In-between Boundaries

Two Design Proposals Over and Under the Gardiner

by
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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.
I understand that my thesis may be made electronically available to the public.

Abstract

While the highway infrastructure of North America provides great benefits by connecting both urban and rural communities, this infrastructure also comes with significant costs by separating and creating barriers between various communities. The Sunnyside beach area in Toronto is an example of an important public area isolated by the Gardiner Expressway from the neighborhoods of Swansea, Sunnyside, Roncesvalles Village, and Parkdale. This thesis explores two prototype strategies for urban and architectural interventions on two sites in the Sunnyside area by both bridging over the Gardiner Expressway and traversing underneath it, as an approach that could be applied in other key locations along arterial urban highways.

Implementation of these reconnection strategies would provide an opportunity to add significant new activity programs in the Sunnyside area. The programming and spatial character of former recreation activities and facilities at Sunnyside are used within a process of urban memory retrieval to organize the proposed new buildings. Within the buildings, interior boundaries - walls between rooms - are eliminated as static space dividers and replaced as expanded functional space.

In-between Boundaries offers a systematic perspective for analyzing a range of design scales for the built environment from urban design to site and building design scales and, in so doing, proposes an enhanced degree of complexity and continuity in architectural design.

Acknowledgments

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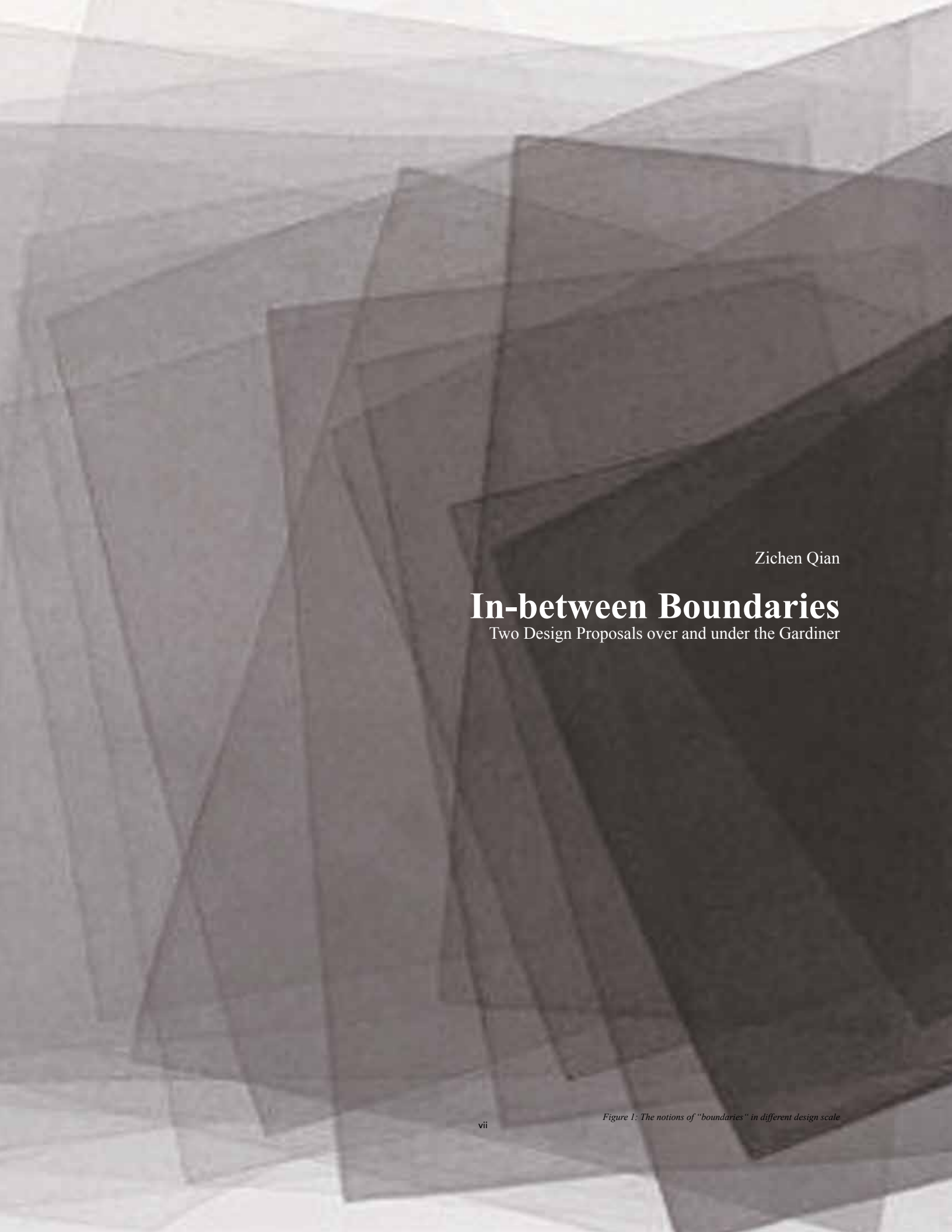
Thank you to everyone who supported, inspired, and challenged me throughout this process.

To my family, I could not have done this without you.
Thank you for all of your support along the way.



Zichen Qian

In-between Boundaries

Two Design Proposals over and under the Gardiner

Figure 1: The notions of "boundaries" in different design scale

Figure 2: The physical model of parts of the Gardiner expressway
This physical model of parts of the Gardiner Expressway was built to understand the relationship between this expressway and its adjacent neighborhoods in the Thesis Research and Design Studio I semester.

Introduction

Expressways were built to meet the social and economic demands of fast travel for people and goods, widely constructed during the first half of the 20th century. With more unexpected social and economic issues arising within these communities isolated by expressways, the need to overcome highway infrastructural barriers and reconnect such communities has come to be one of the most important topics of urban planning.

While the highway infrastructure of North America provides great benefits by connecting both urban and rural communities, this infrastructure also comes with significant costs by separating and creating barriers between various communities.[1] Parts of the city of Toronto are separated and cut off from the Lake Ontario waterfront by the Gardiner Expressway, not only physically but also financially and psychologically. In order to overcome these barriers to the continuity of the city's urban fabric, this thesis explores two prototype strategies for urban and architectural interventions on two sites in the Sunnyside area of Toronto, as an approach that could be applied in other key locations along arterial urban highways.

The Sunnyside beach area in Toronto is an example of an important public area isolated by the Gardiner Expressway from the neighborhoods of Swansea, Sunnyside, Roncesvalles Village, and Parkdale. The combination of this road infrastructure, built during the 1960s, coupled with an adjacent rail corridor, has significantly changed the waterfront in this area from its historically vibrant role as a key place of recreation and entertainment on Toronto's west side, to a less utilized, though still popular, destination that is primarily accessed by car.[2] This thesis explores the potential for reconnecting the Sunnyside beach area to its adjacent neighborhoods to the north, reinvigorating the major role it once played in the city's public recreational and cultural life by both bridging over the Gardiner Expressway and traversing underneath it.

Implementation of these reconnection strategies would provide an opportunity to add significant new activity programs in the Sunnyside area. This, in turn, would act as an attractor to the public, augmenting both the existing activities on either side of the expressway boundary and further connecting the adjoining areas that have become separated by the insertion of the expressway infrastructure. Additionally, creating buildings that provide an exciting spatial experience would add to the attractive potential offered by new public activity programming.

The programming and spatial character of former recreation activities and facilities at Sunnyside are used within a process of urban memory retrieval to organize the proposed new buildings. Within the buildings, interior boundaries - walls between rooms - are eliminated as static space dividers and replaced as expanded functional space.

In-between Boundaries offers a systematic perspective for analyzing a range of design scales for the built environment from urban design to site and building design scales. By both bridging over the Gardiner Expressway and traversing underneath it, this thesis uses the Sunnyside sites as a test case, whose approaches would be able to be used in other locations to address some of the similar issues that exist in many urban highway locations. The experience and use of the highways from "within" are not addressed in this thesis and left to further studies of the issue.

Figure 3: A photo of a highway

01 Highway Infrastructure

While the highway infrastructure of North America provides great benefits by connecting both urban and rural communities, this infrastructure also comes with significant costs by separating and creating barriers between various communities. With more unexpected social and economic issues arising within these communities isolated by expressways, the need to overcome highway infrastructural barriers and reconnect such communities has come to be one of the most important topics of urban planning.

Primary Designed Intention of Expressways

Modern expressways, originating in the early 1920s, were intended to expedite the rapidly increasing use of automobiles. They are designed and built to meet the demand for quick movement between rural and urban communities, supported by improvements in paving processes, techniques, and materials. Extensive networks of expressways have been built by many countries to provide both high-capacity urban travel and high-speed rural travel.

The Period of Expressways Realization

For fast travel in both rural and urban areas, expressways were widely constructed during the first half of the 20th century. For example, the Long Island Motor Parkway in Long Island, New York, which opened in 1908, was the world's first limited-access roadway.[3] Germany started to build its first 30-kilometre expressway in 1932 connecting Cologne to Bonn, and the first expressway in Italy was opened in 1924 between Milan and Varese.[4] In Canada, the first city-to-city expressway was the Queen Elizabeth Way, opened in 1937.[5] Additionally, a decade later, the first section of Highway 401 was opened, and it has become the busiest highway in the world.

The Unexpected Effects of Expressways

Expressways with limited access and grade separation create increased opportunities for people to travel for business, trade, or pleasure, and also provide trade routes for goods.[6] However, many expressways are constructed through existing communities, thus separating and creating barriers between adjoining communities. In cut-off neighborhoods, property values have decreased and housing quality has often been diminished. Above-grade expressways in urban areas are often a source of lowered property values, contributing to urban decay, especially where low-income residents are less likely to own a car or to have the political and economic influence to resist construction efforts.[7]

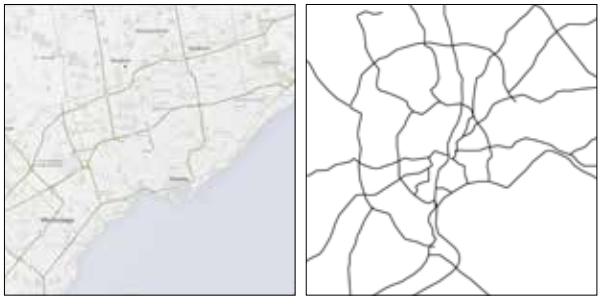
Expressways were built to meet the social and economic demands of fast travel for people and goods. However, social and economic issues of isolated neighborhoods, decreased property values and urban decay were not expected by the original infrastructural road designers. Such negative effects are well considered now when a new highway is proposed and an existing highway is renovated. The practice of infrastructural road building has greatly evolved, and the living environments of adjacent communities are now well considered.

Toronto

Shanghai

New York City

Tokyo



London

Seoul

Berlin

Moscow

Paris

Melbourne

Milan

Johannesburg

Figure 4: Universal existence of highways in global metropolises

This series of maps shows the universal existence of highways in twelve global metropolises, including Toronto, Shanghai, New York City, Tokyo, London, Seoul, Berlin, Moscow, Paris, Melbourne, Milan, and Johannesburg. For each city, there are two maps at the same scale: a city map on the left and a highway network map on the right, showing the density of highway networks in and around each city. While there are many negative issues raised by building highways, highway networks are still widely demanded in many metropolises. Demolishing all highways is not realistic.

The Current Urban Tendency of Expressway Removal

To counter negative issues brought about by expressways, some cities have implemented expressway removal policies, where by freeways have been demolished and reclaimed as boulevards or parks. Examples include the Cheonggyecheon in Seoul, the Harbor Drive in Portland, the West Side Highway in New York City, the Central Artery in Boston, the Embarcadero Freeway in San Francisco, and the Park East Freeway in Milwaukee.

At the same time, the construction of underground urban expressways using tunneling technologies is being widely undertaken to replace the construction of surface or above-ground freeways. The tunnels are usually designed to act as inner-city ring roads or bypass systems and include provisions for public transport. In Canada, the extension of Highway 401 into Detroit, known as the Herb Gray Parkway, has been designed with numerous tunnels and underpasses that provide land for parks and recreational uses. However, the famous infrastructural tunnel project, the Central Artery Project in Boston, also known as the "Big Dig," ended up being the most expensive highway project in U.S. history. It was completed in 2007. "The Boston Globe estimated that the project will ultimately cost $22 billion, including interest, and that it would not be paid off until 2038."[8] The huge costs of tunneling are beyond what many municipalities can afford, so that exploring alternatives is becoming increasingly important when removing expressways.

Figure 5: The Central Artery of Boston, 2004

Figure 6: the Rose F. Kennedy Greenway of Boston, 2012

Definition of Expressways

No world-wide definitions exist for words such as “motorway,” “freeway,” or “expressway.” Mostly, these words are defined by local statute, design standards, or regional international treaties like the Vienna Convention on Road Signs and Signals, or British Standards as set by the Institute of Transportation Engineers, etc. “Expressways, also called controlled-access highways, provide an unhindered flow of traffic, with no traffic signals, intersections or property access. Entrances and exits to the expressway are provided at interchanges by ramps, which allow for speed changes between the expressway and arterial roads and collector roads. Opposing directions of travel are generally separated by a median strip.”[9]

Figure 7: Highway interchanges

02 Boundaries in Planning: the Living Infrastructure

2.1 Contextualizing the Gardiner

2.2 The Death of Sunnyside: An Example of Local Neighborhoods Isolated by the Gardiner

2.3 Lake Shore Boulevard: Livable Semi-Boundary

2.4 The Western Waterfront Master Plan

2.5 Site Locations and Strategic Collages

This chapter introduces the Gardiner Expressway in Toronto as a specific highway example that cuts off several neighborhoods, including Swansea, Sunnyside, and Parkdale. Past Gardiner proposals, the history of Sunnyside beach area, the history of Lake Shore Boulevard in this area, and the Western Master Plan are discussed to explore the potential to reconnect the Sunnyside beach area to its adjacent neighborhoods to the north.

Figure 8: Highways are designed to connect cities.

Contextualizing the Gardiner

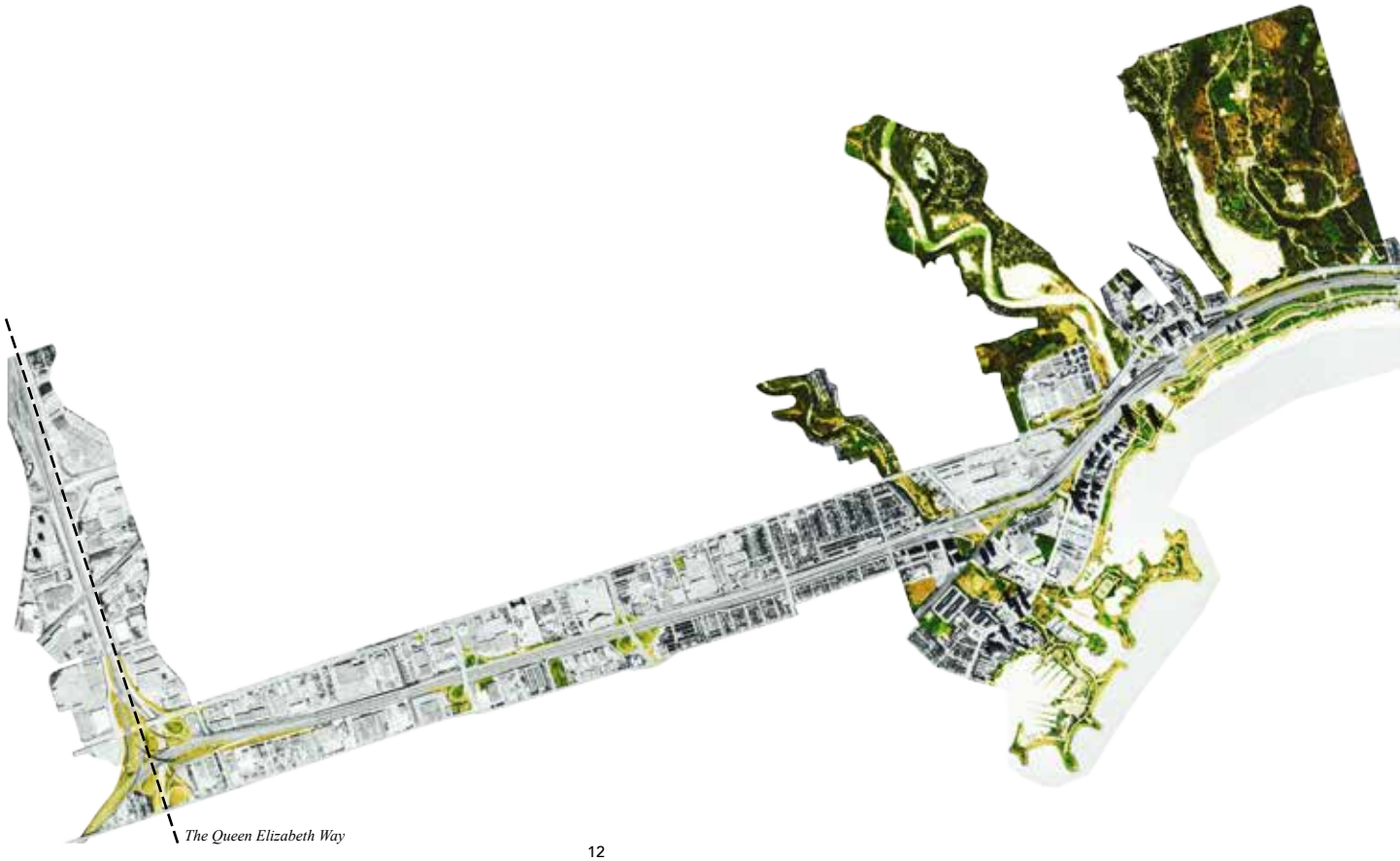
2.1.1 The Reasons for Planning and Constructing the Gardiner
2.1.2 The Unexpected Issues of the Gardiner
2.1.3 Rethinking the Gardiner: The Essential Difference between Vehicle and Pedestrian Circulation
2.1.4 Three Prototype Strategies: Learning from Successful Precedents
2.1.5 The Strategic Categories of the Gardiner: Transforming Past Proposals
2.1.6 International Trends and Two Proposals on Process
2.1.7 Sections and Analysis of Gardiner Sequences

This section is focused on the intention, impact, and past proposals of the Gardiner Expressway. With a analysis of successful global precedents, these past proposals are categorized into three strategies: covering, recycling, and programming the Gardiner.

The Reasons for Planning and Constructing the Gardiner

The Frederick G. Gardiner Expressway, commonly known as the Gardiner Expressway, is a municipal expressway, serving traffic in downtown Toronto.[10] It extends from the foot of the Don Valley Parkway in the east to the junction of Highway 427 and the Queen Elizabeth Way in the west.

In the post-war period, Toronto's population was increasing at a rate of 50,000 people per year. The ownership of private vehicles was also growing, and travel between the western suburbs of the city and downtown Toronto was frequently mired in traffic congestion. At the same time, the opening of the Saint Lawrence Seaway brought more lakefront port services, resulting in still more traffic in the area. The proposed highway was planned to meet the related road infrastructure demands, expected for the foreseeable future.



The Unexpected Issues of the Gardiner

When the Gardiner Expressway was built, it passed mostly through industrial lands. However, urban renewal development of Toronto increased rapidly around the turn of the millennium, resulting in a change in attitude of residents about the presence of the Gardiner Expressway. The Gardiner acts as an impediment to urban connections and the continuity of the urban fabric.

Figure 9: The Gardiner Expressway in Toronto

The Gardiner Expressway, is a municipal expressway, serving traffic in downtown Toronto. It extends from the foot of the Don Valley Parkway in the east to the junction of Highway 427 and the Queen Elizabeth Way in the west.

Rethinking the Gardiner: The Essential Difference Between Vehicle and Pedestrian Circulation

The essential differences between vehicle and pedestrian circulation patterns create conflicting requirements and lead to the isolation of neighborhoods, as evidenced by the Gardiner Expressway. Different roadways are variously designed to accommodate high speed, versus low speed, versus pedestrian movement; at the point where these systems overlap there is a strong potential for accidents and pedestrian injuries.

Vehicle Circulation

High Speed Movement

A controlled-access highway provides an unhindered flow of traffic, with no traffic signals, intersections or property access.

Highways, freeways, subways, railways, etc.

Globally ordered

Directional spaces

Pedestrian Circulation

Low Speed Movement

People can walk, bike and easily cross these streets, even when there are still cars running in these streets.

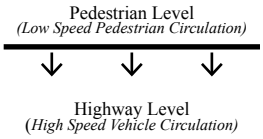
Bike lanes, pedestrian lanes ordinary streets, ect.

Locally ordered

Dimensional spaces

Three Prototype Strategies: Learning From Successful Precedents

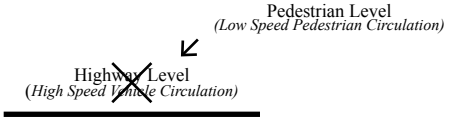
To reconcile the differences between vehicle and pedestrian circulation patterns, successful transport infrastructural renovation projects employ three prototype strategies. The first strategy is to cover a highway with urban open space above it. In the second strategy, a road infrastructure is renovated as public space, as the initial traffic function is discarded. The third one is to add new programming, which can act as an attractor to the public, connecting the adjoining areas that have become separated with the insertion of the expressway infrastructure.



