the disregard to the effect on existing buildings and street grade (HRM by Design Plan.)

With the recent decision to remove the Cogswell Interchange over the next several years, several proposals have come forward suggesting the future of the Cogswell lands. However, all require the demolition of the Interchange infrastructure. Not only is demolition costly, but there is an incredible amount of embodied energy present in the tonnes of concrete of the structure. In addition, the 65,000 m^2 of land of the Interchange would not be used for several years as demolition and construction takes place.

The infrastructure of the Interchange, however, with its dynamic qualities clearly has potential as a generator of activity and event in the city. Preserving the infrastructure and reappropriating it for new uses allows the Interchange to serve as a monument to the negative effects it has had on the city, while powerfully 'taking back the streets' and revitalizing a void within the city.

The appropriation of the Interchange is a method of taking control over this space for public, and as a political act, this appropriation of space is the first step to free use (Tschumi 1994a, 11).

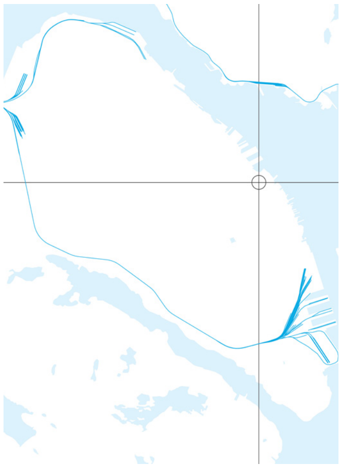


A potential monument to the city?

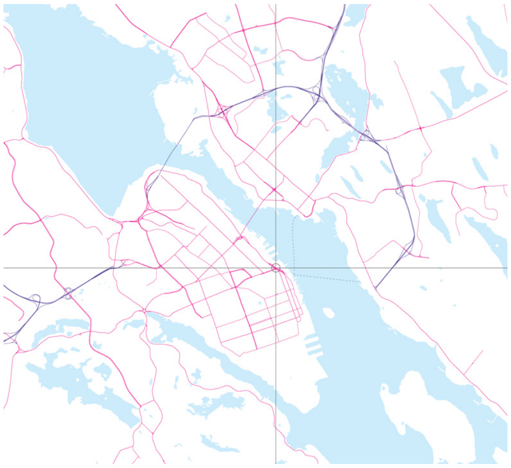
INTERCHANGE ANALYSIS

CITY OF NETWORKS

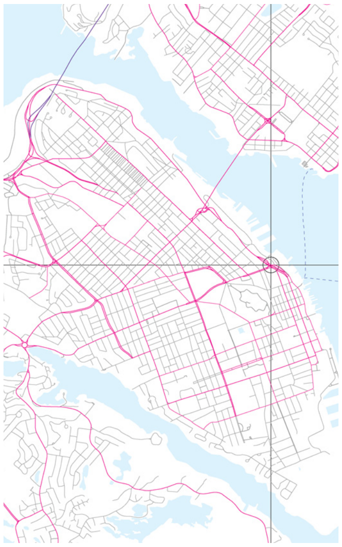
The peninsula of Halifax consists of a variety of networks that connect north to south and east to west. It is connected by a train line that passes along the north, west and south sides of the peninsula, with major roads connecting north and south - all important traffic routes for people and goods. A disconnected pedestrian and limited cycling network also exists within the peninsula, with areas of concentration around the main green spaces (Point Pleasant Park, Halifax Commons, Citadel Hill and Public Gardens) and waterfront.



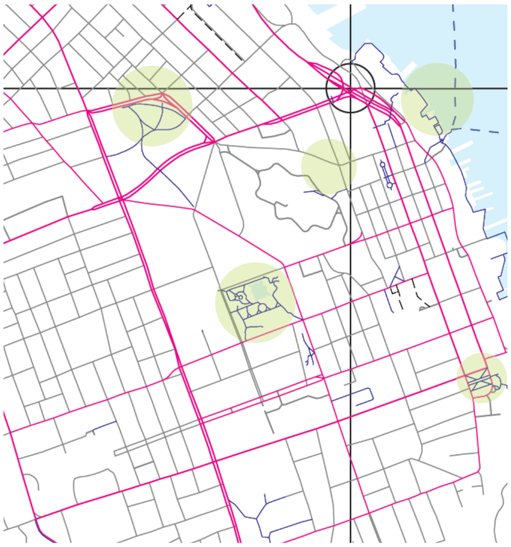
Train network



Road network

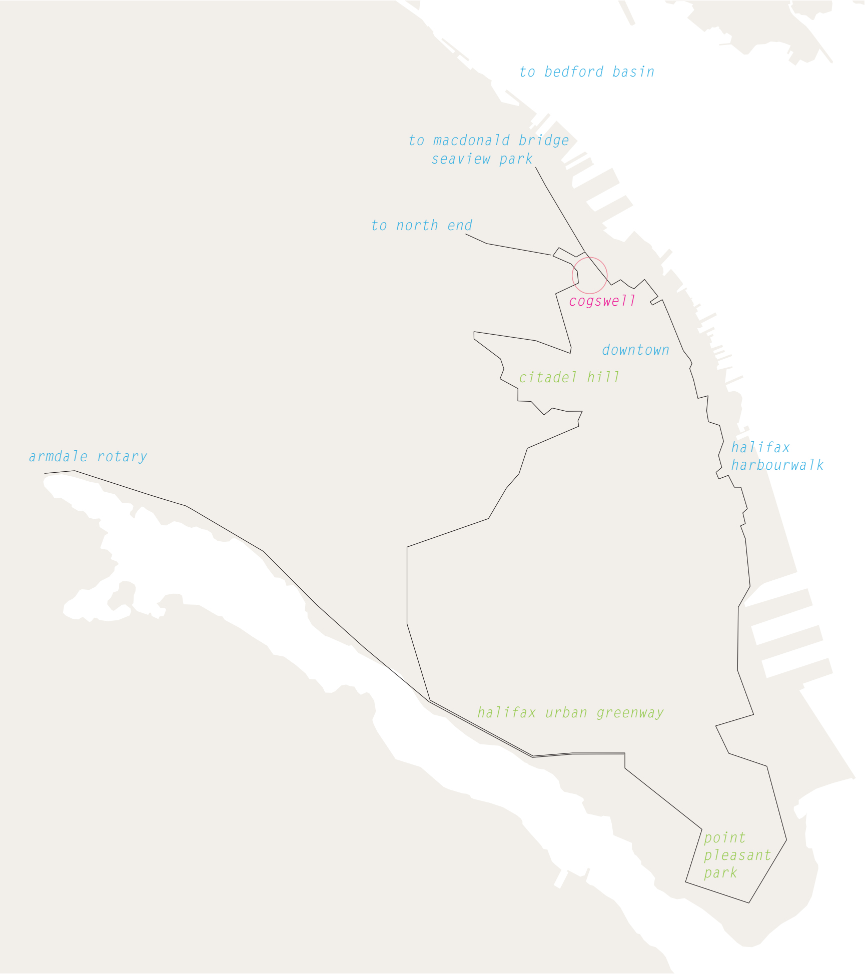


Street network



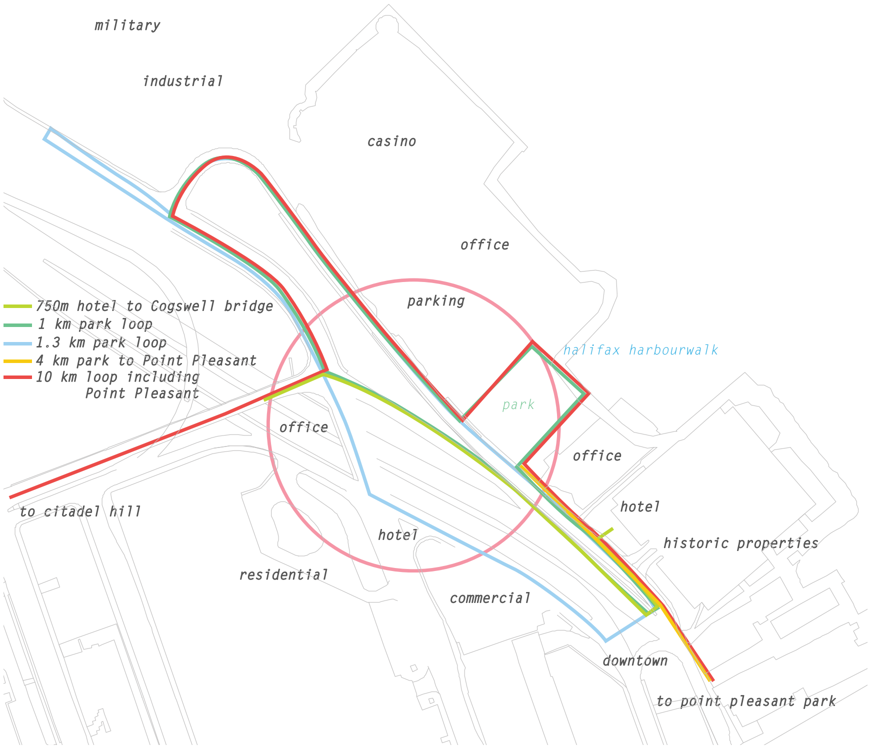
Pedestrian network
(Open Street Map 2013)

At the city scale, the Cogswell Interchange offers the opportunity to connect these currently disconnected pedestrian and cycling paths in forming an important part of a city loop. From the Armdale Rotary at the western edge of the peninsula, the railroad/proposed park zone (Halifax Urban Greenway) travels southeast to Point Pleasant Park at the southern tip of the peninsula. From the park, the path travels north to the 3 km Halifax Harbourwalk and downtown. From downtown and the harbour, the Cogswell Interchange serves as a connector to the north of the peninsula (to the North End, Seaview Park and the Bedford Basin), connecting parks, tourist sites, landmarks, neighbourhoods and districts, as well as pedestrian, cycling and vehicular traffic.


to bedford basin
to macdonald bridge
seaview park
to north end
cogswell
downtown
citadel hill
armdale rotary
halifax
harbourwalk
halifax urban greenway
point
pleasant
park

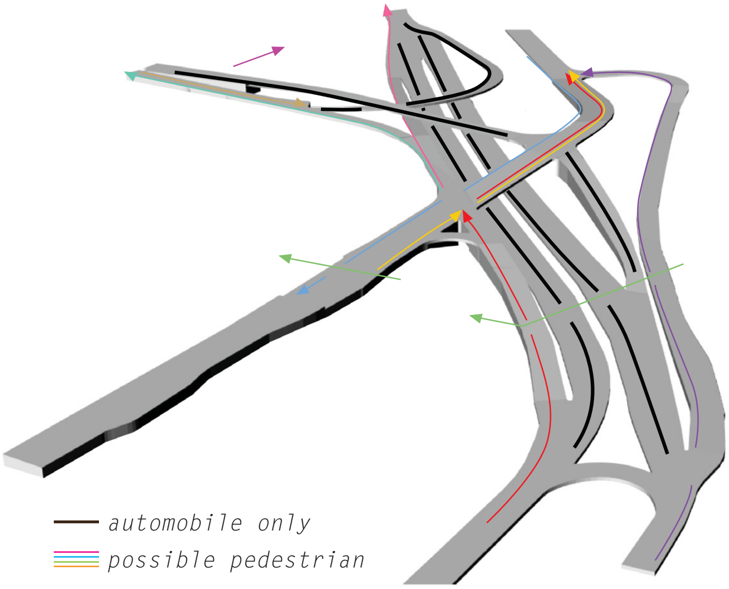
Cogswell Interchange as part of the peninsula network

Within the Interchange itself, the existing paths form a smaller network that connects to the larger city network of paths. Several loops and paths for a variety of users are possible, passing through recreational, commercial and tourist sites in the city. At the larger end of the scale, a 10 km running loop passes through the Interchange, connects to Point Pleasant Park and loops back through Citadel Hill to the Cogswell. An existing park between the Interchange and the harbour connects with other green spaces in the area like Point Pleasant Park, the Public Gardens and Citadel Hill. One km loops connect nearby hotels and offices to recreational and commercial programs that can be sited within the Interchange. Future activities within the Interchange are within close proximity of downtown, tourist sites, hotels, galleries and historic properties.

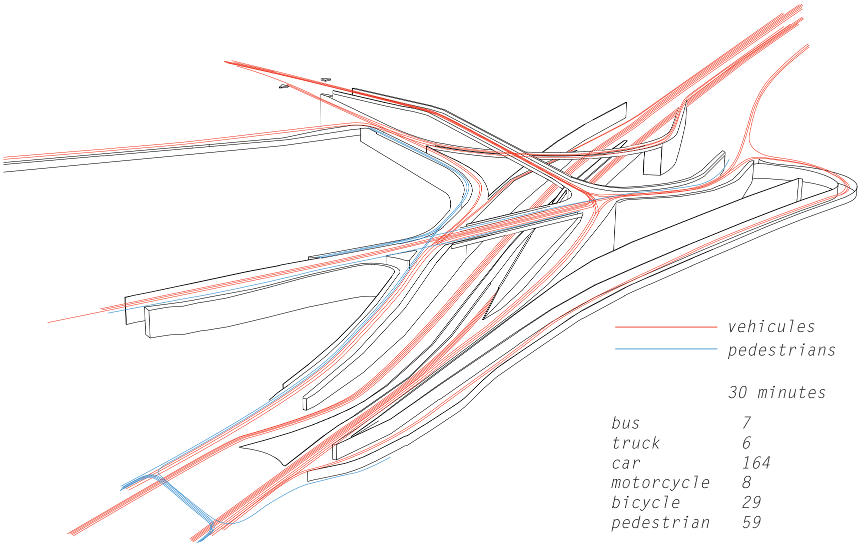

military
industrial
casino
office
parking
halifax harbourwalk
park
750m hotel to Cogswell bridge
1 km park loop
1.3 km park loop
4 km park to Point Pleasant
10 km loop including Point Pleasant
office
office
hotel
historic properties
to citadel hill
hotel
residential
commercial
downtown
to point pleasant park

Network of paths within the Cogswell Interchange

Although the Interchange is, by definition, a network of paths, movement within the network is restricted. Access is reserved for vehicles on several of the roads and is confusing for cyclists and pedestrians. The main paths are accessible strictly to automobiles, while some paths have limited pedestrian access. Some paths cross in plan, however, they are physically disconnected from one another.

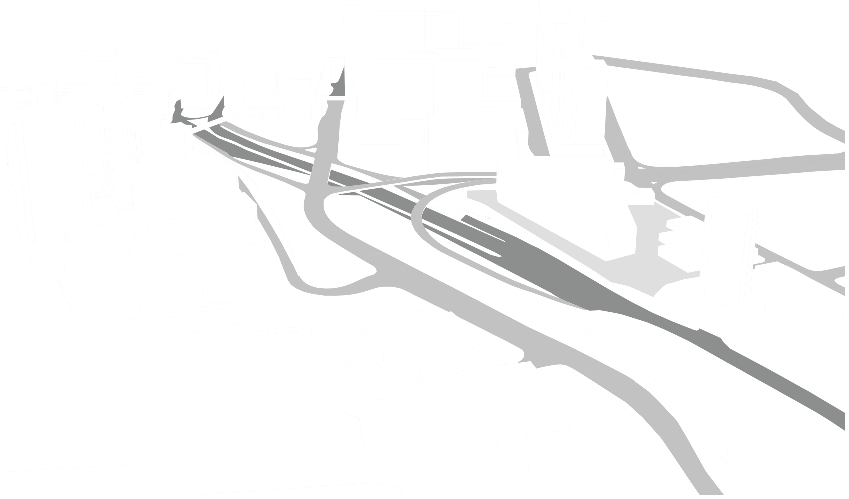

automobile only
possible pedestrian

Paths within the Interchange

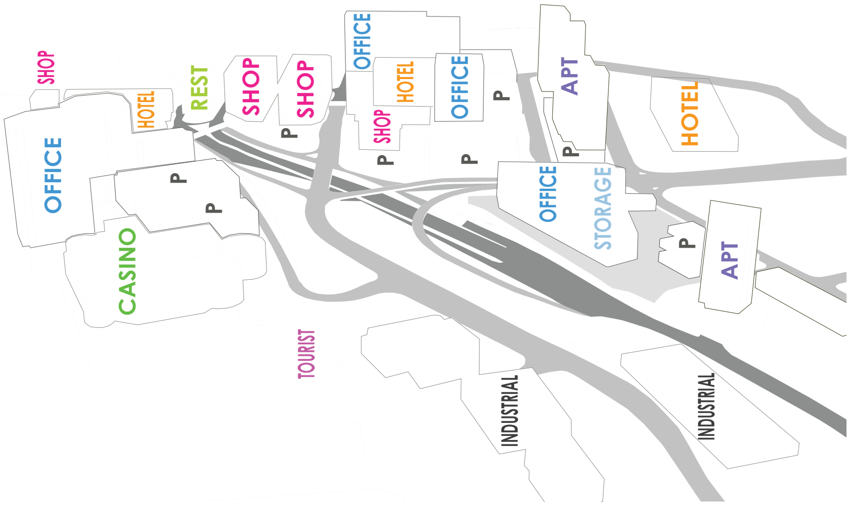

vehicules
pedestrians
30 minutes
bus 7
truck 6
car 164
motorcycle 8
bicycle 29
pedestrian 59

Relative densities of pedestrian and vehicular traffic show paths which are frequented more by pedestrians and those that are primarily used by vehicles

Diagrams of the Cogswell show the extent to which the site is devoted to the automobile. Buildings with program and activity surround the Interchange on all sides: a hotel, casino and offices on the waterfront to the east, commercial and office space downtown to the south, the residential North End to the northwest, industrial lands to the north and the uninhabited void of the Interchange at the centre.

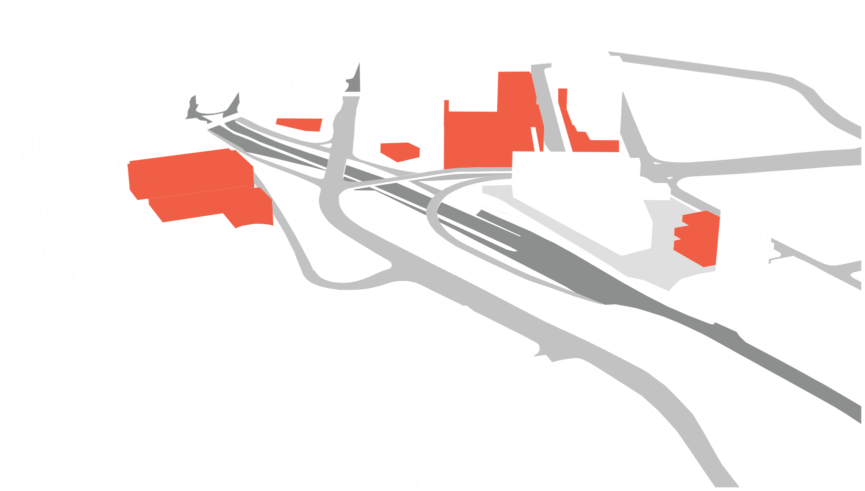


Current networks of roads


SHOP
OFFICE
HOTEL
CASINO
P
P
REST
SHOP
SHOP
P
TOURIST
OFFICE
SHOP
HOTEL
P
OFFICE
P
P
INDUSTRIAL
APT
P
OFFICE
STORAGE
P
HOTEL
APT
INDUSTRIAL

Existing program with Interchange void at centre

In addition to the amount of land consumed by the Interchange, a further 125,000 m^2 reserved for parking creates large expanses of potentially usable space in the surrounding area. The several multi-storey parking structures around the Interchange take up the equivalent of several city blocks, outnumbering the buildings with public faces to the street. Wide roads for vehicular traffic leading to and from the Interchange also add to the potential space for pedestrians and cyclists.



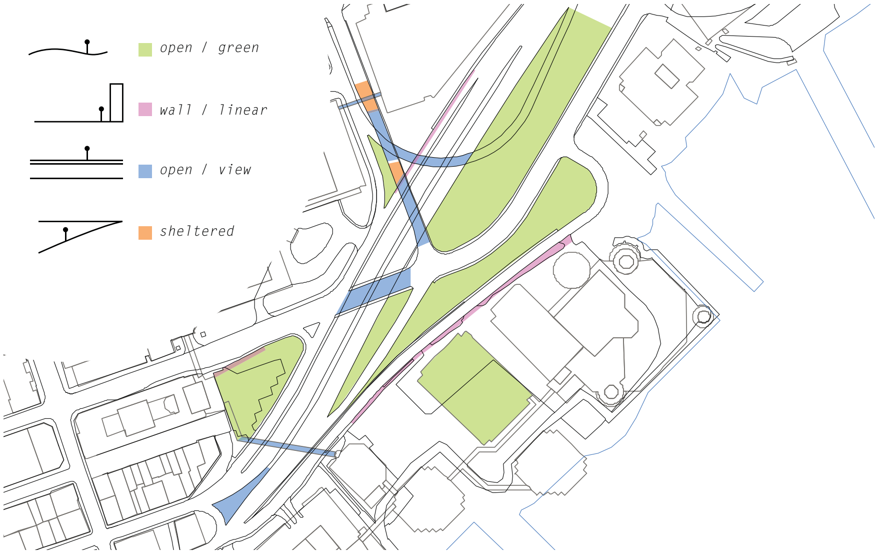
Extent of parking surrounding the Interchange: 125,000 m^2

Parking structure at Cogswell Street

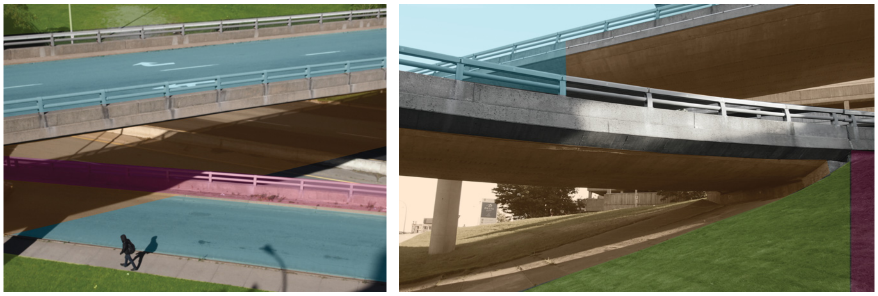
SPATIAL TYPOLOGIES

Various types of “rooms” were identified and categorized within the Interchange. The following photographs and diagrams show the instances of each type of space.

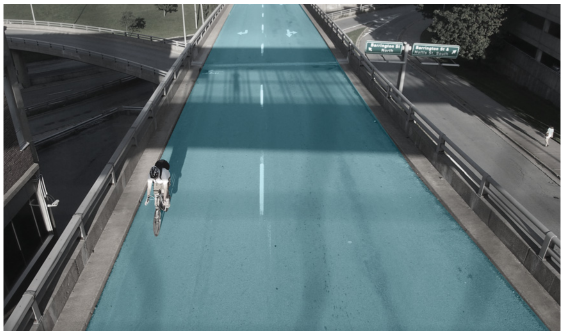
Open spaces appear on flyovers, overpasses and rooftops of parking garages, with views of the city and harbour, as well as at the on-grade parking lot at the southern edge of the Interchange. Sheltered spaces occur under the overpass and flyover along the western side of the Interchange. Three retaining walls exist running north-south along Barrington Street. Several open green spaces exist in the in-between spaces of the Interchange. Although they have park-like characteristics, there is little accessibility to the green spaces.

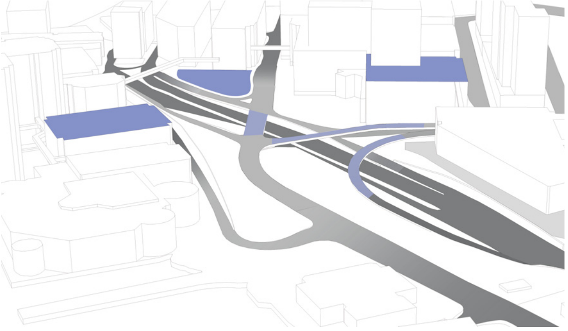


Categories of spaces

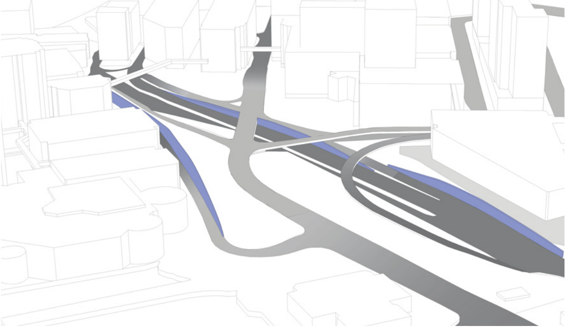


Multi-space: open, sheltered, wall, green

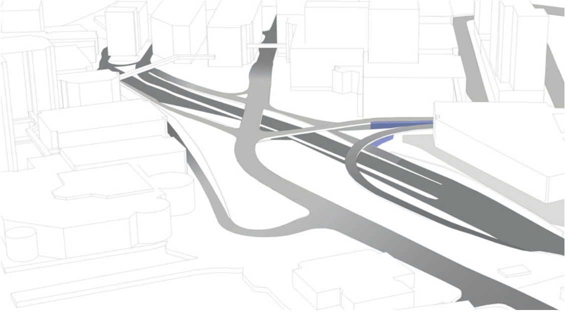

Open spaces


Open spaces

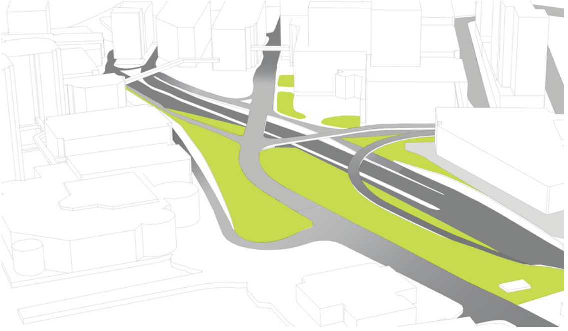
Retaining walls


Retaining walls

Sheltered spaces


Sheltered spaces

Open green spaces


Open green spaces

URBAN HIGHWAY - SENSORY EXPERIENCE

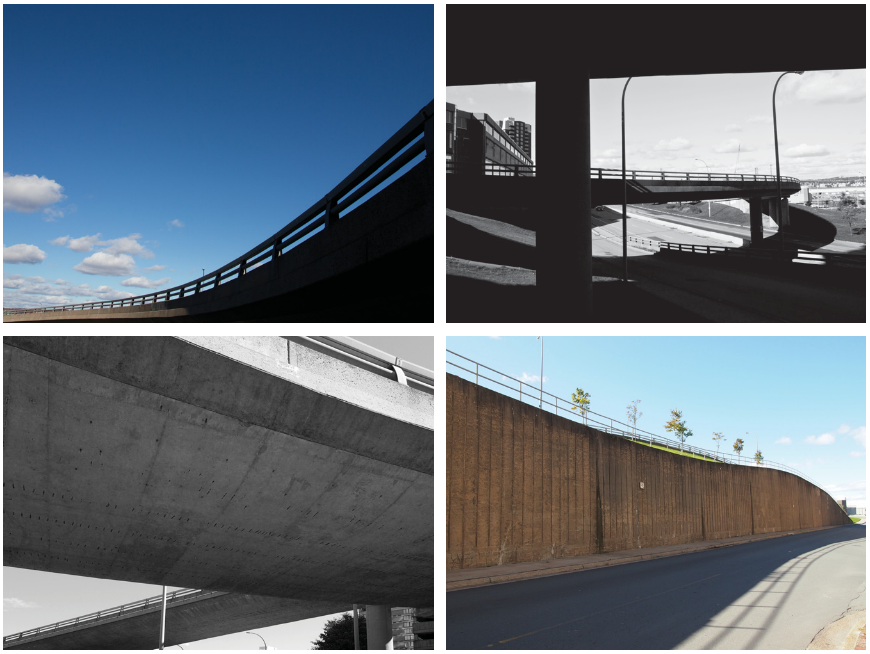
The automobile has influenced modern life immensely since its invention 125 years ago and has become a ubiquitous and necessary part of daily life for many people. “Traffic exists at a human, bodily scale. We built the roads, created its rules, we drive the vehicles, yet it remains an inaccessible mystery (Varnelis 2009, 114). Although a major part of our lives, traffic is something that goes beyond our comprehension simply because of its sheer volume and the scale and vastness of its infrastructure.

Kevin Lynch describes in detail the positive aspects of the experience behind the wheel in his book *The View From the Road*. Driving reveals the organization of a city, what it symbolizes, how people use it and how it relates to the driver (Appleyard 1964, 3). While mainly praising highway infrastructure Lynch acknowledges the possible negative effects, stating that “urban highways seem to pose the greatest problems and to promise the richest visual returns (Appleyard 1964, 3). Lynch’s assessment of urban highways, however, focuses primarily on its effect on drivers, while ignoring the inevitable negative consequences to pedestrians or cyclists. The understanding of a city one derives and the experience of navigating urban highway infrastructure from a moving vehicle is drastically different from one’s impressions on foot.

Night views of Cogswell Interchange - motion and light

Our perception of a monumental piece of infrastructure from a moving vehicle may be dynamic as the columns and curves of the road pass by with a certain rhythm and smoothness at the speed of 60 km/h or faster. However, in the landscape or from afar one's perception of the Interchange is that of a static and monolithic object.

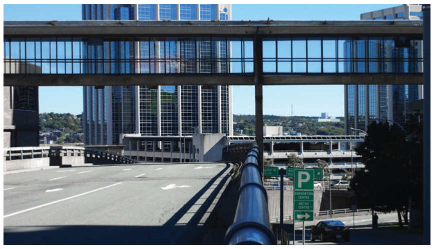
The Interchange, designed for movement of 50 km/h or faster expresses itself very differently to 5 km/h pedestrians, for whom sounds, smells, sensations of touch and weather are heightened. At the slower speed of walking or cycling, details of the 'scene' are more apparent. The undersides of bridges and flyovers, visible for only a second in a moving vehicle, are seen in detail walking below. The repetition of vertical lines in the retaining walls passes quickly by car, but seems endless when walking for 100 metres or more. The surface of the infrastructure's concrete appears smooth and monolithic when seen from a car, but textured and detailed while on foot. Different qualities of light, sound and tactility are revealed in investigating the Interchange from a pedestrian or cyclist's perspective versus that of the automobile.



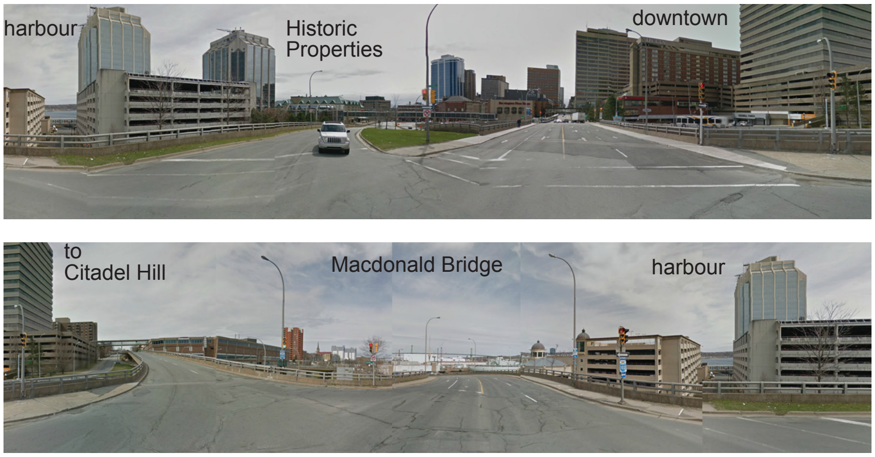
Daytime views of Cogswell Interchange - monolithic, textured surface, light and shadow

Subtle variations of the infrastructure can be appreciated when viewed as an object removed from the negative connotations of its existing use and the sculptural spaces can be envisioned to be used in new ways particular to the qualities within these spaces.