Covering
above a Highway

Barcelona Gran Via, Barcelona

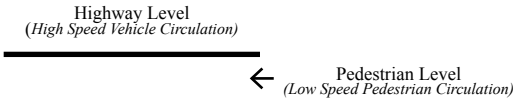
Boston Central Artery, Boston



Recycling
on a Highway

High Line Park, New York City

The Lowline, New York City



Programming
under a Highway

A8ernA, Zaanstad

Letten Viaducts, Zurich

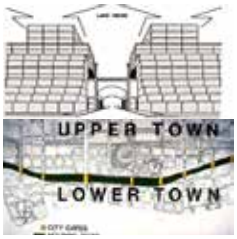
Figure 10: Three strategies: covering, recycling and programming

The Strategic Categories of the Gardiner: Transforming Past Proposals

Starting in the 1990s, several proposals have been made to dismantle or replace the central elevated section of the Gardiner Expressway.[11] However, renovating the Gardiner is a complicated and expensive infrastructural project. Most of these proposals have not been realized due to a lack of municipal funds.

The three aforementioned prototype strategies are considered as practical reference, based on their successful application elsewhere. Most strategies of the Gardiner's past proposals, except for three proposals as follows, are categorized under these three prototype strategies.

Housing
along Gardiner



Urbanizing the Gardiner, 1986

Lifting
the highway

Reinventing the Waterfront, 2002

Adding
a railway

Unique Right-of- way, 2005

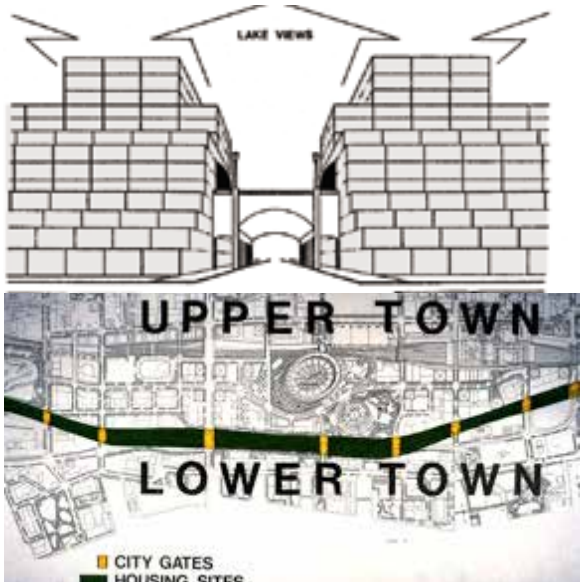
Figure 11: The uncovered three proposals

Covering above the Highway	Recycling on the Highway	Programming under the Highway
 Submerging under Lake, 1988	 Demolishing, 2000	 Retaining the Gardiner, 2003
 Toronto “Big Dig”, 2000	 Green Space, 2002	 Gardiner City, 2010
 Retaining the Gardiner, Ongoing	 Remove, 2010	 The Gar Reconnected, 2010
	 Toronto’s Great Street, 2010	 Replace, 2010

Within the same prototype strategy, different interventions exist in various proposals. For example, applying the same covering strategy, “Submerging” would place the highway under the Lake Ontario; “Toronto Big Dig” would relocate a park after tunneling the Gardiner; and “East Gardiner” would replace the Gardiner east by a 8-lane Lake Shore Boulevard.


Under Gardiner, Ongoing

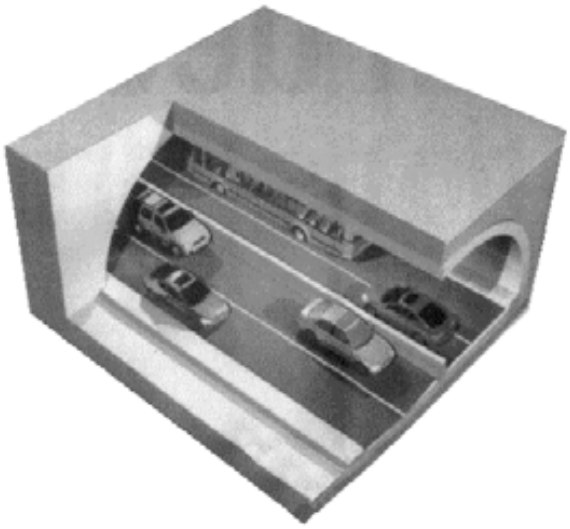
Figure 12: Three main strategies



Urbanizing the Gardiner, 1986[12]

Toronto Architect Paul Reuber, Toronto

Reuber proposed building housing along the Gardiner to form a walled city that divided Toronto into an “Upper Town” and “Lower Town”.



Submerging under Lake, 1988[13]

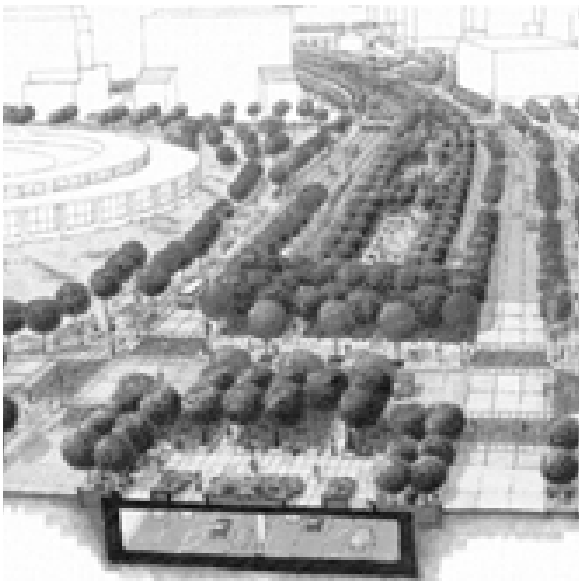
Toronto Government

The government planners studied a proposal to relocate the Gardiner Expressway into Lake Ontario.

Demolishing from Don River to Leslie Street , 2000

Toronto Government

The planning policy changes in the early 1970s ceased all expressway construction, including the Scarborough Extension, leaving the east end of the Gardiner in doubt.



Toronto “Big Dig”, 2000[14]

Toronto Waterfront Revitalization Corporation

They proposed to demolish the entire structure and relocate large segments of the highway underground.

Reinventing the Waterfront, 2002[15]

Bruce Mau

"It may sound scandalous," says Toronto native and internationally acclaimed designer Bruce Mau, "but raising the Gardiner...would be more pragmatic and cost effective than burying it."

Gardiner Reclaimed as Green Space,2002[16]

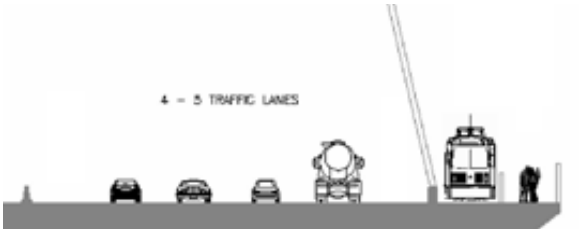
Barry Lipton, Toronto

Toronto city worker Lipton, envisioned a lush garden park and an incredible pedestrian walkway. He also imagined large wind generators running along the course of the path.

Retaining the Gardiner, 2003

Jon Van Nostrand and Brook Mcllroy

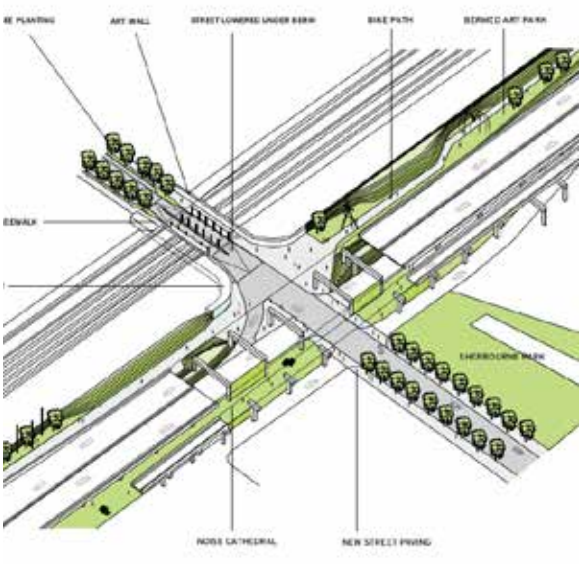
The TWRC commissioned Toronto architects to examine the possibility of retaining the Gardiner Expressway.



Unique Right-of- way, 2005[17]

Toronto engineer Jose R.Gutierrez, Toronto

Toronto engineer Jose R. Gutierrez proposed a new transportation corridor along the existing railway lines just north of the Gardiner, which would consolidate several modes of transportation.



The Gar Reconnected, 2010[18]

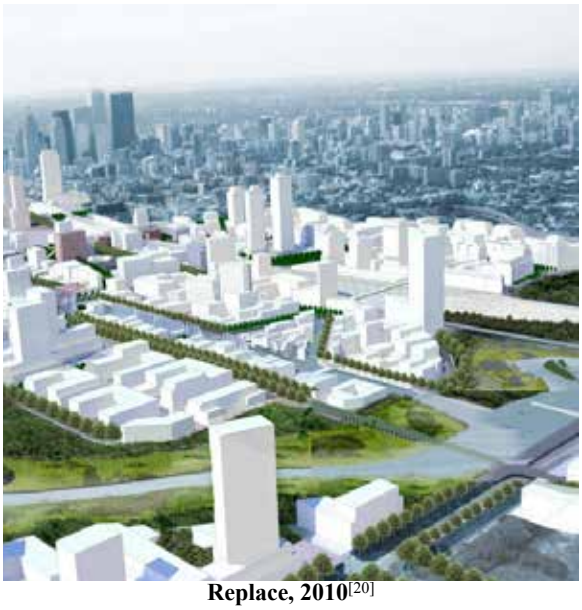
Kuwabara Payne McKenna Blumberg +Bjarke Ingels Group

No change to the Gardiner, Toronto architects KPMB and Danish architects BIG propose to create a park that flows into underused spaces and up over new buildings, podium buildings create a new park above it.

Gardiner City, 2010[19]

Diller Scofidio + Renfro /Architects Alliance

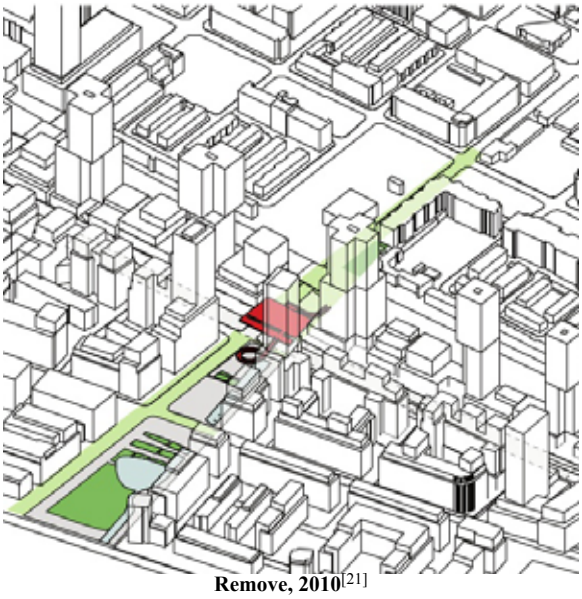
American architect DS+R and Toronto architects Aa propose to move Lake Shore out from beneath the expressway; inhabit the space below the expressway, "green" the elevated structure to make a "parkway" and establish better north-south connections.



Replace, 2010[20]

West 8 + DTAH

Danish designer firm West+8 and Toronto designer firm DTAH propose to build a new elevated expressway between existing Gardiner and the rail corridor, rebuild Lake Shore south of existing expressway, demolish existing expressway to create a two-sided street.



Remove, 2010[21]

Office for Metropolitan Architecture

Danish native and internationally acclaimed firm OMA propose to create a major new inter-model hub east of the Don River, supports a new employment district, introduce a Downtown Relief Line subway and an at-grade Lake Shore Boulevard.

Toronto's Great Street, 2010[22]

James Corner Field Operations

New York native and internationally acclaimed landscape designers propose to replace the Gardiner Expressway East with a broad landscaped Lake Shore, humanizes north-south pedestrian connections with architectural treatments, transforms rail embankment into sculpted garden.

Under Gardiner, Ongoing[24]

Waterfront Toronto

We are about to transform a once forgotten space into vibrant common ground. Project: Under Gardiner will bring communities together, connecting every neighborhood that it touches.

Retaining the Gardiner, Ongoing[23]

Waterfront Toronto

Removes 1.7 km of elevated expressway and replace with at-grade 8-lane tree lined Lake Shore Blvd. Removal of about 750 m and 850 m of the existing Logan on/off ramps.

Figure 13: The Gardiner past proposals

International Trends and Two Proposals on Process

Most of the earlier proposals were done by Toronto design professionals, whereas, more recently, proposals have also com from star architects working jointly with established Toronto architects. This represent a shift in the city's aspirations to be part of a larger international discourse.

Two process proposals are being considered now. The East Gardiner proposal would demolish the east Gardiner segment, from Jarvis Street to the Don River, and revitalize the Lake Shore Boulevard East and Waterfront areas. The Under Gardiner proposal is about transforming a public space into vibrant common ground by programming passive and contemplative areas to creative hubs and marketplaces. These two proposals involving the covering, recycling and programming strategies to some degree. These three strategies, aimed at separating levels of vehicle and pedestrian circulations, offer solutions for making stronger connections to the neighborhoods and the urban fabric surrounding the Gardiner.

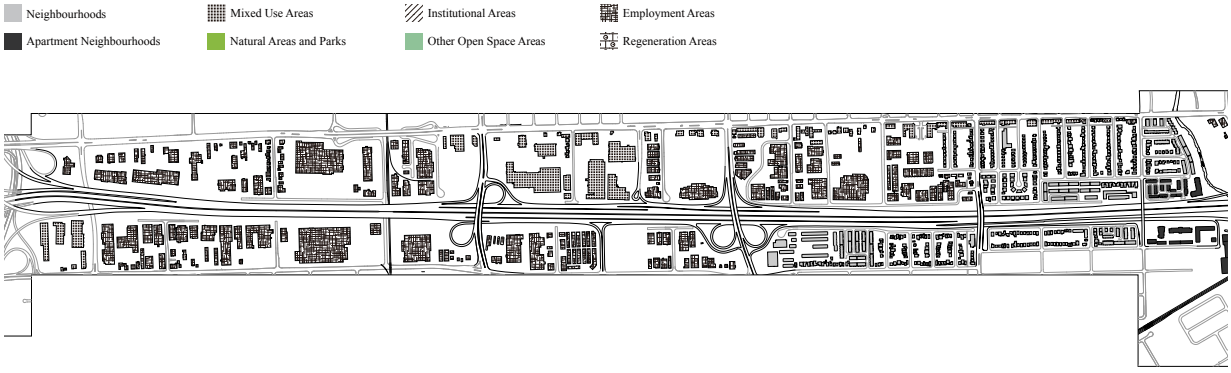
Sections and Analysis of Gardiner Sequences

This series of sequences analyzes the Gardiner from three main perspectives: the relative positions with Lake Shore Blvd, CNR; the relative elevations; and Land use conditions. From these three conditions, seven typical sections are defined along the entire Gardiner Expressway. This overall analysis of the Gardiner is important to understand the proposed design intervention.

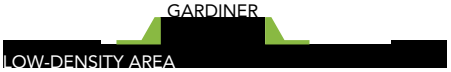
The Relative Positions of the Gardiner Expressway, Lake Shore Blvd and CNR

The Relative Elevations of the Gardiner Expressway, Lake Shore Blvd and CNR

The Diagram of Land Use Along the Gardiner Expressway, Lake Shore Blvd and CNR

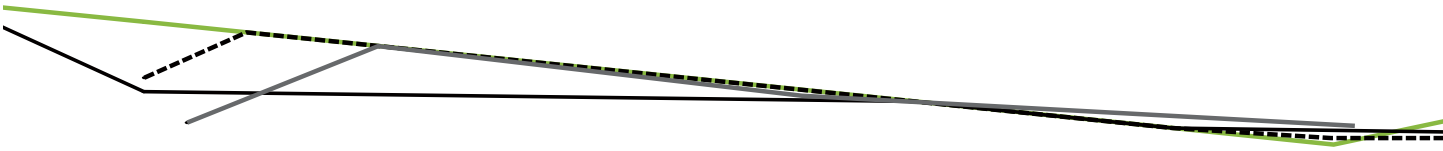


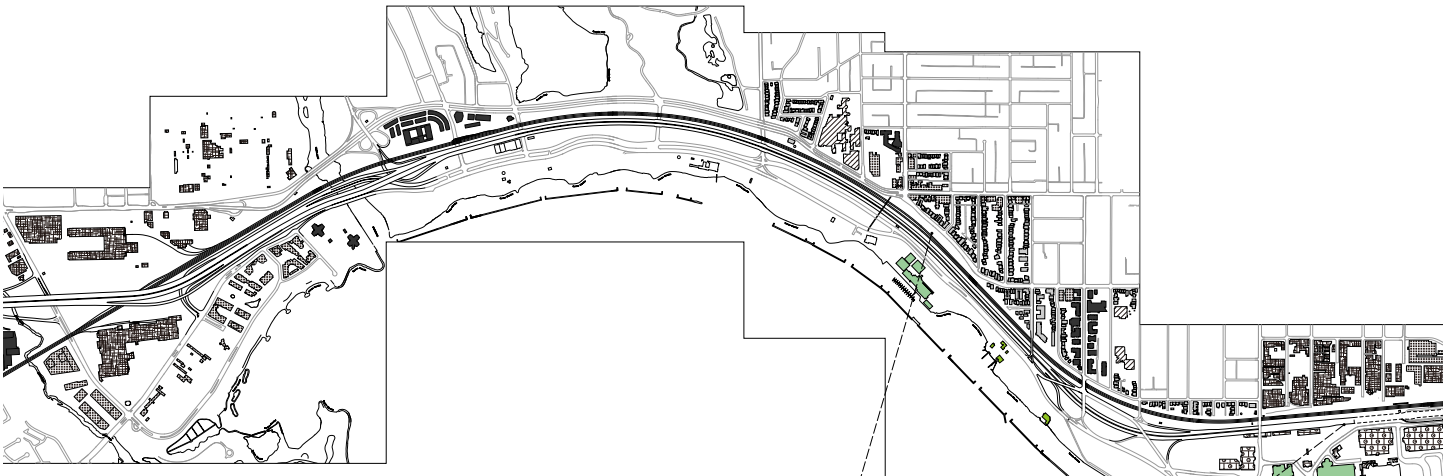
The Typical Sections of the Gardiner Expressway, Lake Shore Blvd and CNR



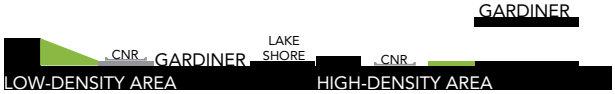
Section 1

These maps mainly show the Gardiner Expressway, the Lake Shore Blvd and CNR from the Highway 427 in the west to the Grand Avenue and the Park Lawn Road areas in the east.





Section 2



Section 3 Section 4

These maps mainly show the Gardiner Expressway, the Lake Shore Blvd and CNR from the Park Lawn Road areas in the west to the Don Valley Parkway in the east.

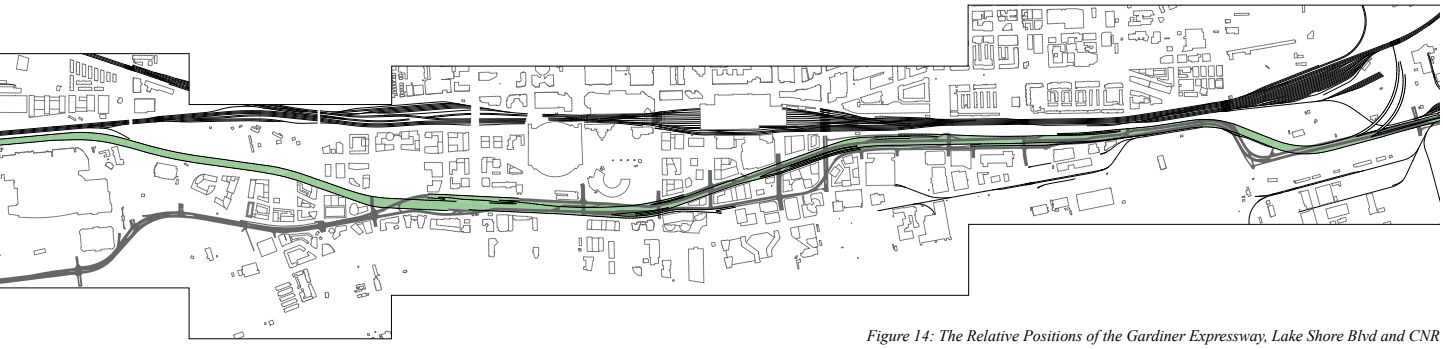
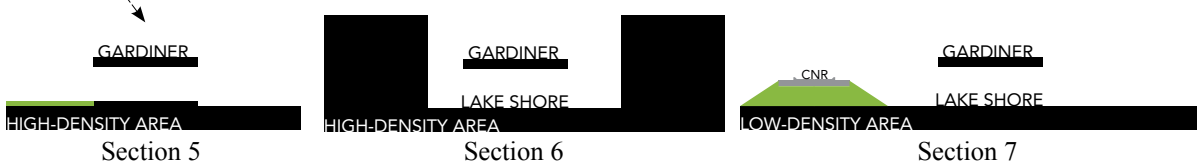


Figure 14: The Relative Positions of the Gardiner Expressway, Lake Shore Blvd and CNR

Figure 15: The Relative Elevations of the Gardiner Expressway, Lake Shore Blvd and CNR

Figure 16: The Diagram of Land Use Along the Gardiner Expressway, Lake Shore Blvd and CNR



Section 5 Section 6 Section 7

Figure 17: The Typical Sections of the Gardiner Expressway, Lake Shore Blvd and CNR

Each prototype strategy is employed based on specific local conditions of topography, budget, transportation requirements, etc. The strategy of covering and tunneling a road infrastructure, for example, focuses on increasing traffic density underground and improving public environment above ground, but the cost of construction and maintenance are not affordable for most municipalities. The prototype strategy of recycling traffic infrastructure was successfully adopted in New York City for High Line Park, which was redesigned as a urban landscape instead of railway infrastructures. However, both road and railway infrastructure in most cities are still highly in demand, and closing highways without adequate transportation evaluation would cause unpredictable negative effects on city traffic networks. With the strategy of programming underneath infrastructure, the new programming acts as an attractor to the public, augmenting both the existing activities on either side of the expressway and further connecting the adjoining areas that have become separated with the insertion of the road infrastructure. All these three prototype strategies are practical, proven by existing successful precedents, and selection of these three strategies depends on the topographic, economic, and traffic requirement conditions of a specific location.

Due to the urban renewal development of Toronto that increased rapidly around the turn of the millennium, the Gardiner Expressway now acts as an impediment to urban connections and the continuity of the urban fabric. The Sunnyside beach area in Toronto is an example of an important public area isolated by the Gardiner Expressway from the neighborhoods of Swansea, Sunnyside, Roncesvalles Village, and Parkdale. The combination of this road infrastructure, built during the 1960s, coupled with an adjacent rail corridor, has significantly changed the waterfront in this area from its historically vibrant role as a key area of recreation and entertainment on Toronto's west side to a less utilized, though still popular, destination that is primarily accessed by car. In my thesis proposals, this Sunnyside area is used as a test location, making stronger connections with the neighborhoods and urban fabric surrounding the Gardiner.

The Death of Sunnyside

An Example of Local Neighborhoods Isolated by the Gardiner

2.2.1 Introduction of Sunnyside

2.2.2 The Sunnyside Golden Years

2.2.3 The Death of Sunnyside

2.2.4 New Possibilities: Contextualizing the Gardiner in Sunnyside and Surrounding Neighborhoods

This section discusses the history of the Sunnyside beach area and its former significance as an entertainment and cultural destination on the west side of the city.

Figure 18: The aerial view of Sunnyside in 1926 shortly after the Merrymakers Stage

Introduction of Sunnyside

Sunnyside is a lakefront district in Toronto. It includes a beach and park area from west of Exhibition Place to the mouth of the Humber River. Sunnyside is a three-kilometer-long strip along the lakeshore, bounded by the Gardiner Expressway and rail lines, which separate it from the Parkdale, Roncesvalles, and Swansea neighborhoods to the north. First noted in Toronto history during the War of 1812, the Sunnyside beach area still remained popular as a entertainment and cultural destination, even as new railway lines and a hydro-electric line were installed through it.[25]

Figure 19: Historic photographs before the Gardiner Expressway was built. The city rebuilt a portion of the walk as a relief job during the Depression years

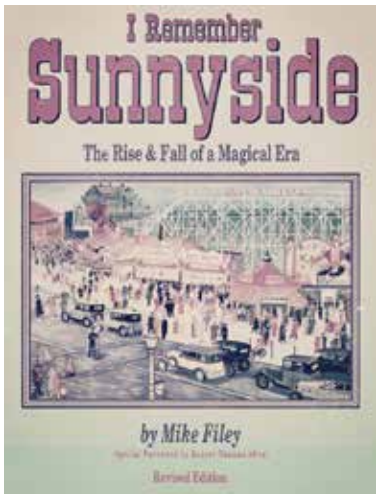


Figure 20: Filey, Mike. I Remember Sunnyside: The Rise & Fall of a Magical Era. Toronto: Dundurn Group, 1996

Sunnyside's Golden Years

In the 1910s, Sunnyside was the site of a massive waterfront reclamation public works project, which expanded the land area by 38 hectares. Over the years, its popularity increased steadily as a summertime recreation area. From 1922 to 1955, Sunnyside was home to the popular Sunnyside Amusement Park.[26]

In Mike Filey's book, "I Remember Sunnyside: The Rise and Fall of a Magical Era," this area used to be a popular recreation place full of social amenities, including Sunnyside Amusement Park, rowing clubs, sports clubs, picnic areas, playgrounds, a nightclub, a bathing pavilion, and public pool.[27]

Figure 21: The photo of the Gardiner Expressway on construction

The combination of this road infrastructure has significantly changed the waterfront in this area, from its historically vibrant role as a key place of recreation and entertainment on Toronto's west side, to a less utilized, though still popular, destination.

The Death of Sunnyside

The amusement park was demolished to facilitate the building of the Gardiner Expressway, and the entire area quickly became isolated by Lake Shore Boulevard, the Gardiner Expressway, and GO Train rail lines. The building the Gardiner Expressway isolated the Sunnyside beach area from the neighborhoods of Swansea, Sunnyside, Roncesvalles Village, and Parkdale. The combination of this road infrastructure, built during the 1960s, coupled with an adjacent rail corridor, has significantly changed the waterfront in this area from its historically vibrant role as a key place of recreation and entertainment on Toronto's west side to a less utilized, though still popular, destination that is primarily accessed by car.

Figure 22: The photo of the Gardiner Expressway in the Sunnyside

New Possibilities: Contextualizing the Gardiner in Sunnyside and Surrounding Neighborhoods

The City of Toronto City Council has commissioned a study of this area of the waterfront called the "Western Waterfront Public Consultation." This study aims to reconnect the Sunnyside park with north neighborhoods.[28]

The Gardiner Expressway was planned to connect downtown Toronto to its west suburbs. The original urban planning intention is fully realized. However, in the smaller block scale, the neighborhoods along the Gardiner were divided and isolated from the urban context. Sixty years later, the city of Toronto has begun to make plans to address this separation and loss of connection with the nearby neighborhoods.

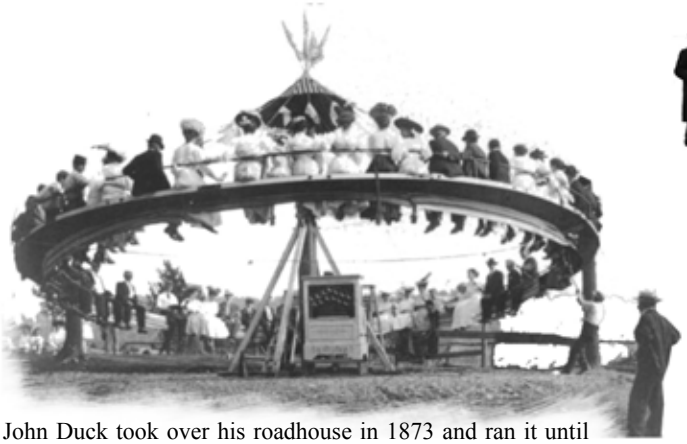
Lake Shore Boulevard: Livable Semi-Boundary

2.3.1 Lake Shore and Early Waterfront Activities
2.3.2 Lake Shore Activities in the Past
2.3.4The Difference between Lake Shore and Gardiner

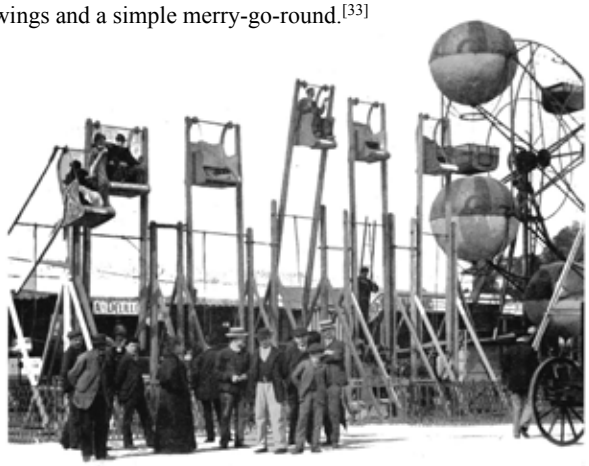
This section introduces the history of the Lake Shore Boulevard segment in the Sunnyside neighborhood. Before construction of the Gardiner Expressway, this Sunnyside beach area was offered a dense and significant range of activities, serve by Lake Shore Boulevard and the railway access. The construction of the Gardiner Expressway significantly changed the waterfront in this area.

Lake Shore and Early Waterfront Activities

4. Hotels, including Devins', McDowell's, Octavius L. Hick's Royal Oak, and John Duck's Wimbleton House provided dancehalls, bicycle tracks, fish-ponds, and small menageries.[32]



5. John Duck took over his roadhouse in 1873 and ran it until he died in 1891. For the next two years, Duck's widow operated the hotel, which by then had new amusements such as swings and a simple merry-go-round.[33]

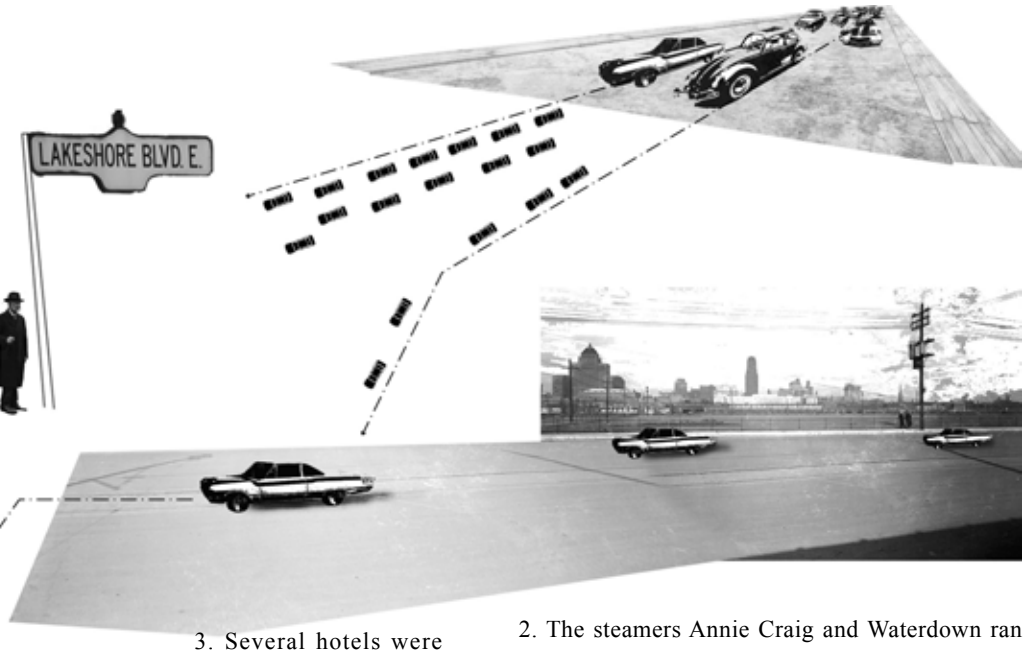


6. In 1901, Catherine Crow acquired the operation until stroyed the hotel in 1912. This area was then known as Beach, and several years later it became for a time a "Gentil bathing beach.[34]

Figure 23: Lake Shore and the early waterfront local activities diagrams

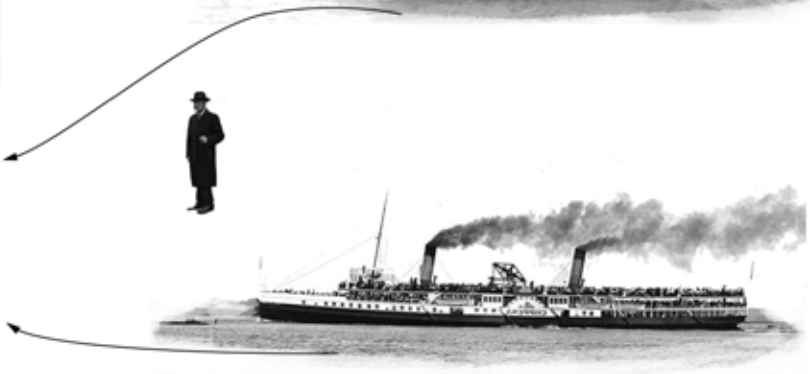
fire de-
s Crow's
es Only"

1. When sections of the old Dundas Highway became almost impassable during the spring and fall, Lake Shore Road became a popular route to the west part of Toronto's waterfront.[29]



3. Several hotels were constructed to serve the traveling public at the mouth of the Humber River. Soon, these hotels were turned into popular summer resorts.[31]

2. The steamers Annie Craig and Waterdown ran from the city to a long wooden pier just west of the mouth of Humer River.[30]



7. Today, the Palace Pier condominium complex and several hotels are situated on the site of Toronto's early amusement strip.

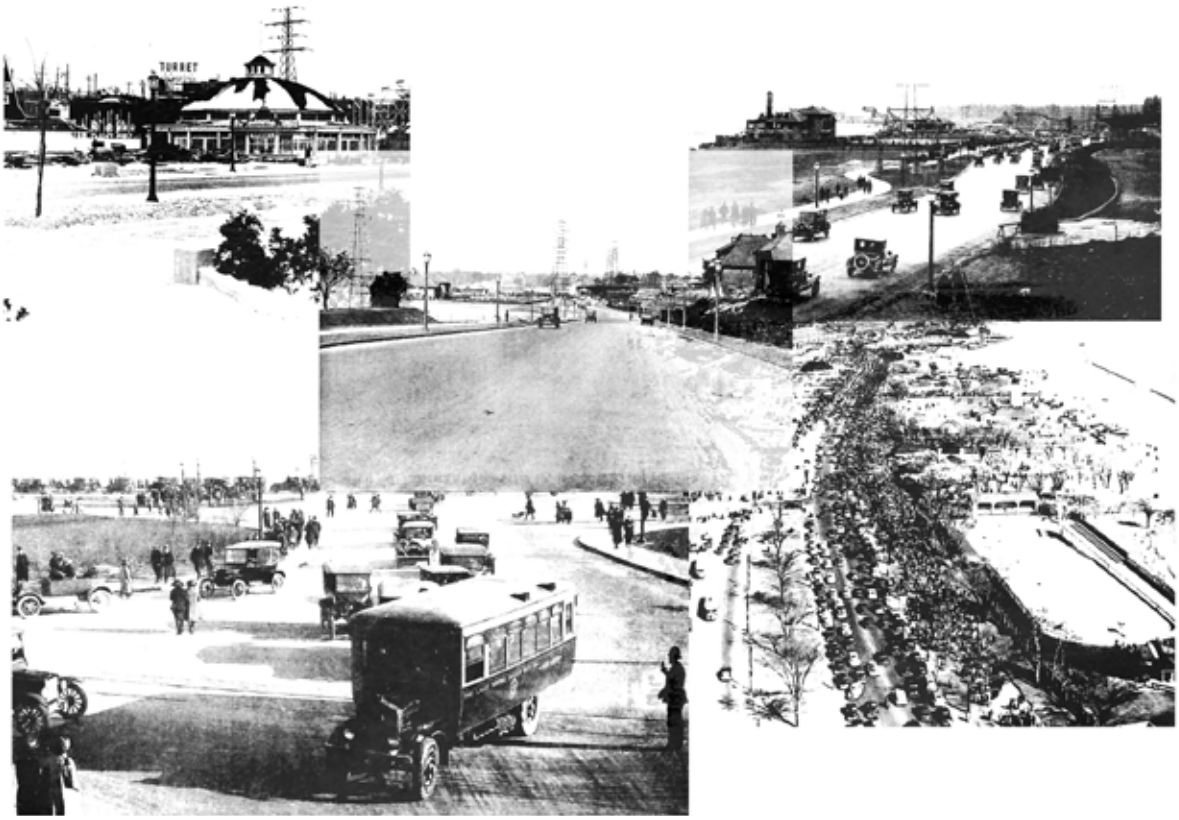


Figure 24: The collage of the historic Lake Shore Boulevard photographs

Lake Shore Activities in the Past

These photographs show the mixed use of Lake Shore Boulevard in Sunnyside. Unlike today's Lake Shore, the old Lake Shore was full of pedestrians and cars that moved relatively slowly. Next to the Waterfront and the Sunnyside amusement park, the Lake Shore was a popular place fro events like the Easter Parade. People were free to cross the boulevard to go to the amusement park, although there were many cars moving along Lake Shore.[35]

Figure 25: The collage of the historic Lake Shore Boulevard photographs

The Difference between Lake Shore and Gardiner

The Gardiner Expressway is designed as a high-speed, controlled-access highway, while Lake Shore is designed as a boulevard. The Gardiner is solely meant for vehicle movement. Lake Shore Boulevard, as a local street, is closely associated its adjacent the neighborhoods. Compared to the high-speed Gardiner, Lake Shore Boulevard exists with local pedestrian walking movement on the same level and can be revitalized.[36]

The Western Waterfront Master Plan

Located on the edge of a growing town and in the heart of Toronto, the Western Waterfront today consists of a chain of under-developed public parks and beaches that line the water's edge between the Humber River and Ontario Place, cut off from the urban fabric by a transport combination of The Queensway, the CN Rail Corridor, the Gardiner Expressway, and Lake Shore Boulevard. Recently, there have been some concerted moves to improve this area, but most of these improvements have been largely uncoordinated, lacking an overall plan for the area. This plan aims to provide a framework for rebuilding the Western Waterfront as a significant new waterfront park, featuring major public beaches for the City.

The Relevant Planning Points From Western Waterfront Master Plan

This revitalized Western Waterfront would provide extensive, open public spaces along the water's edge, just minutes from downtown Toronto and steps away from the long-established neighborhoods of Parkdale and Swansea.[37]

1. Lake Shore Boulevard Alignment

Realigning Lake Shore Boulevard to the north would result in the capture of nine hectares of isolated parkland, which is currently trapped within the median of Lake Shore Boulevard and between the westbound lanes of Lake Shore Boulevard and the Gardiner Expressway. Lake Shore Boulevard will also remain a true boulevard, in keeping with the original design intent, with an approximately 12-meter-wide median accommodating the Waterfront West LRT.

2. North-South Connections

The existing underpasses would be improved, and the Roncesvalles pedestrian bridge would be replaced by a substantial new structure, given the proposed realignment of Lake Shore Boulevard.

3. Year-Round Public Facilities

The Legion could potentially become a significant year-round public facility, combining a food-and-beverage concession, public washrooms, and a range of community meeting spaces. A new year-round facility would be the relocated Joy Station, forming a third significant new year-round public facility, combining a food-and -beverage service (and/or restaurant), event space, information displays, public washrooms, and change rooms.

Figure 26: The Western Waterfront Master plan

As an overall plan for the western waterfront, including Sunnyside beach area, the Western Waterfront Master plan is also considered as an urban planning reference in these thesis proposals. The Lake Shore alignment, the intention of building year-round facilities, and the Roncesvalles bridge replacement are also included as planning conditions in the proposals. Combining the planning conditions with the three prototype strategies mentioned before, this thesis explores the potential to reconnect the Sunnyside beach area to its adjacent neighborhoods to the north, reinvigorating the role it once played in the city's public recreational and cultural life, both by bridging over it and traversing underneath it.

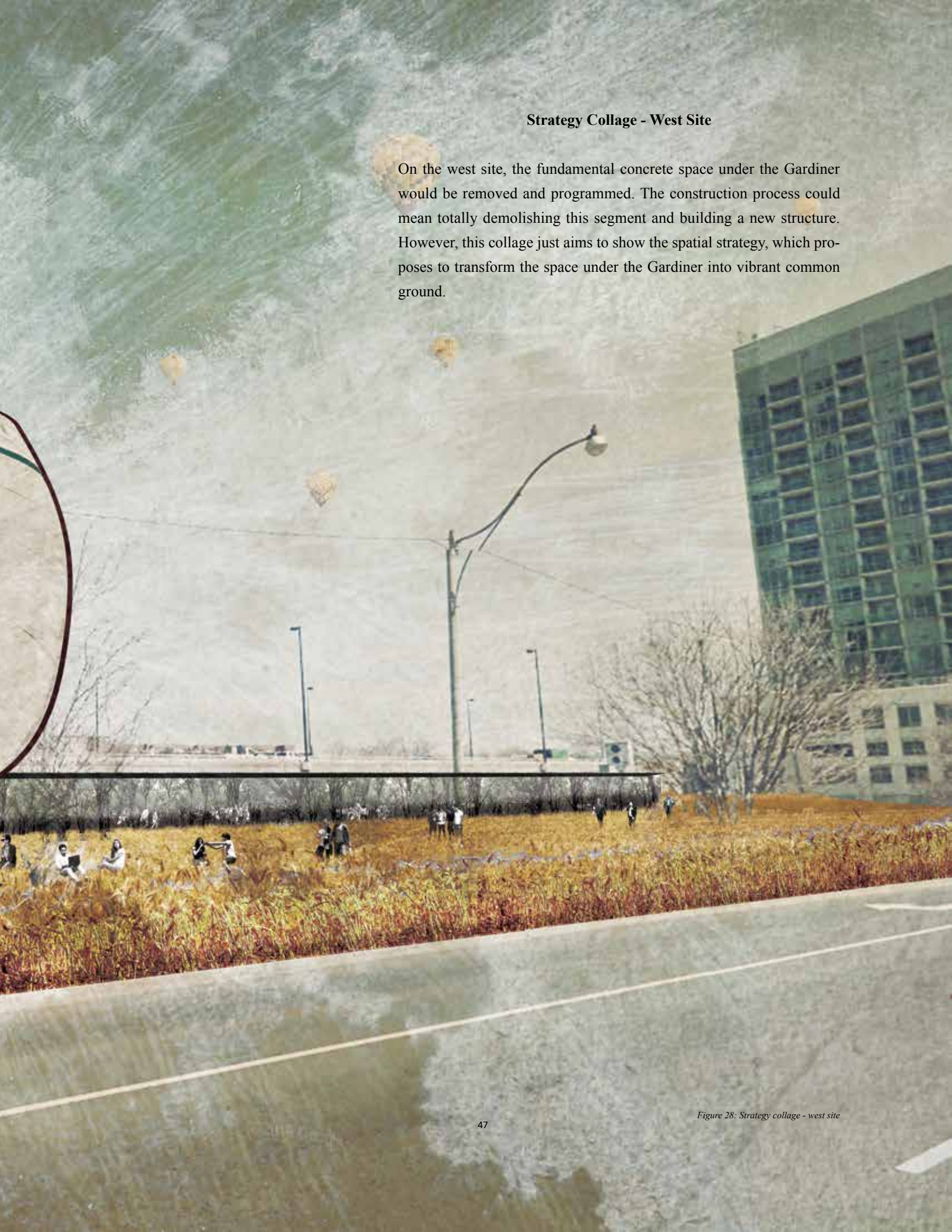
Site Locations and Strategic Collages

2.5.1 Site Locations and Context
2.5.2 Strategy Collage - West Site
2.5.3 Strategy Collage - East Site

The Sunnyside beach area in Toronto is isolated by the Gardiner Expressway from the neighborhoods of Swansea, Sunnyside, Roncesvalles Village, and Parkdale. The elevation relationships between the Gardiner and its surroundings are different. On the west site, the Gardiner and GO train lines are elevated; on the east site the Gardiner, Lake Shore Boulevard, and GO train lines are sunken below the general grade of the neighborhood. These different topographic conditions contribute to the selection of prototype strategies: traversing underneath the infrastructure on the west site and bridging over the infrastructure on the east site.