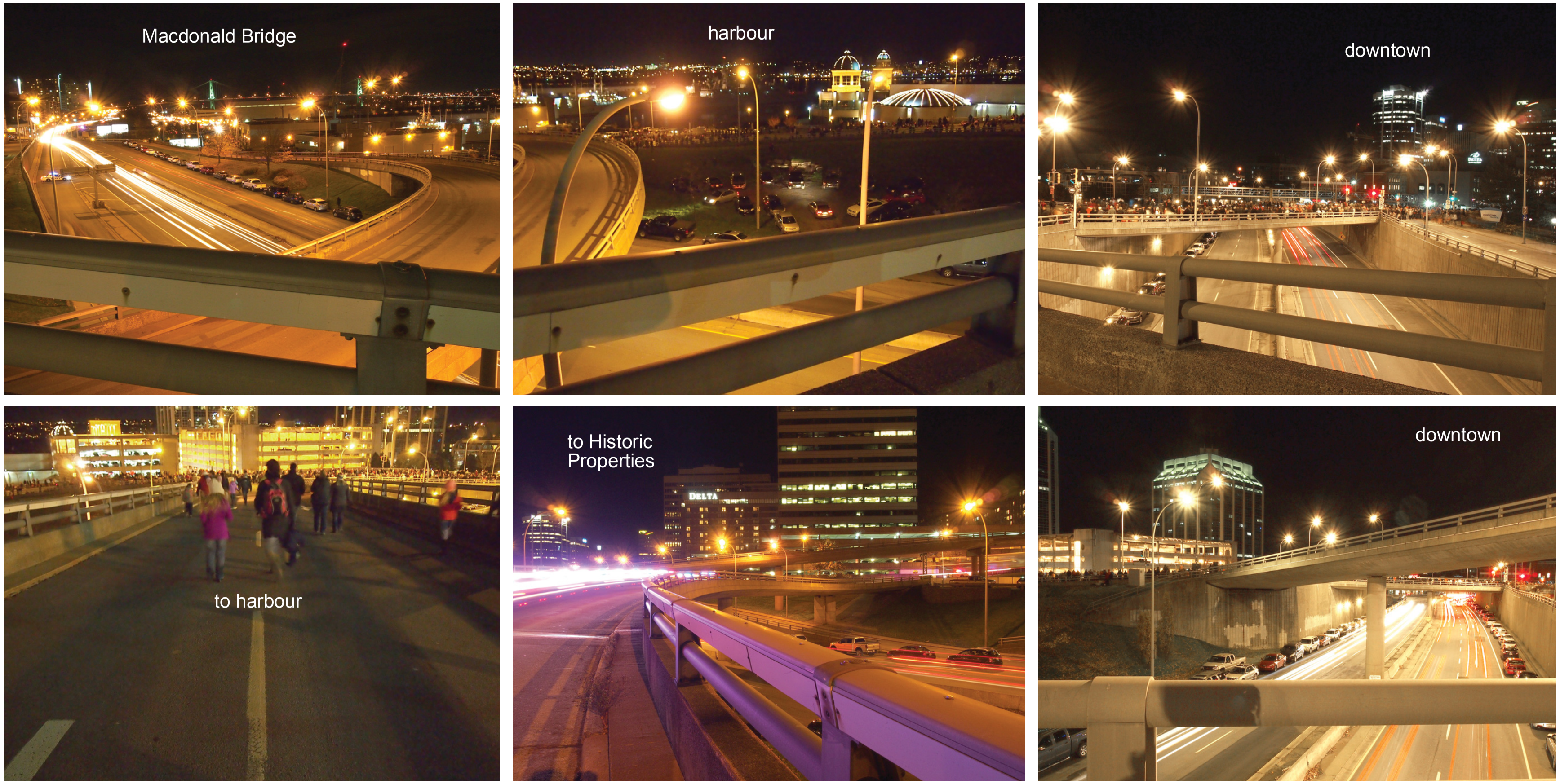
Views from the Interchange to the surroundings, however, are similar regardless of one’s method of movement. Lynch states that “classical views” of a city are such important experiences that even if they are seen briefly in motion they are remembered as “visually static and long-continued” (Appleyard 1964, 11). The topography and geographical location allow for several classical views of the city and its surroundings. Views of downtown, the bridges and the harbour are unique and distinctive from within the Interchange. Presently, several views of the city are seen only briefly from vehicles, as these roads are not open to pedestrians. Impressive views to the harbour from the highest point of the Interchange as well as views from the Cogswell Street overpass are currently unattainable for pedestrians.


View for vehicles from overpass

View towards downtown



360° view from Cogswell Interchange

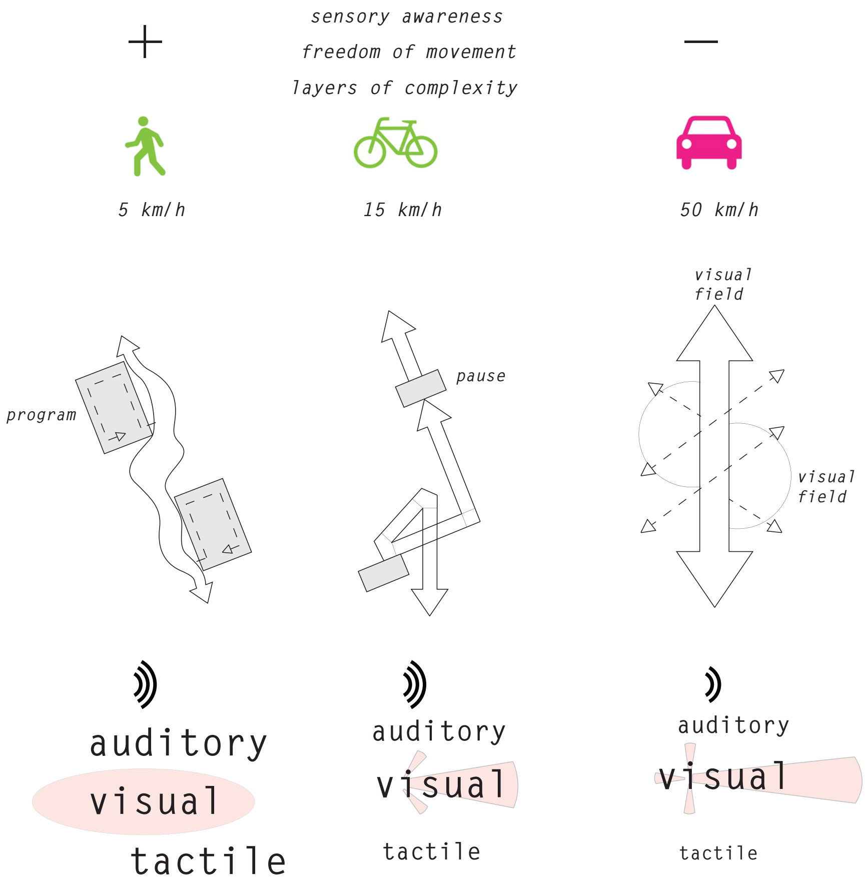

Macdonald Bridge
harbour
downtown
to harbour
to Historic Properties
downtown

Night views from Cogswell Interchange

INHABITATION FROM THREE PERSPECTIVES

Pedestrians, cyclists and drivers are each able to inhabit the Interchange with different experiences and perceptions from their unique vantage points.

Drivers move forward in a directed path, with a forward and peripheral visual field, whereas cyclists have more freedom of movement and pedestrians are unconstrained. Sensory experiences are heightened for pedestrians and cyclists as they have a greater tactile awareness and more time to acknowledge their surroundings. As a result, program that is intended for pedestrians or cyclists can take advantage of the greater complexity that is afforded to these users of the site.


+
sensory awareness
freedom of movement
layers of complexity
—
5 km/h
15 km/h
50 km/h
visual field
program
pause
visual field
auditory
visual
tactile
auditory
visual
tactile
auditory
visual
tactile

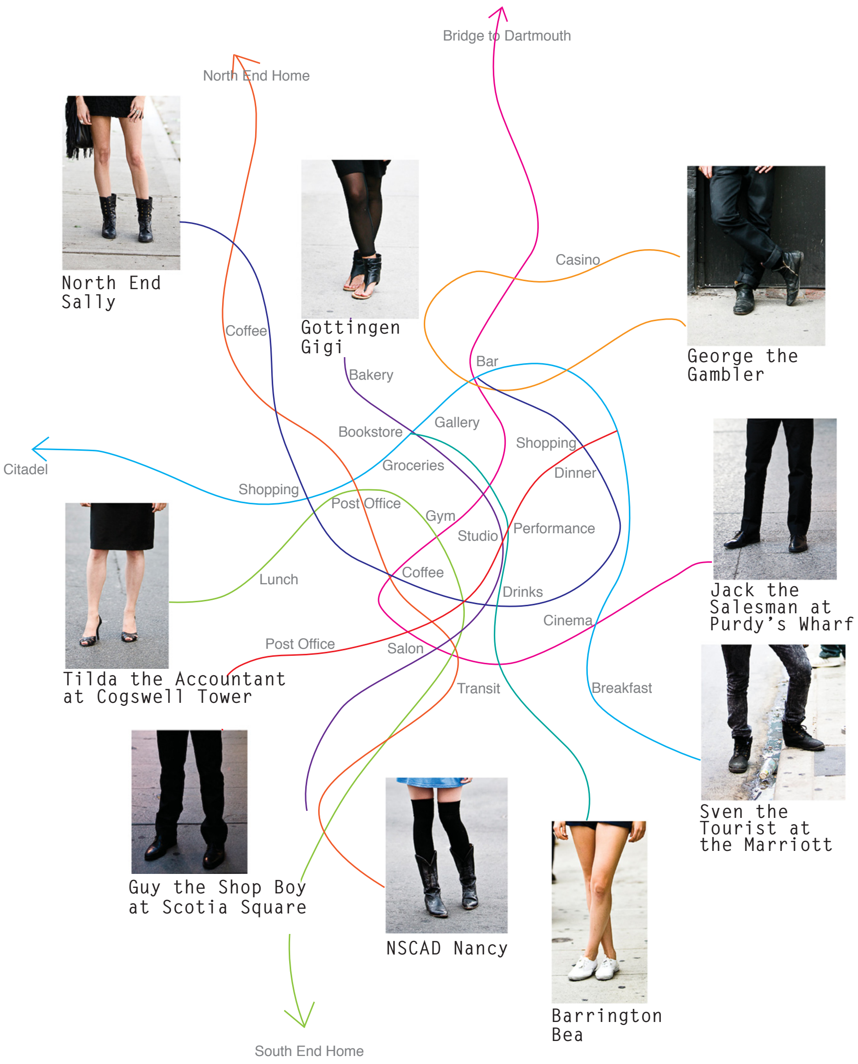
Pedestrian, cyclist and driver experiences

MOVEMENT - NETWORK - PROGRAM - SEQUENCE

The Interchange can seem to be an inhospitable and alienating place, but it is its use as a vehicular interchange that gives us this impression. From a purely formal perspective the Interchange can be perceived as a series of inhabitable spaces connected by a network of paths.

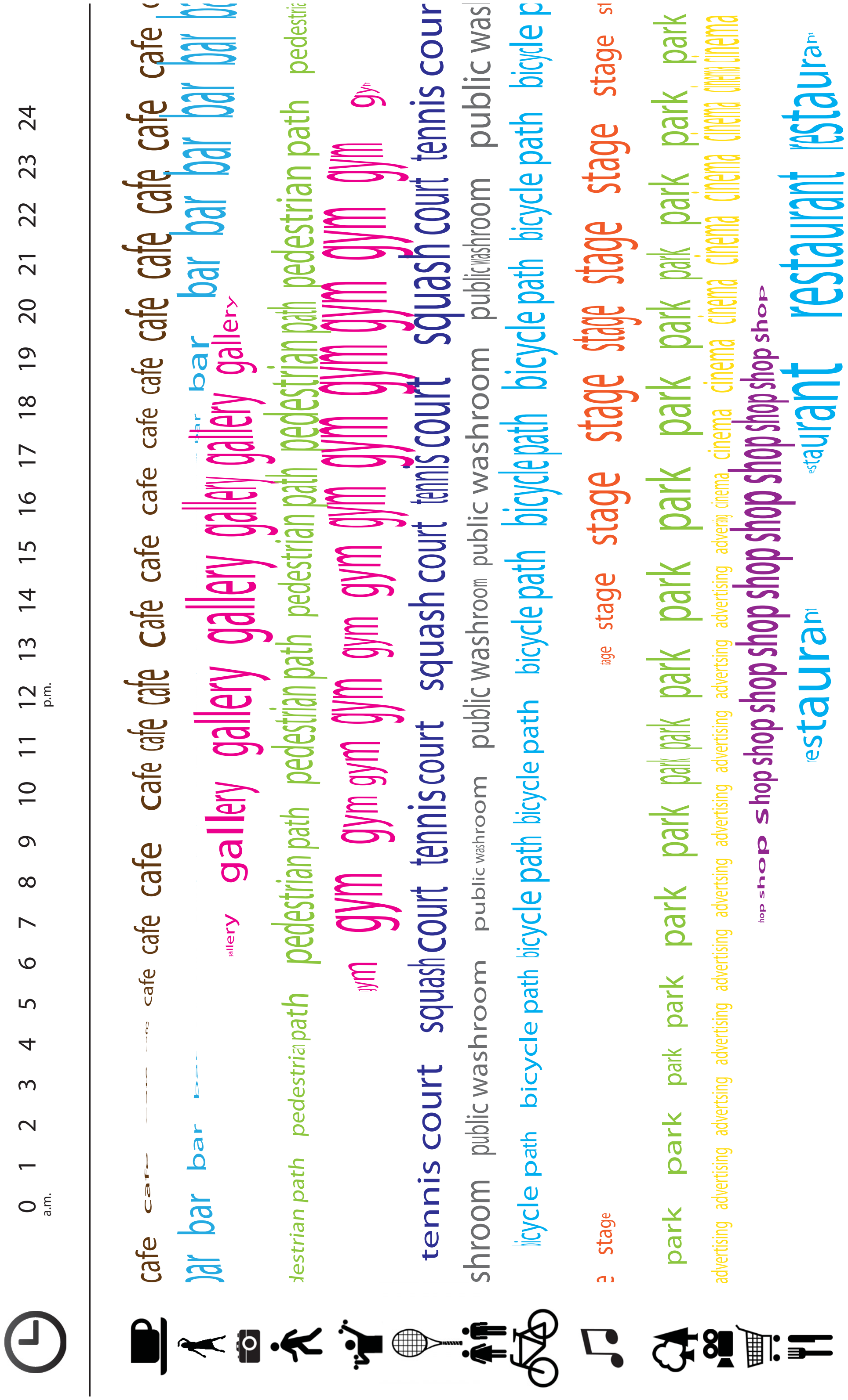
The current state and purpose of the Interchange is solely for vehicular traffic. Any connotations attached to the infrastructure relate to this sole purpose. By transforming the existing state, new instances are created in the same environment but with new associations. As the context of urban highway infrastructure changes to that of pedestrian uses the relationship between the infrastructure and users is changed and as a result new types of program and activity are created.

The possible paths along the Cogswell can be seen as a possibility of narratives through which characters experience various events, the act of walking and passage through the city. Fragments of stories are told by people passing through the city with the experiences along the Interchange being fragments of these stories. As an Interchange, people from different parts of the city pass through every day. Office workers on their way to work in the morning pass through on their way downtown. Visitors to the city arrive at the bus terminal located on the southern edge of the Interchange. Tourists staying at the casino and hotels to the east and south of the Interchange are forced to pass through in order to reach downtown or Citadel Hill. Students from NSCAD University spend time in the nearby cafes and shops. The Interchange already has a large amount of pedestrian traffic passing by throughout the day. What is simply needed to revitalize the area is activity.


Bridge to Dartmouth
North End Home
North End Sally
Gottingen Gigi
Casino
George the Gambler
Coffee
Bakery
Bar
Bookstore
Gallery
Shopping
Citadel
Groceries
Dinner
Shopping
Post Office
Gym
Studio
Performance
Jack the Salesman at Purdy's Wharf
Lunch
Coffee
Drinks
Cinema
Post Office
Salon
Tilda the Accountant at Cogswell Tower
Transit
Breakfast
Sven the Tourist at the Marriott
Guy the Shop Boy at Scotia Square
NSCAD Nancy
Barrington Bea
South End Home

“Narrative” of possible paths through the Cogswell

With the possible characters occupying the Interchange comes a wide variety of possible programs for the site. To function as a true generator of activity in the city, various activities that animate the site througout the day and night are needed. Commercial, recreational, cultural, private and public activities and amenities are all possibilities as activators of the site.



Time diagram of possible activities on the site

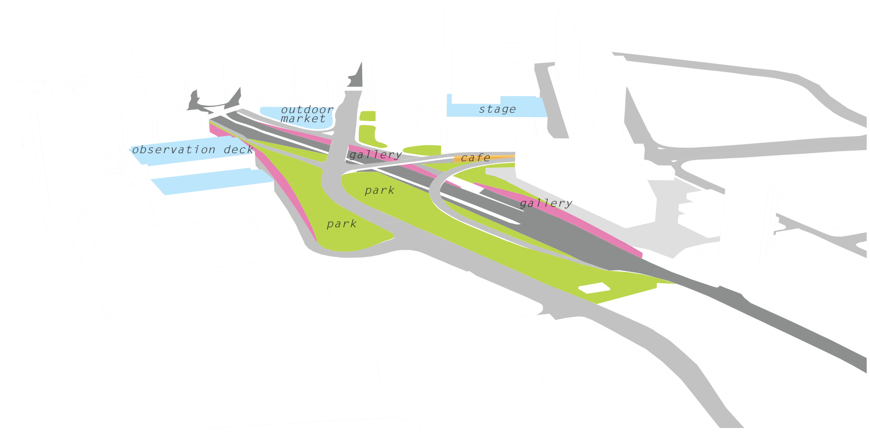
Initial analysis shows four specific types of spaces created, each with its own unique characteristics. From these characteristics it is easy to imagine different types of program that might inhabit these spaces.

Taking advantage of their long uninterrupted vertical expanses, retaining wall spaces could easily house galleries, exhibits and display projections, videos and advertising billboards.

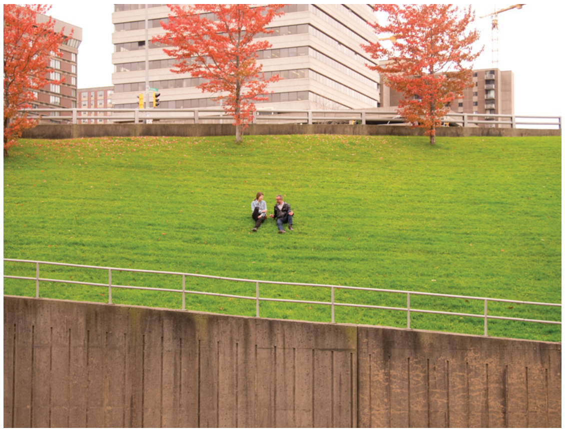
Open spaces with views of downtown and the harbour can act as viewing platforms and observation areas.

Sheltered spaces provide inhabitiation for weather-protected program and activities, like indoor recreational facilities, shops, cafes, bars and restaurants.

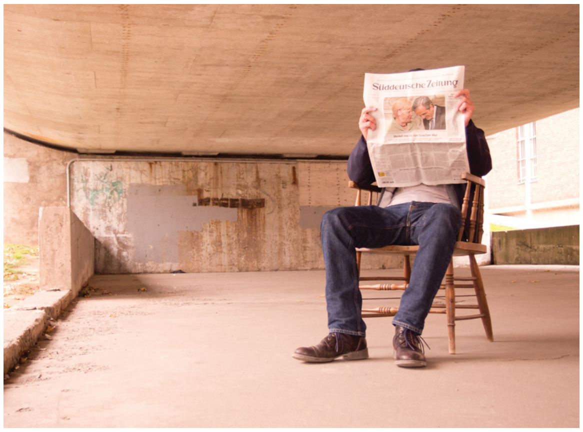
As existing green spaces, little would need to be done to transform these void spaces into parks and recreational spaces. Landscaping, the addition of seating and resting areas would draw people to these newly formalized public spaces.



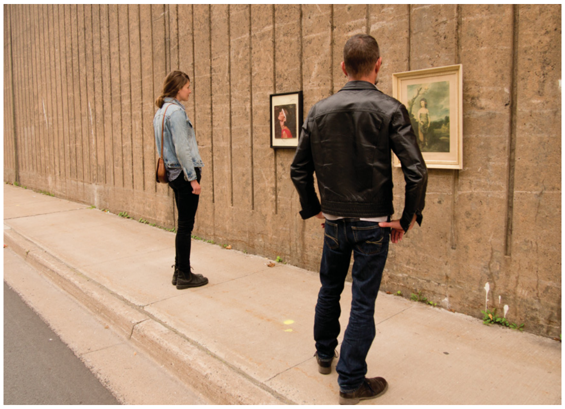
Possibilities for program based on characteristics of each category of space



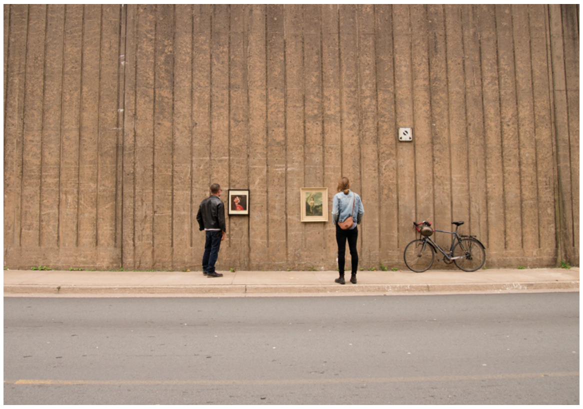
Park


Süddeutsche Zeitung

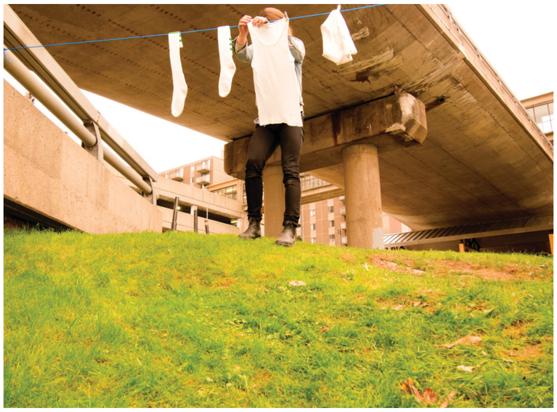
Cafe



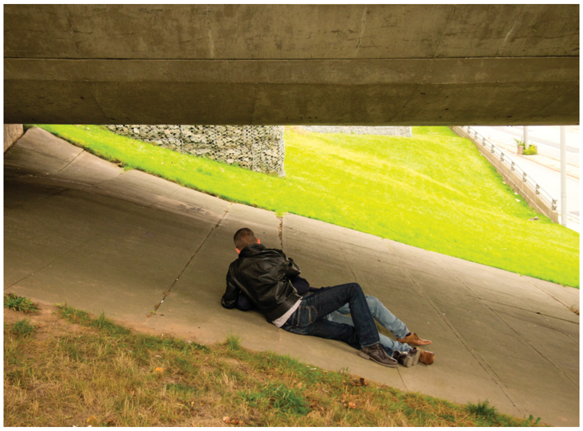
Gallery



Gallery



Residence



Residence

Staged photographs show various possibilities for program based on the characteristics of the spaces

CHAPTER 3: DESIGN

Two steps are required in the intervention of the Cogswell Interchange: the redirection of traffic and the addition of program and event to animate the site.

REDIRECTION OF TRAFFIC

The redirection of traffic is a prerequisite for taking over several roads of the Interchange for pedestrian and cyclist use. However, the return to a street grid is neither necessary nor desirable as it would simply increase the number of streets and intersections, prioritizing the movement of vehicular traffic in the area.

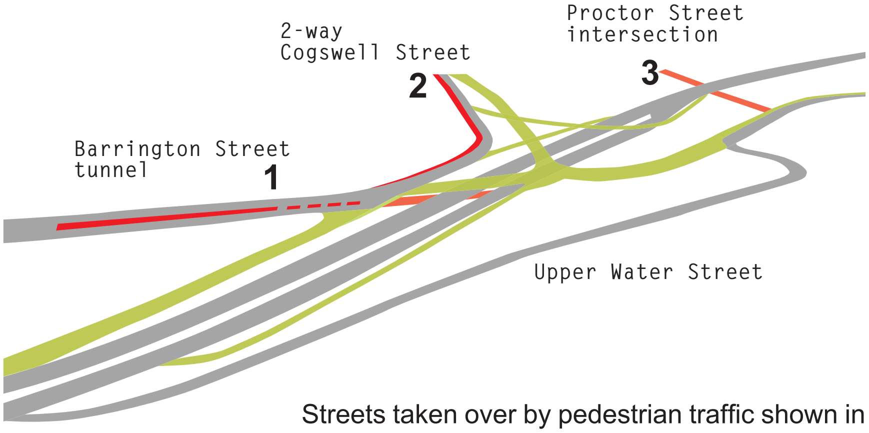
The Embarcadero freeway in San Francisco was closed after the earthquake of 1989 and transformed into a pedestrian- and cyclist-friendly boulevard, with car traffic managing to redirect itself to surrounding streets without any disruption (Gehl 2010, 9). Similarly, shutting down major portions of the Cogswell Interchange would simply change the patterns of traffic that enter and leave the city centre. As a piece of infrastructure that has always been underused, there is clearly no need for roads of this scale in the city.

However, due to the convoluted nature of current vehicular access, additional streets and access points would be necessary if parts of the Interchange were taken over. Three new vehicular connections mitigate the effects of pedestrianizing the overhead paths of the Interchange.

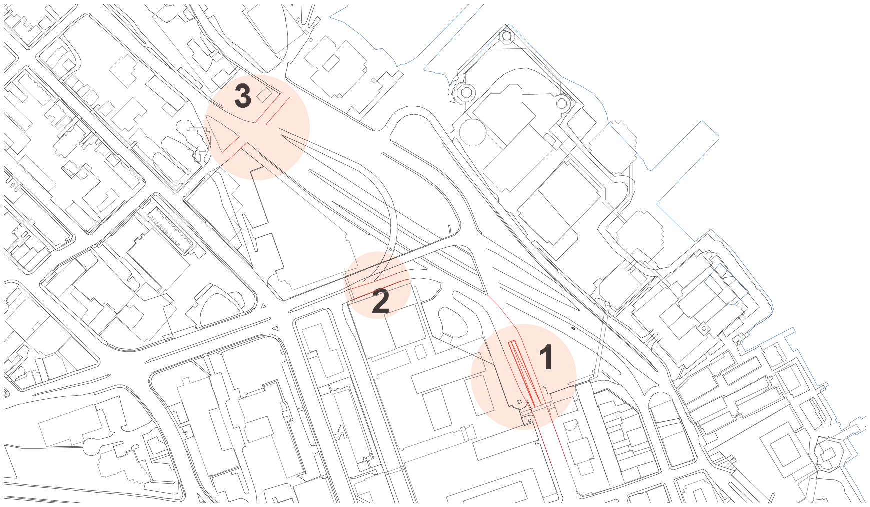
Currently, Barrington Street is a discontinuous path entering the downtown. By connecting the main Barrington Street thoroughfare and the Barrington Street leading to downtown with a traditional intersection below the bridge, the currently confusing access can be simplified and made more accessible.

The Cogswell Street to Barrington Street connection is currently one-way, with traffic from downtown to the North End forced to take the overpass to Cogswell Street. By widening the road to allow two-way access, a simple and direct route from the North End to downtown and vice versa is established.

An east-west connection north of the Interchange at the location of former Proctor Street will provide access to Upper Water Street. An intersection at the north of the Interchange will also help slow traffic entering the downtown. Currently, vehicles traveling along Barrington Street towards downtown are unrestricted until passing the Interchange, resulting in unnecessarily high speeds as vehicles enter the downtown core.


2-way
Cogswell Street
Proctor Street
intersection
2
3
Barrington Street
tunnel
1
Upper Water Street

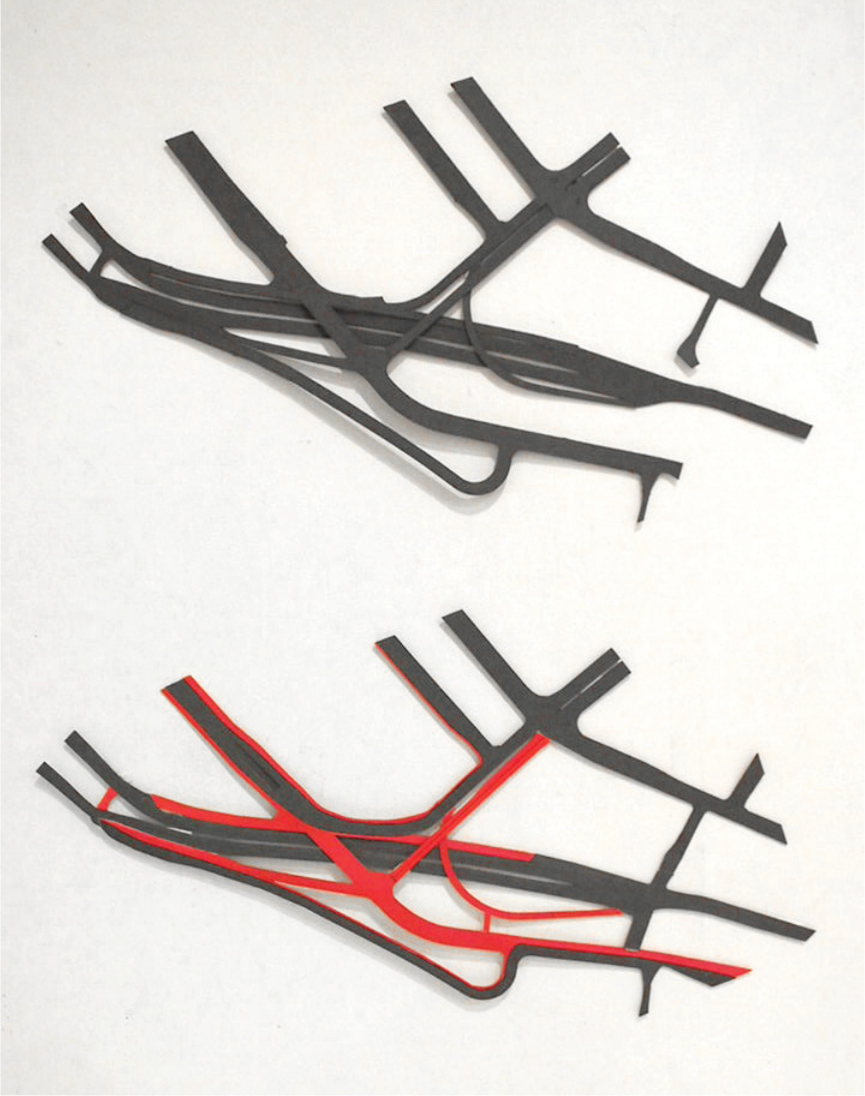
Streets taken over by pedestrian traffic shown in green and new connections for vehicles in red



New connections and widened streets for simpler traffic patterns

The simplification of traffic routes as well as traffic calming measures and wider sidewalks for pedestrians are all methods of reprioritizing the movement of people and vehicles.

Reappropriating the overhead pieces of the Interchange (flyover and two overpasses) visibly demonstrates the importance of pedestrian and cycling traffic over vehicular traffic. Taking over the off-ramp to Hollis Street, on-ramp from Barrington Street and their retaining walls emphasizes the opportunities for the reappropriation of infrastructural elements for other uses.

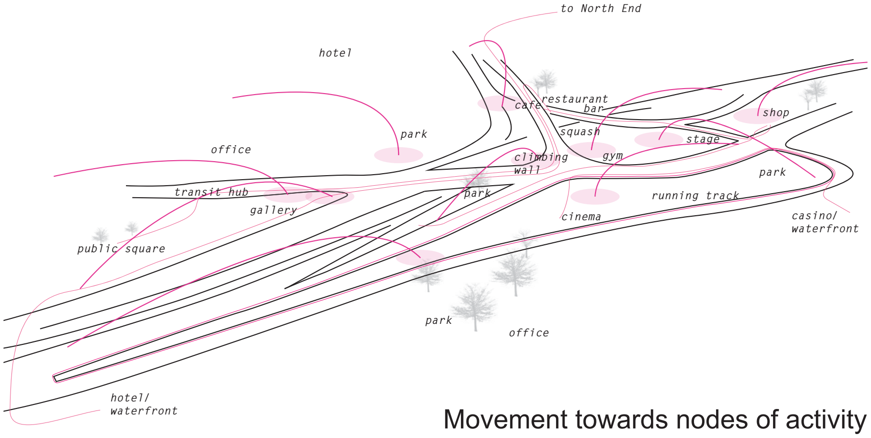


Model of current roads (top), pedestrianized roads in pink (bottom)

ADDITION OF PROGRAM AND CONNECTIONS

PROGRAM

While a wide variety of program can be imagined and suggested, it is not the program that is of utmost importance but the movement between these static spaces. The program could be variable or changing or indeterminate, as it is not the type of program that determines the success in revitalizing an urban area, but “the possibility of activity, the experience of spectacle that brings life to a previously underused area” (Carbonell 2011, 38). A case in point is the pop-up shop - a temporary, short-term retail space that is often set up in vacant lots. It is a ‘symptom of urban culture that values the experience of spectacle over the specificity of place’ (Carbonell 2011, 38) and as such, programs with activities that are simply part of daily life are incorporated into the networks of movement that pass through the site, with converging nodes of event attracting people and activity.

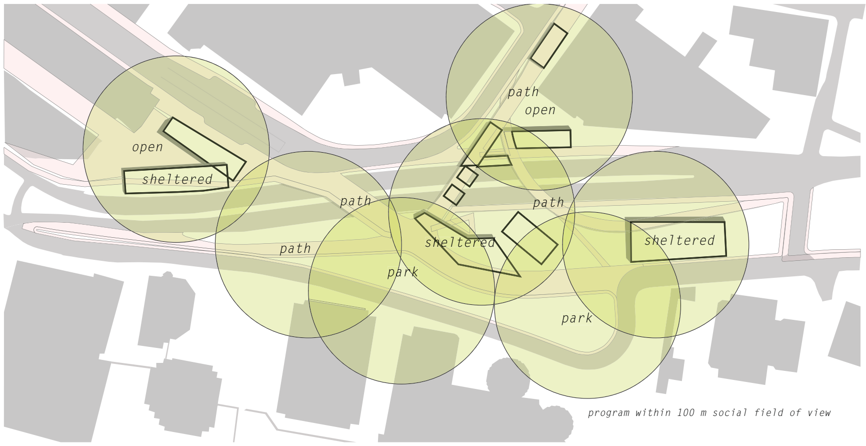

to North End
hotel
cafe
restaurant
bar
shop
park
squash
stage
office
climbing
wall
gym
park
transit hub
park
running track
gallery
cinema
casino/
waterfront
public square
park
office
hotel/
waterfront

Movement towards nodes of activity

Tschumi questions the role a literary narrative could play in the organization of events in buildings. If program could be organized in a similarly objective, detached or imaginative way, “conventional organizations of spaces could be matched to the most surrealistically absurd sets of activities or the most intricate and perverse organization of spaces could accommodate the everyday life of an average suburban family” (Tschumi 1994a,146).