Swansea
West Site
Humber Bay

Figure 27: Site locations and context diagram



Strategy Collage - West Site

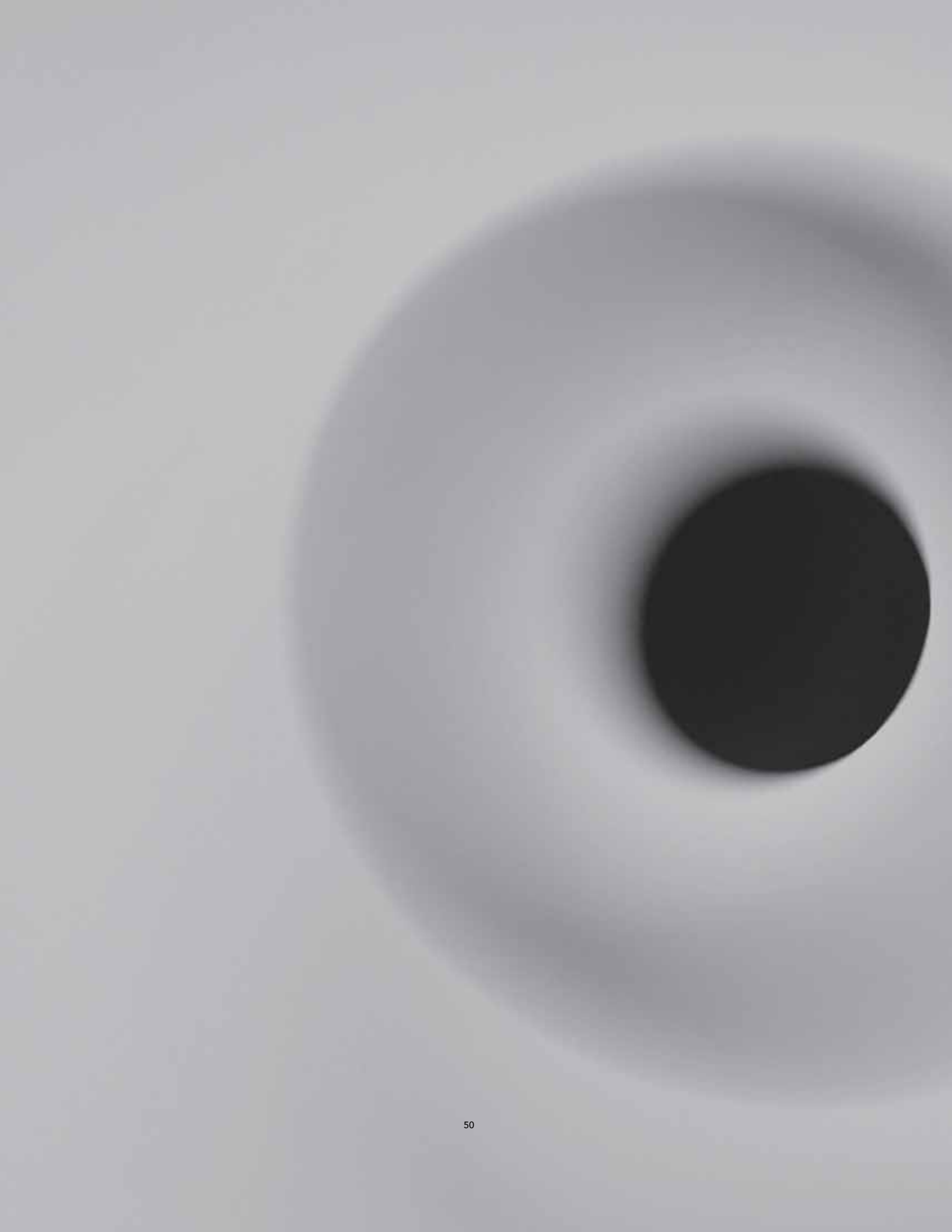
On the west site, the fundamental concrete space under the Gardiner would be removed and programmed. The construction process could mean totally demolishing this segment and building a new structure. However, this collage just aims to show the spatial strategy, which proposes to transform the space under the Gardiner into vibrant common ground.

Figure 28: Strategy collage - west site

Strategy Collage - East Site

There is a pedestrian bridge connecting Roncesvalles Avenue to the waterfront, which illustrates the need for public circulation. Additionally, the Western Waterfront Mater Plan intends to redesign this bridge. Instead of a linear bridge space, a dynamic civic platform is proposed to cover the infrastructural corridor and connect the neighborhoods to the waterfront.

Figure 29: Strategy collage - east site

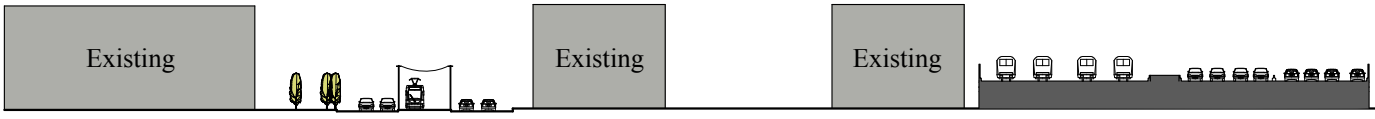


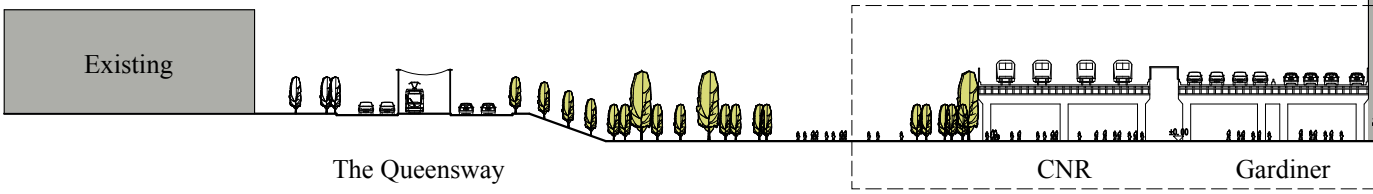
03 Boundaries on Sites: from Streets to Facades

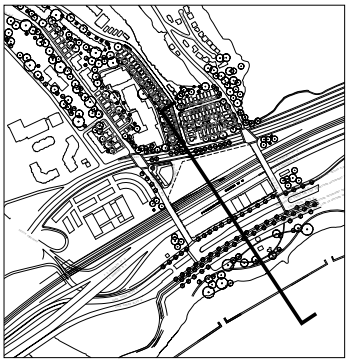
3.1 The Sections of Existing Conditions and Proposed Strategies
3.2 Land Use Plans
3.3 Neighbor Business Investment Assessment Analysis
3.4 Vehicular and Pedestrian Circulation Diagrams
3.5 Edge Conditions: between the Interfaces of Vehicular Zones and Building Zones

With these strategies of bridging over or traversing beneath the Gardiner expressway, an opportunity is created to add significant new programming, which can act as an attractor to the public, augmenting both the existing activities on either side of the expressway boundary and further connecting the adjoining areas that have become separated with the insertion of the expressway infrastructure. This chapter also discusses how creating buildings that provide an exciting spatial experience can add to the attractive potential that the new public programming offers.

Figure 30: The space between streets and facades

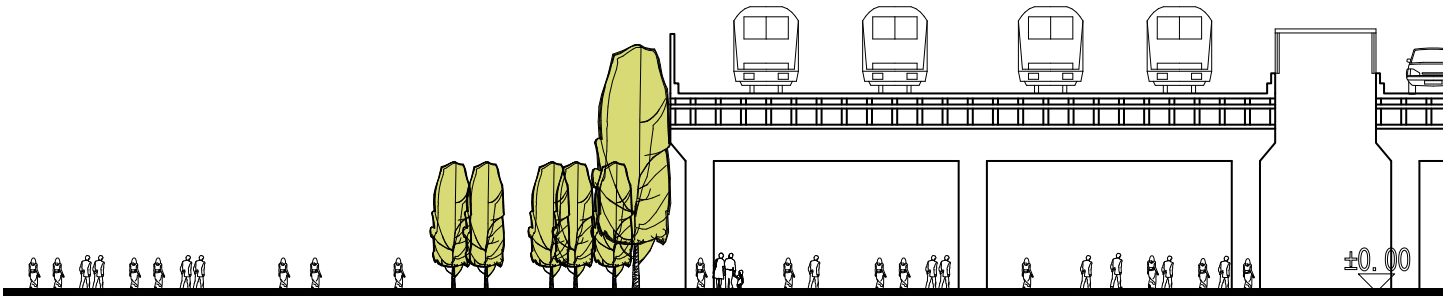





The location of this section

The Sections of Existing Conditions and Proposed Strategy on the West Site

Shown together with reference plans of the west site and extent of surrounding context, these sections discuss the sectional conditions and also the nature of the context, surrounding streets, building fabric, green open space etc. The strategy of traversing under the Gardiner would potentially bring public social activities into the space under this road infrastructure and continue the urban space from south to the north.



CNR

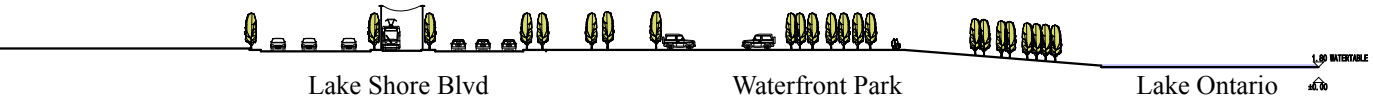


Figure 31: The west site existing section
This section shows the existing conditions of the west site.

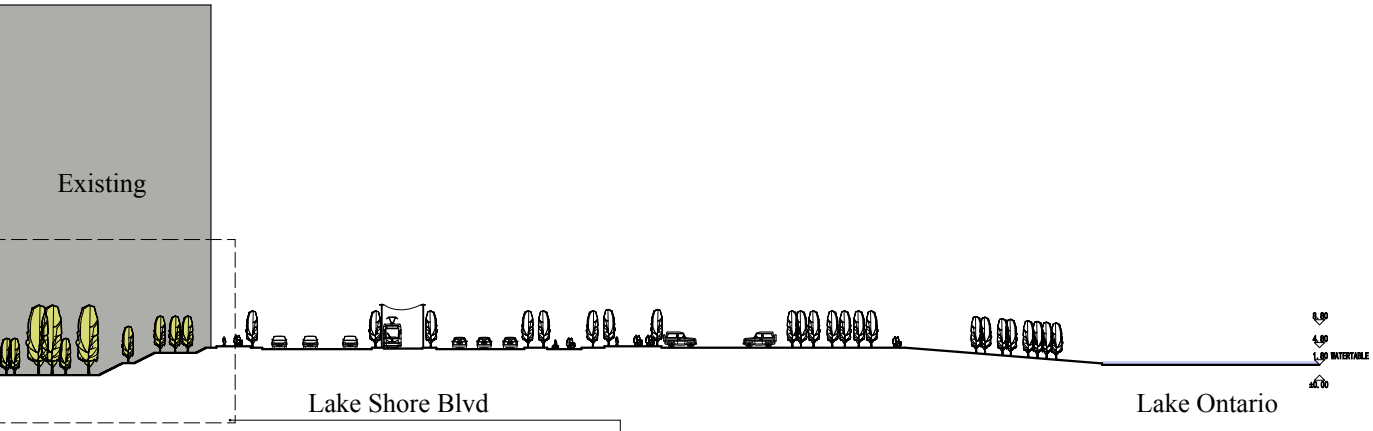
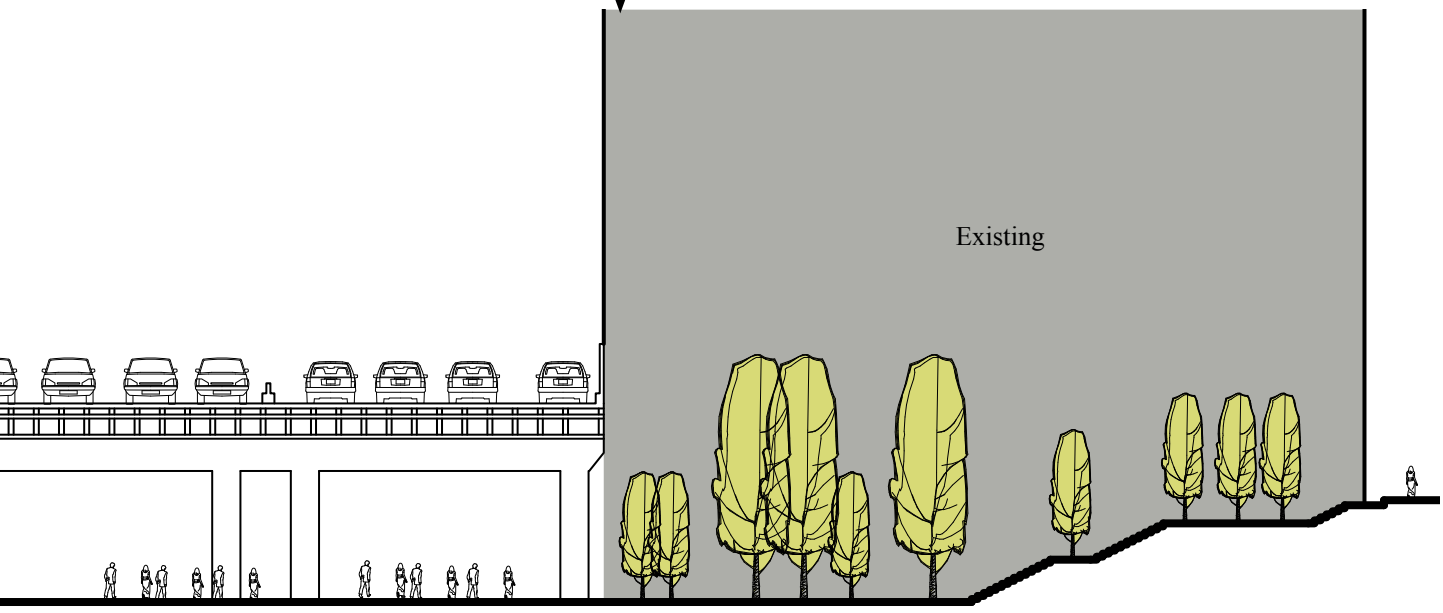
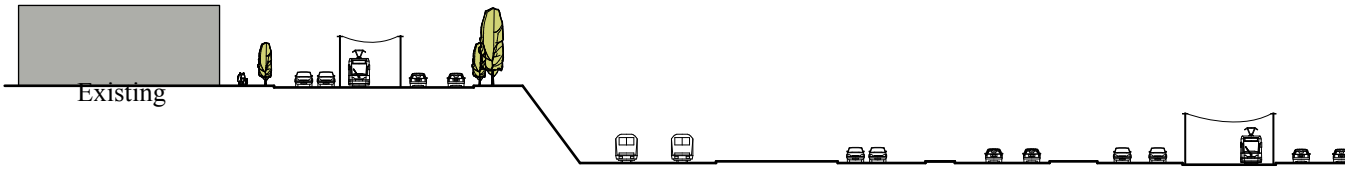
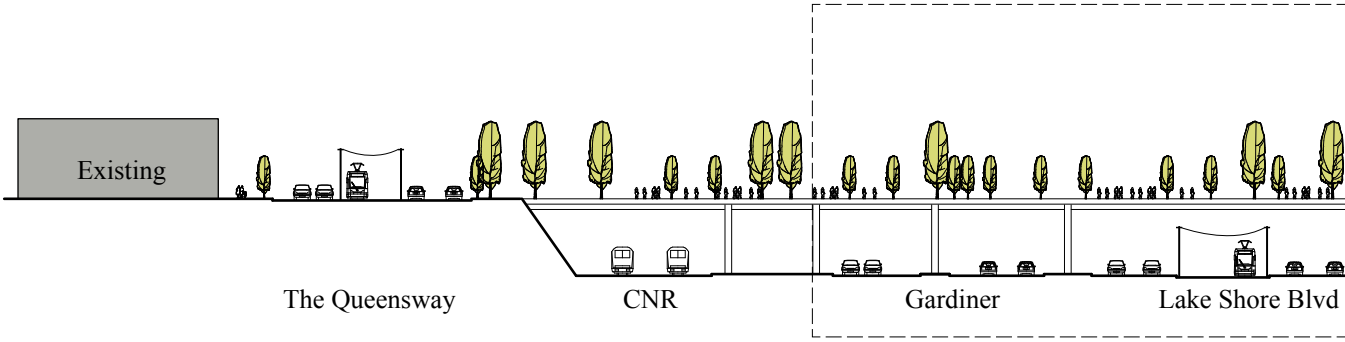
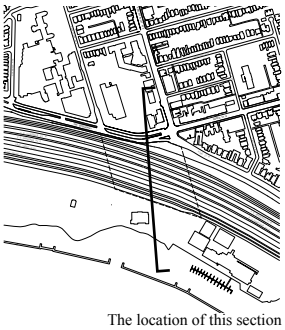


Figure 32: The conceptual section of the west site
This conceptual section shows what the opportunity and challenges are in traversing under the Gardiner and rail lines in the west site. It is a section of the infrastructure with larger context - about 100m to the north and out into the water to the south.



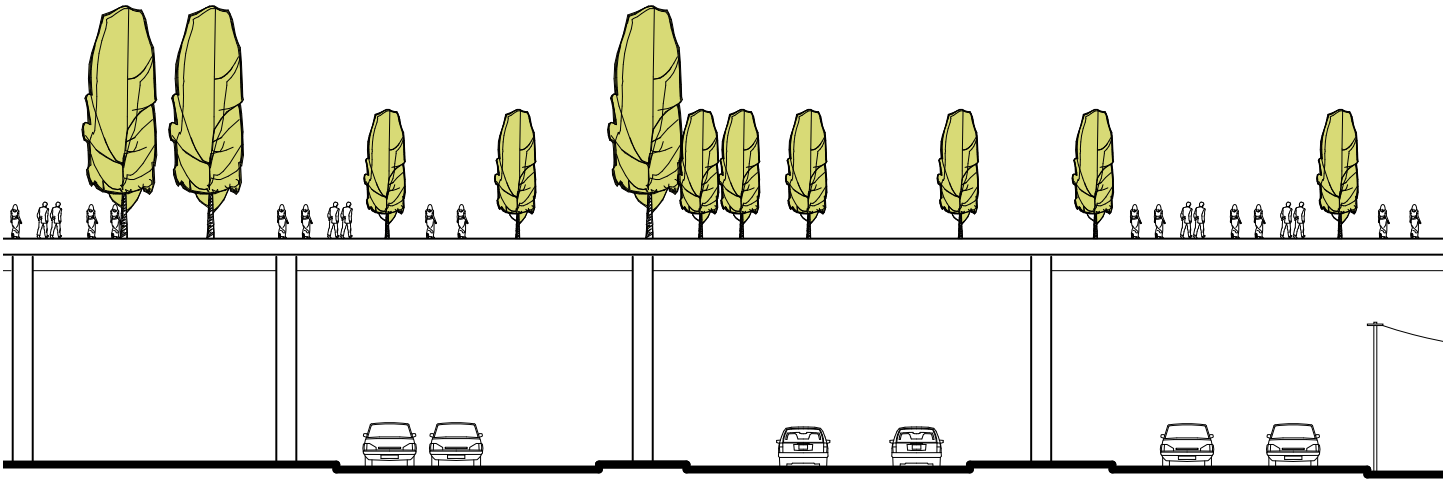





The location of this section

The Sections of Existing Conditions and Proposed Strategy on the East Site

Shown together with reference plans of the east site and extent of surrounding context, these sections discuss the sectional conditions and also the nature of the context, surrounding streets, building fabric, green open space etc. The strategy of bridging over the Gardiner would potentially bring public social activities across this road infrastructure and continue the urban space to the waterfront.



Gardiner

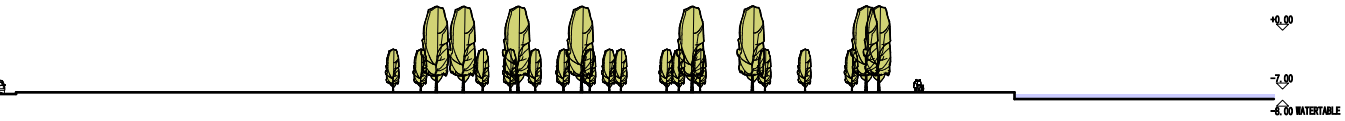


Figure 33: The east site existing section
This section shows the existing conditions of the east site.

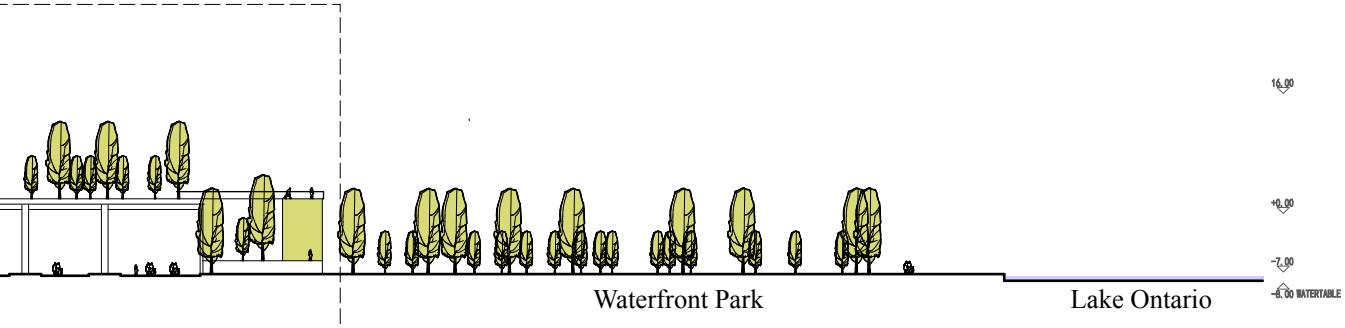
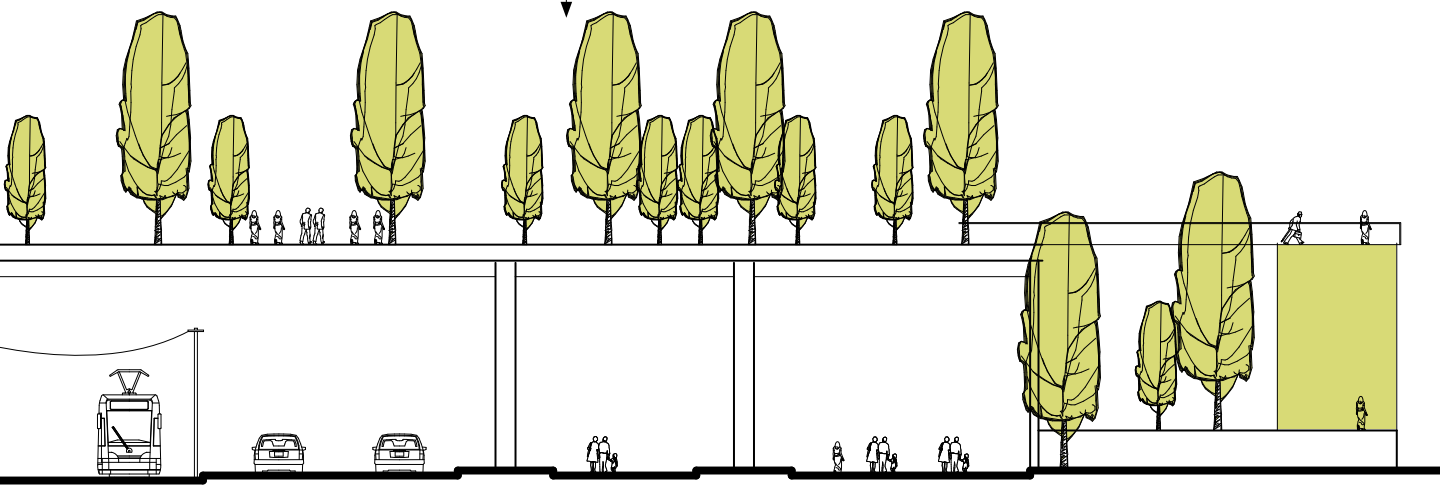


Figure 34: The conceptual section of the east site
This conceptual section shows what the opportunity and challenges are in bridging over the Gardiner and rail lines in the east site. It is a section of the infrastructure with larger context - about 100m to the north and out into the water to the south.



Lake Shore Blvd

Land Use Plans

The Land Use Plans show the land use of the neighborhoods of Swansea, Sunnyside, Roncesvalles Village, Parkdale, and their surrounding.[38] They indicate which areas are used for which purpose and the major activities that happen there, potentially determining the local demanded programming.

Figure 35: The west site land use plan

In the land-use map, the west site is surrounded by neighborhoods, apartment, mixed-use areas, and natural parks. Aside from the mixed-use areas contain of residential and retail, the lands adjoining the west site mainly residential areas and parks. The proposed programming would focus on the potential demand of these two uses. The land-use map of the east site shows that it is situated at the south end of a main street, Roncesvalles Avenue, surrounded by parks to the south and residential neighborhoods to the north. This map indicates that the new project could poten-

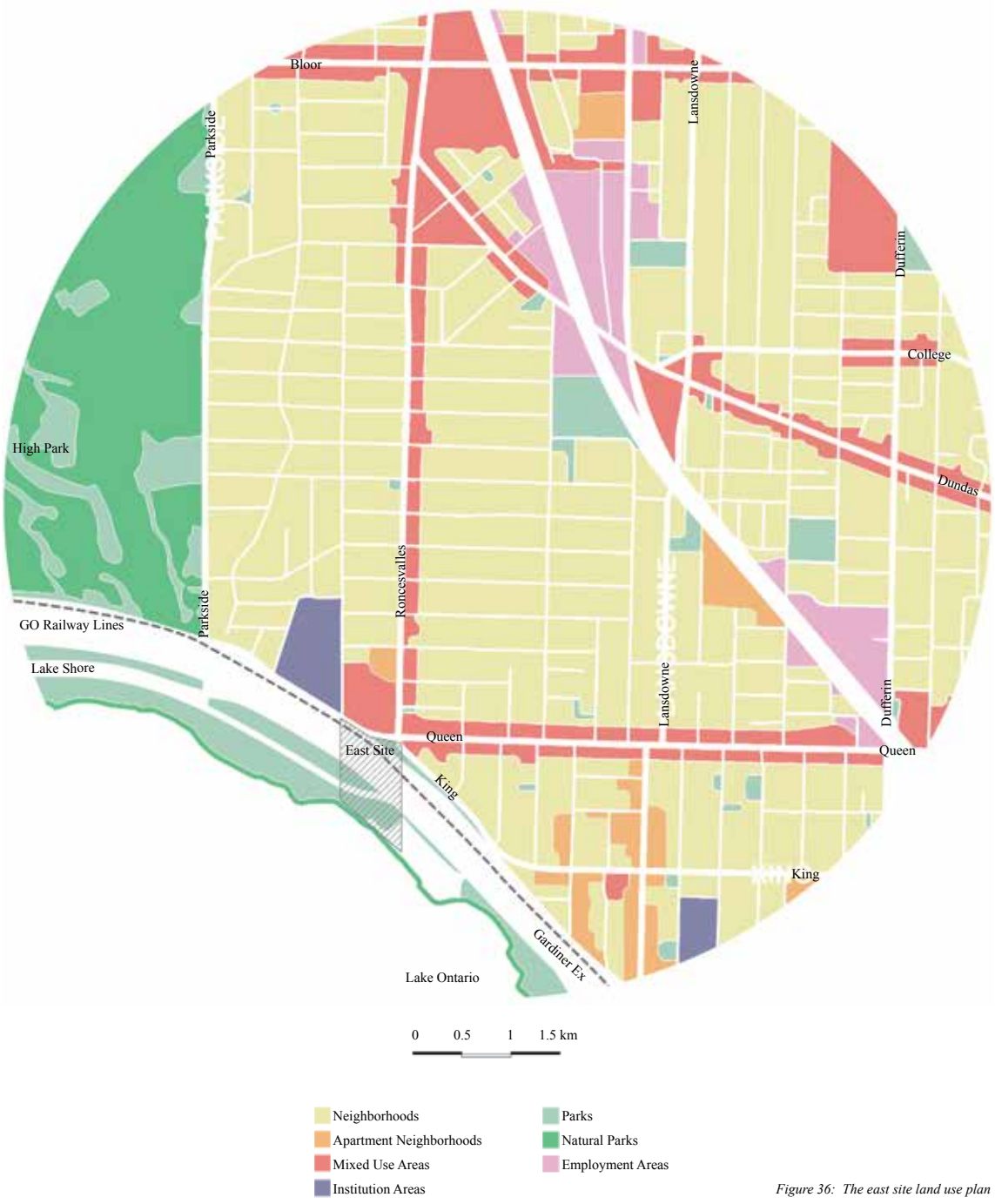


Figure 36: The east site land use plan

tially continue the urban space and function of a main street and serve the local neighborhoods.

These two-land use plans, in an urban scale, generally introduce the land purpose and main activities near two sites. The new programming is proposed to augment both the existing activities on either side of the expressway and further connect the adjoining areas that have become separated with the insertion of the expressway infrastructure.

Neighbor Business Investment Assessment Analysis

3.3.1 Reconnection: Gathering Place
3.3.2 Gathering Place: the Main Streets
3.3.3 Gathering Place: the Urban Square
3.3.4 Business Investment Assessment
3.3.5 Proposed Programs

The main street is a typical social spatial type, frequently used by the public in everyday life in neighborhoods.[39] The two proposals, especially for the east site situated at the north end of Roncesvalles Avenue, would use the neighbor business investments to provide demanded programming.

West Site - New Boundary

East Site - New Boundary

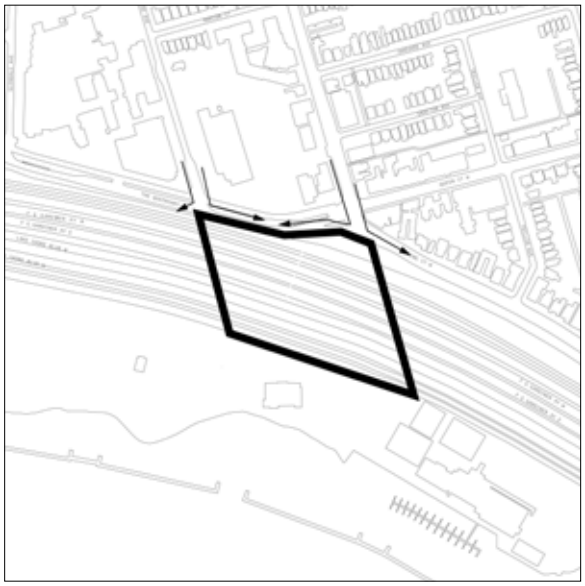
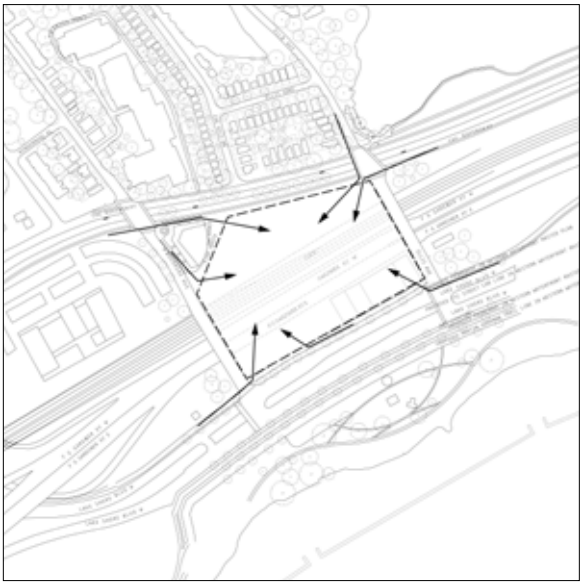


Figure 37: Actually creating a new boundary by designing a building

West Site - Gathering Place



East Site - Gathering Place

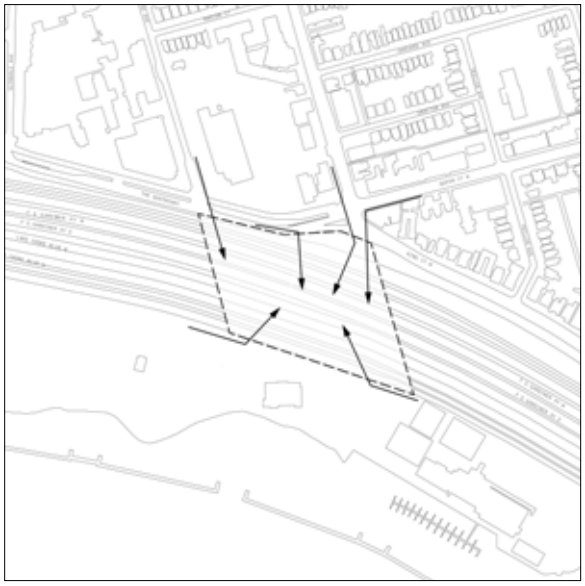


Figure 38: Creating a gathering place for public access

Reconnection: Gathering Place

These two projects are intended to break the border created by the Gardiner Expressway. From the analysis in urban scale, the two above-and-under the Gardiner strategies would be applied on the west and east sites. When the design process narrows down from urban scale to a smaller one, site scale, new issues are raised in the design. If a new building was added without enough consideration of gathering people to the site, a new border would be created and the original urban strategies would not work at all. If the public are not able to access the new project, the proposed reconnection between the north and south neighborhoods of the Gardiner would not happen. Such a conflict offers a new perspective when considering to think about the importance of continuing strategies from larger urban scale to smaller site scale. Then these questions are raised: What is the common urban gathering place? Where do people often visit in everyday life?

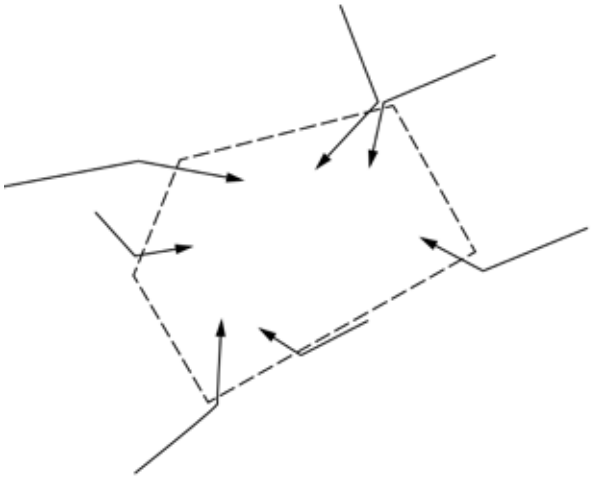


Figure 39: West site - gathering place

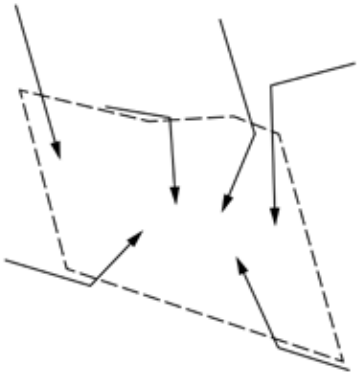


Figure 40: East site - gathering place

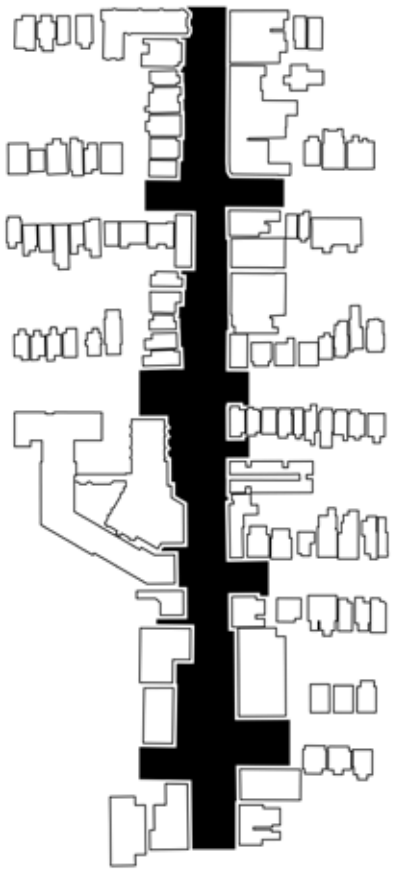


Figure 41: The public activity zone in the main street - Roncesvalles Avenue

Gathering Place: the Main Streets

A main street is defined as a primary retail street of a village, town, or small city in many parts of the world. It is usually a focal point for shops and retailers in the central business district, and is most often used in reference to retailing and socializing. A main street is a very typical urban gathering place where the public frequently visit.

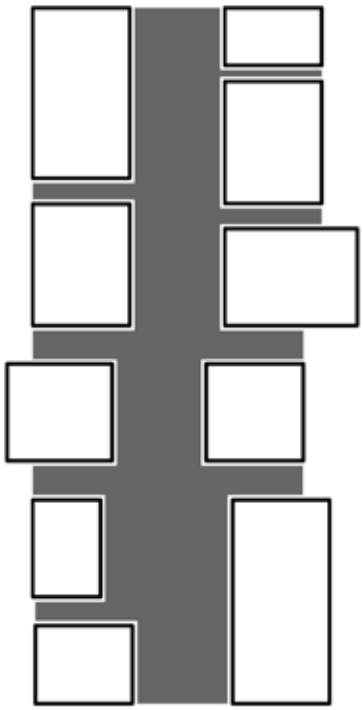


Figure 42: The building-street / public relationship the main street

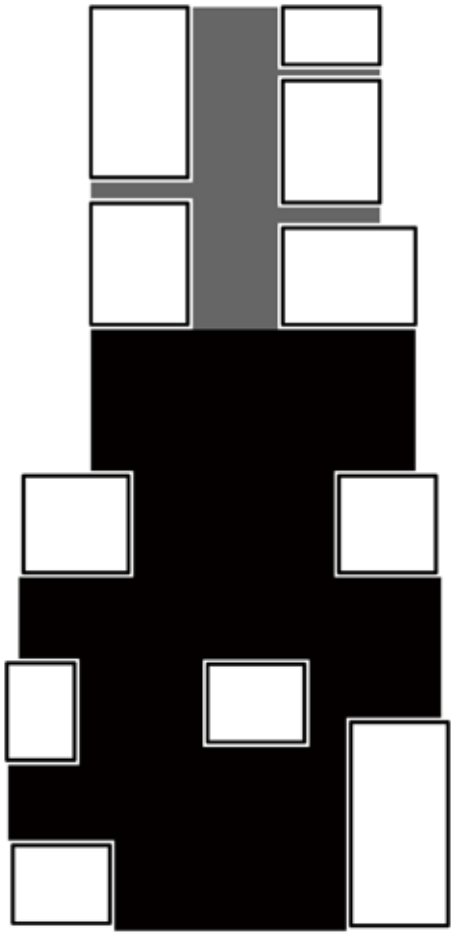


Figure 43: The building-street / public relationship the main street and the urban square

Gathering Place: the Urban Square

This new proposal is a design for an urban square - an urban living room - and it could be part of or a joint in a main street with the similar building-street/public relationship. Both the urban square and the main street are places gathering people.

The Business Improvement Area (BIA) Office of the City of Toronto helps Toronto's network of 81 BIAs to create prosperous, competitive, and safe business areas.[40] A Business Improvement Area is an association of business people within a specified district, working together in a self-help program aimed at stimulating local business. Each BIA uses its own money in an ongoing effort to draw more prospective customers to its area, by improving the attractiveness of the area and promoting it as a good place to shop, visit, and do business.

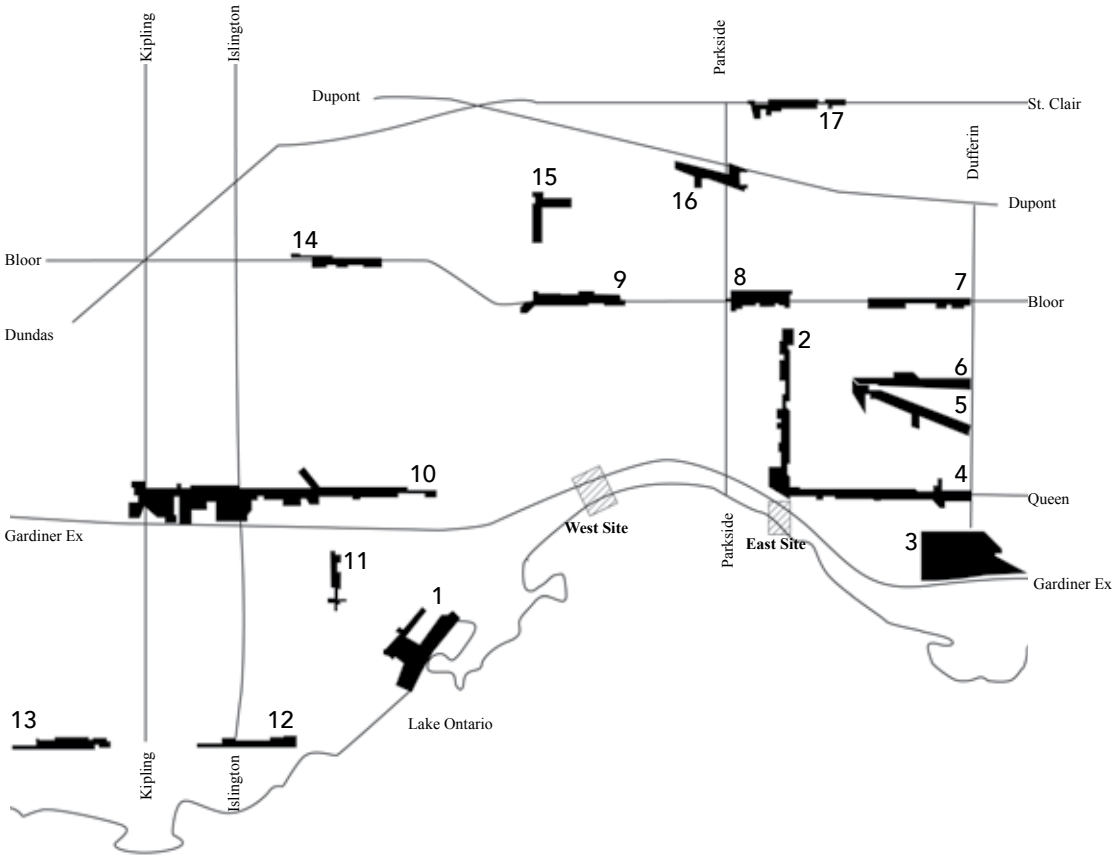


Figure 44: The business investment assessment map
The neighborhood business investment assessment shows the demanded programs in the marketplace.