Removing any expectations about program that is “appropriate” for certain spaces, any imaginable type of program could occupy any space. Unexpected and unlikely juxtapositions of program would result, creating activity and urbanity in spaces previously devoid of life. The Interchange could, therefore, set the stage for an unconventional play of events, bringing together the characters of a city.

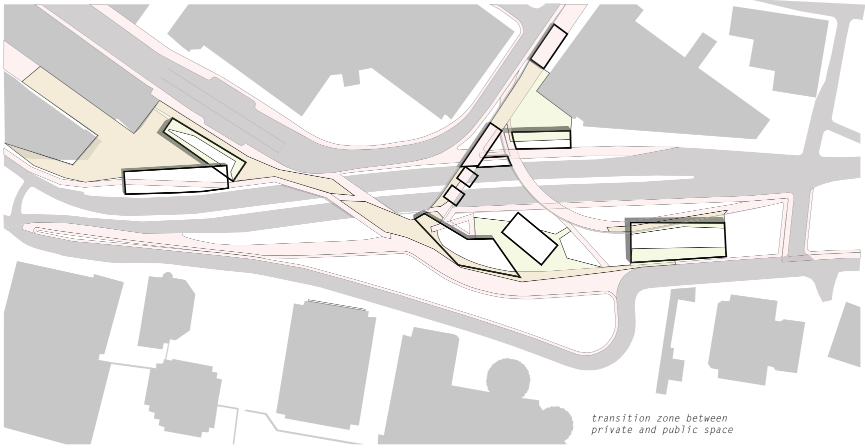
To determine an appropriate density of program, Gehl’s 100 m social field of view was applied. Activities and events, both interior/exterior and public/private, placed within these 100 m circles of event create sheltered spaces and paths for movement. Short distances between program support the act of walking and cycling between events.



Activities and events placed within each 100 metre radius circle

While some of the programs and activities are planned, unpredictable and unplanned activities make urban areas dynamic and exciting (Gehl 2010, 20). This mixture of programmed and unprogrammed events add to the spontaneity of the site.

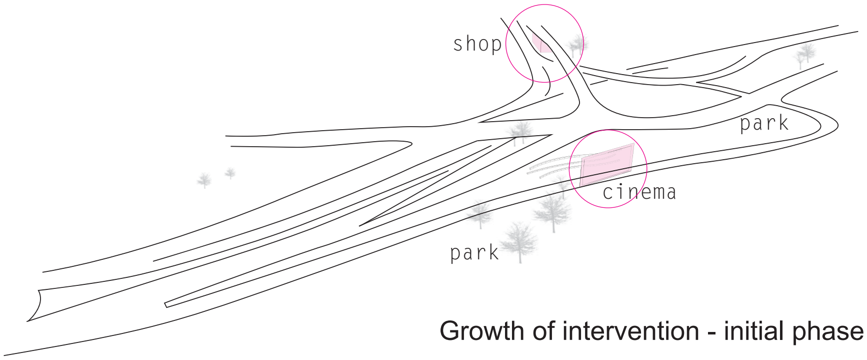
The importance of public space and the life that exists between buildings is apparent as it includes the different activities that take place in common city spaces (Gehl 2010, 19). Soft edges in front of private spaces leading to public spaces encourage public activity and provide sitting and waiting spaces for people, while hard edges between pedestrian/cyclist spaces and automobile paths allow for the close proximity of these separate networks. The public spaces between programs are essential in bringing public life and vitality to an increasingly insular and enclosed society.



The transition from private to public space is fluid as paths converge towards each other

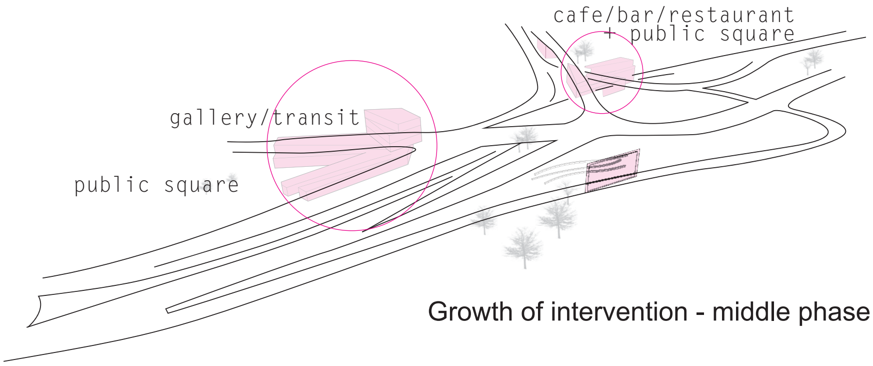
PHASES

The design of the Interchange is not intended to be a singular development, but several interventions that grow and eventually fill the site. Smaller interventions such as the commercial space under the west side of the overpass begin to inhabit the site. On the opposite side of the Interchange, the outdoor cinema draws people to outdoor program. As more activity takes place at several points in the site, paths are formalized connecting the various elements of the Interchange. Existing green spaces, now with connections and accessibility can be formalized as park spaces also connecting the site.



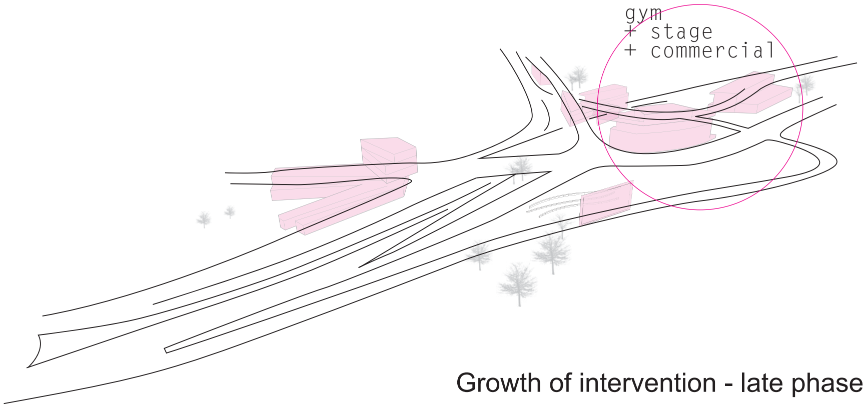
Growth of intervention - initial phase

More intensive interventions that require excavation of ramps such as the gallery, transit hub and cafe/bar/restaurant along the North-South axis of Barrington Street bring further activity and program. Open public spaces next to these “private” spaces add another level of connectivity to the network of paths crossing the site.



Growth of intervention - middle phase

At the central point of convergence and activity, the gym is positioned alongside the main automobile thoroughfare and cycling path, next to the running track, and facing the new pedestrian-zoned overpass and flyover. An enclosed fitness centre, outdoor stage/tennis court, open-air seating, sheltered viewing platforms and climbing wall form a hub of activity crossed by pedestrians, cyclists and drivers.



Growth of intervention - late phase

SEQUENCE

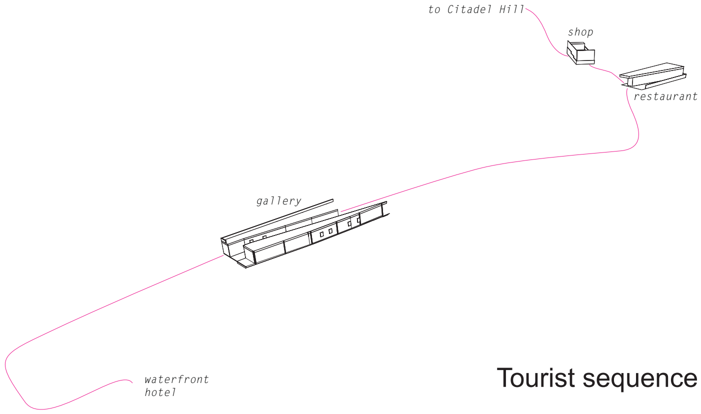
As the Cogswell site is a complex and difficult to understand site, it is not possible to gain a complete understanding from a singular perspective. The problem with representing architecture as objects in plan is that in the spatial compression that occurs, “time is lost, time which gives space richness and depth” (Kuma 2008, 94).

Kengo Kuma’s aim with his Kiroosan Observatory was “not to create an object, but to choreograph a sequence of movements by the subject’ (Kuma 2008, 49). And with his design for the Japanese Pavilion at the Venice Bienale of 1956, ‘a space that begins as a volume is unravelled and transformed into a space of passages, a space of temporal sequence (Kuma 2008, 72). Kuma sees architecture as “a continuous form, not unlike literature and music, so architectural design is the design not of form, but of sequence” (Kuma 2008, 78).

As Kuma describes the traditional Japanese horizontal scrolls (emakimono): ‘It is impossible to get a bird’s eye view. Space appears only along a temporal axis: space and time are inseparable” (Kuma 2008, 94). If architecture is regarded in the same way, in a temporal sense, then “it becomes a series of experiences unfolding in time, something sequential” (Kuma 2008, 78).

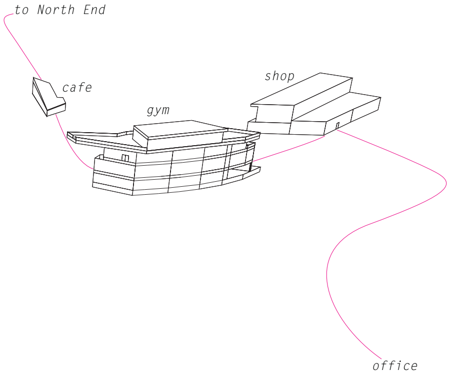
The Cogswell site can be approached from several directions, each unfolding in a different sequence. As with program, it is not the form of each building that is important, but this sequence of events that can be experienced. From the program that fills the site, a number of sequences can occur as characters navigate through the Interchange.

The tourist sequence might begin at the waterfront hotel, pass through the gallery, restaurant or cafe then to the Citadel Hill.


to Citadel Hill
shop
restaurant
gallery
waterfront hotel

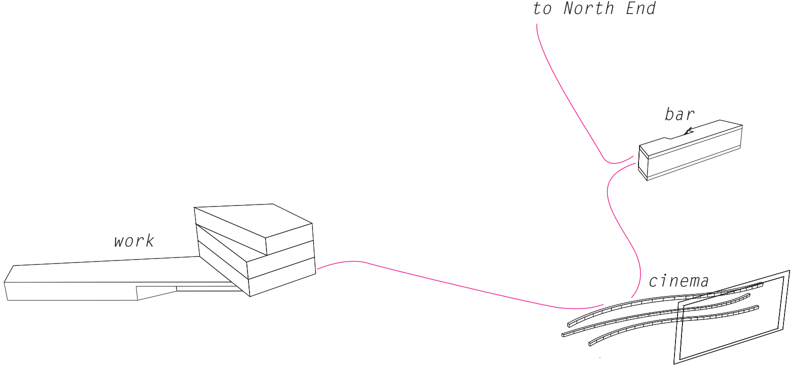
Tourist sequence

A sequence for an office worker might start at home in the North End, stopping by the cafe on Cogswell Street, then to the gym and convenience store before going to work in Purdy's Wharf.


to North End
cafe
gym
shop
office

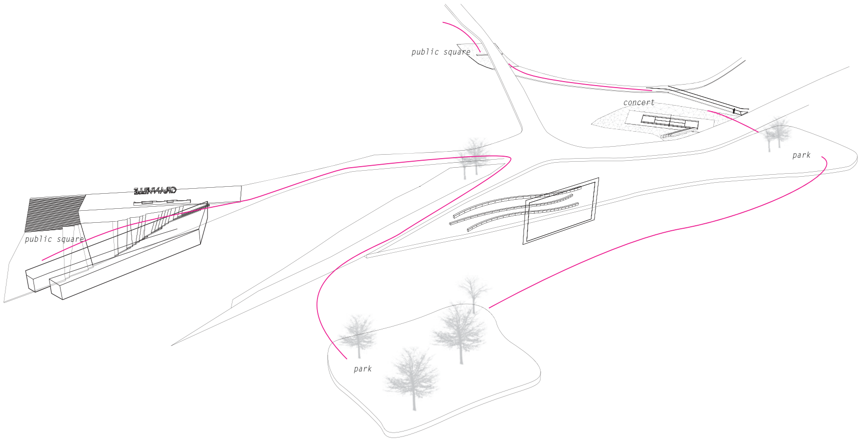
Office worker sequence

An evening sequence could begin as work finishes downtown, to the outdoor cinema at the parking garage, followed by the bar at the overpass, then home to the North End.


to North End
bar
work
cinema

Evening sequence

An outdoor weekend sequence could include some time at the gallery and Granville Square, followed by an afternoon at the harbourfront park, an outdoor concert, then home through the public square under the overpass.



Outdoor sequence

Any number of programmatic sequences of events is possible throughout the day or night. Morning programs and activities (cafe, gym, park), afternoon program (shop, restaurant) and night activities (cinema, bar) as well as activities that occur throughout the day and night (transit hub) bring a changing sequence of events depending on the path and time of day.

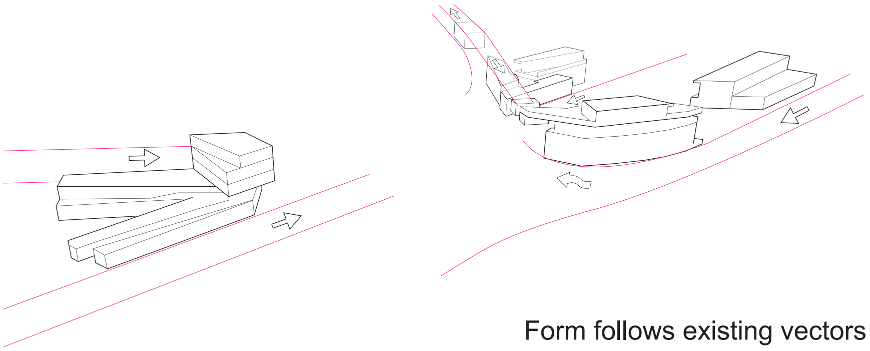
From these spatial sequences, fixed resting points and markers are determined along the paths of continuous movement. As sequences are manipulated in literature and cinema with devices such as flashbacks or dissolves, in architecture contracted and expanded sequences represent a manipulation of these sequences (Tschumi 1994a, 165). An alternation of contracted and expanded sequences gives a sense of rhythm and movement to the paths through the site.

The expanded sequences of programmatic events are accompanied by the contracted sequences marking one's movement. Sequences along the main thoroughfare with sections of the retaining walls removed for light at 15 m intervals create a repetitive light installation for drivers moving along at speed. Light posts and painted stripes at 50 m intervals along the running track act as distance markers for runners and joggers. A more compressed sequence occurs at the overpass where cuts in the road surface at 20 m intervals act as lightwells for program below.

FORM

The design is intended to fill voids of the Interchange and formalize implied volumes that already exist. New interventions run alongside retaining walls and existing roads, underneath the bridge and flyover, and in unused paved and green spaces. New buldings are not intended to be iconic markers in the city, but rather subtle additions to the existing built landscape.

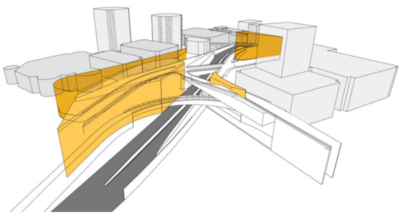
What is more important than the formal qualities of the interventions is the openness of the volumes and spaces.Transparency and glazing along the ground floor brings passersby into the activity of the private spaces and creates a fluid threshold between outside and inside. It is also a part of the voyeurism of city life, as people see and are seen by others, increasing opportunities for experiences in both directions.



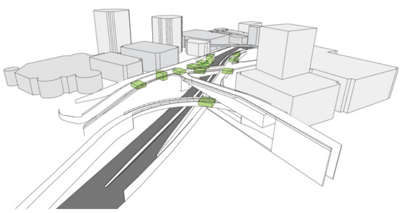
Form follows existing vectors
of movement within the site

CUT - EXTEND - ATTACH - FILL

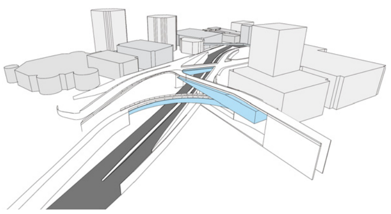
Cutting into, extending from, attaching to, and filling the voids of the infrastructure are methods of intervening with the Interchange to create inhabitable spaces. Extending walls to provide shelter, formalizing existing volumes with enclosures, suspending structures from bridges and filling the inbetween void spaces create possibilities for various types of program. Commercial, recreational, entertainment, and park spaces are programmatic elements that are appropriate for the regeneration of an urban site that add life to the streets while taking advantage of the existing framework of vehicular infrastructure.



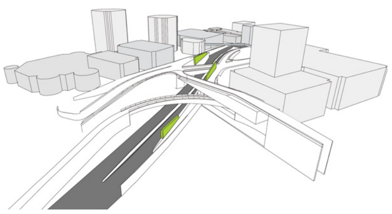
3D model: fill



3D model: cut

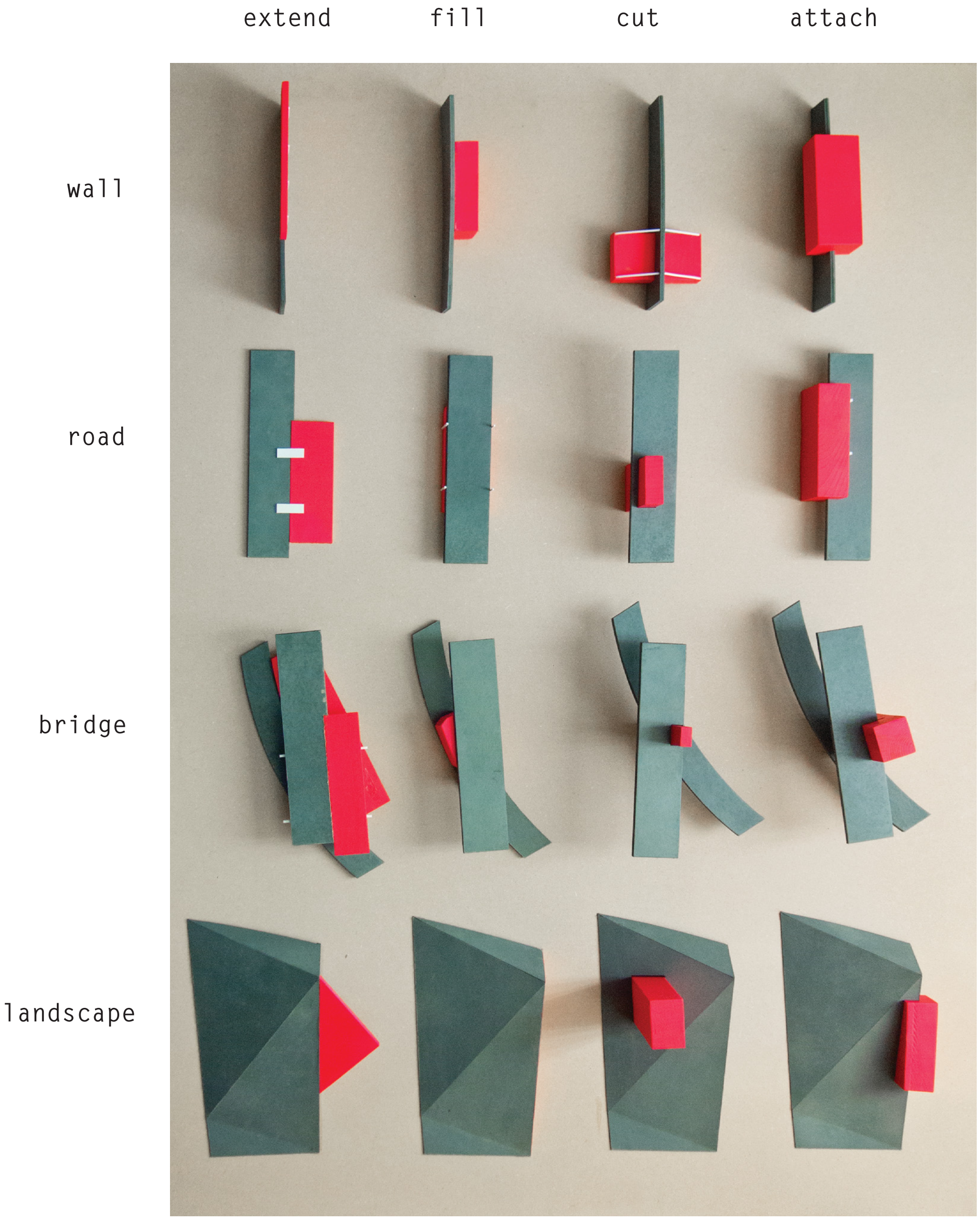


3D model: attach

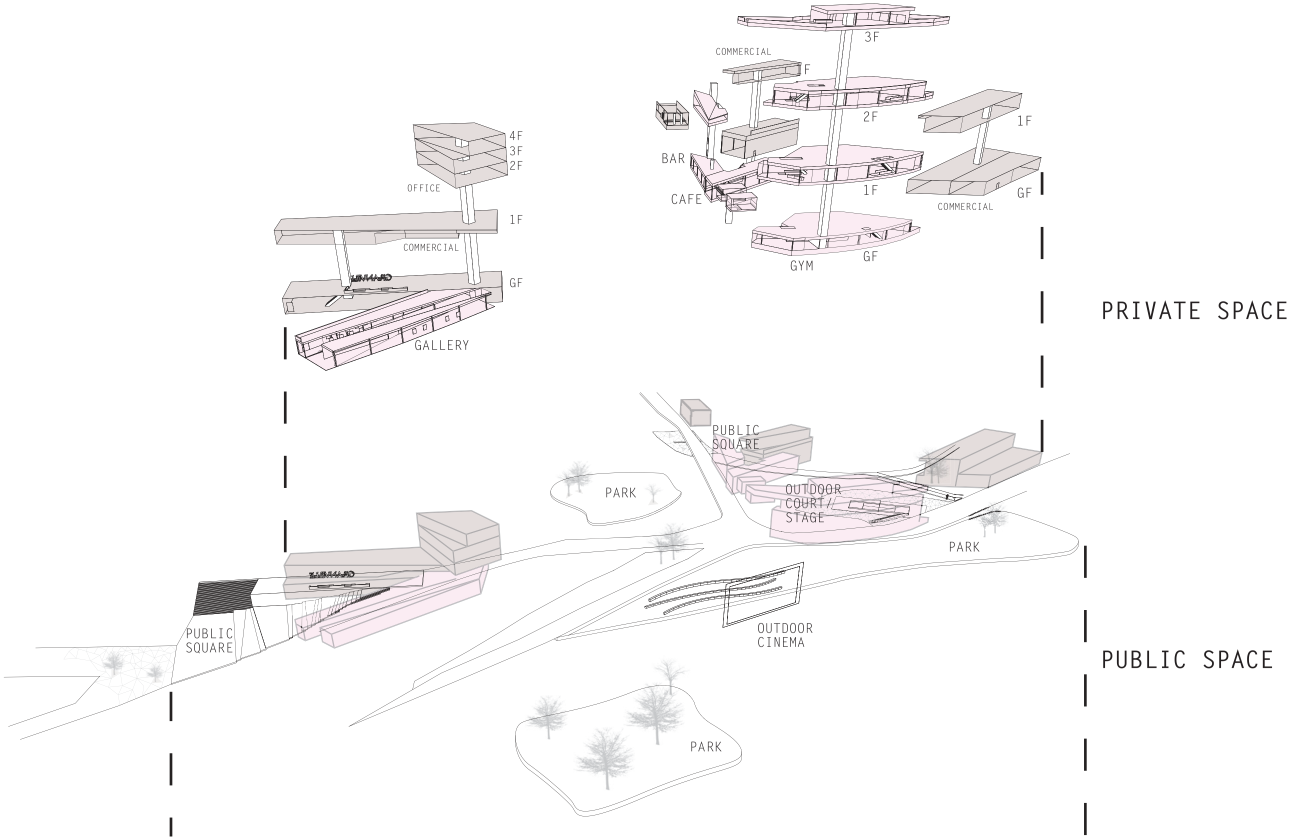


3D model: extend

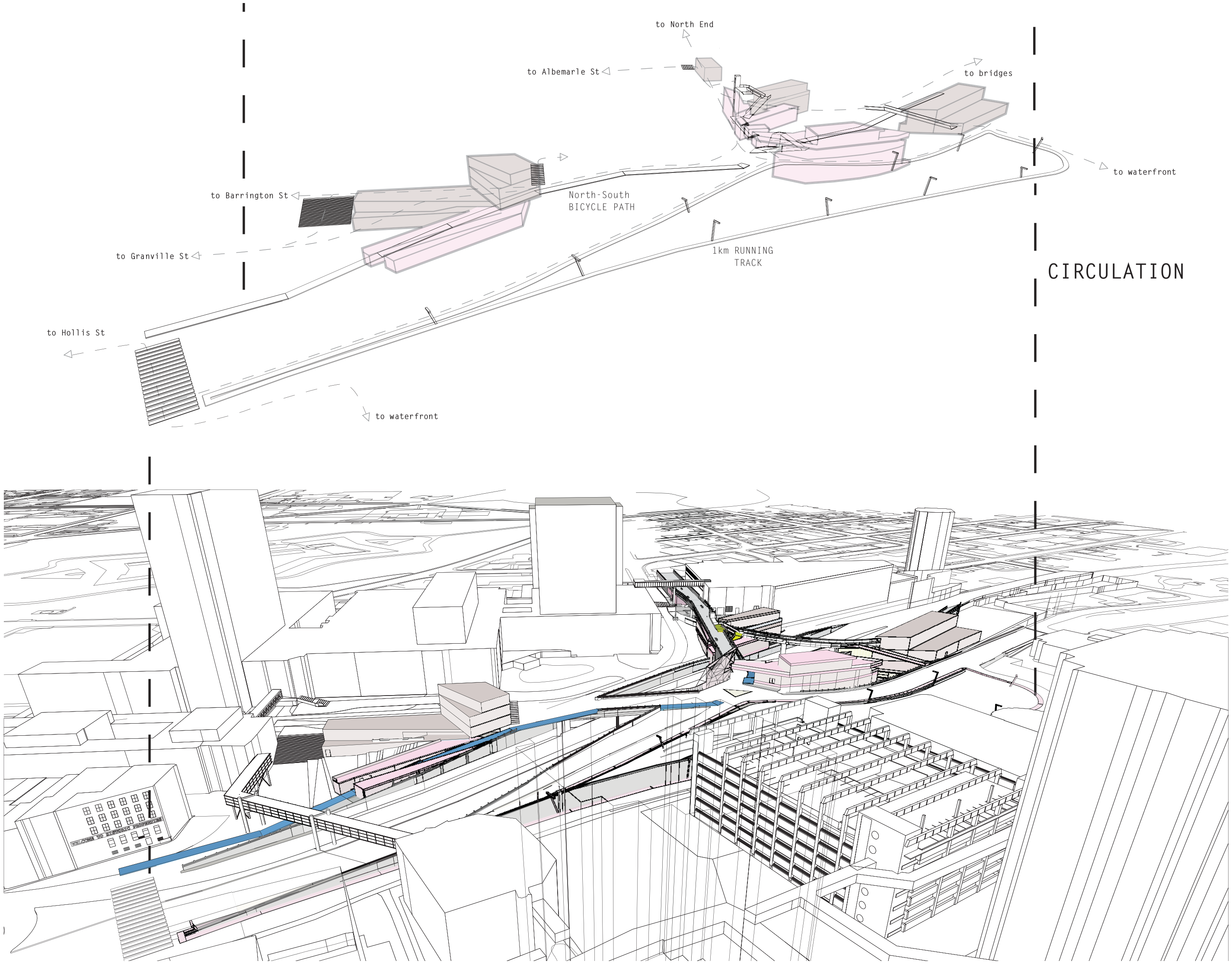
3D model - methods of intervention


extend
fill
cut
attach
wall
road
bridge
landscape

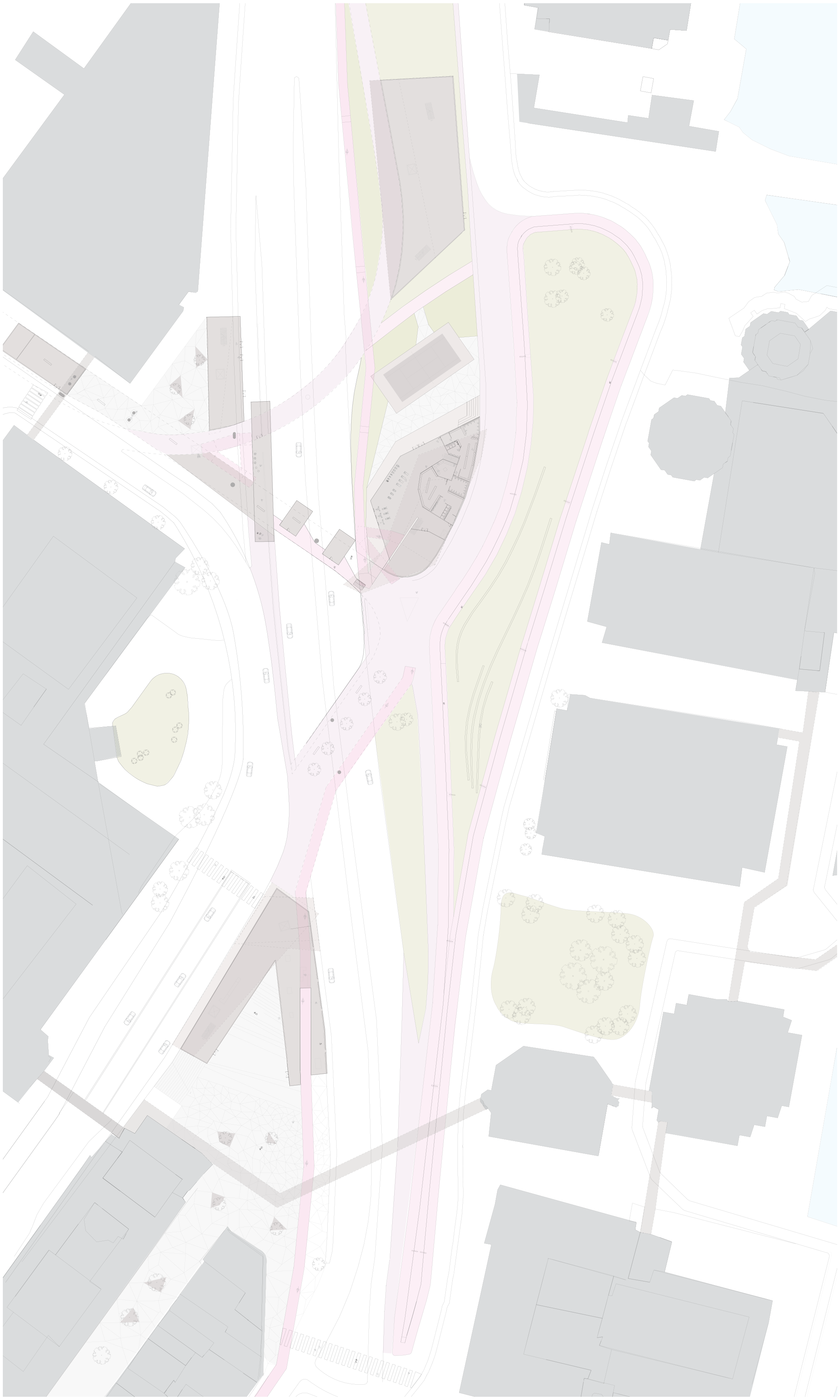
Sketch models - methods of intervention


COMMERCIAL
3F
F
2F
1F
BAR
CAFE
1F
GYM
GF
COMMERCIAL
GF
4F
3F
2F
OFFICE
1F
COMMERCIAL
GF
GALLERY
PRIVATE SPACE
PUBLIC SQUARE
OUTDOOR COURT/ STAGE
PARK
PARK
PUBLIC SQUARE
OUTDOOR CINEMA
PUBLIC SPACE
PARK