Business Investment Assessment

The neighborhood business investment assessment shows the demanded programs in the marketplace. Most of the assessments are about main streets in different neighborhoods. The result of this series of assessments would illustrate the potential programs on both the west and east sites.

1. Mimico By the Lake

Accommodation & Food Services (24%)
Finance & Insurance (2%)
Health Care & Social Assistance (13%)
Other Services (Except Public Administration) (22%)
Professional, Scientific & Technical Services (6%)
Retail Trade (27%)

2. Roncesvalles Village

Accommodation & Food Services (19%)
Administrative & Support, Waste Mgt. & Remediation Services (2%)
Arts, Entertainment & Recreation (2%)
Educational Services (3%)
Finance & Insurance (4%)
Health Care & Social Assistance (20%)
Other Services (Except Public Administration) (12%)
Professional, Scientific & Technical Services (4%)
Retail Trade (32%)

3. Liberty Village

Accommodation & Food Services (9%)
Administrative & Support, Waste Mgt. & Remediation Services (1%)
Arts, Entertainment & Recreation (1%)
Construction (1%)
Educational Services (1%)
Finance & Insurance (2%)
Health Care & Social Assistance (2%)
Information & Cultural Industries (9%)
Management of Companies & Enterprises (2%)
Manufacturing (1%)
Other Services (Except Public Administration) (6%)
Professional, Scientific & Technical Services (4%)
Real Estate & Rental & Leasing (2%)
Retail Trade (9%)
Transportation & Warehousing (1%)
Wholesale Trade (2%)

4. Parkdale Village

Accommodation & Food Services (28%)
Administrative & Support, Waste Mgt. & Remediation Services (1%)
Arts, Entertainment & Recreation (1%)
Finance & Insurance (1%)
Health Care & Social Assistance (5%)
Information & Cultural Industries (3%)
Other Services (Except Public Administration) (6%)
Professional, Scientific & Technical Services (2%)
Real Estate & Rental & Leasing (1%)
Retail Trade (37%)

5. Dundas West

Accommodation & Food Services (19%)
Administrative & Support, Waste Mgt. & Remediation Services (4%)
Educational Services (1%)
Finance & Insurance (1%)
Health Care & Social Assistance (5%)
Manufacturing (1%)
Other Services (Except Public Administration) (21%)
Professional, Scientific & Technical Services (9%)
Retail Trade (31%)

6. College West

Accommodation & Food Services (24%)
Other Services (Except Public Administration) (25%)
Professional, Scientific & Technical Services (14%)
Real Estate & Rental & Leasing (5%)
Retail Trade (31%)
Wholesale Trade (4%)

7. Bloor - Yorkville

Accommodation & Food Services (14%)
Administrative & Support, Waste Mgt. & Remediation Services (3%)
Arts, Entertainment & Recreation (1%)
Construction (1%)
Educational Services (3%)
Finance & Insurance (3%)
Health Care & Social Assistance (11%)
Information & Cultural Industries (1%)
Management of Companies & Enterprises (1%)
Manufacturing (1%)
Other Services (Except Public Administration) (21%)
Professional, Scientific & Technical Services (11%)
Real Estate & Rental & Leasing (2%)
Retail Trade (23%)
Wholesale Trade (1%)

8. Bloor Street

Accommodation & Food Services (9%)
Administrative & Support, Waste Mgt. & Remediation Services (6%)
Arts, Entertainment & Recreation (1%)
Educational Services (1%)
Finance & Insurance (6%)
Health Care & Social Assistance (10%)
Information & Cultural Industries (9%)
Management of Companies & Enterprises (3%)
Manufacturing (1%)
Other Services (Except Public Administration) (6%)
Professional, Scientific & Technical Services (17%)
Public Administration (5%)
Real Estate & Rental & Leasing (6%)
Retail Trade (23%)
Transportation & Warehousing (1%)

9. Bloorcourt Village

Accommodation & Food Services (26%)
Administrative & Support, Waste Mgt. & Remediation Services (1%)
Arts, Entertainment & Recreation (1%)
Educational Services (1%)
Finance & Insurance (1%)
Health Care & Social Assistance (10%)
Manufacturing (1%)
Other Services (Except Public Administration) (15%)
Professional, Scientific & Technical Services (6%)
Real Estate & Rental & Leasing (1%)
Retail Trade (28%)

10. ShoptheQueensway.com

Accommodation & Food Services (22%)
Administrative & Support, Waste Mgt. & Remediation Services (4%)
Construction (1%)
Educational Services (1%)
Finance & Insurance (2%)
Health Care & Social Assistance (8%)
Information & Cultural Industries (1%)
Manufacturing (1%)
Other Services (Except Public Administration) (20%)
Professional, Scientific & Technical Services (4%)
Real Estate & Rental & Leasing (3%)
Retail Trade (20%)
Wholesale Trade (4%)

11. Mimico Village

Accommodation & Food Services (14%)
Construction (7%)
Finance & Insurance (5%)
Health Care & Social Assistance (8%)
Manufacturing (5%)
Other Services (Except Public Administration) (23%)
Professional, Scientific & Technical Services (5%)
Retail Trade (31%)

12. Lakeshore Village

Accommodation & Food Services (24%)
Other Services (Except Public Administration) (25%)
Professional, Scientific & Technical Services (14%)
Real Estate & Rental & Leasing (5%)
Retail Trade (31%)
Wholesale Trade (4%)

13. Long Branch

Accommodation & Food Services (19%)
Health Care & Social Assistance (5%)
Other Services (Except Public Administration) (25%)
Professional, Scientific & Technical Services (13%)
Retail Trade (32%)

14. The Kingsway

Accommodation & Food Services (17%)
Administrative & Support, Waste Mgt. & Remediation Services (3%)
Educational Services (2%)
Finance & Insurance (4%)
Other Services (Except Public Administration) (16%)
Professional, Scientific & Technical Services (6%)
Real Estate & Rental & Leasing (3%)
Retail Trade (24%)

15. Baby Point GatesW

Accommodation & Food Services (13%)
Educational Services (4%)
Health Care & Social Assistance (15%)
Manufacturing (4%)
Other Services (Except Public Administration) (21%)
Professional, Scientific & Technical Services (10%)
Retail Trade (26%)

16. Junction Gardens

Accommodation & Food Services (22%)
Arts, Entertainment & Recreation (2%)
Educational Services (4%)
Finance & Insurance (2%)
Health Care & Social Assistance (6%)
Manufacturing (2%)
Other Services (Except Public Administration) (25%)
Professional, Scientific & Technical Services (6%)
Real Estate & Rental & Leasing (2%)
Retail Trade (27%)

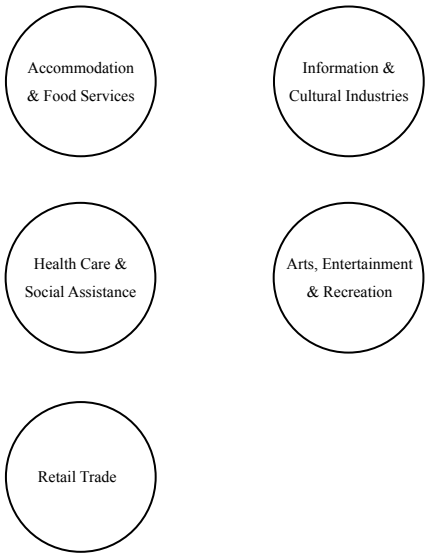


Figure 45: Suggested programs from BIA

As the lists show, five program exist in most neighborhood BIA areas to meet the essential demands of people living in communities: accommodation and food services, information and cultural industries, health care and social assistance, arts, entertainment and recreation, and retail trade. These five programs are referenced when new programming is proposed.

Figure 46: Suggested programs from the Western Waterfront Master Plan
From the Western Waterfront Master plan, several public facilities are proposed, including sports, rental, recreational, food service and community programs.[41]

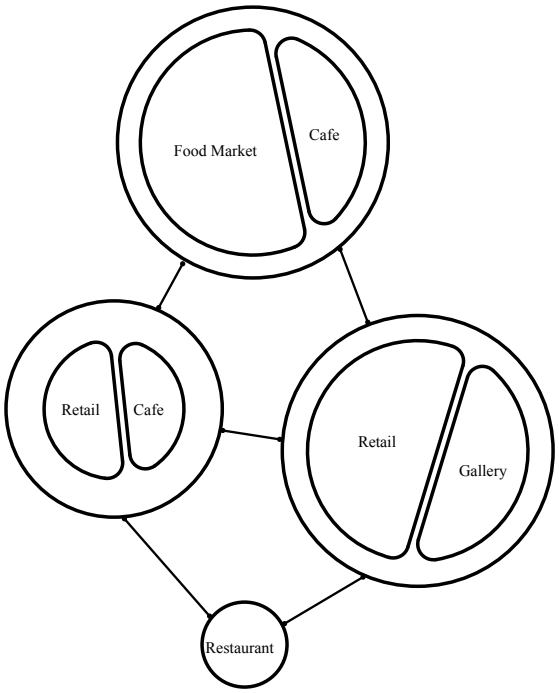


Figure 48: Proposed programs on the east site

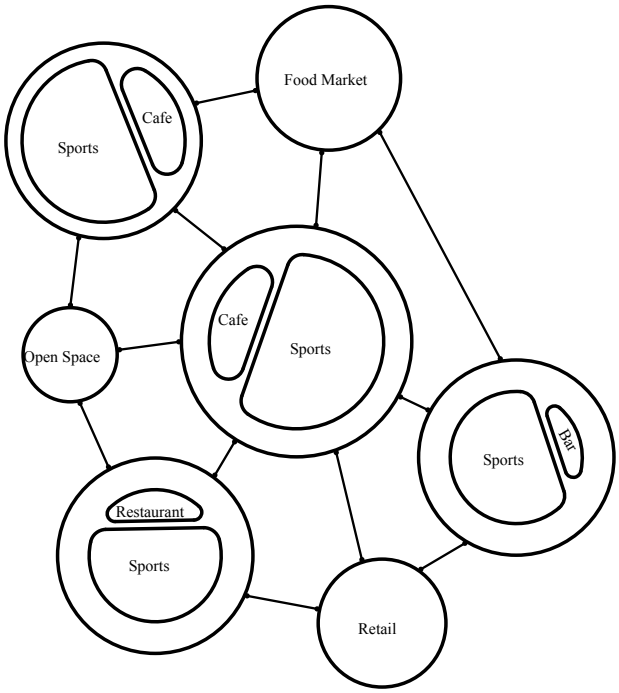


Figure 47: Proposed programs on the west site

Proposed Programs

The Western Waterfront Master Plan provides five main programs for the entire Sunnyside area. From the BIA data of neighboring main streets, another five programs are potentially demanded on the west and east sites. The two drawings above show the programs in these two proposals.

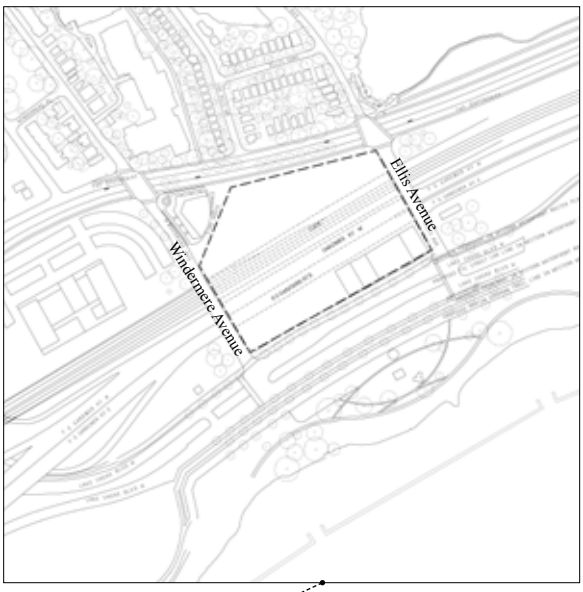
Vehicular and Pedestrian Circulation Diagrams

Keeping vehicles away from pedestrian areas could provide a more intimate walking space for a main street. However, within urban traffic planning, it is unrealistic to prohibit automobiles on all main streets. In these two projects, separating vehicular and pedestrian circulation is possible and would offer a new vibrant walking space.

Circulation Introduction

Vehicles approach the west and east sites through arterial streets, including Lake Shore, King Street, etc. They would be directly guided to parking lots, entering from Windermere Avenue and Ellis Avenue on the west site and from the Queensway on the east site. Pedestrians coming from downtown or from western suburbs would get off from public transit at the nearby stops.

Urban Circulation Context on the West Site



Urban Circulation Context on the East Site

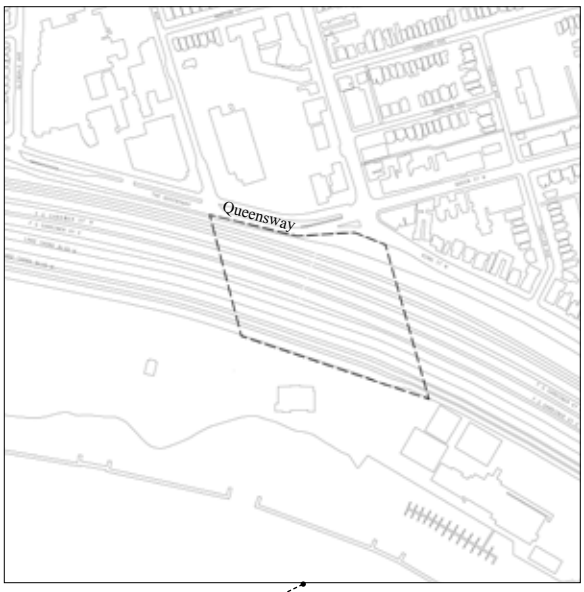
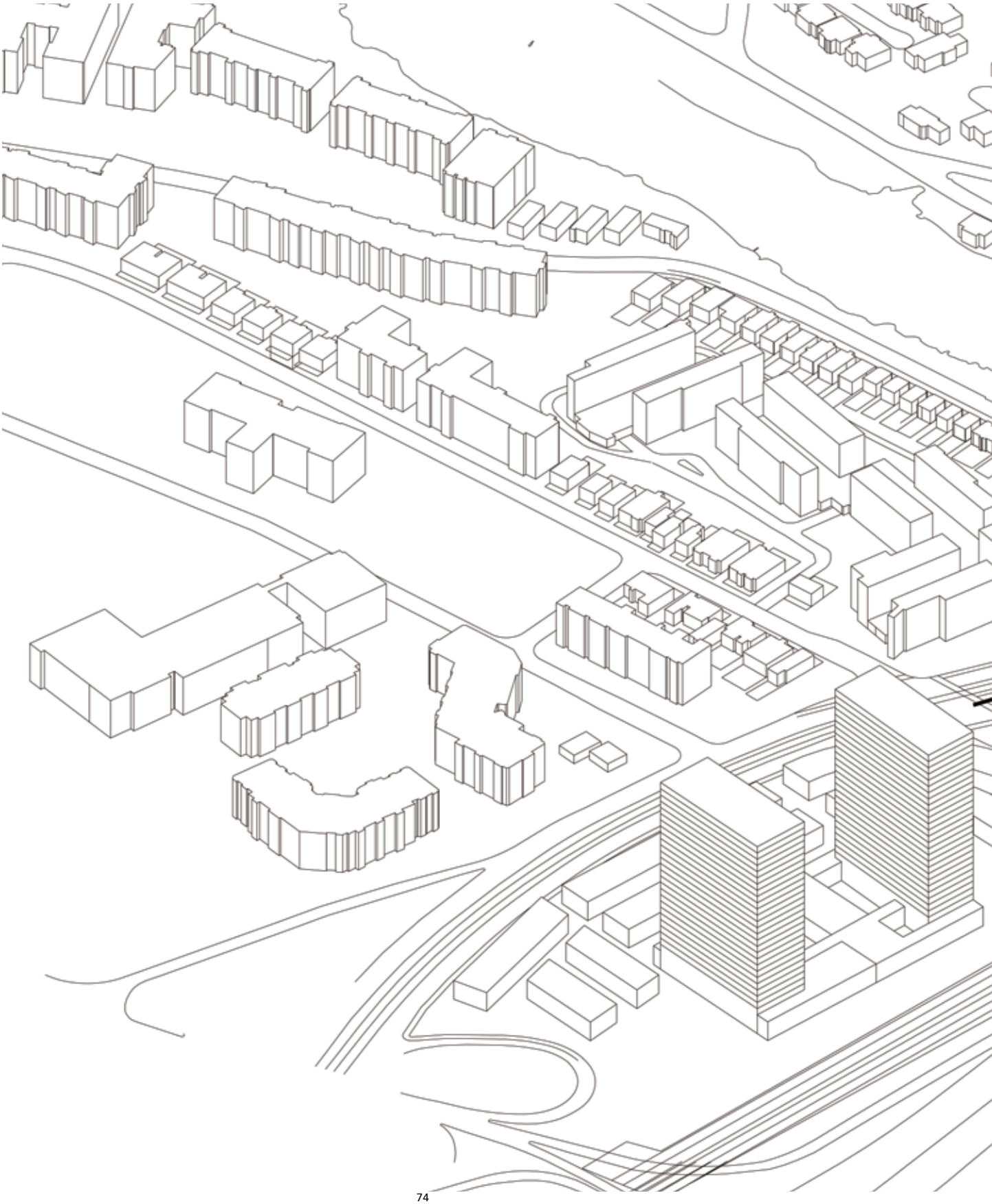


Figure 49: Urban circulation context on two sites



Vehicular Circulation on the West Site

Vehicular streams would be guided to the entrances of underground parking from Windermere Avenue and Ellis Avenue. There would be no vehicular movement or parking above ground. Without vehicular circulation, pedestrians would feel safe and free to wander or stop in this walkable area.

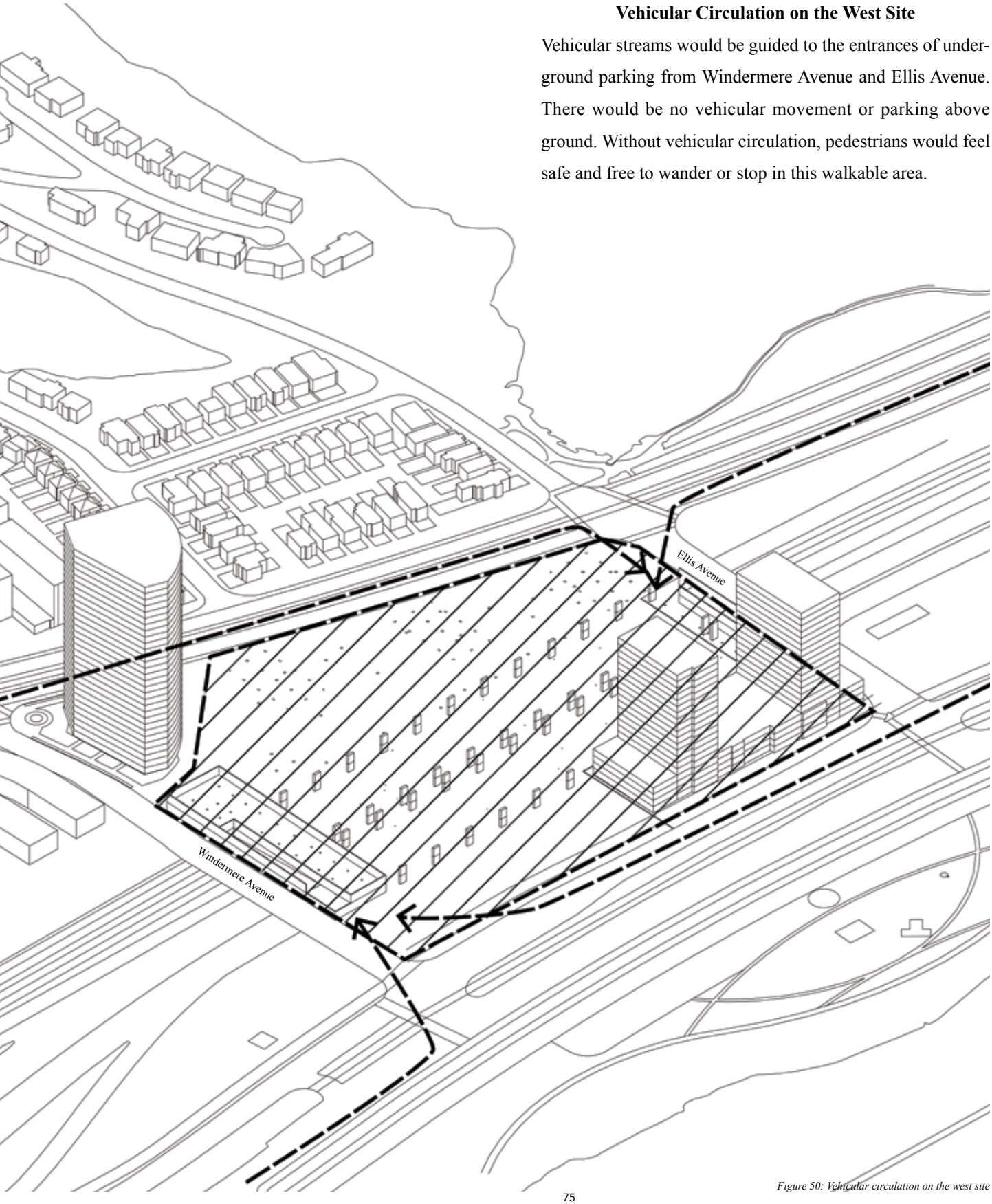
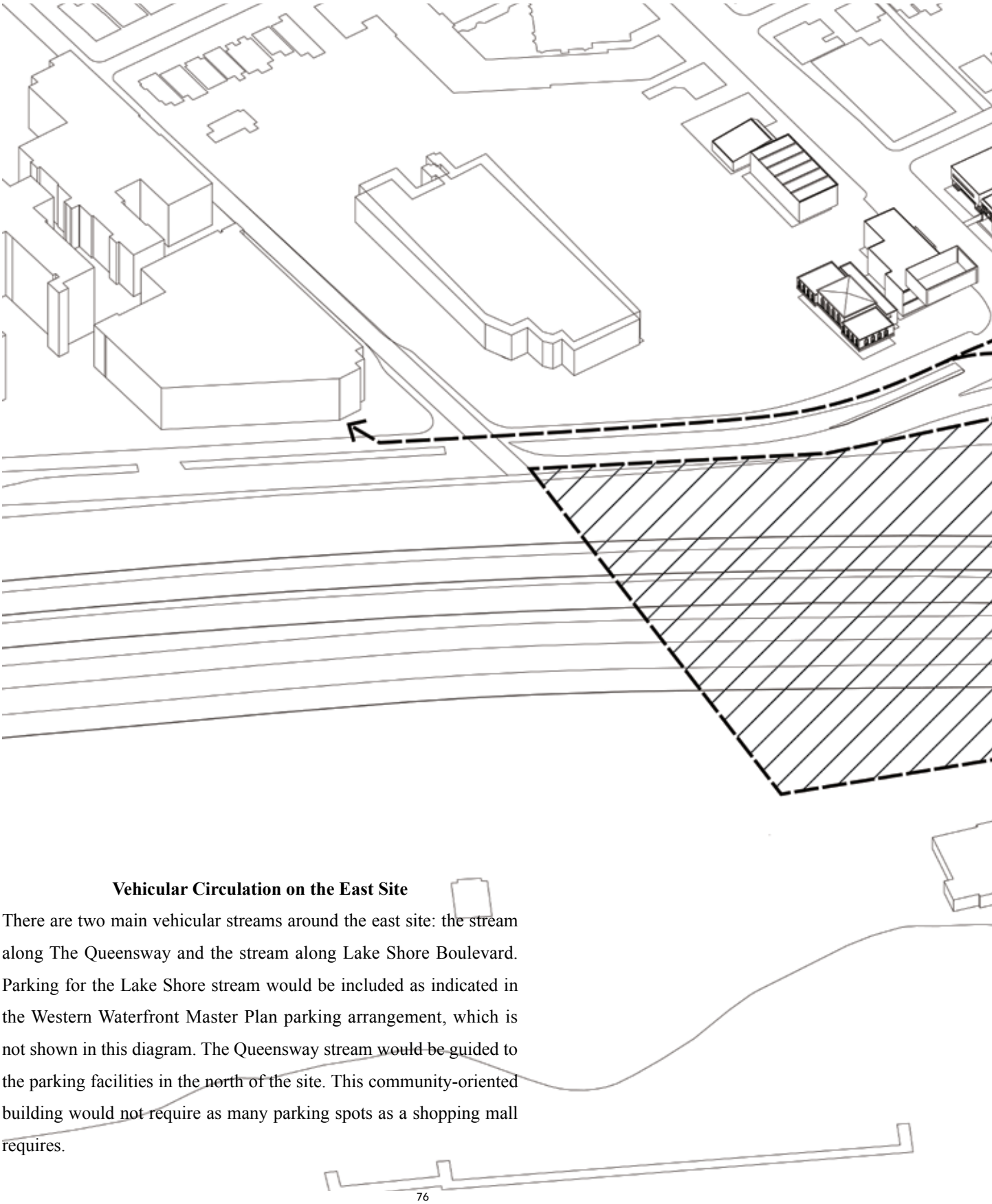


Figure 50: Vehicular circulation on the west site



Vehicular Circulation on the East Site

There are two main vehicular streams around the east site: the stream along The Queensway and the stream along Lake Shore Boulevard. Parking for the Lake Shore stream would be included as indicated in the Western Waterfront Master Plan parking arrangement, which is not shown in this diagram. The Queensway stream would be guided to the parking facilities in the north of the site. This community-oriented building would not require as many parking spots as a shopping mall requires.

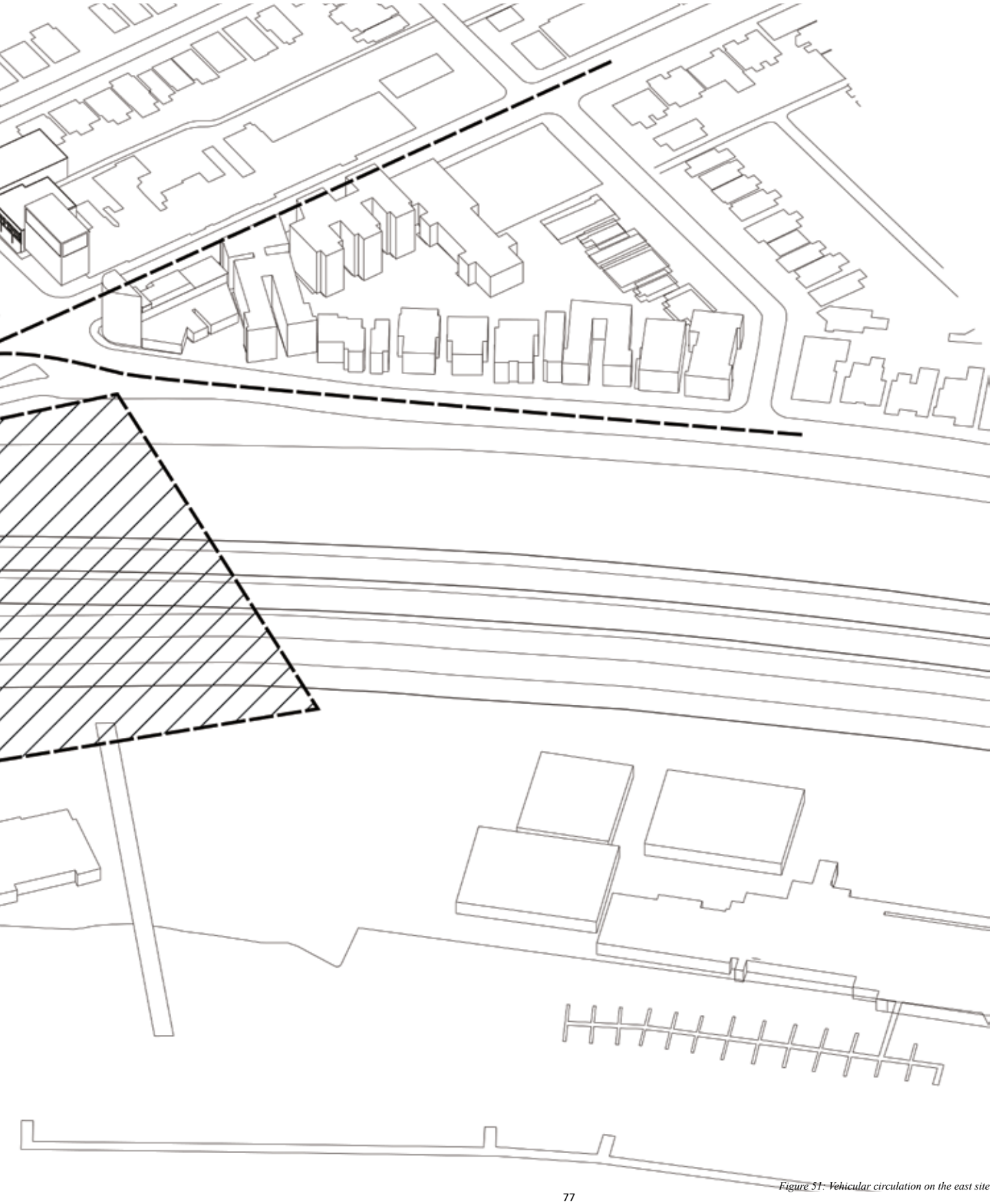
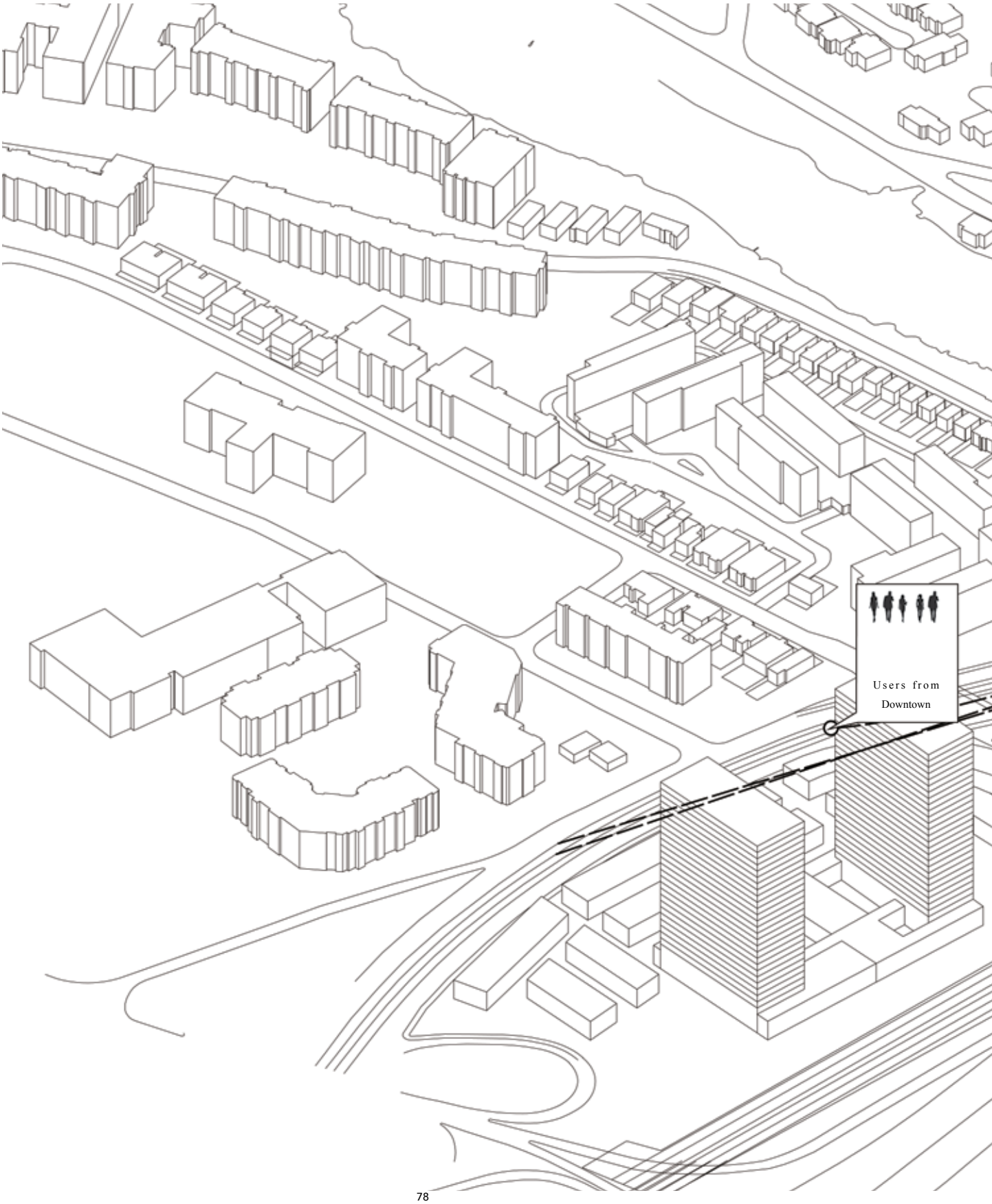


Figure 51: Vehicular circulation on the east site


Users from
Downtown

Pedestrian Circulation on the West Site

The public, taking TTC buses or streetcars, would get off at the nearby transit stops and then cross streets to enter the west site. TTC stops are located near intersections and, with streetcar tracks along The Queensway, street crossing is only allowed at intersections. Entrance squares in the corners of the site near intersections would help draw more prospective customers to this area.

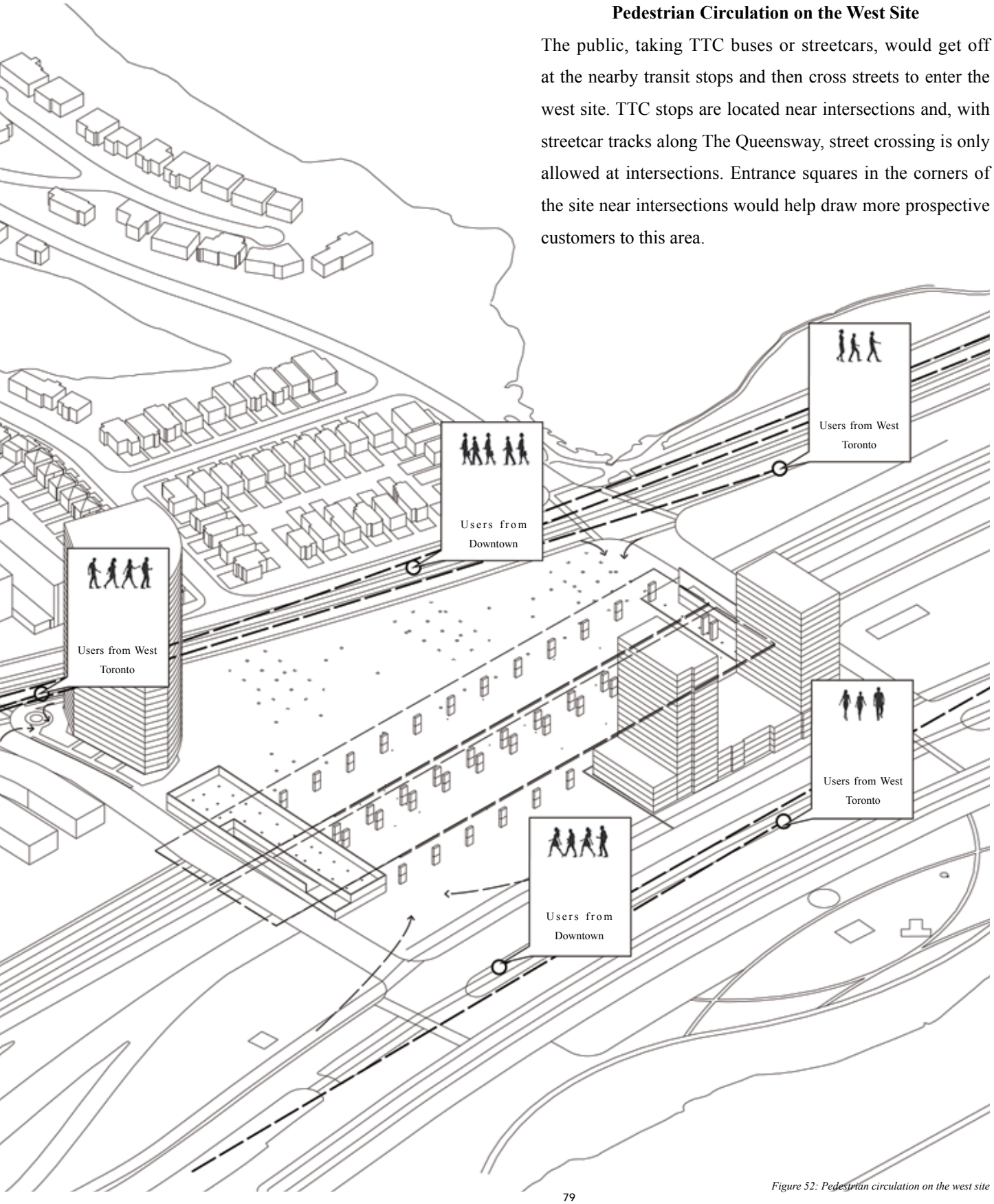
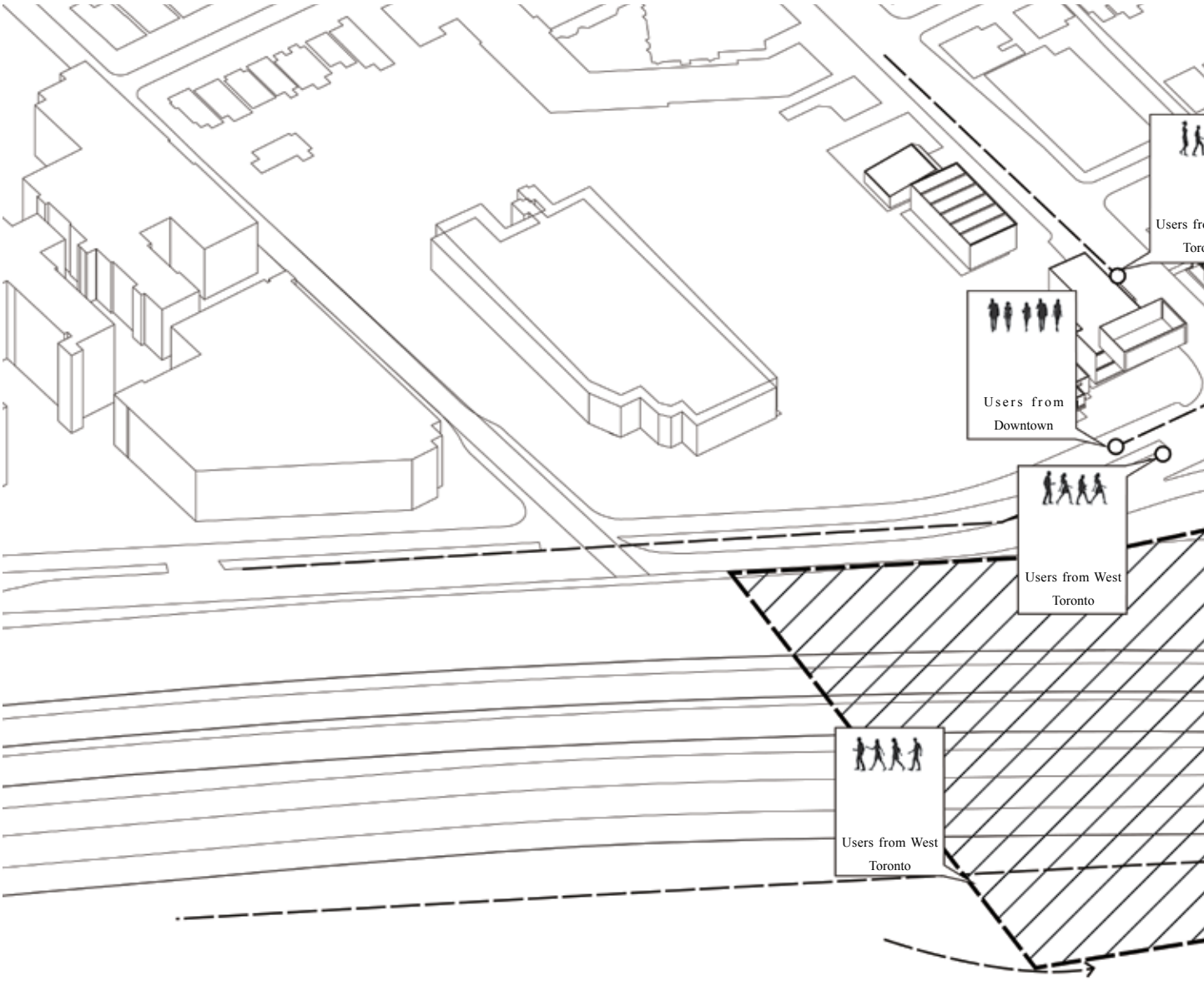


Figure 52: Pedestrian circulation on the west site



Pedestrian Circulation on the East Site

The TTC would be used by many visitors to reach the east site. King street, Queen street, Roncesvalles avenue, and the Queensway are all well served by TTC street cars. To the south, the new Lake Shore pedestrian lane would also bring many people to the site.