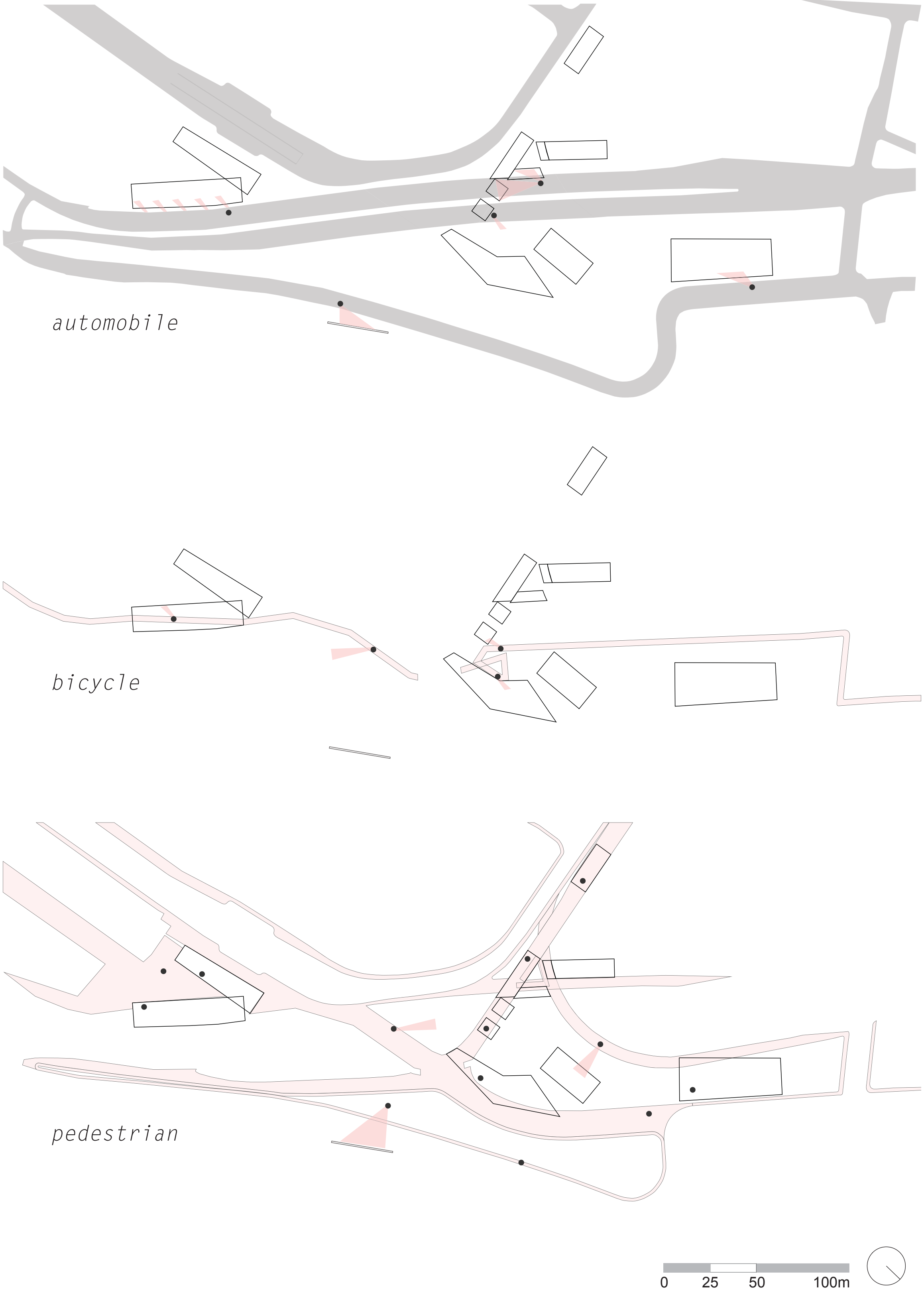
Public spaces connect the Interchange, with private enclosed spaces forming nodes at points of convergence


to North End
to Albemarle St
to bridges
to waterfront
to Barrington St
North-South
BICYCLE PATH
to Granville St
1km RUNNING
TRACK
CIRCULATION
to Hollis St
to waterfront

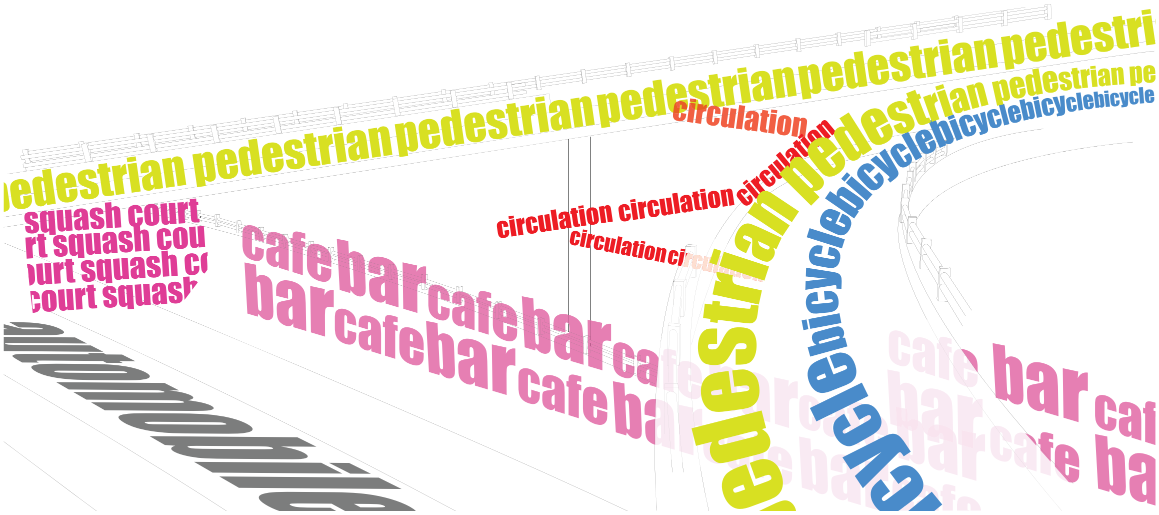
Pedestrian and cyclist infrastructure connect the Interchange



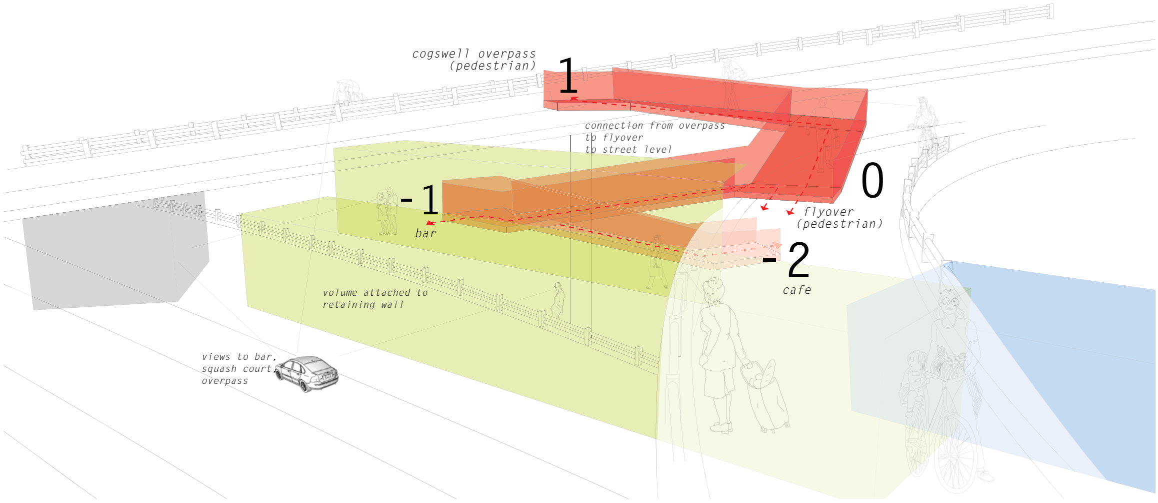
Site plan


automobile
bicycle
pedestrian
0
25
50
100m

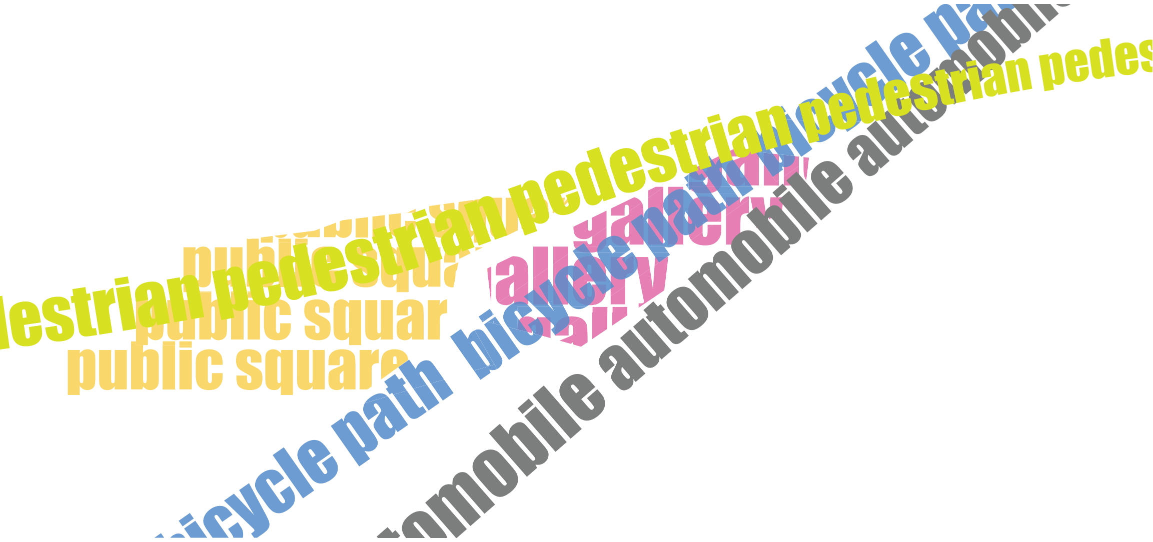
Experiences and interaction with program depends on the modes of transport


pedestrian pedestrian pedestrian pedestrian pedestrian pedestri
circulation
pedestrian pedestrian pe
bicyclebicyclebicyclebicycle
circulation circulation circulation
circulation circulation
squash court
cafe bar cafe bar
bar cafe bar cafe bar
cafe bar
automobile

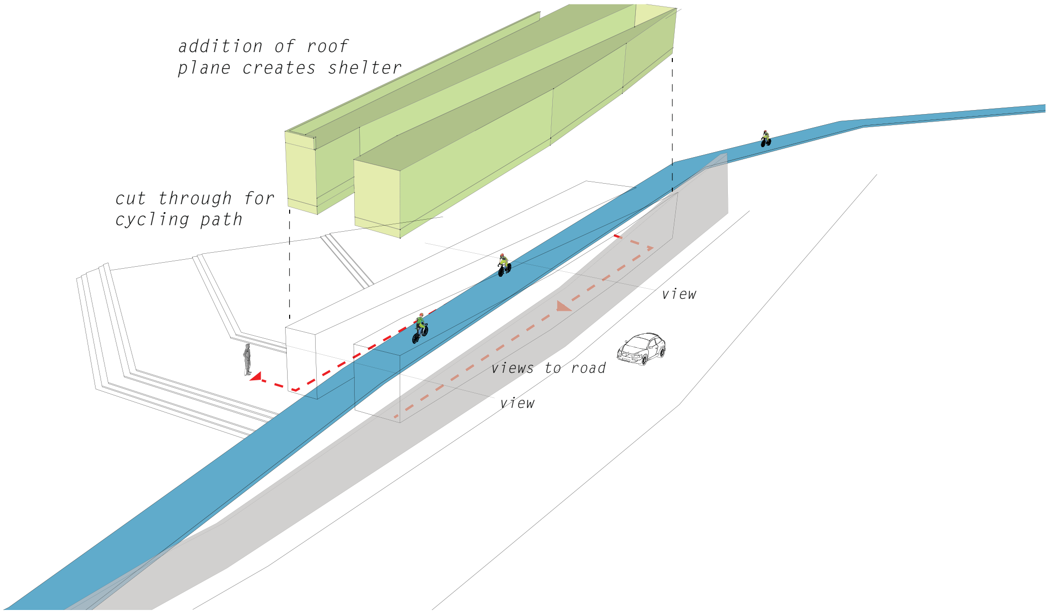
A narrative of activities exists and crosses through the overpass and flyover, with four levels connected by a ramp


cogswell overpass (pedestrian)
1
connection from overpass to flyover to street level
0
flyover (pedestrian)
-1
bar
-2
cafe
volume attached to retaining wall
views to bar, squash court, overpass

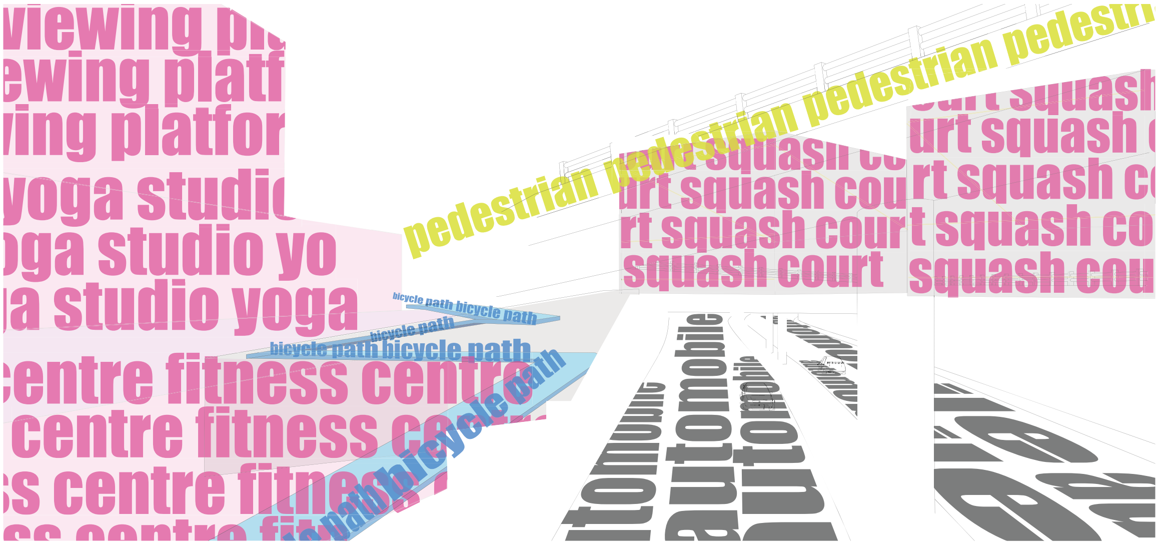
Inhabitation occurs through the insertion of program, with views and connections to all levels


pedestrian
public square
gallery
bicycle path
automobile

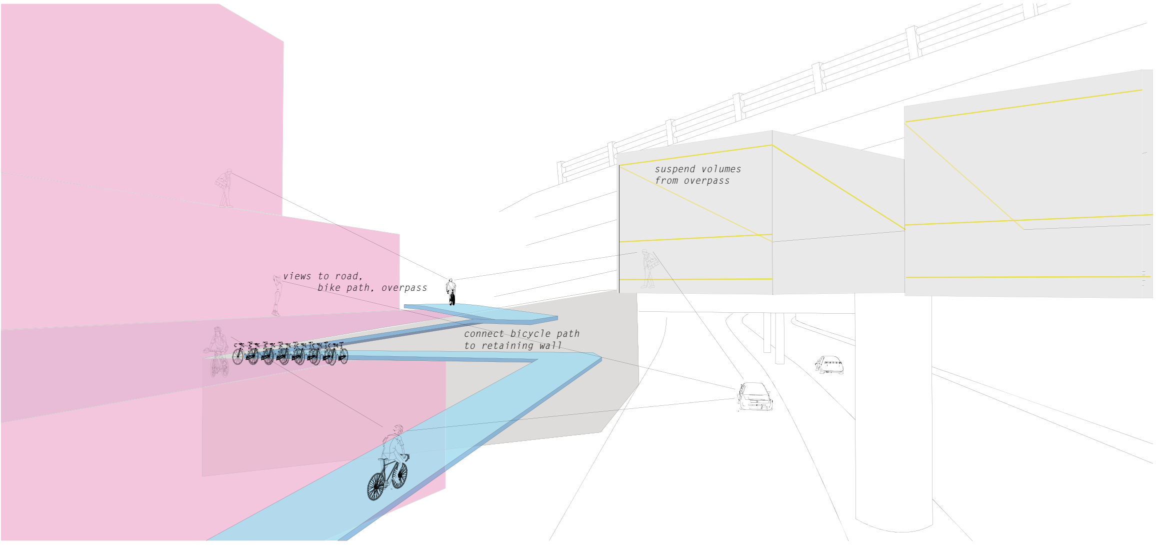
Networks of movement cross at nodes of event and rest: the gallery and public square


addition of roof plane creates shelter
cut through for cycling path
view
views to road
view

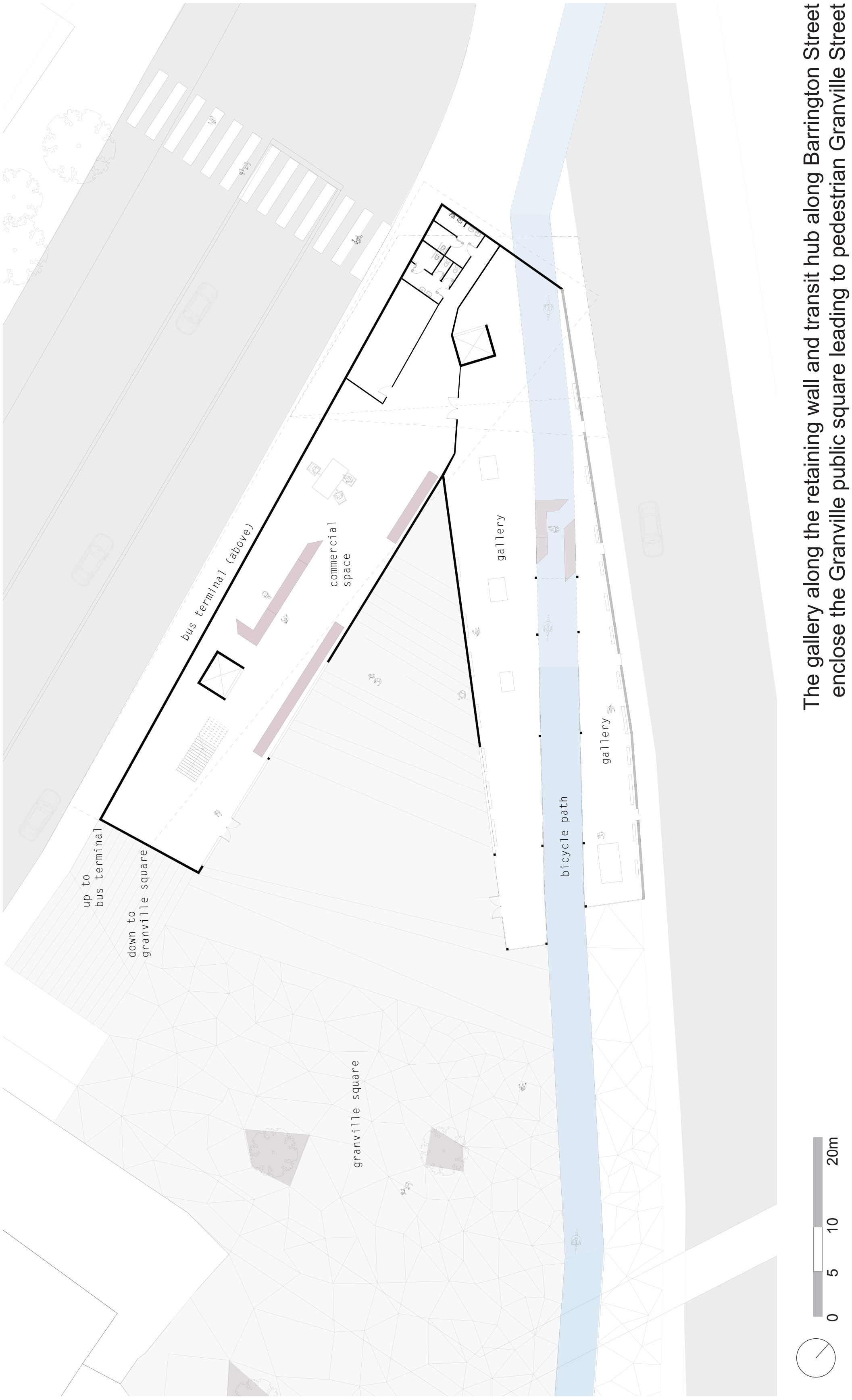
Attaching to and cutting through the retaining wall brings activity while maintaining visual connections for drivers, cyclists and pedestrians


viewing platform
yoga studio
fitness centre
bicycle path
pedestrian
squash court
automobile

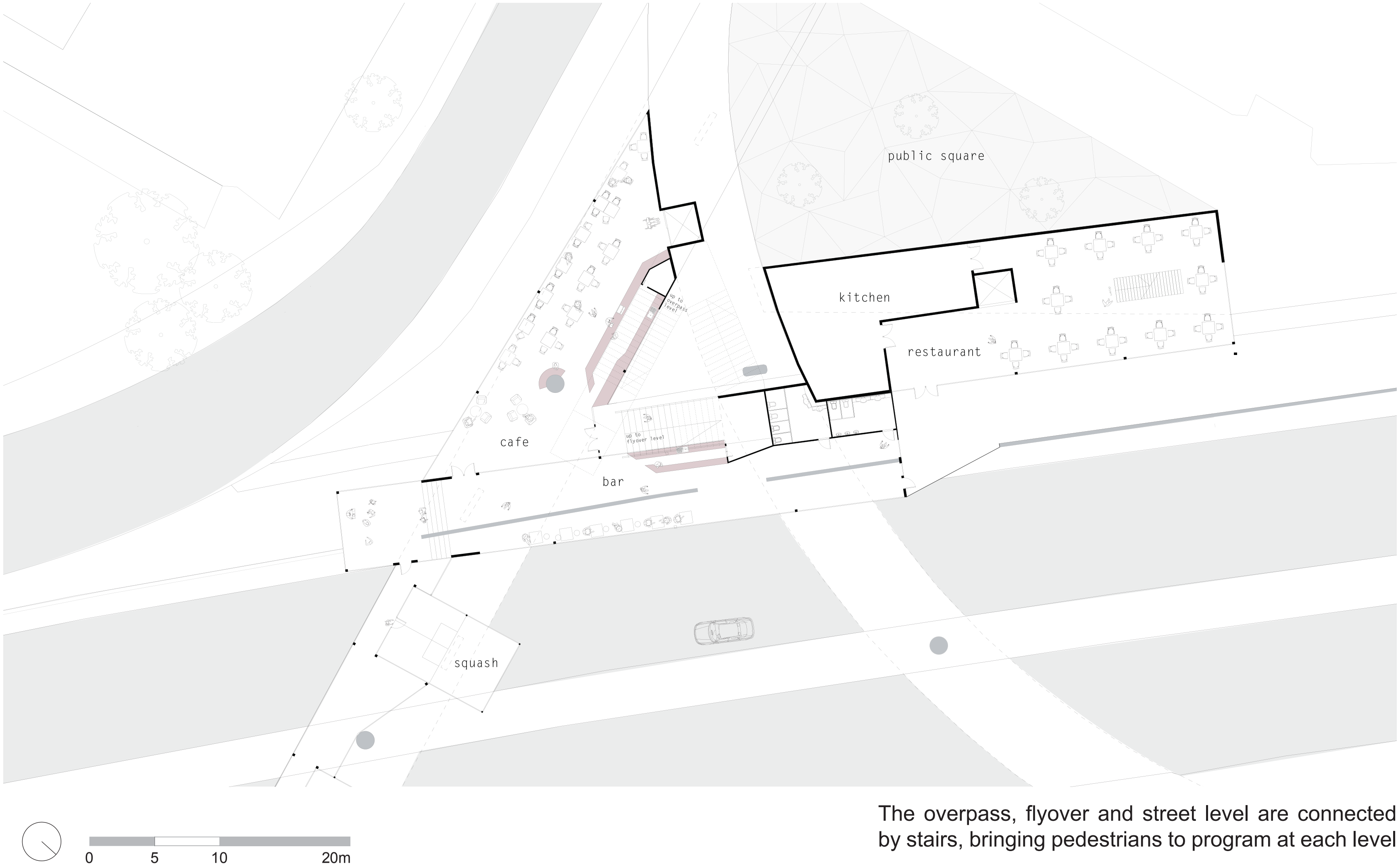
Squash courts suspended from the pedestrian overpass, a bicycle path and a fitness studio form a hub of activities along and above the automobile thoroughfare


suspend volumes
from overpass
views to road,
bike path, overpass
connect bicycle path
to retaining wall

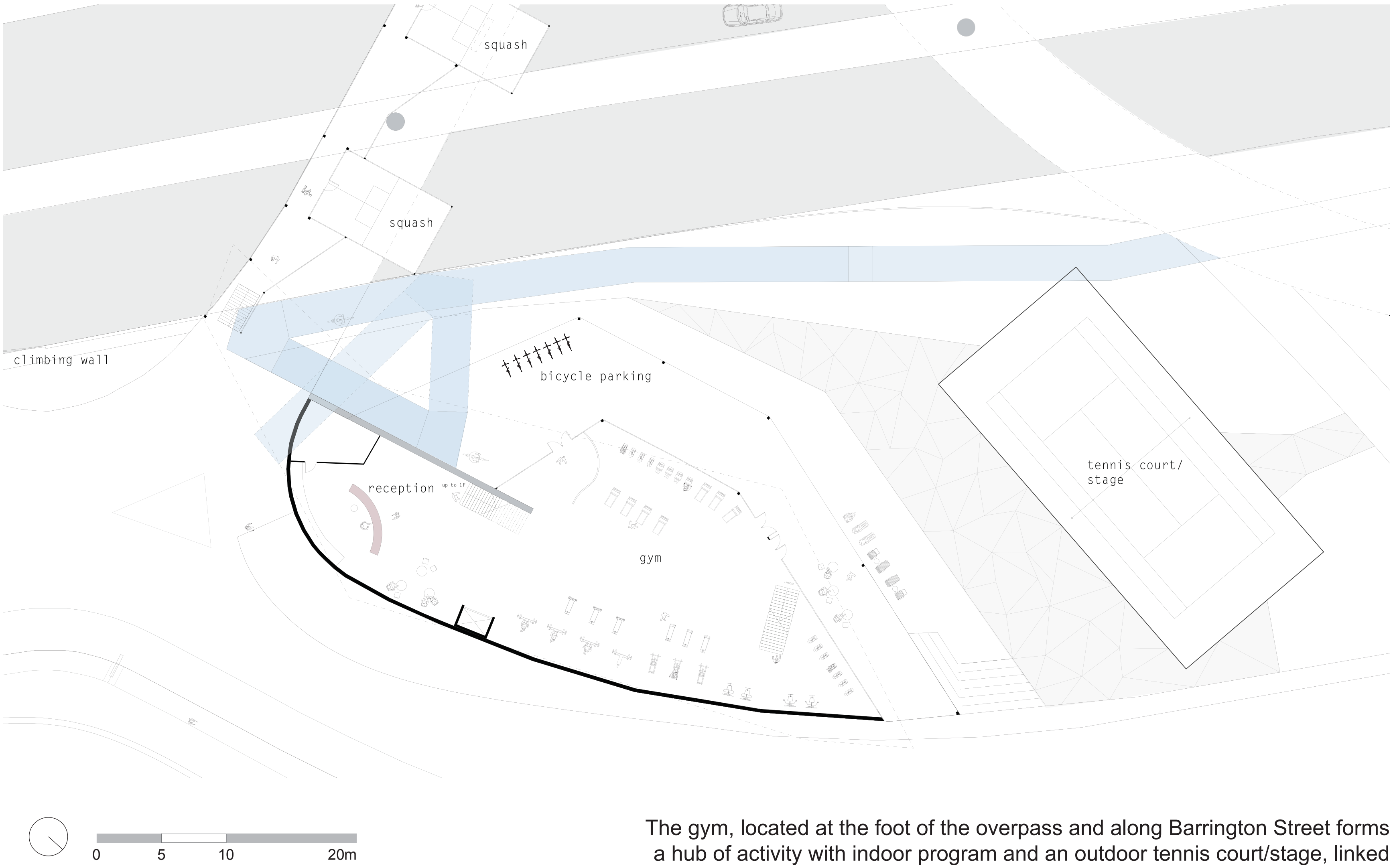
Cyclists are connected to the gym on the first floor and overpass on the second floor, with visual connections throughout


bus terminal (above)
commercial space
gallery
gallery
bicycle path
up to bus terminal
down to granville square
granville square
0
5
10
20m

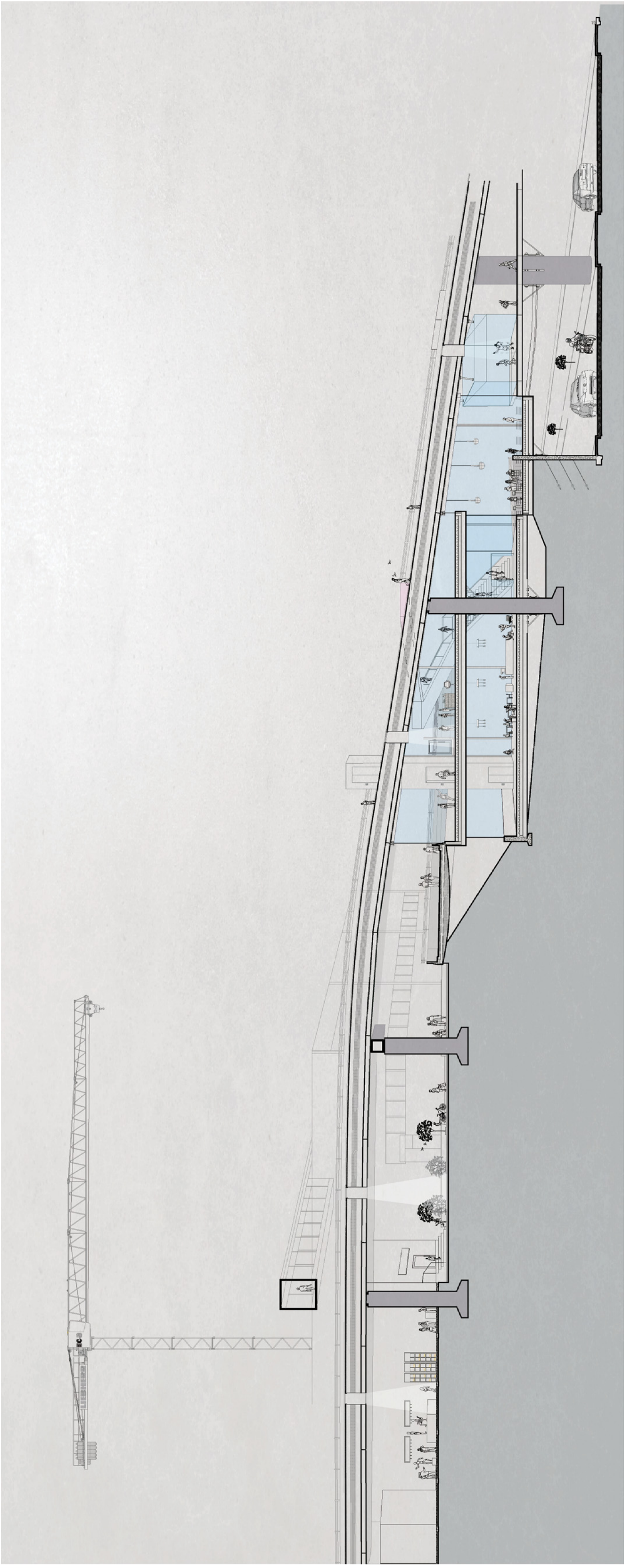
The gallery along the retaining wall and transit hub along Barrington Street enclose the Granville public square leading to pedestrian Granville Street


public square
kitchen
restaurant
up to overpass level
up to flyover level
cafe
bar
squash
0
5
10
20m

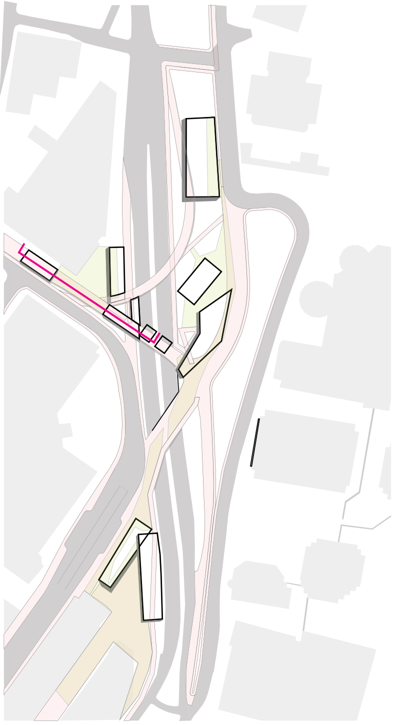
The overpass, flyover and street level are connected by stairs, bringing pedestrians to program at each level

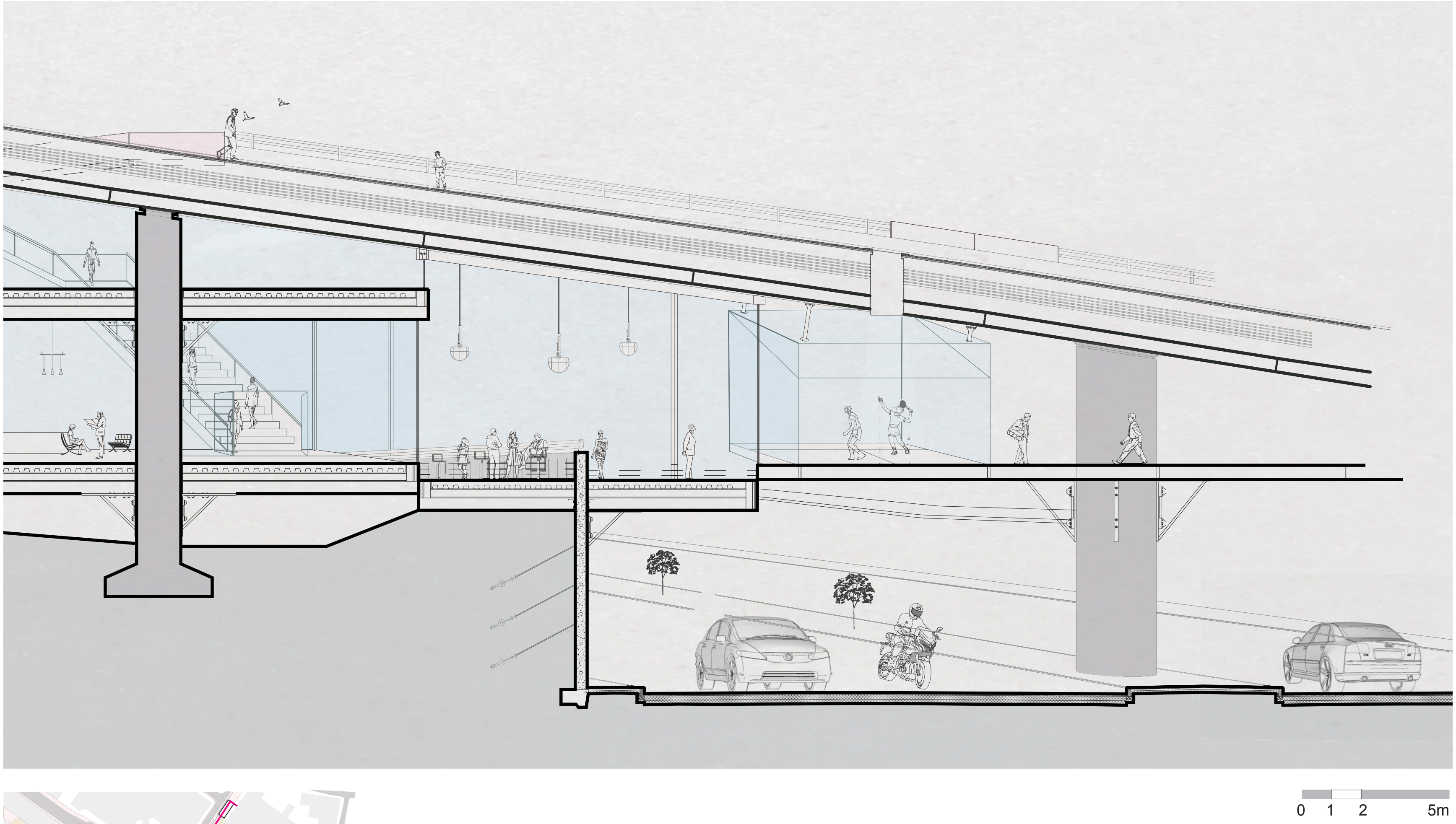

squash
squash
climbing wall
bicycle parking
reception
up to 1F
gym
tennis court/
stage
0
5
10
20m

The gym, located at the foot of the overpass and along Barrington Street forms a hub of activity with indoor program and an outdoor tennis court/stage, linked by the overpass, flyover, bicycle path and public space in between

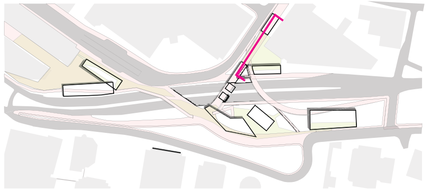


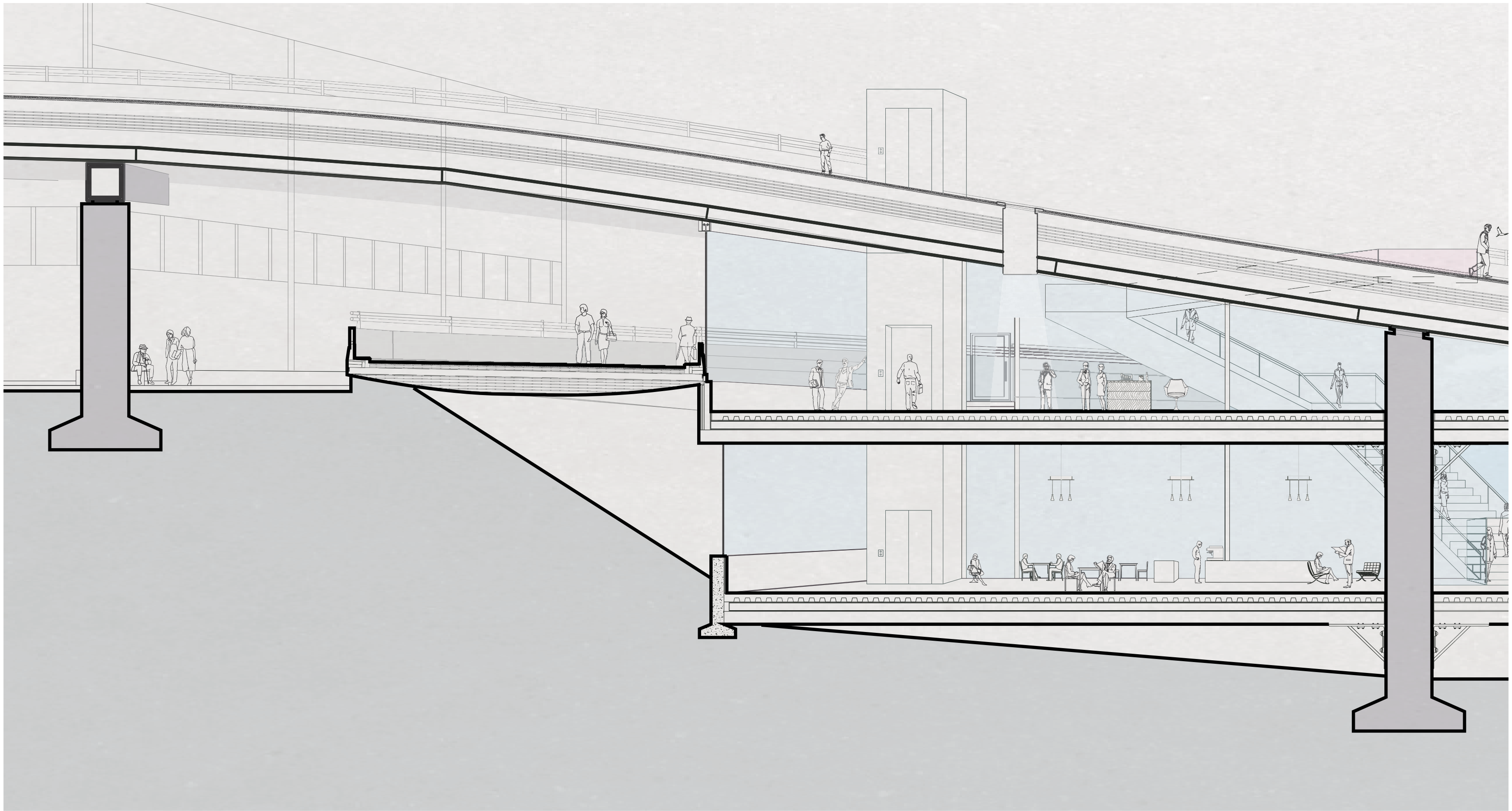
Section AA

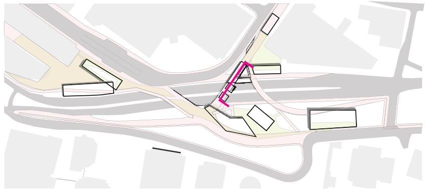




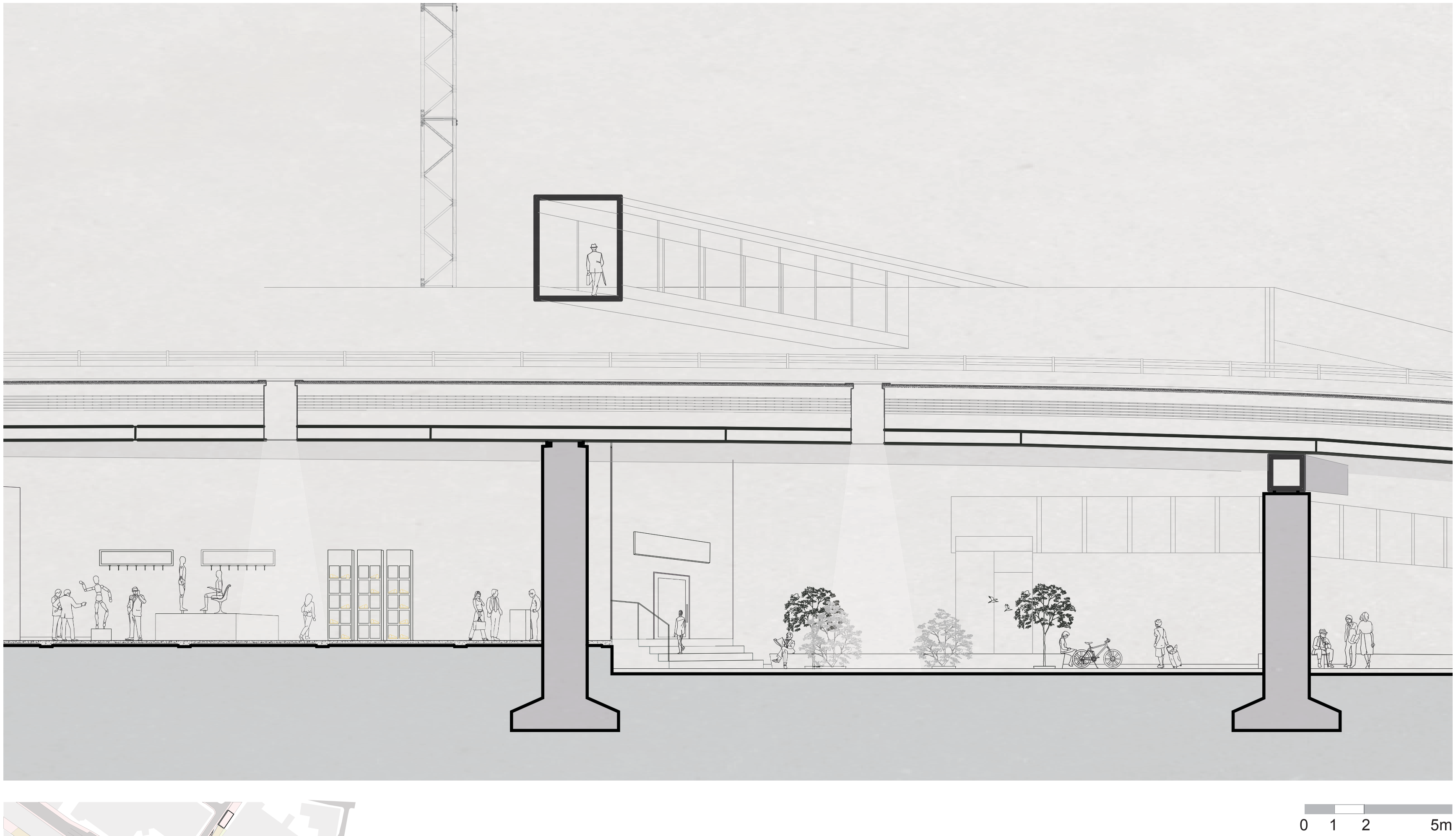
Section AA detail



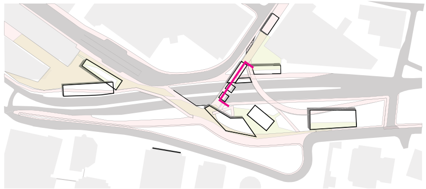


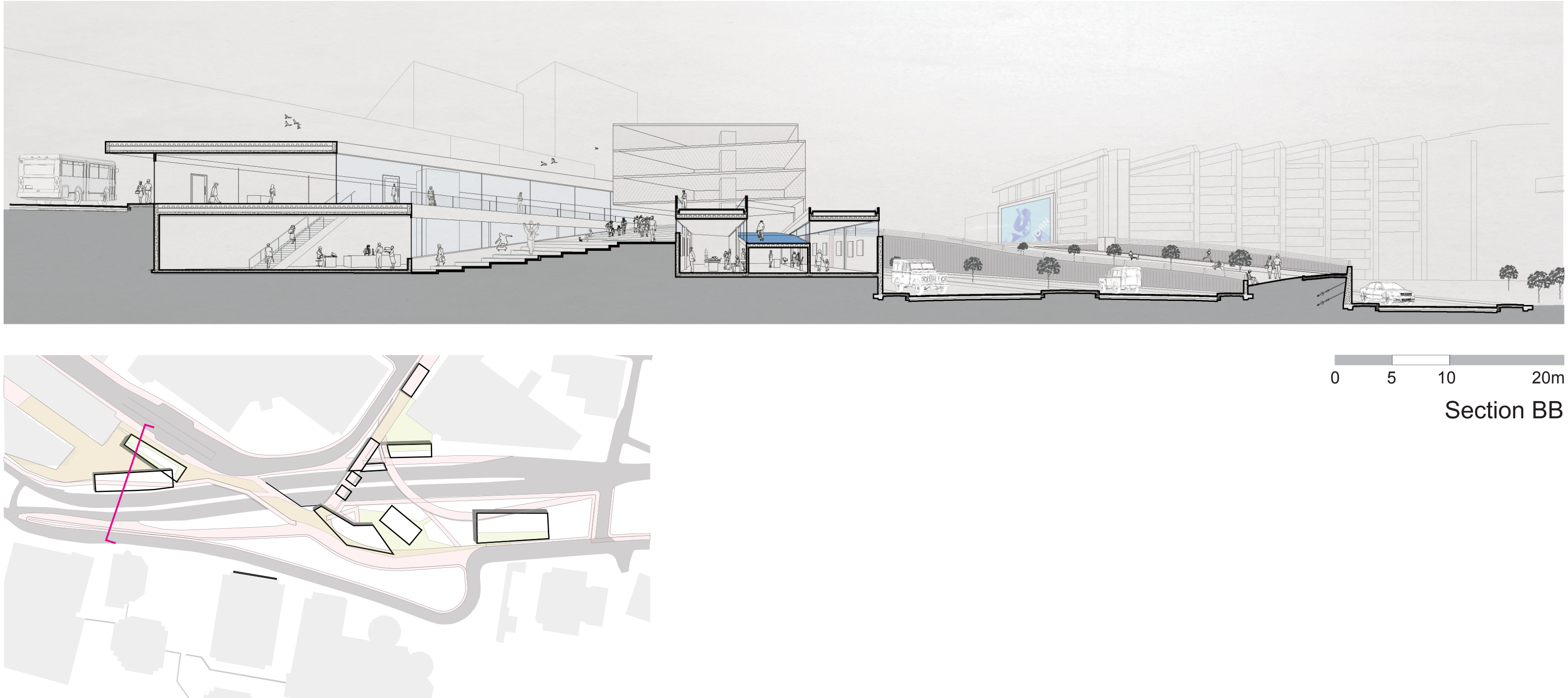


Section AA detail

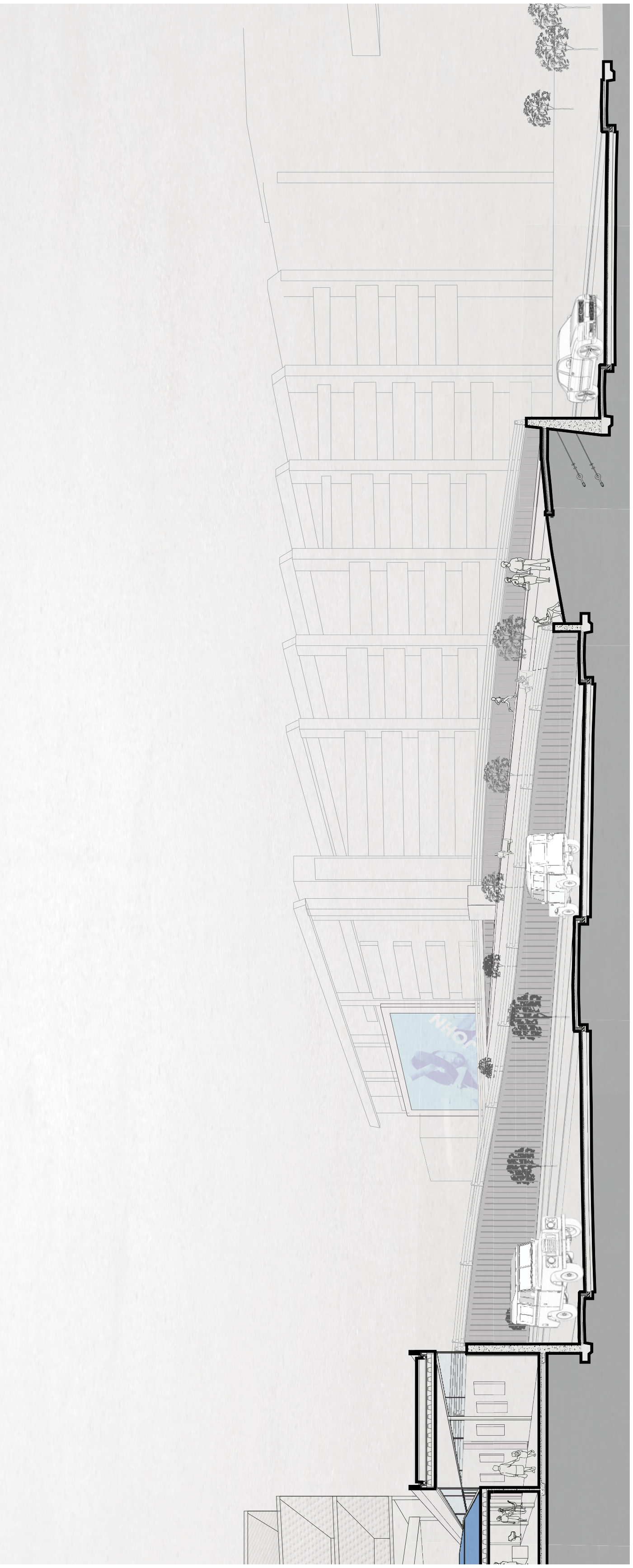


Section AA detail

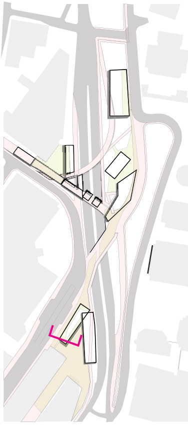


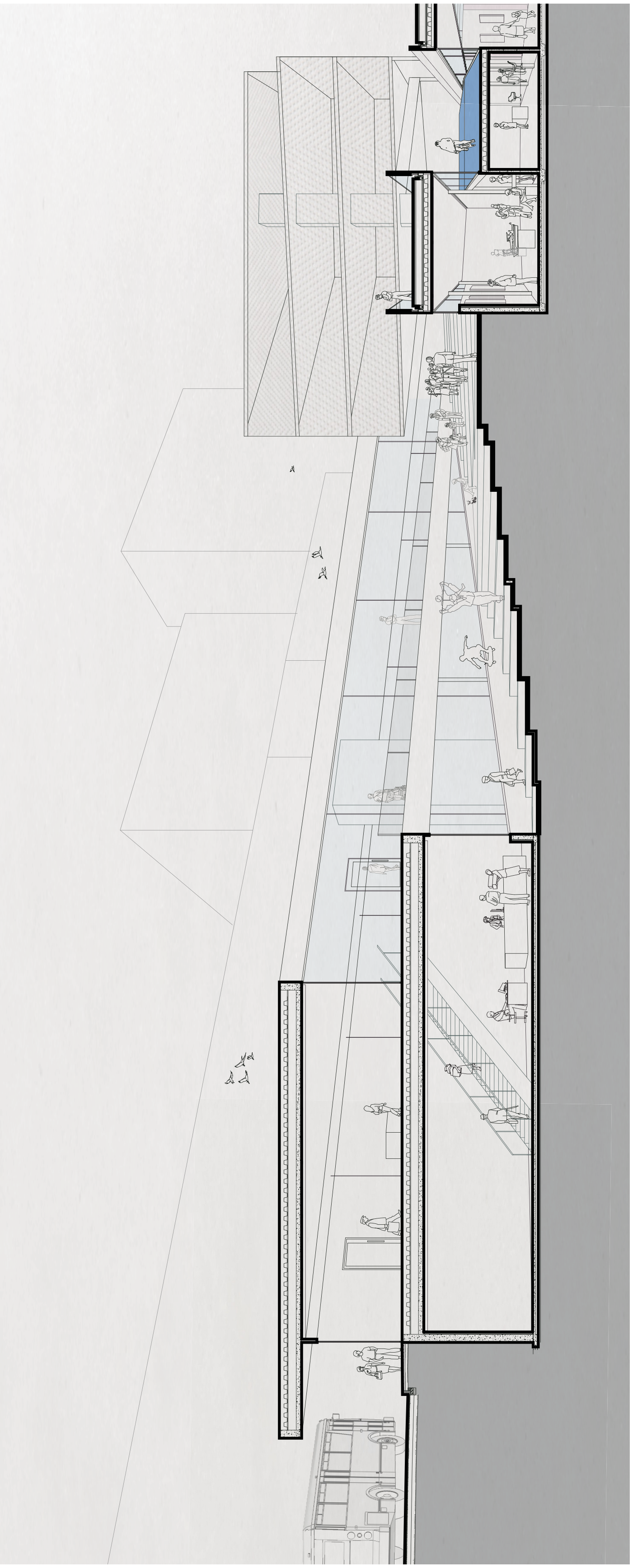


Section BB

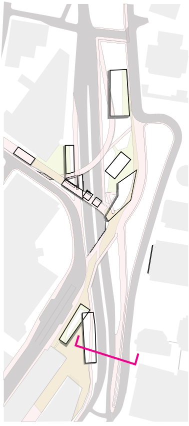


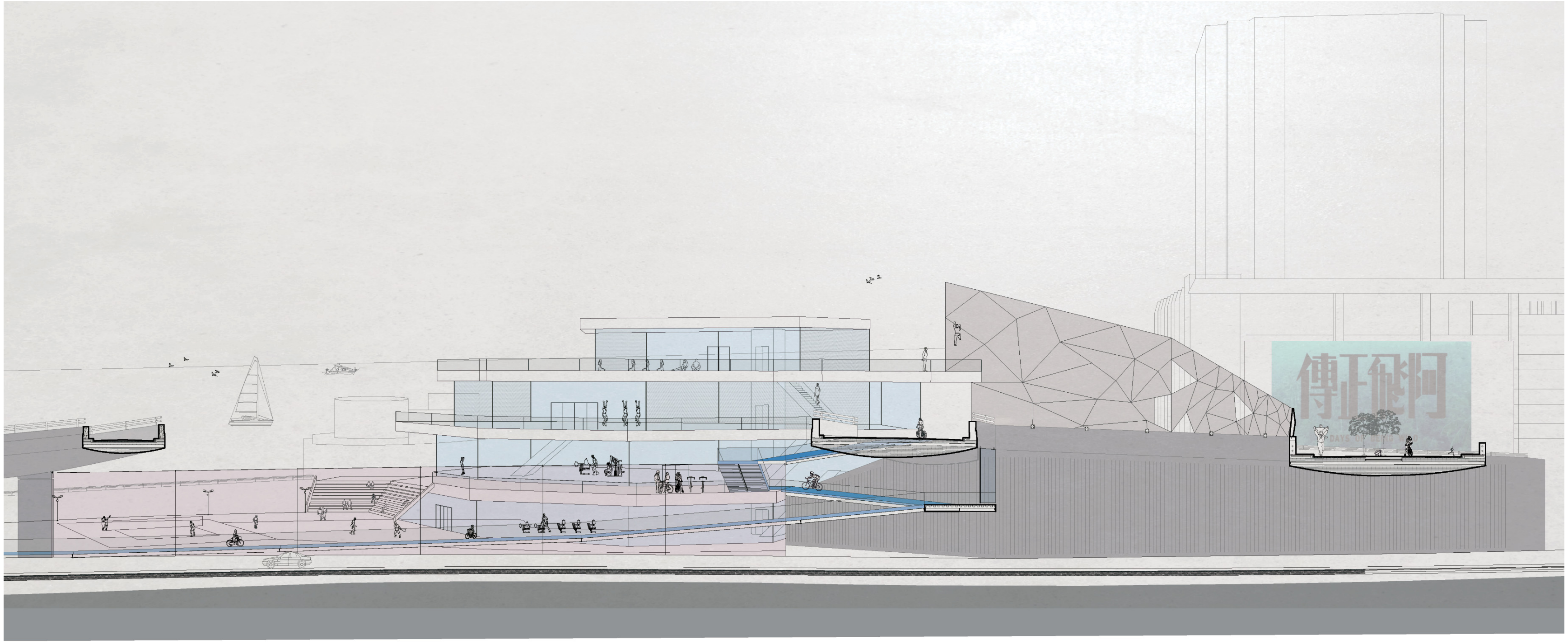
Section BB detail





Section BB detail





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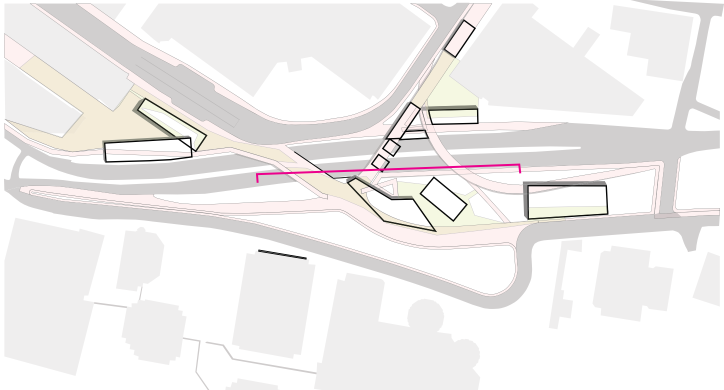

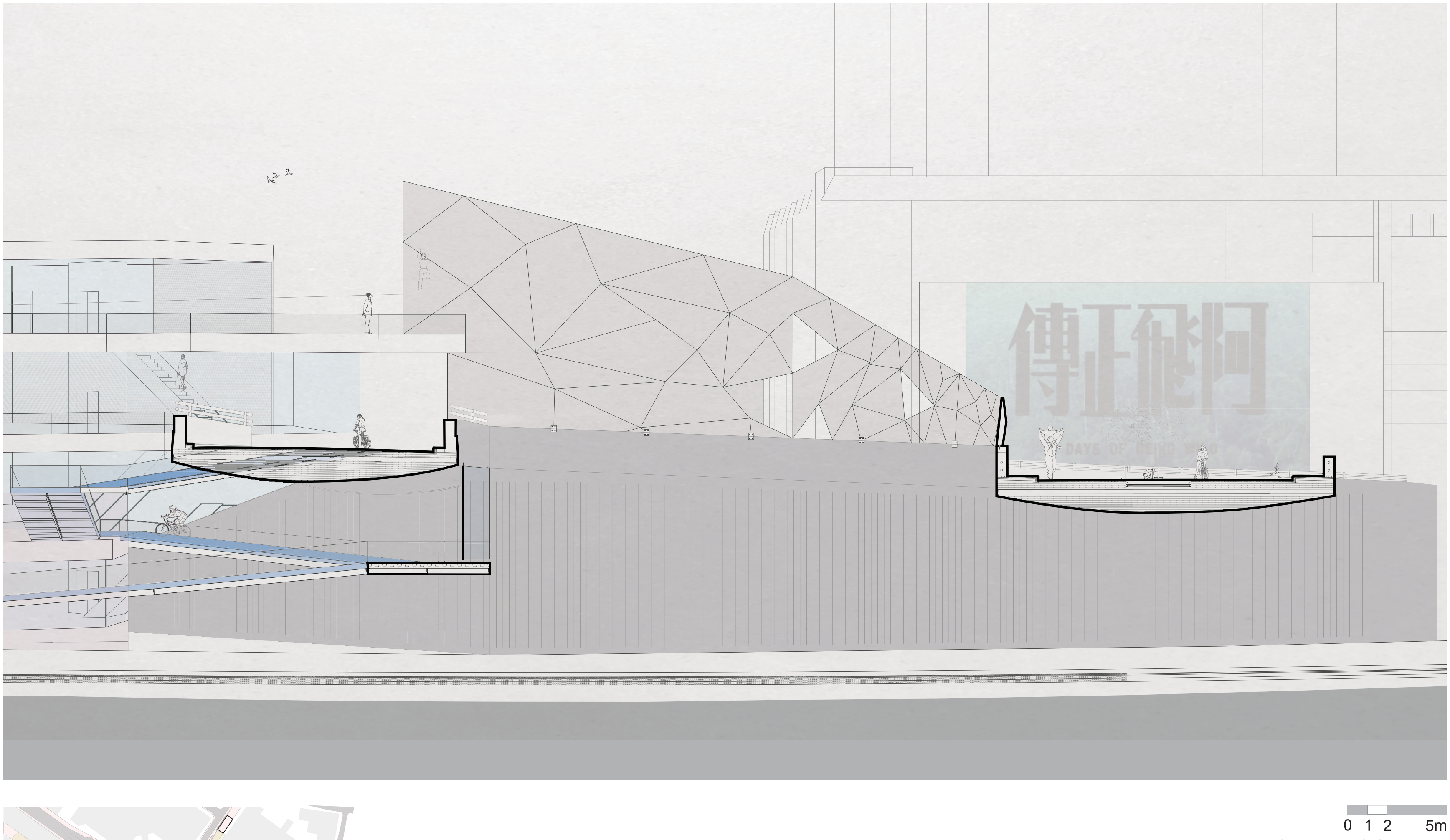
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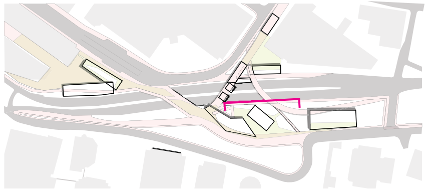

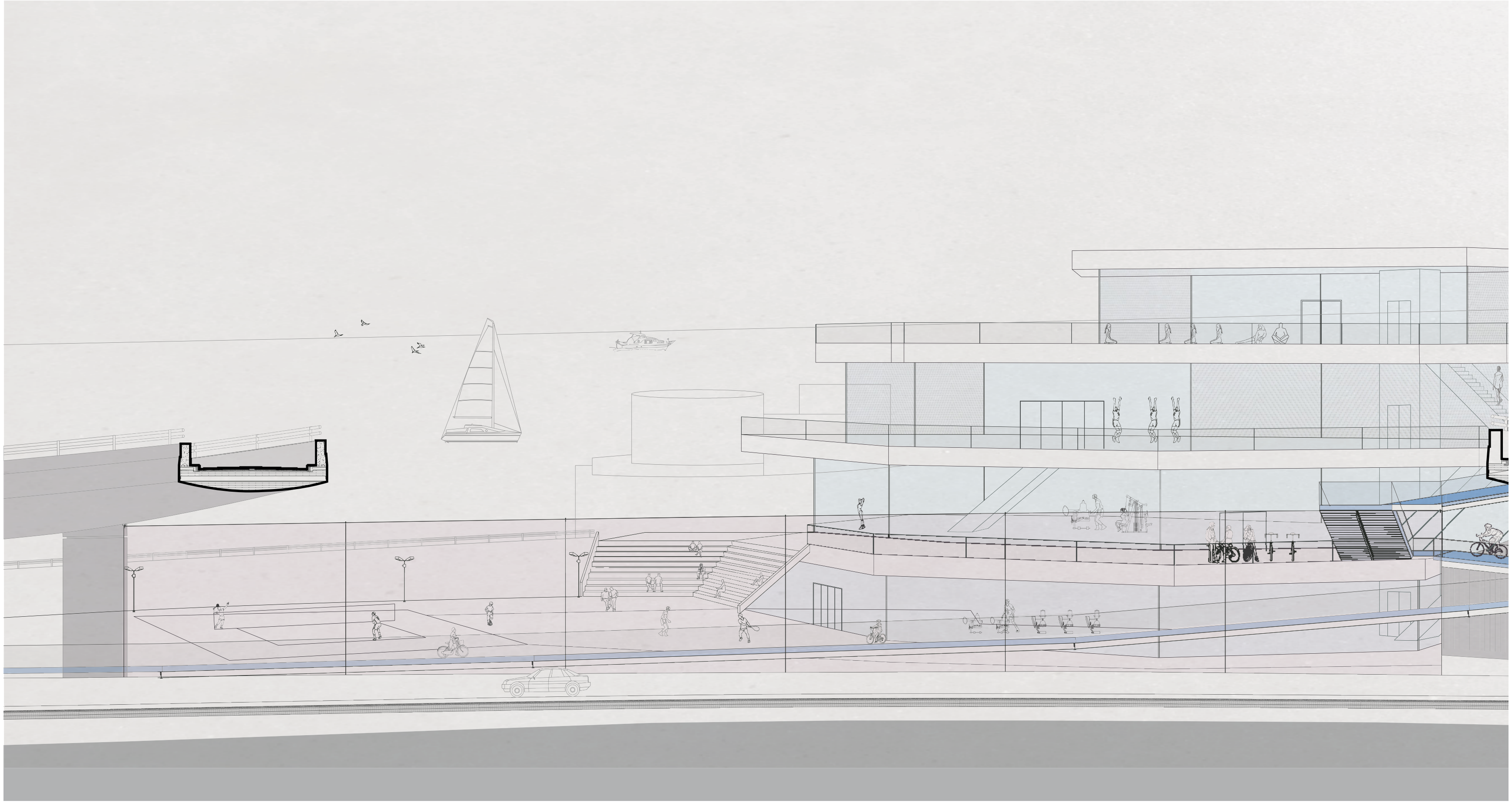

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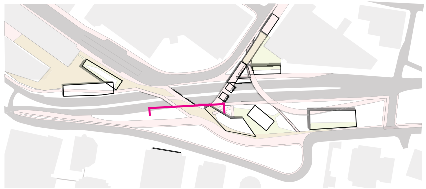
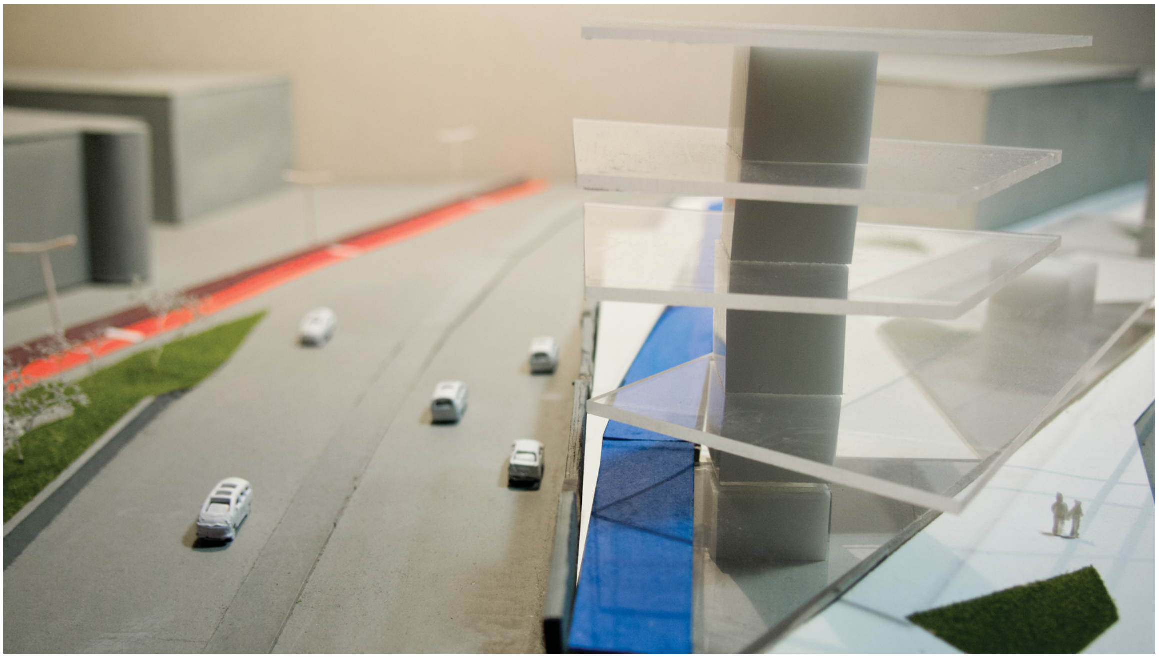
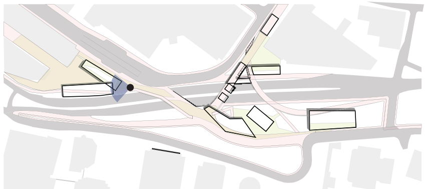
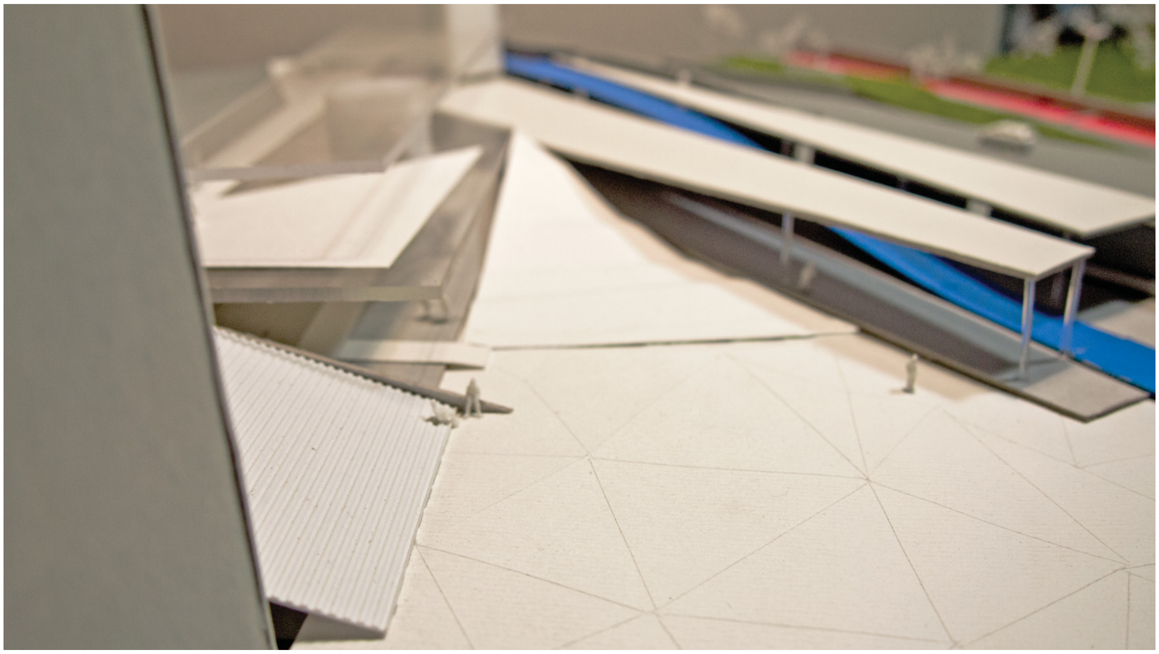
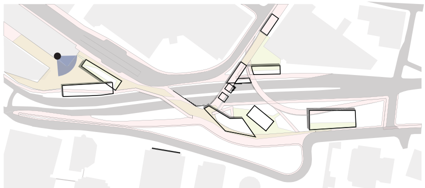




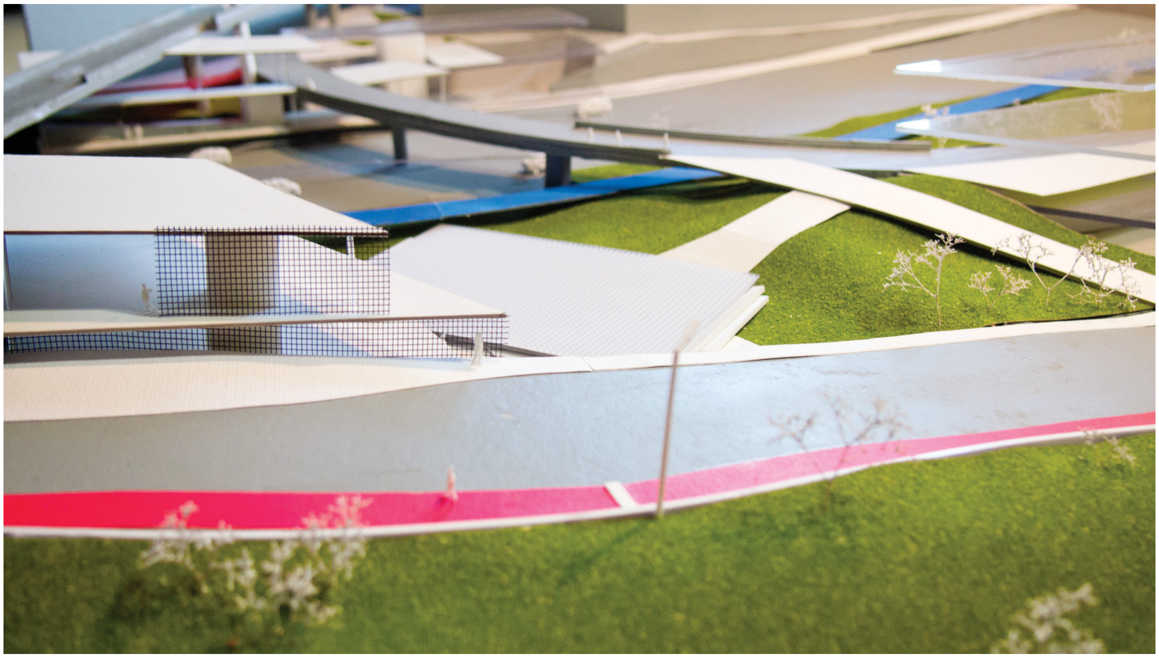


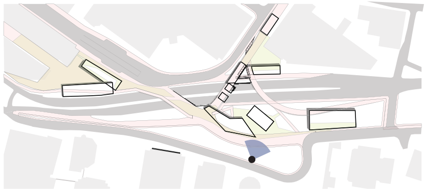
Transit area and bike path along Barrington Street



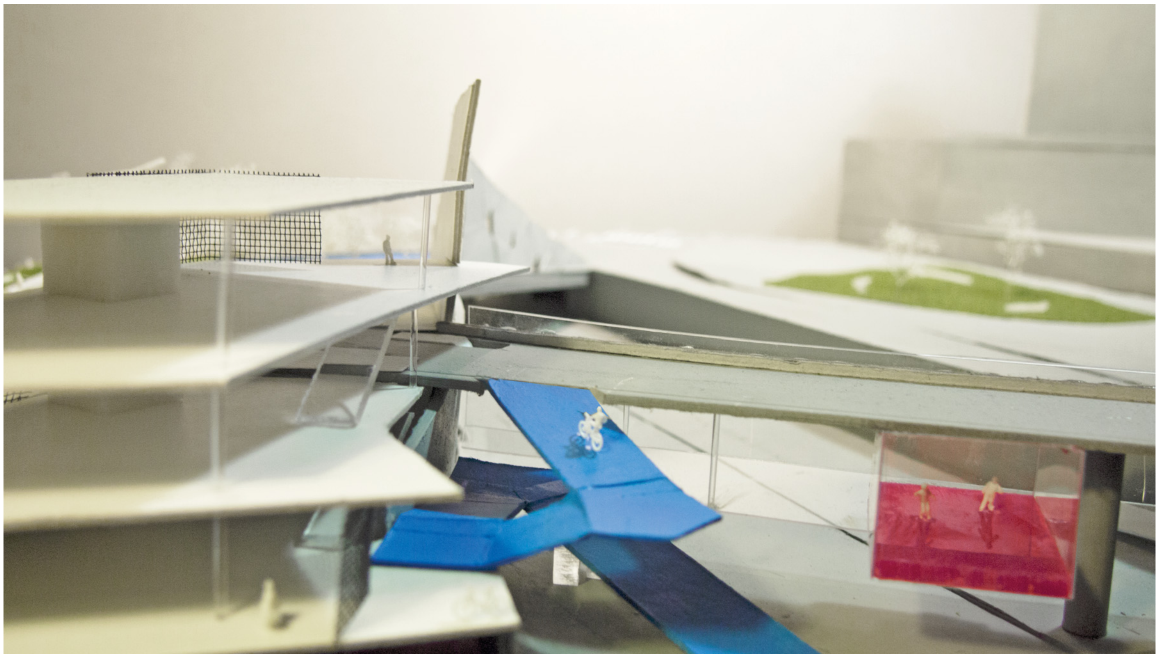


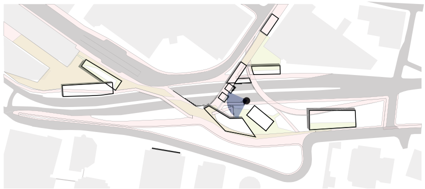
Public square, transit area and gallery



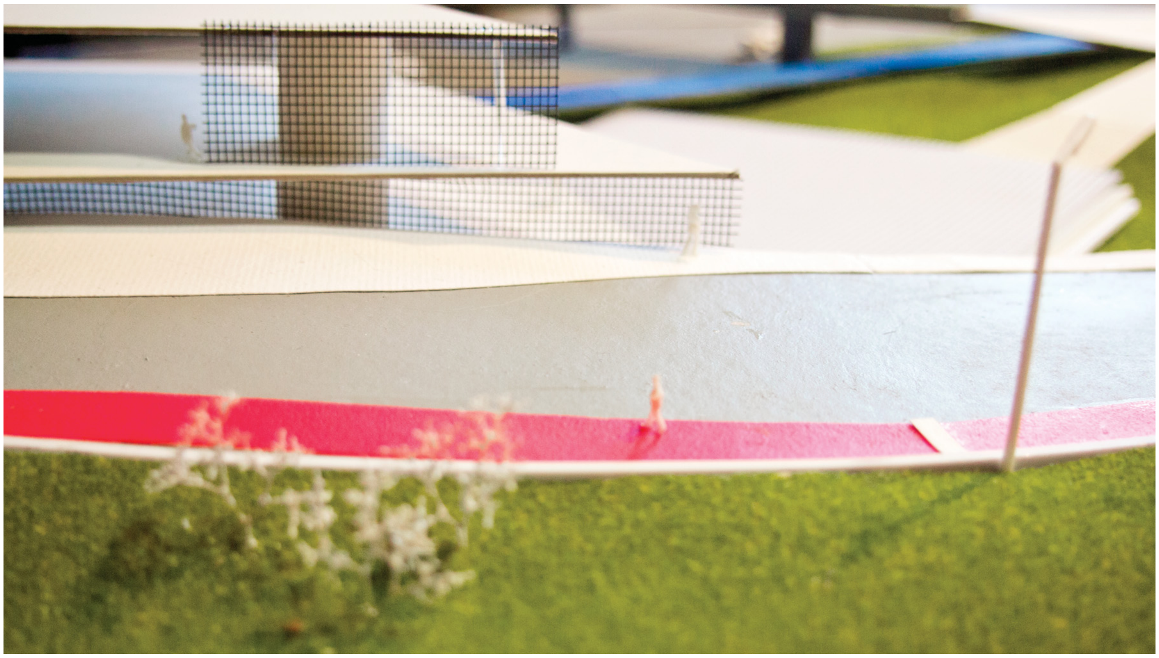


View of gym and stage below

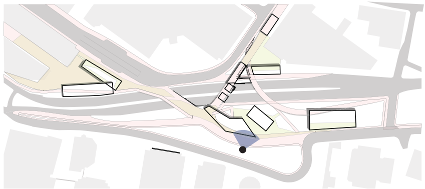


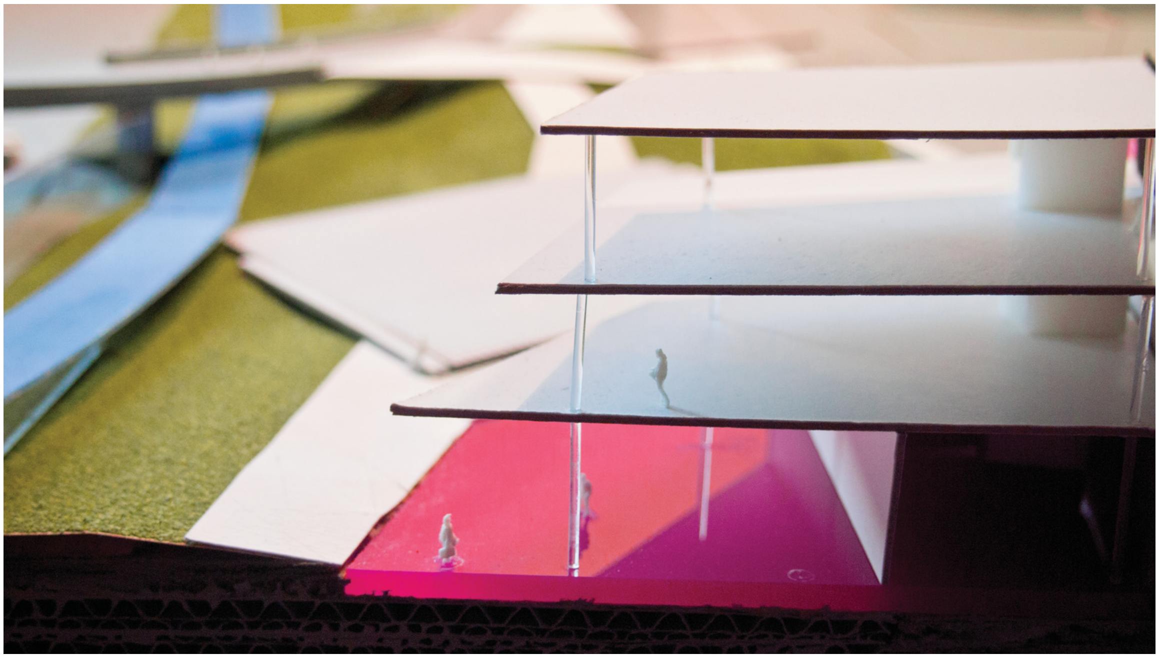


Squash court, bicycle path and sectional cut of gym

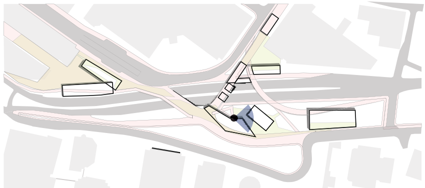


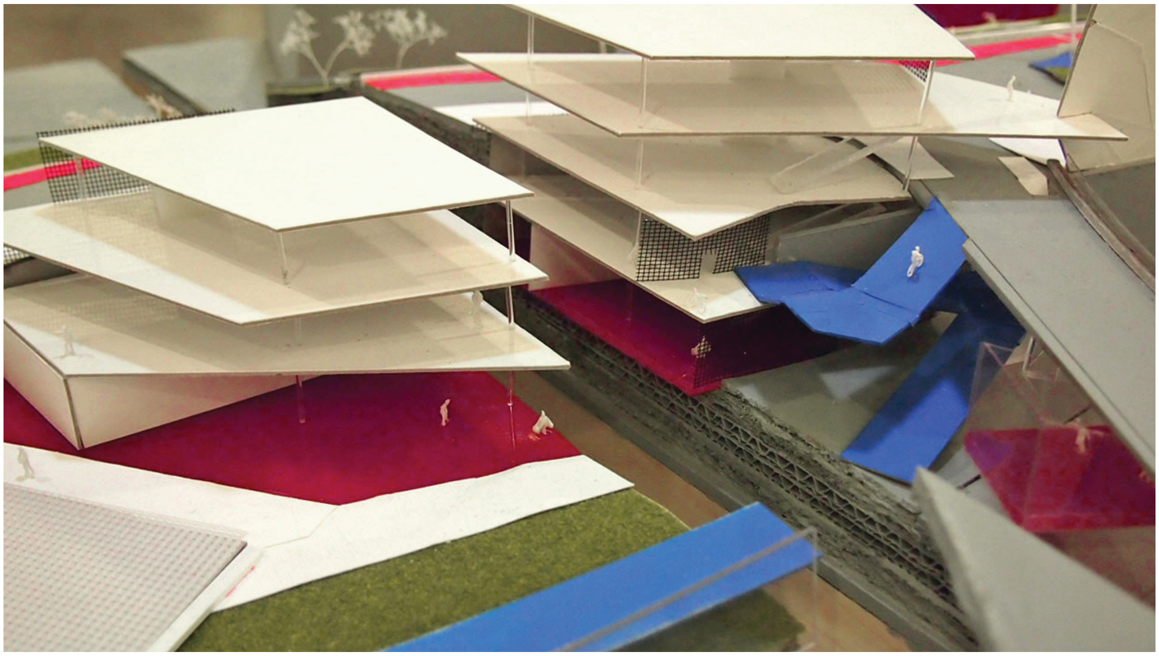
Gym and running track

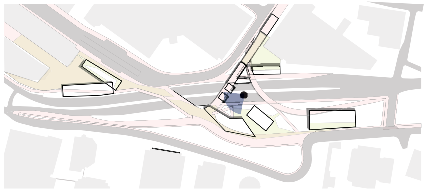




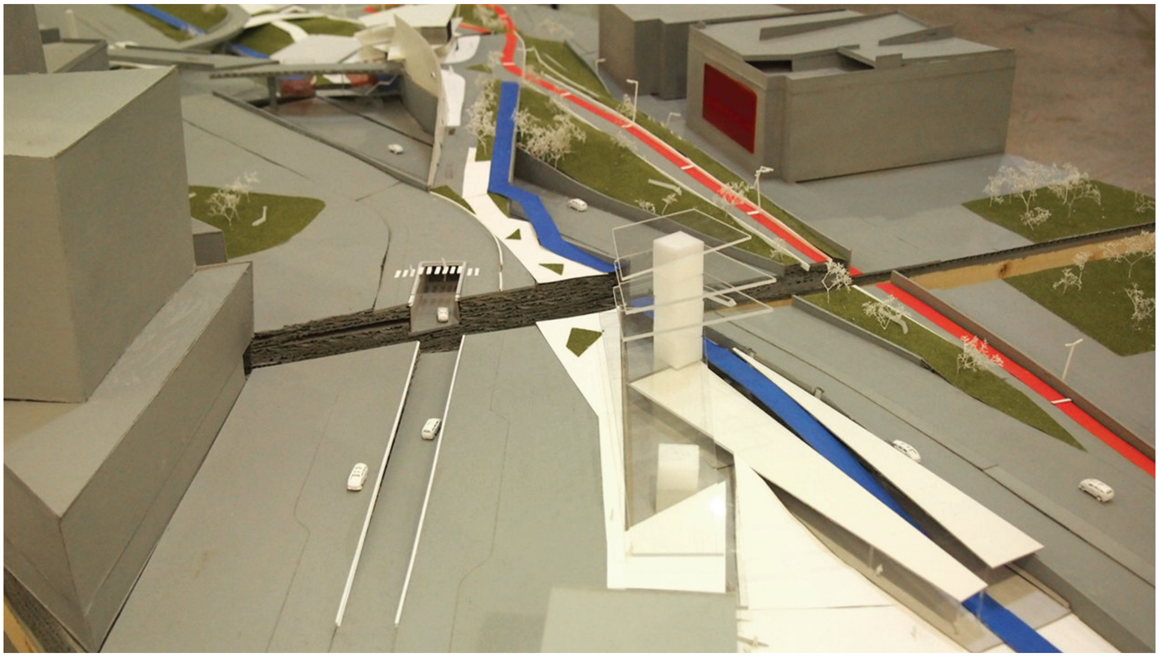
Sectional cut of gym

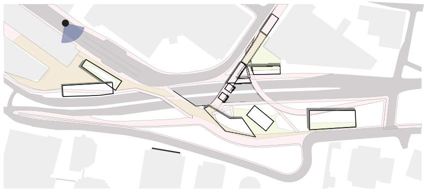




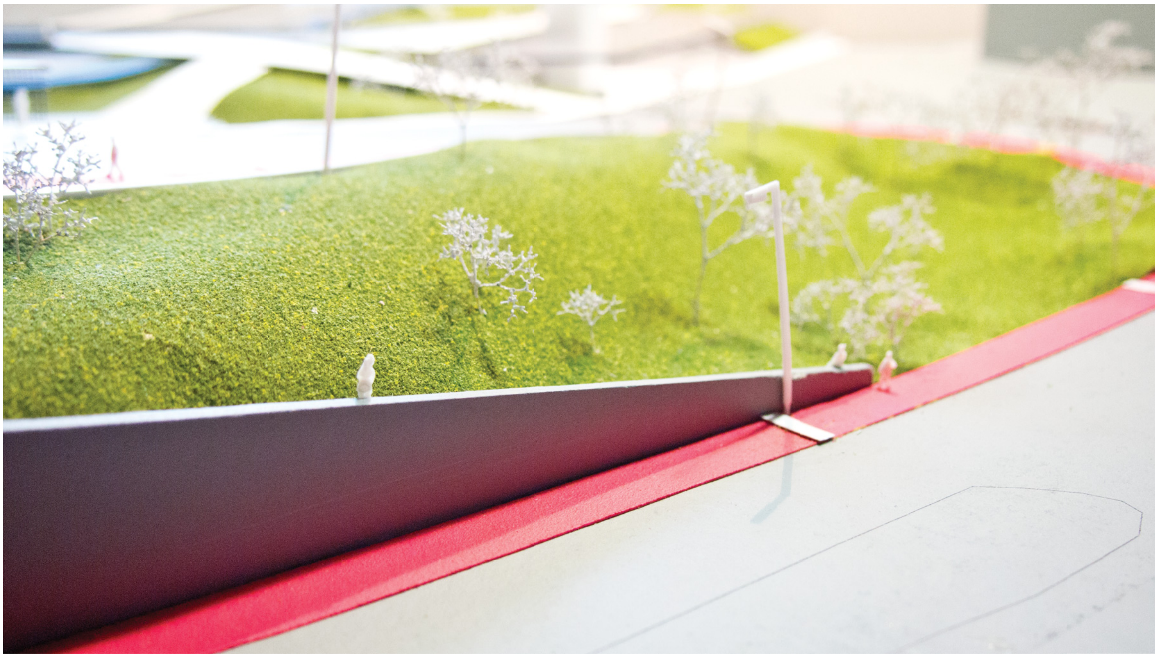


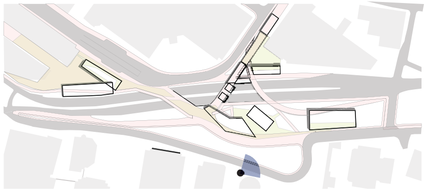
Gym, bicycle path, squash court



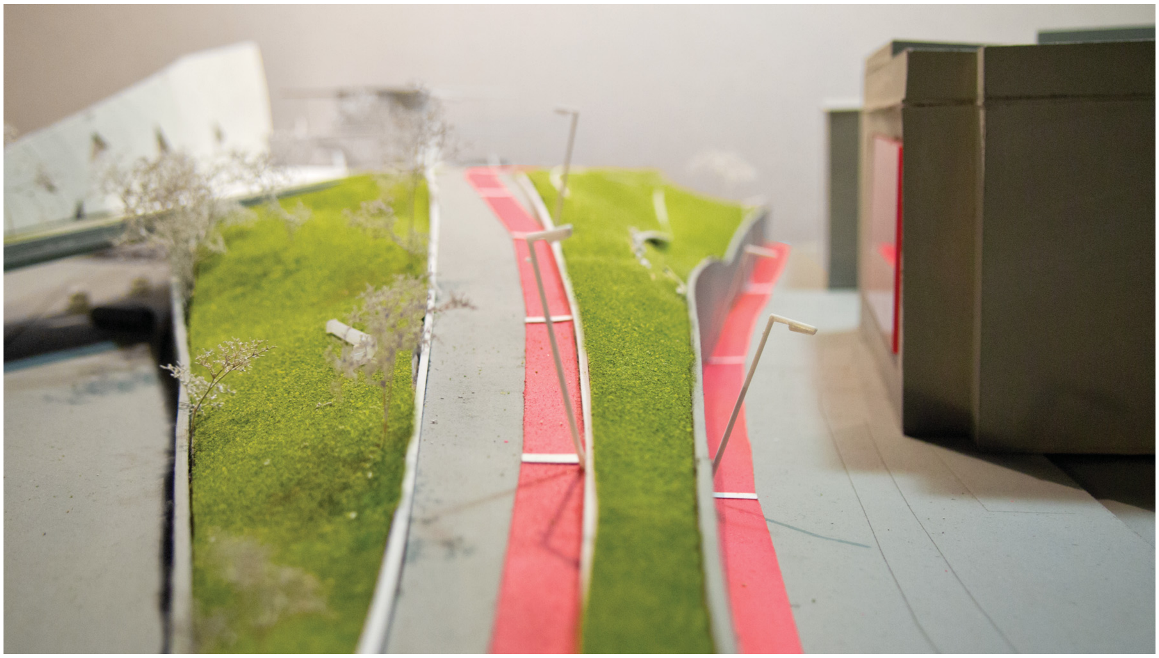


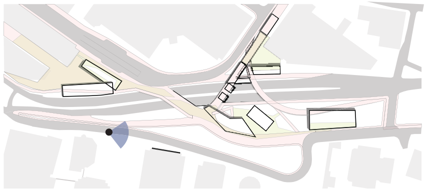
Barrington tunnel, transit hub, gallery



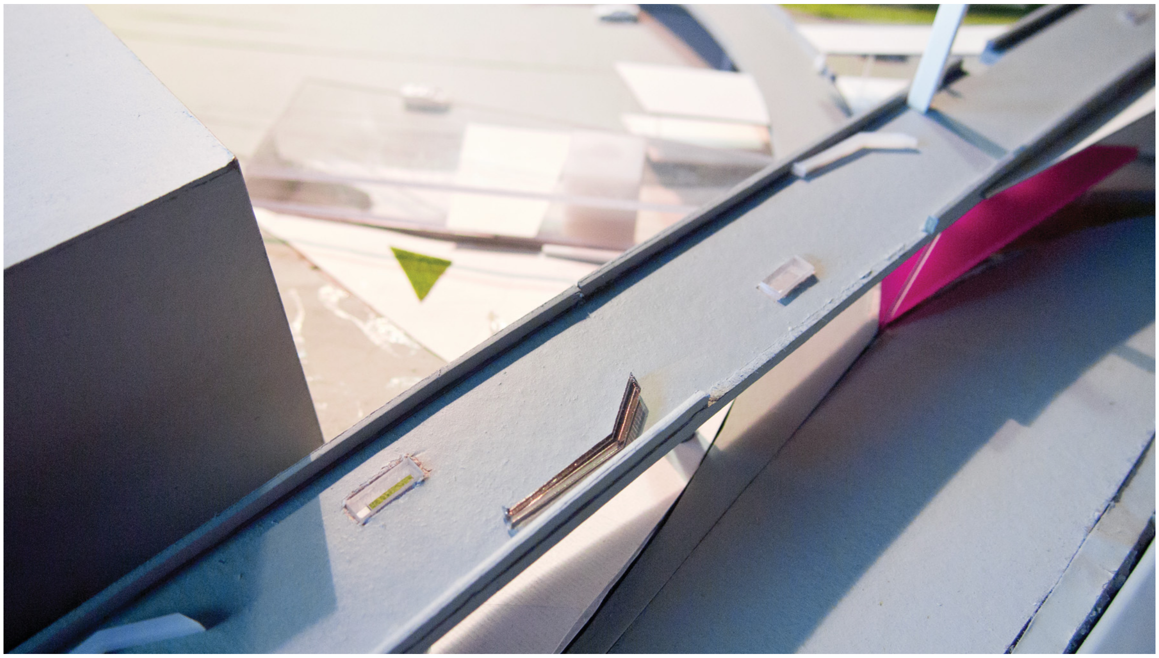


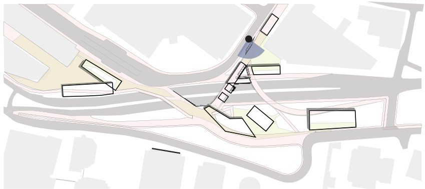
Running track and park



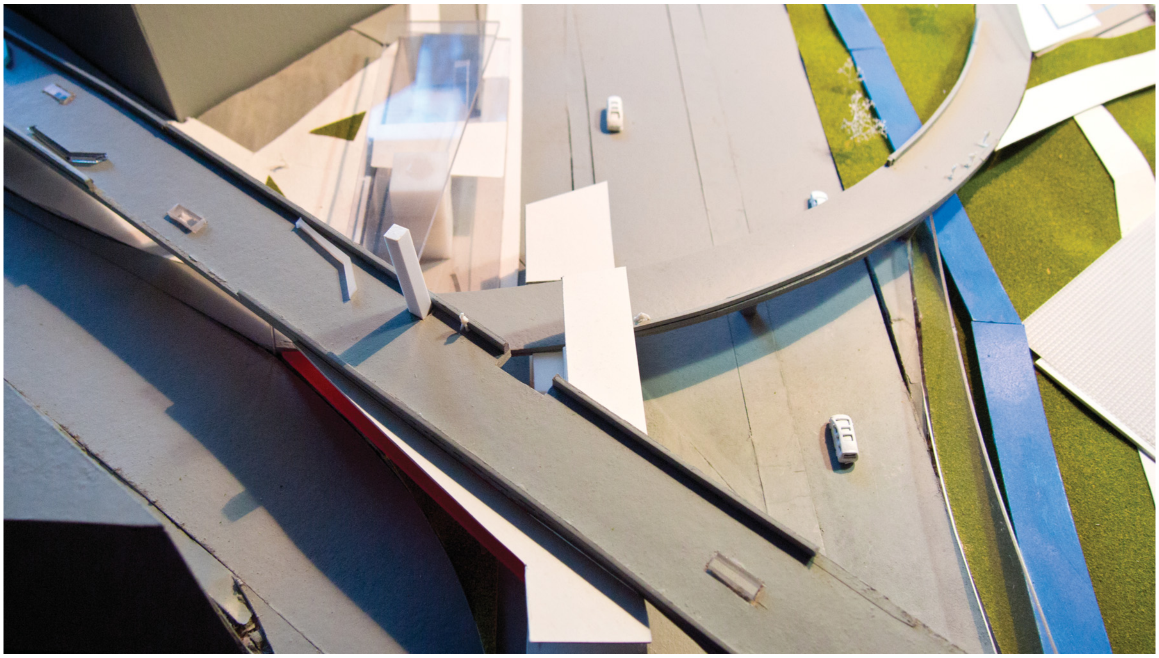


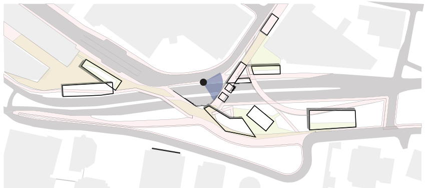
Outdoor cinema seating and running track



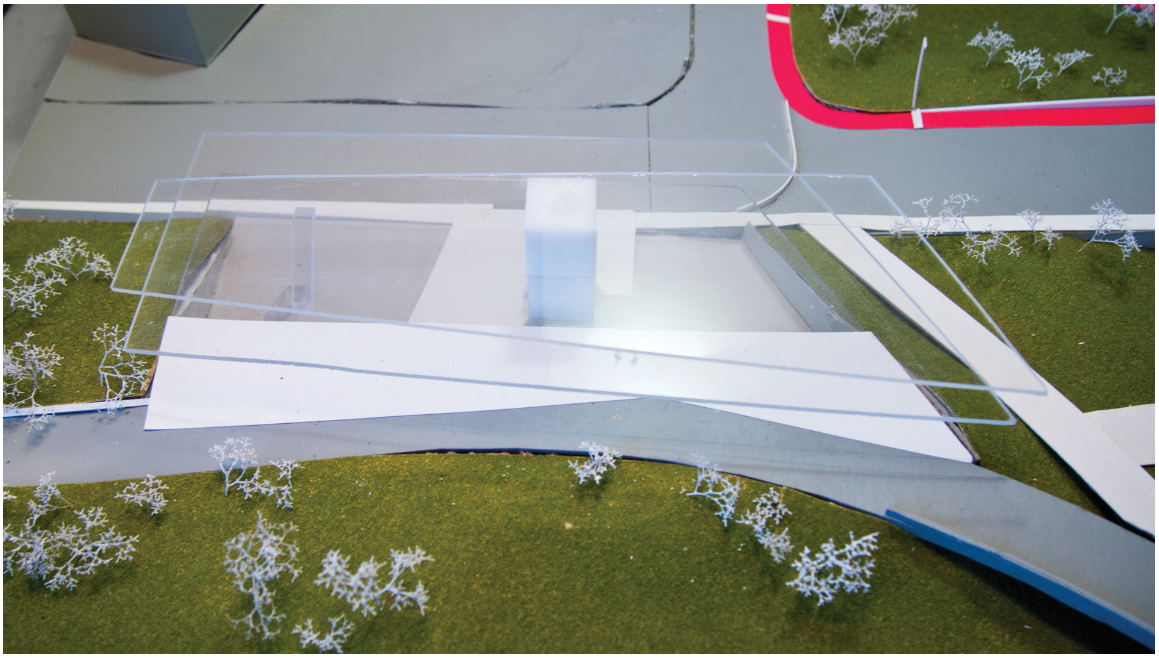


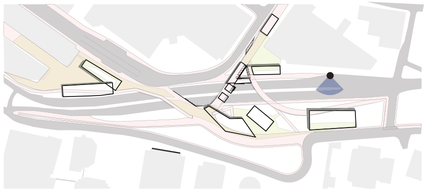
Aerial view of Cogswell Overpass and public square below



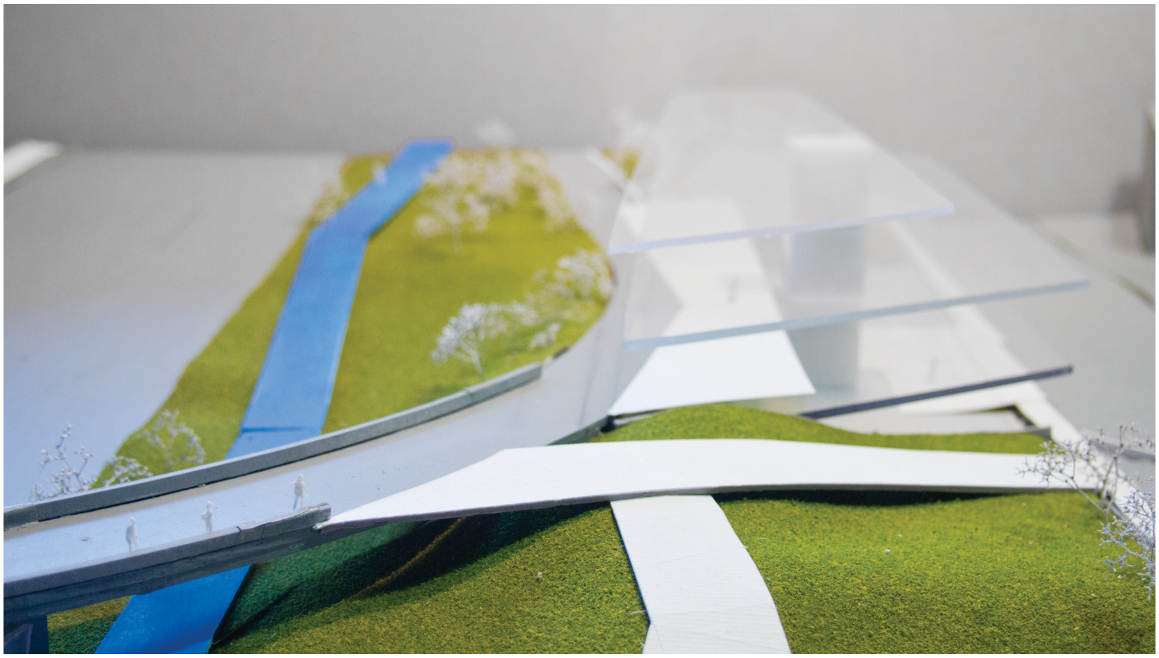


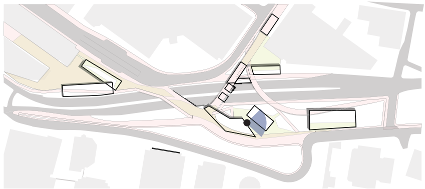
Aerial view of Cogswell Overpass and flyover



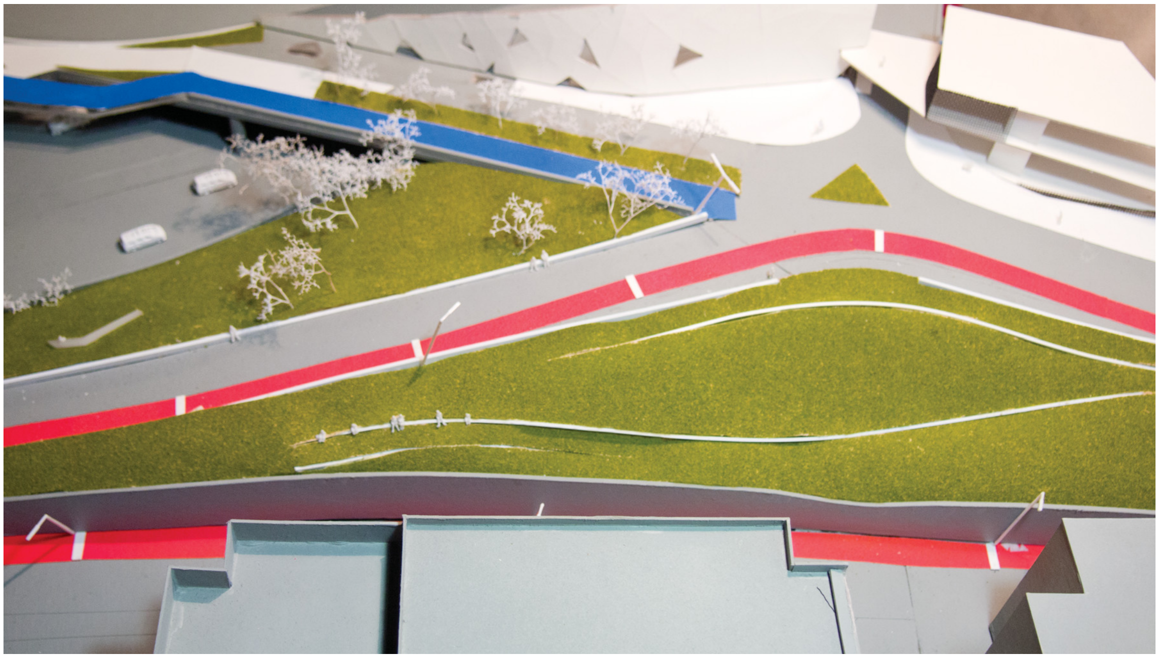


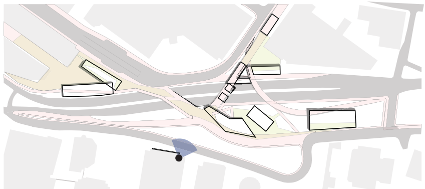
Aerial view of commercial area and flyover



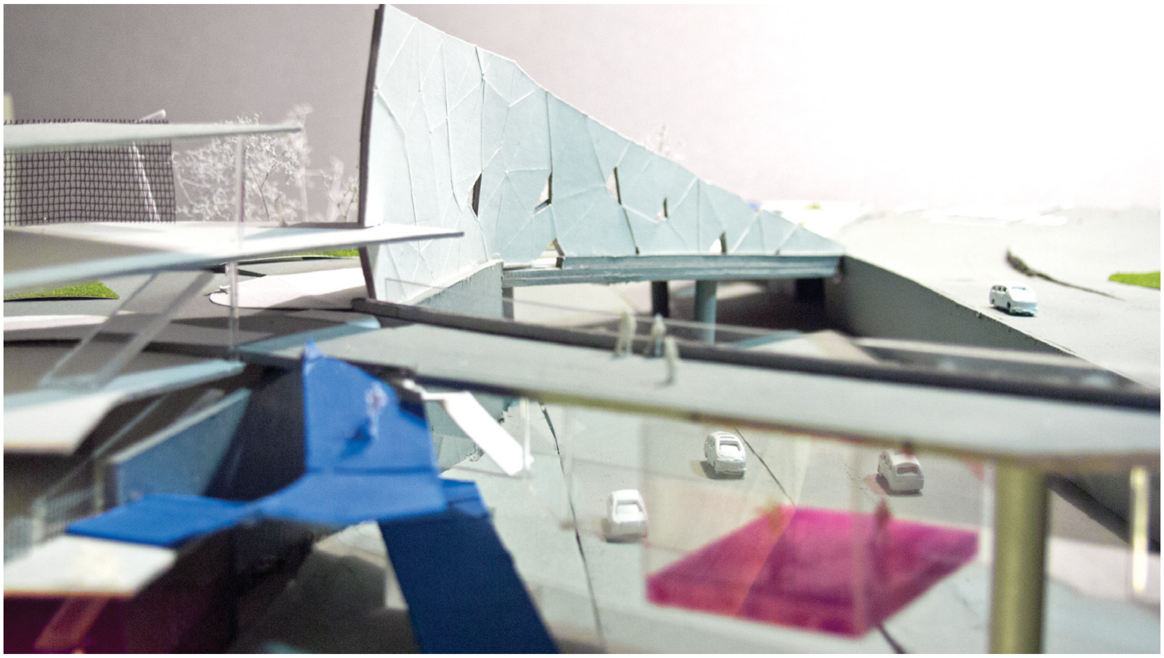


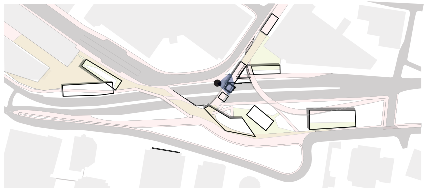
View from gym looking north



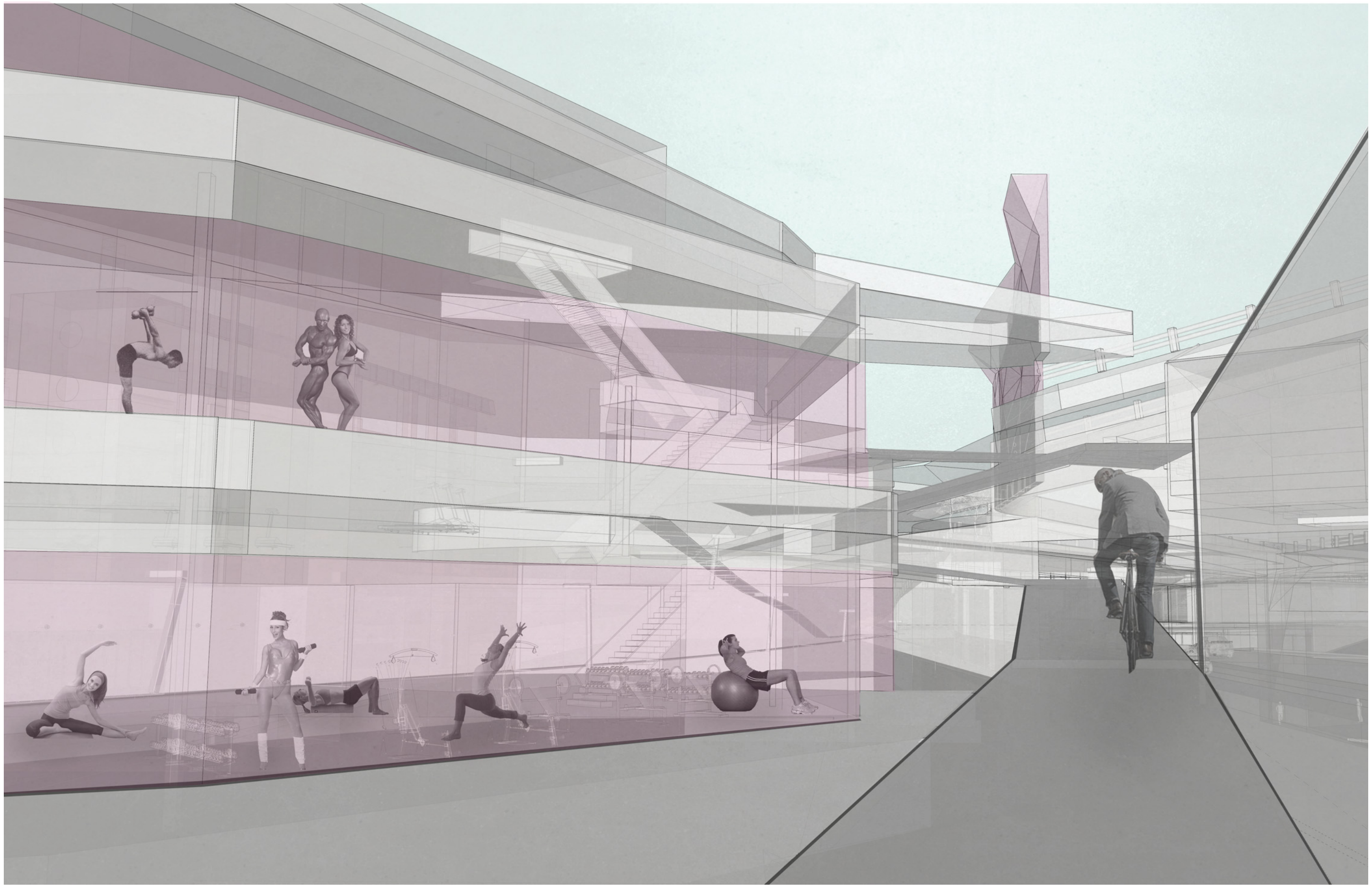


Outdoor cinema seating, park and climbing wall

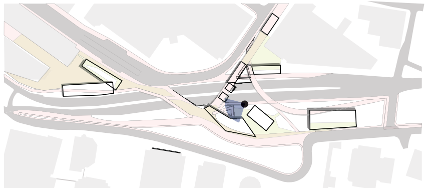


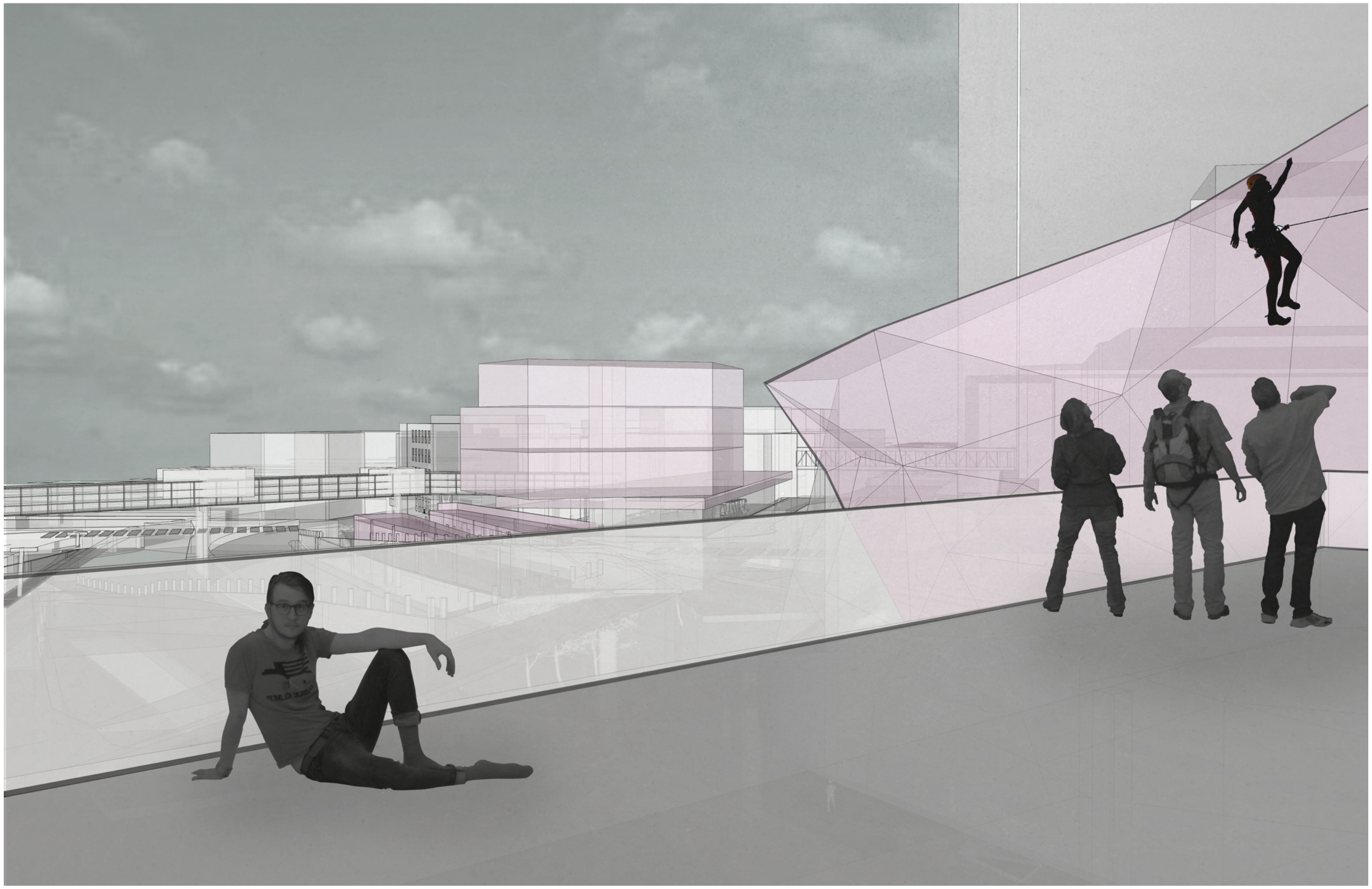


Bicycle path, climbing wall and squash court

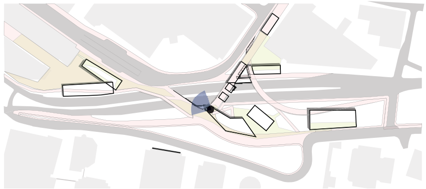


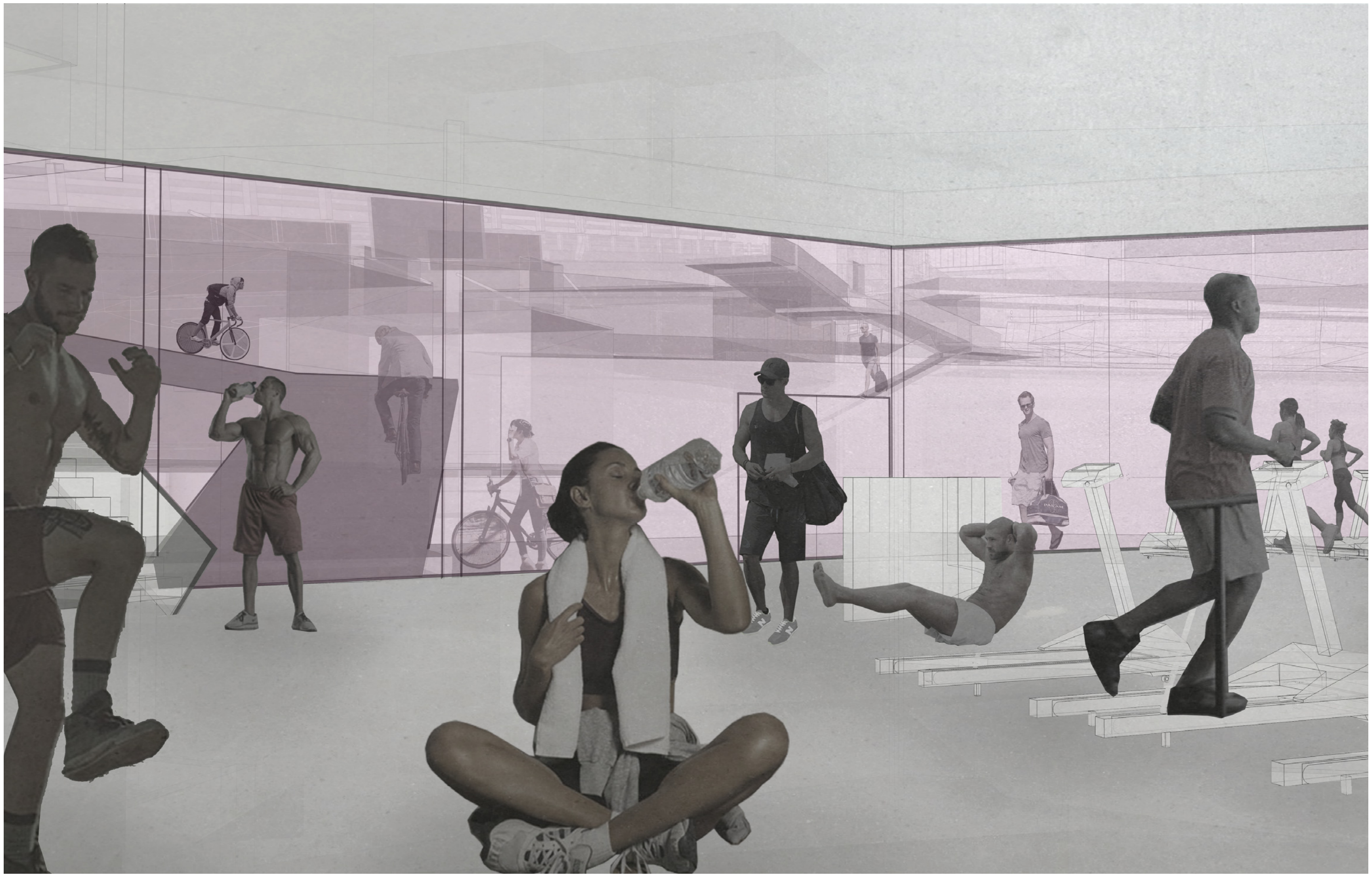
Bicycle path perspective

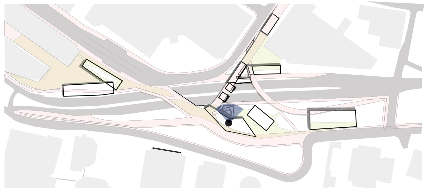




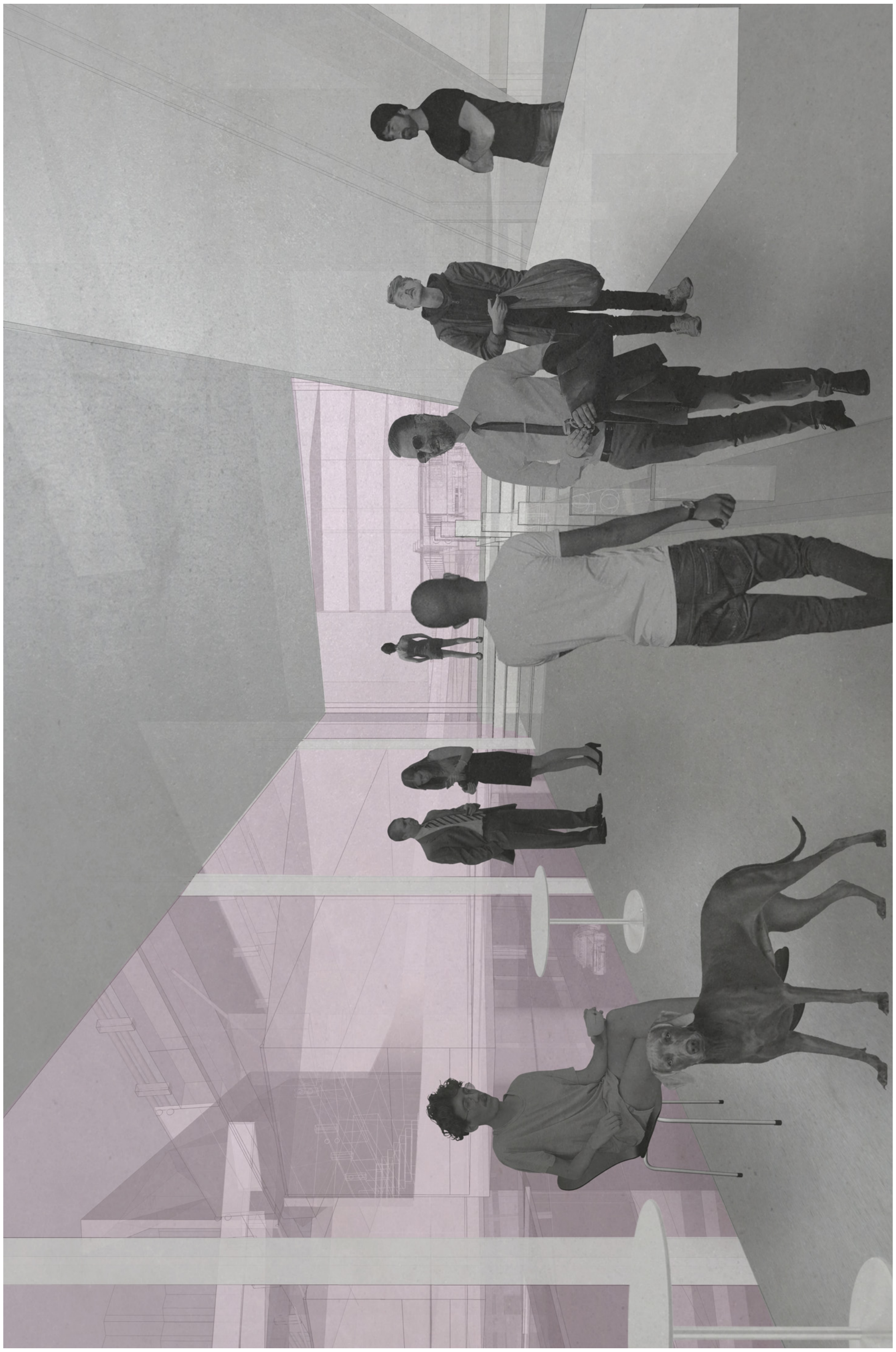
Climbing wall perspective



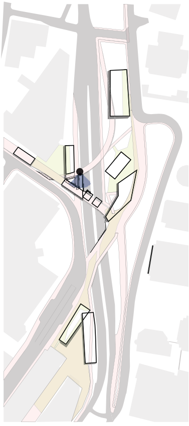


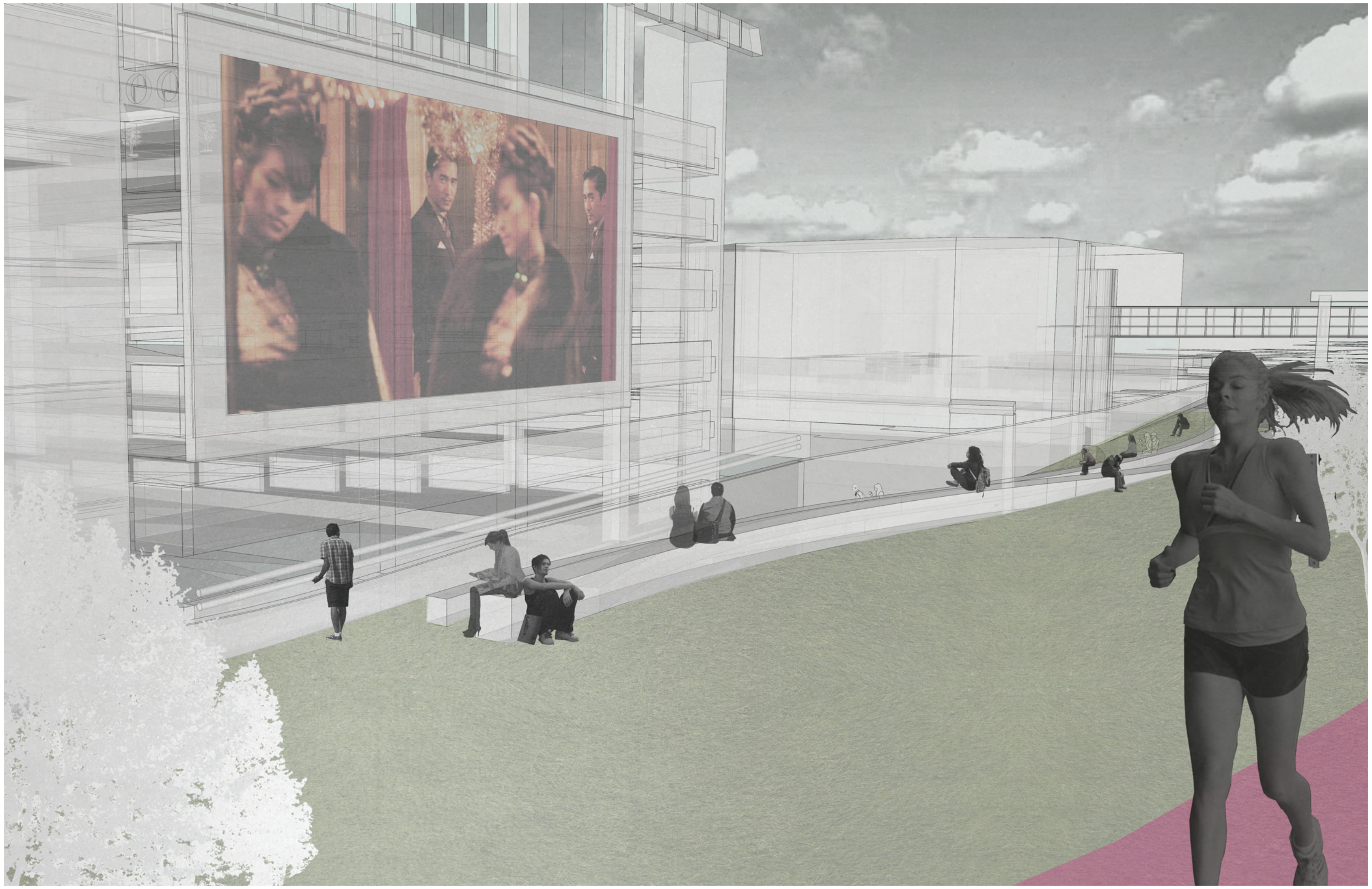


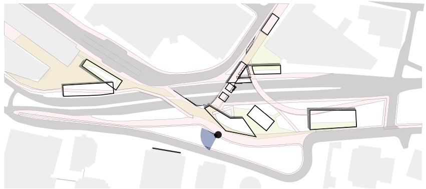
Gym interior perspective



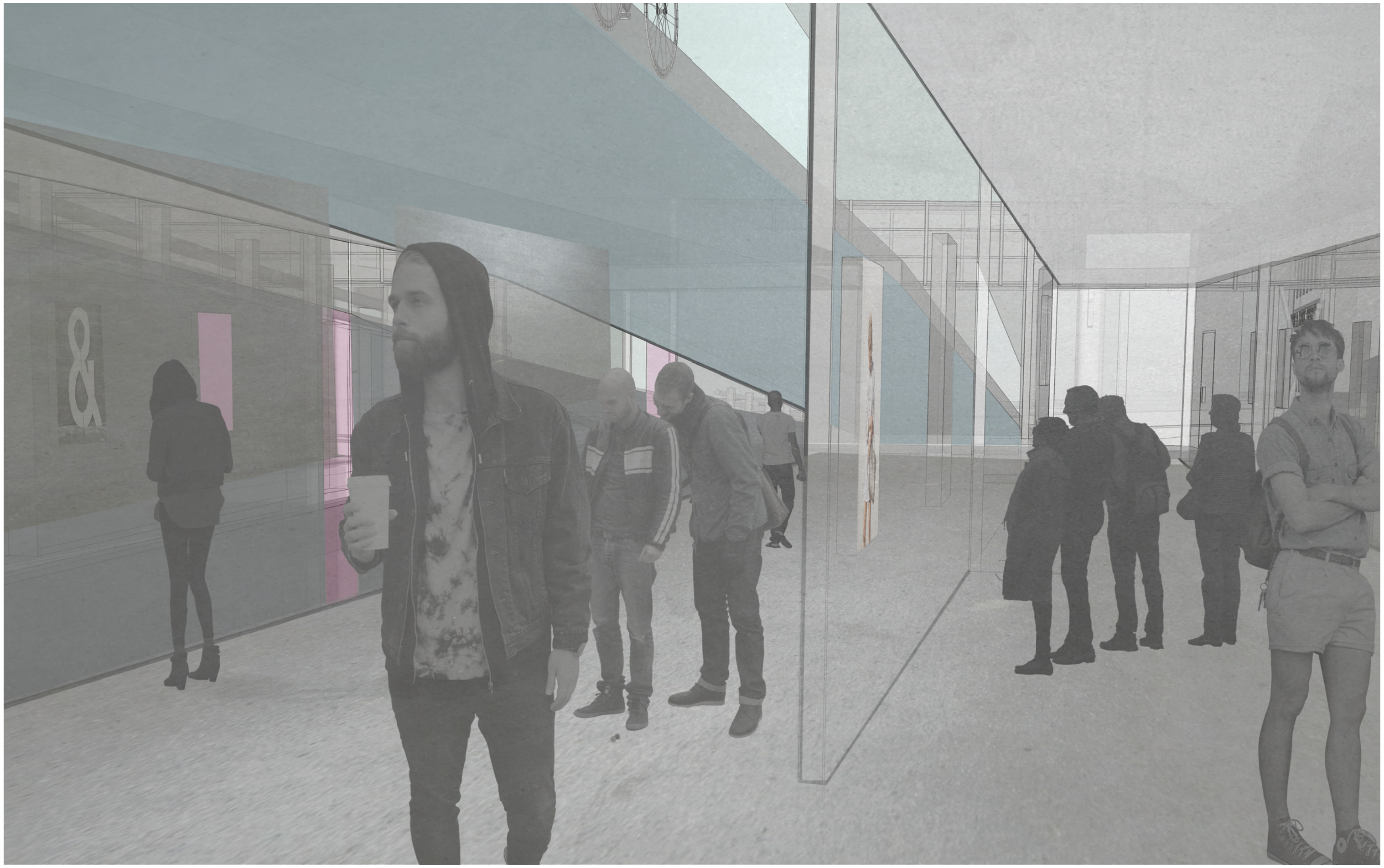
Bar interior perspective

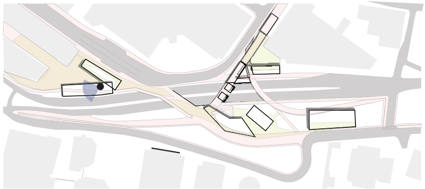




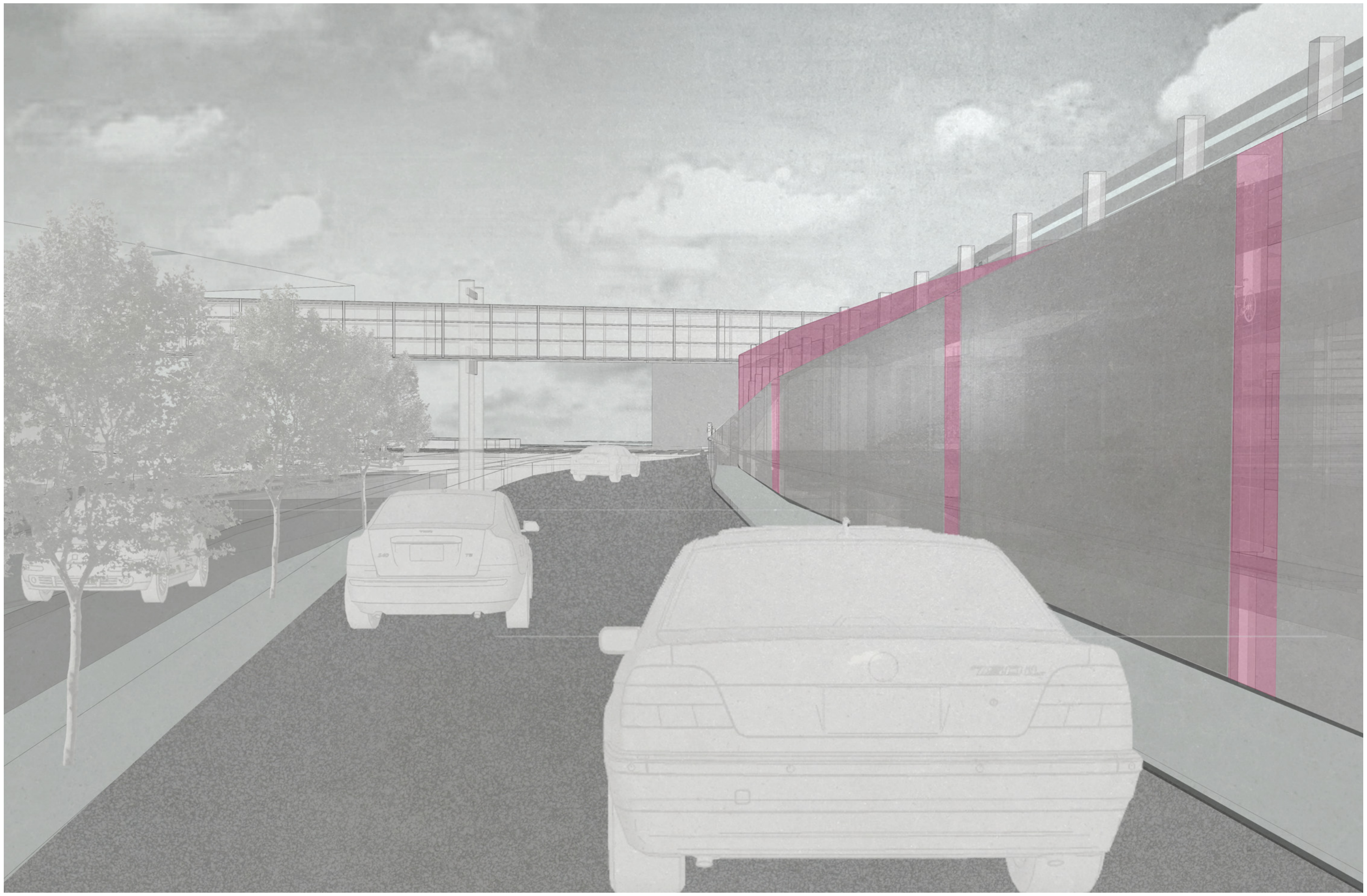


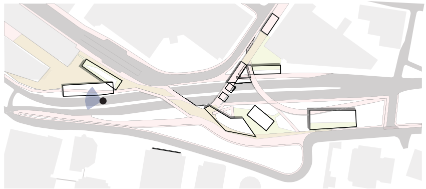
Cinema perspective





Gallery interior perspective





Gallery exterior perspective

CHAPTER 4: CONCLUSION

The Cogswell Interchange, like much urban highway infrastructure, has contributed to the negative factors in the segregation and development of Halifax. Its preservation and reappropriation for pedestrians and cyclists with many activities (recreational, commercial and cultural) breaks down the scale and inaccessibility of this vehicular infrastructure transforming it into a connector and public monument for the city.

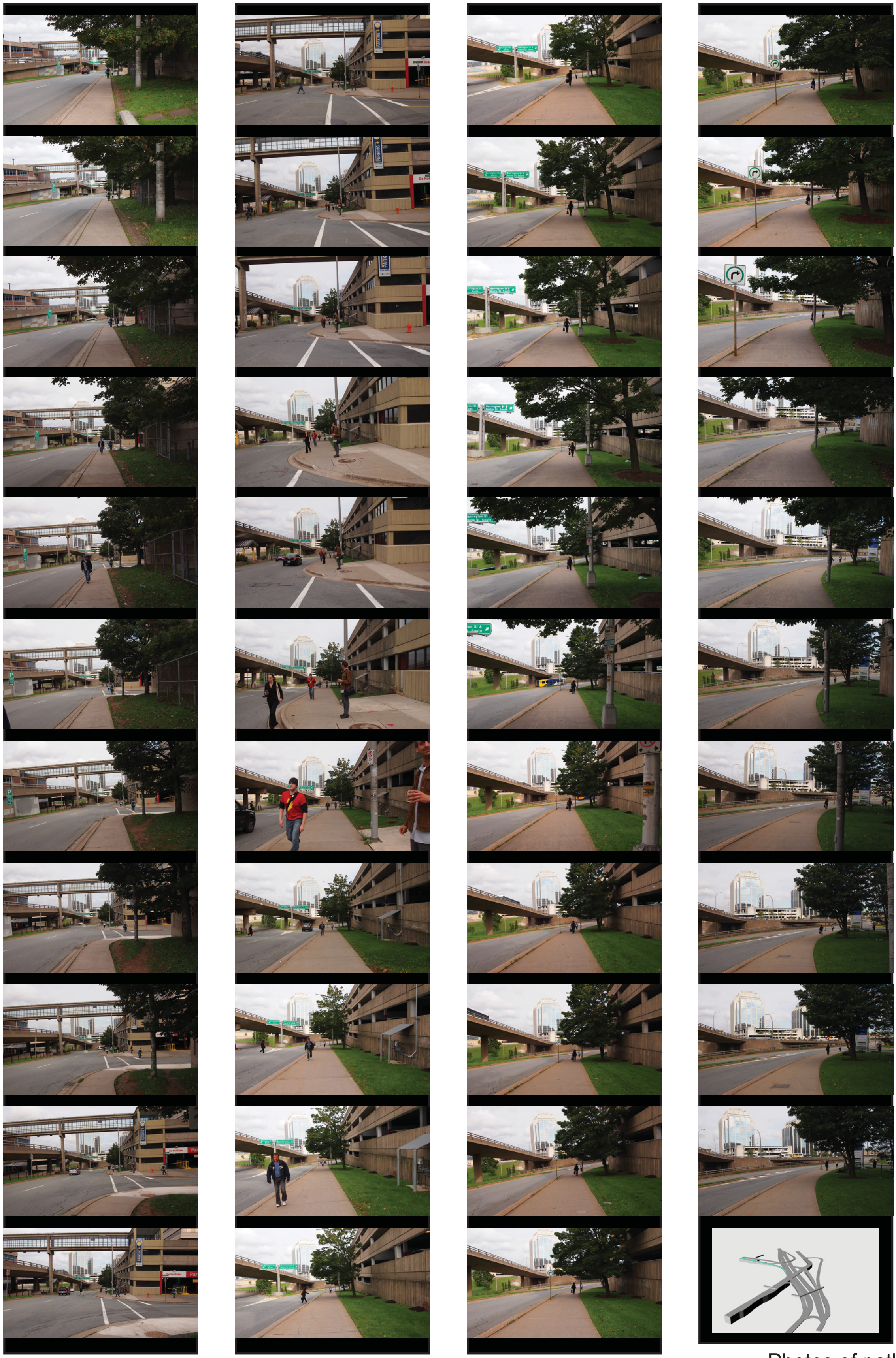
By analyzing the Interchange as a collection of individual parts, specific types of interventions can be suggested for similar sites throughout the world as it is a plight of many modern cities. The characteristics of flyovers, overpasses and retaining walls are not unique to the Cogswell and therefore a kit of parts can be applied to other examples of urban highway infrastructure. Cutting into, suspending from or attaching to the infrastructure can occur to a certain scale depending on the context of the situation. Cutting into surfaces brings light and views through heavy expanses of concrete and enables circulation through different levels. Attaching, suspending and enclosing volumes to/from the infrastructure brings different types of activities and events to previously uninhabitable spaces.

Although the design for the Cogswell Interchange intervention was conceived mainly as a masterplan, urban highway infrastructure can be partially or completely reappropriated or taken over in stages and, as such, individual pieces of the masterplan can be seen as separate strategies for phased intervention.

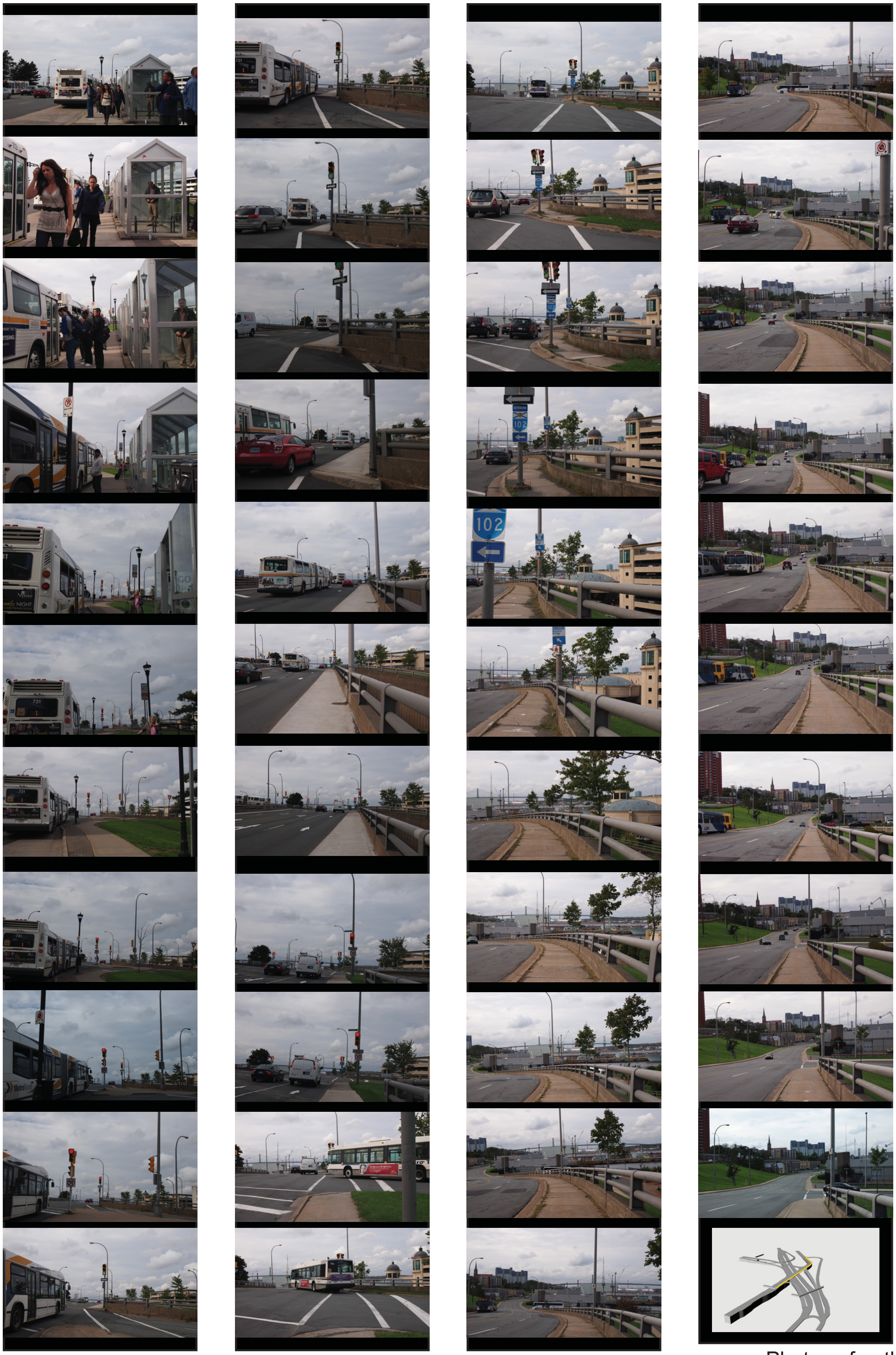
APPENDIX

Photos of paths

Photos of paths



Photos of paths



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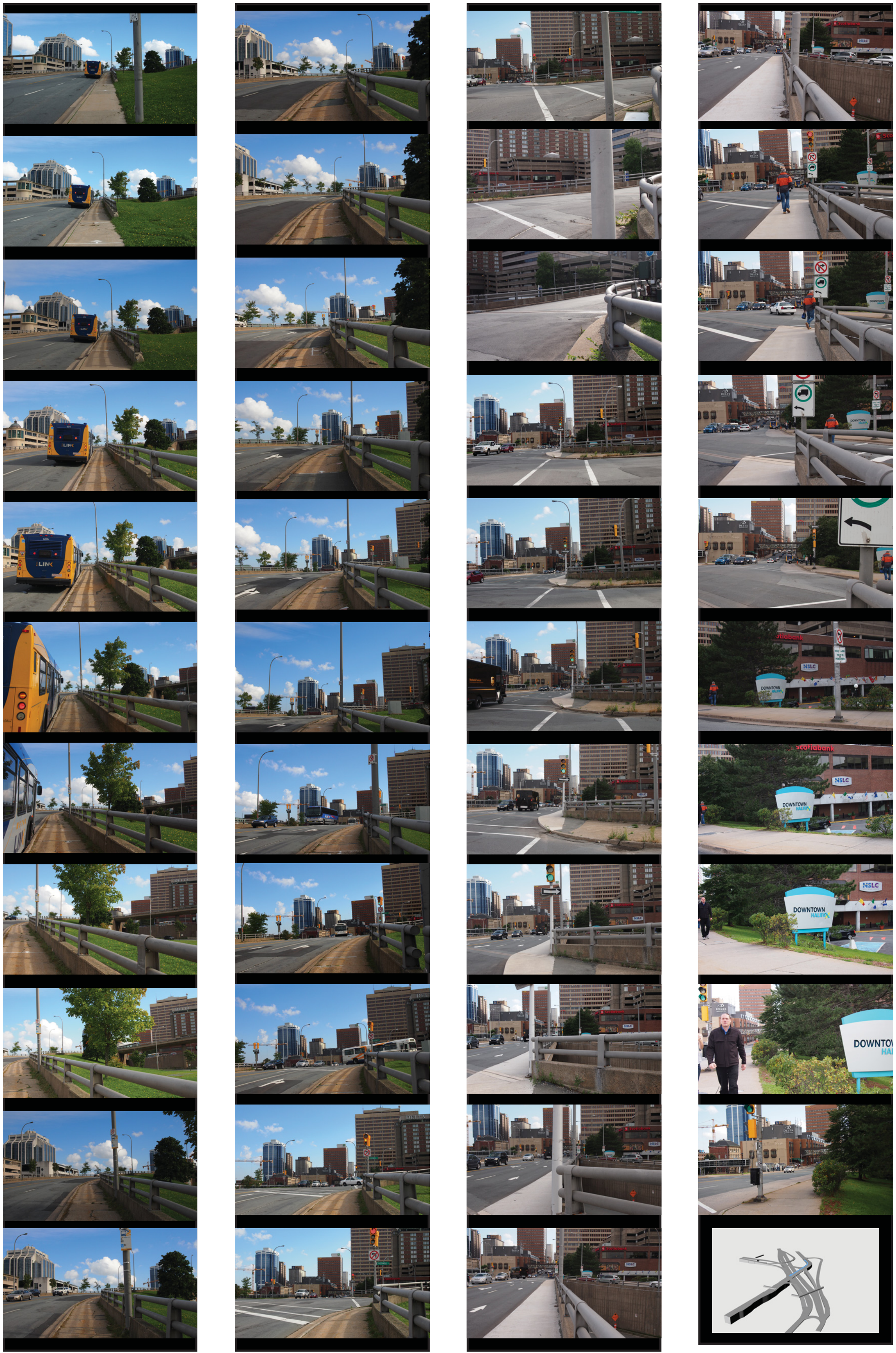
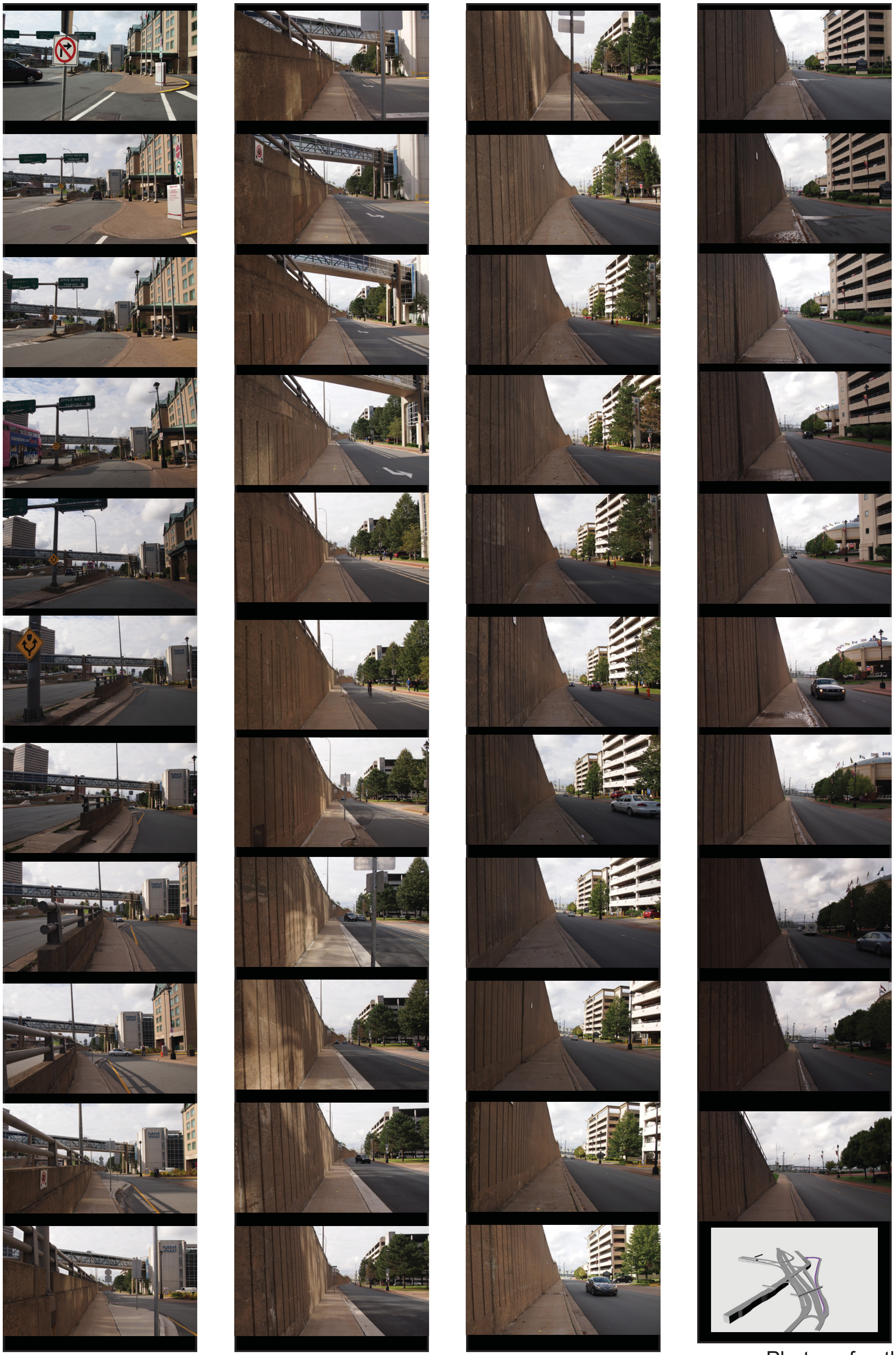


Photos of paths

CONSTRUCTION
Double in
Work Areas

Photos of paths



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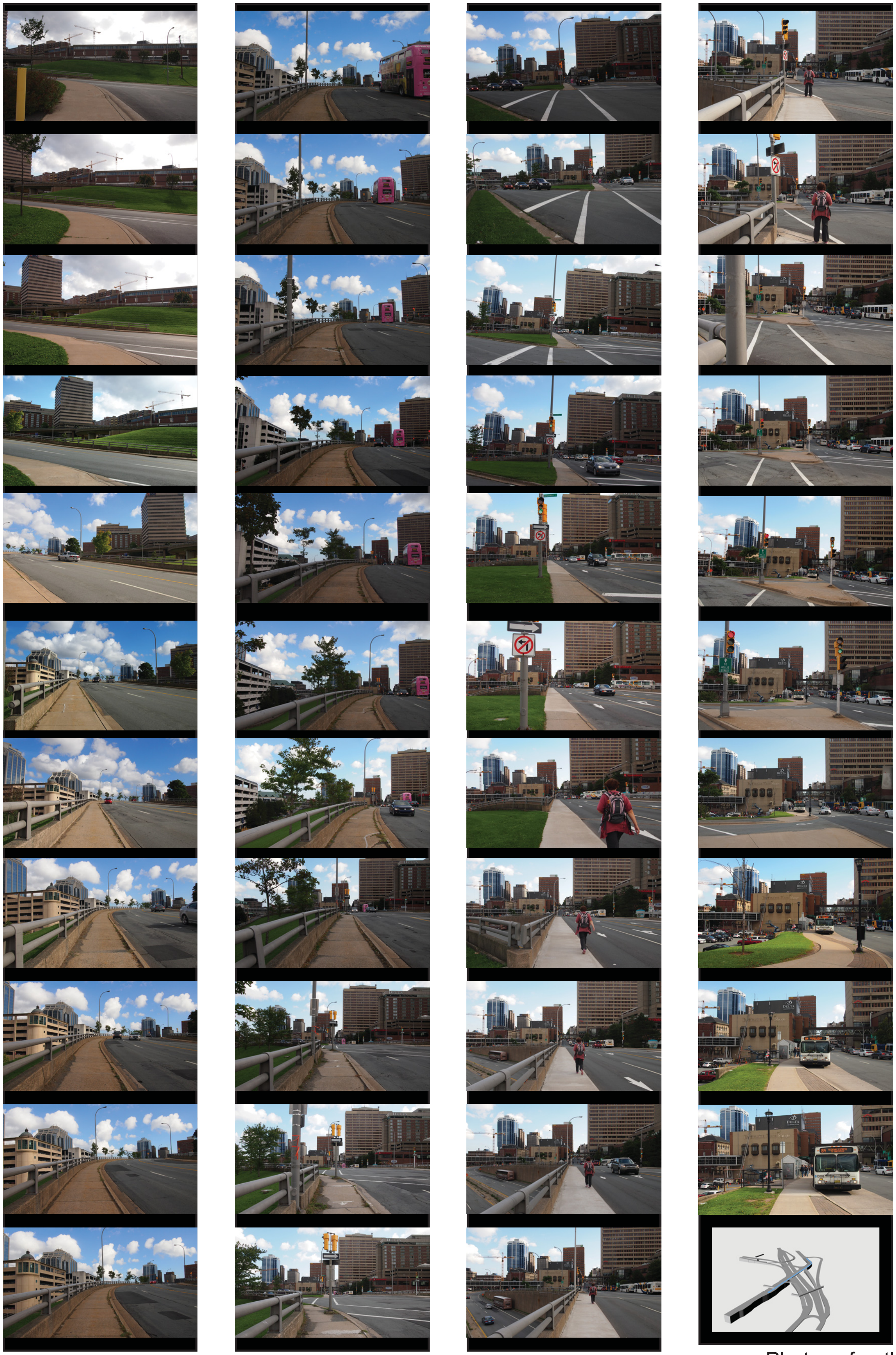

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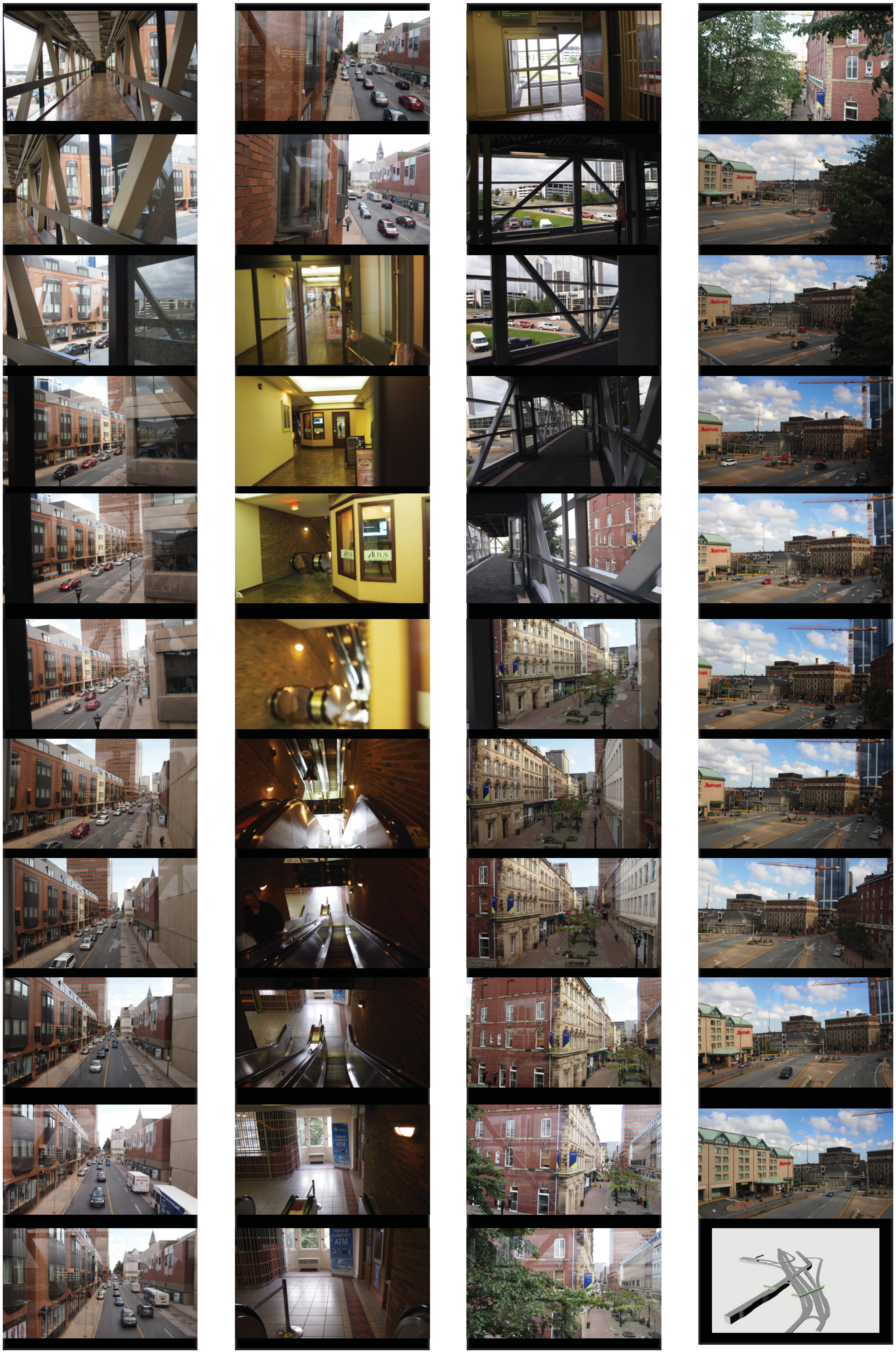

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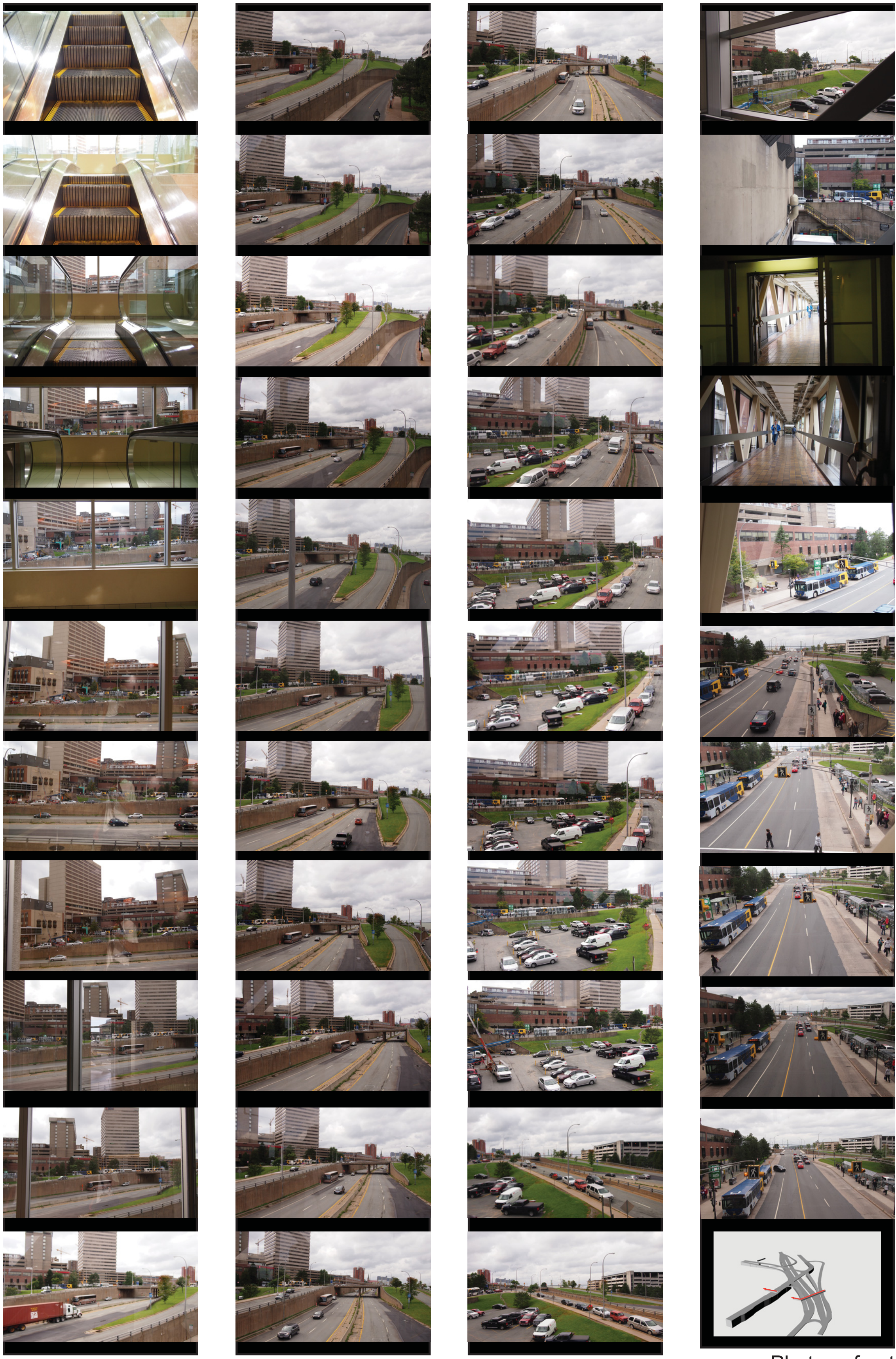

Photos of paths

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