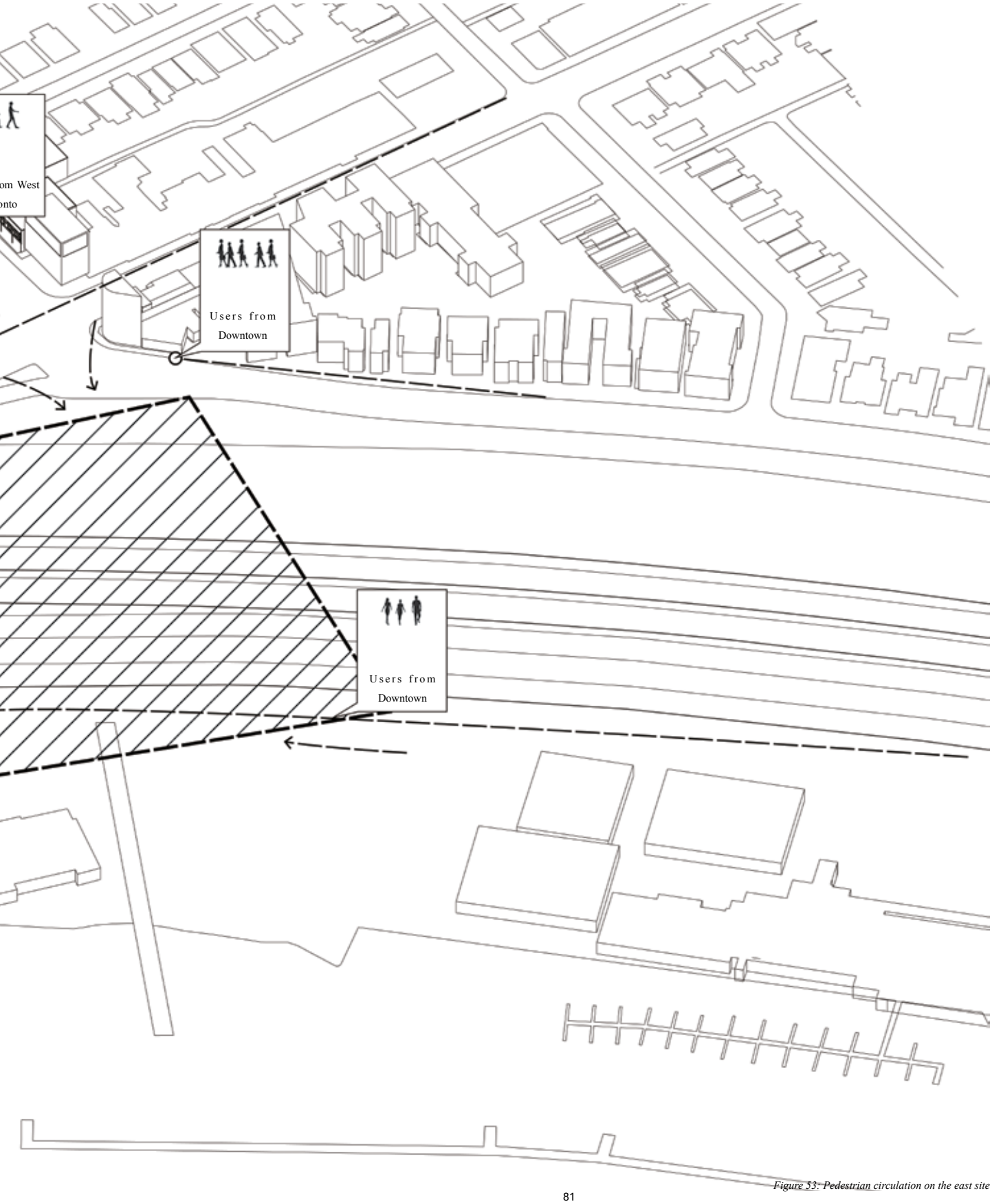


Figure 53: Pedestrian circulation on the east site

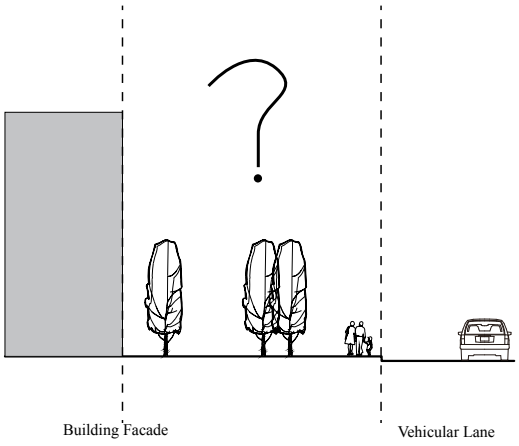


Figure 54: The street-facades section
The space between the line of building facades along a street and the zone of vehicular traffic.

Edge Conditions: Between the Interfaces of Vehicular Zones and Building Zones

3.5.1 Three Elements between the Interfaces of Vehicular Zones and Building Zones
3.5.2 Sub-elements in Each Element
3.5.3 Atmosphere Combinations
3.5.4 Lanes on one level + Trees + A canopy
3.5.5 Lanes on one level + Trees+ A terrace

The space between the line of building facades along a street and the zone of vehicular traffic offers potential for creating dynamic public access, enhanced by a ‘green infrastructure’ that mitigates noise and provides shade. Such an in-between space provides a buffer between vehicle traffic and the adjacent buildings. It is significant when proposed buildings are designed as attractors to the public, augmenting both existing activities and connecting the adjoining areas separated by the expressway infrastructure.

Three Elements between the Interfaces of Vehicular Zones and Building Zones

Between building facades and vehicular lanes, there are three main elements that can be found in the city: pedestrian lanes, landscaping, and spaces provided by the buildings. These three elements form the spatial atmosphere between buildings and vehicular lanes. Significantly, this atmosphere can impact people's appreciation and enjoyment of a given building.

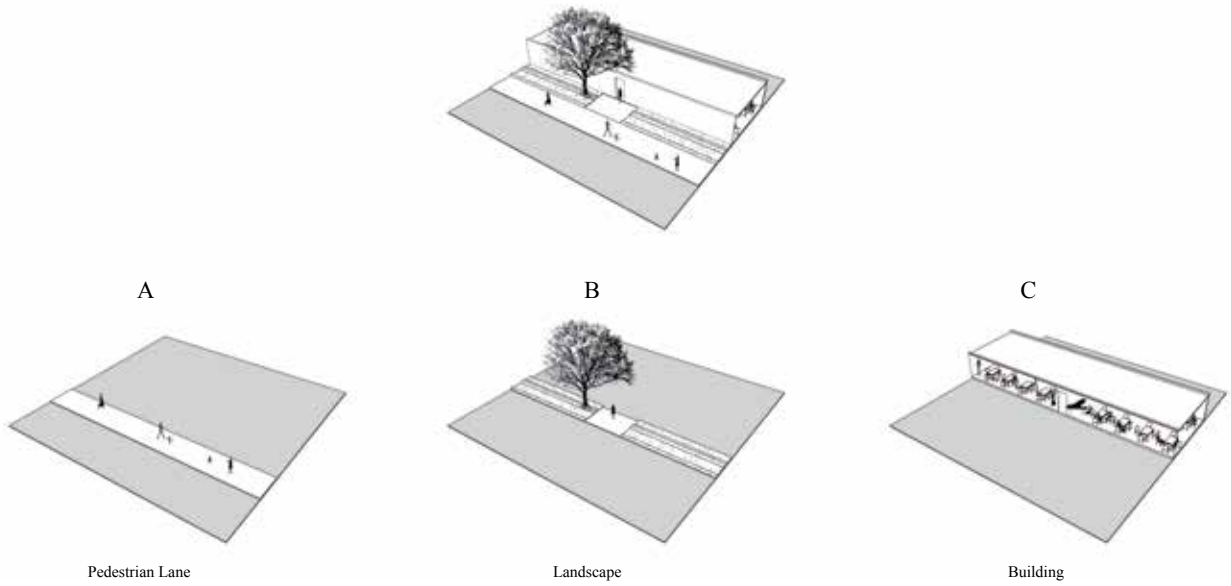


Figure 55: Three elements between the interfaces of vehicular zones and building zones

Sub-elements in Each Element

Each element has several sub-elements, which help to create different atmospheres. The pedestrian lane element has two types: lanes on the same level and lanes on different levels, such as a sloped lane and a ramp or a stair between lanes on different levels. Grass areas, bushes, and trees are typically found in the landscape element. The interfaces of building have three types: a simple wall, a canopy offering a covered semi-open space, or a terrace proving a overlook view to the street.

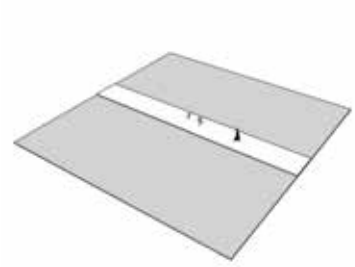
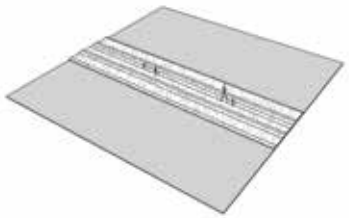
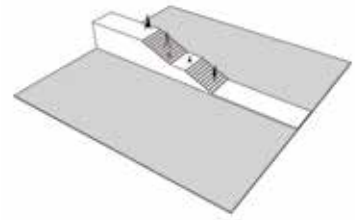
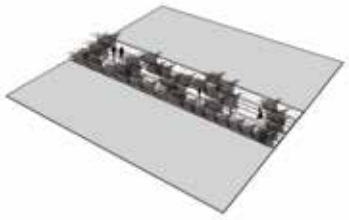
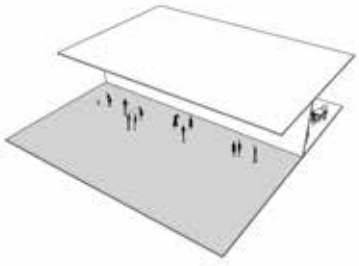
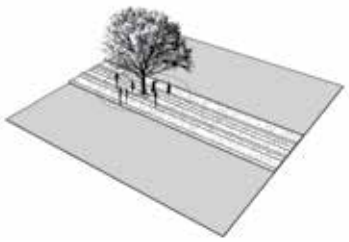
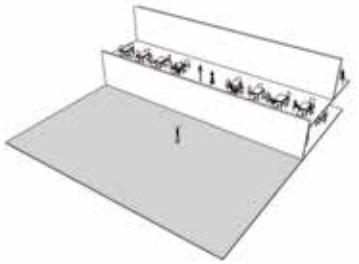
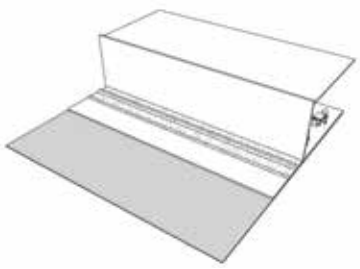
Pedestrian Lane	Landscape	Building
		
A-1 Lanes on One Level The pavement with different materials compared to the surrounding area would offer variety to the walking experience.	B-1 Grass / Low Vegetation The grass area would provide a natural place for stopping and chatting.	C-1 A Wall A simple wall could create a clear physical boundary enclosing an area.
		
A-2 Lanes on Different Levels Lanes of this type would allow people to experience different views during the ascending and descending movements.	B-2 Bushes/ Medium Vegetation Bushes would be about one meter high and used to create semi-enclosed areas where people can stand and sit around tables.	C-2 A Canopy A canopy would create a “grey space” between interior and exterior.
		
	B-3 Trees/ High Vegetation A tree could form a covered space, similar to the semi-open space created by canopy.	C-3 A Terrace A terrace would give users a overlook view to the street. It would also imply to pedestrians in the street that there are activities to be considered on the terrace.

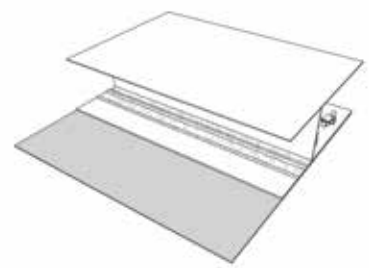
Figure 56: Sub-elements in each element

Atmosphere Combinations

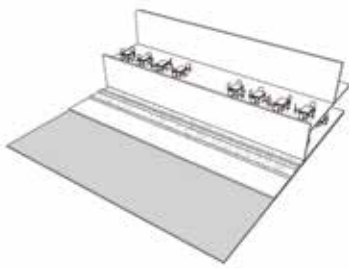
Each sub-element would contribute to the total ambience of a space. In this scenario, pedestrian lanes as paths, landscape features and building facades as enclosures create an atmosphere unit. With combinations of different elements, atmosphere units would provide various options from closed space to open space.



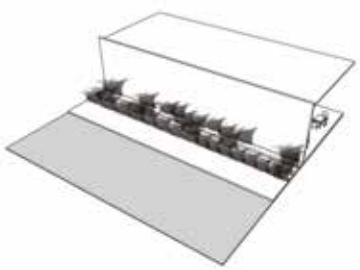
A-1 + B-1 + C-1
Lanes on One Level + Grass + A Simple Wall



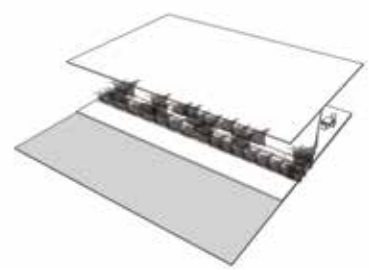
A-1 + B-1 + C-2
Lanes on One Level + Grass + A Canopy



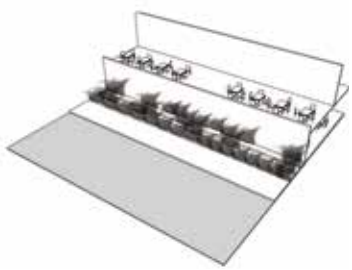
A-1 + B-1 + C-3
Lanes on One Level + Grass + A Terrace



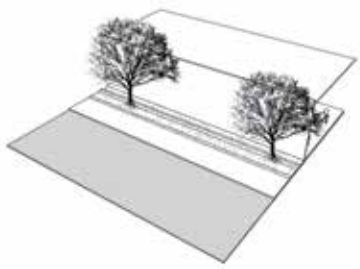
A-1 + B-2 + C-1
Lanes on One Level + Bush + A Simple Wall



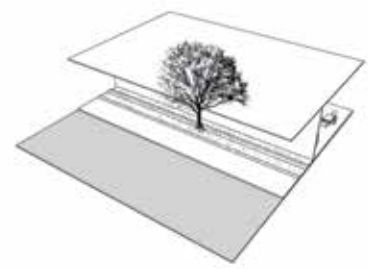
A-1 + B-2 + C-2
Lanes on One Level + Bush + A Canopy



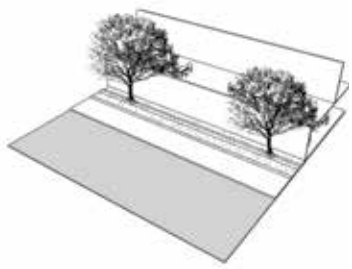
A-1 + B-2+ C-3
Lanes on One Level + Bush + A Terrace



A-1 + B-3 + C-1
Lanes on One Level + Trees + A Simple Wall

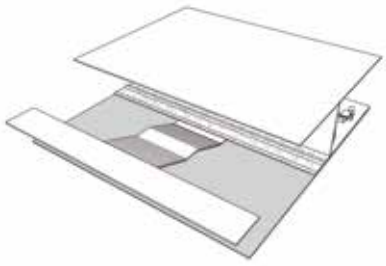


A-1 + B-3 + C-2
Lanes on One Level + Trees + A Canopy

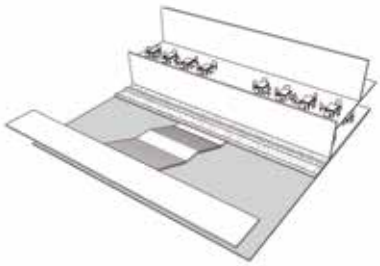


A-1 + B-3 + C-3
Lanes on One Level + Trees+ A Terrace

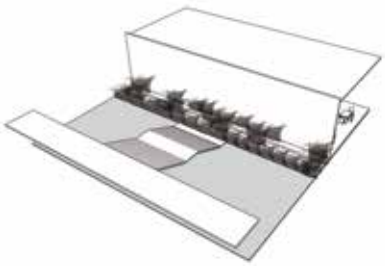
A-2 + B-1 + C-1
Lanes on Different Level + Grass + A Simple Wall



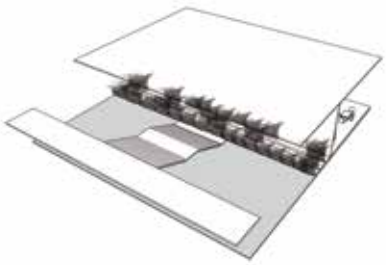
A-2 + B-1 + C-2
Lanes on Different Level + Grass + A Canopy



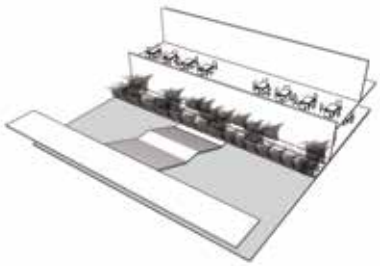
A-2 + B-1 + C-3
Lanes Different One Level + Grass + A Terrace



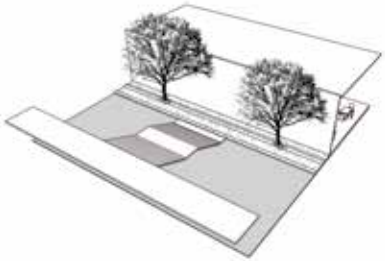
A-2 + B-2 + C-1
Lanes on Different Level + Bush + A Simple Wall



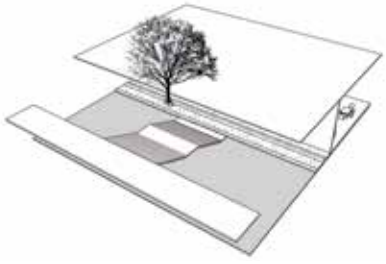
A-2 + B-2 + C-2
Lanes on Different Level + Bush + A Canopy



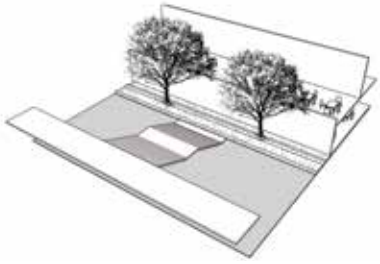
A-2 + B-2+ C-3
Lanes on Different Level + Bush + A Terrace



A-2 + B-3 + C-1
Lanes on Different Level + Trees + A Simple Wall



A-2 + B-3 + C-2
Lanes on Different Level + Trees + A Canopy

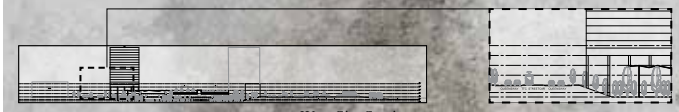


A-2 + B-3 + C-3
Lanes on Different Level + Trees+ A Terrace

Figure 57: Atmosphere combinations

Lanes on Two Levels + Trees + A Canopy

As a partial perspective of the building on the west site, this drawing shows the atmosphere of the “Lanes on Two Levels + Trees + A canopy” type. The green area provides shade and help to mitigate noise from the vehicular traffic zone, while the canopy provides pedestrians a semi-open social space.



West Site Section

Figure 58: Perspective of Lanes on one level + Trees + A canopy

Lanes on One Level + Trees+ A Terrace

As a partial perspective of the building on the east site, this drawing illustrates the atmosphere of the “Lanes on one level + Trees+ A terrace” type, which is formed by “green infrastructure” and the terrace of the building.

East Site Section

Figure 59: Perspective of lanes on one level + trees+ a terrace

04 Interior Boundaries: Spatialize Architectural Objects

In this chapter, the programming and spatial character of the former recreation activities and facilities at Sunnyside are considered in a process of urban memory retrieval to organize the proposed new buildings. Within the buildings, interior boundaries - walls between rooms - are eliminated as static space dividers and replaced as expanded functional space.

Spatial Strategy: the Framework of Architecture

Architecture is composed of elements. All of these elements, including walls and floors, conceal the potential to be transformed into spaces, which naturally overcome the traditional boundaries in architecture. “The Sendai Mediatheque by Toyo Ito exposed three major possibilities to us. One is the possibility of discovering ‘space’ in what was thought to be ‘object‘ in conventional architecture.”[42] So said Japanese star architect Sou Fujimoto in El Croquis Magazine.

Every program in architecture has its particular spatial character. These characterized spaces are organized with architectural elements as a total architecture. This organization is called “framework”[43], according to Sou Fujimoto’s conversation with Ryue Nishizawa from El Croquis .

Precedents

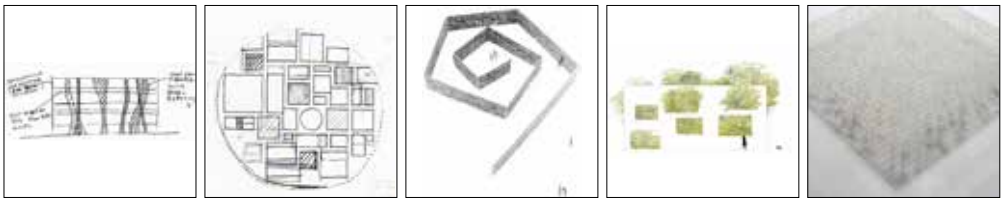


Figure 60: Five precedents

Developed by five Japanese architect (Toyo Ito, Kazuyo Sejima, Ryue Nishizawa, Sou Fujimoto, and Junya Ishigami), these five precedents show similarity and continuity in how to transform conventional architectural elements into space. When transformed into space and organized as a spatial framework, the traditional spatial borders - walls, floors - are eliminated, which is the design intention of this thesis.

Project / Location

Sendai Mediatheque

Sendai-shi, Japan, 1995-2001

21st Century Museum of Contemporary Art

Kanazawa, Japan, 1999 - 2004

Musashino Art University Museum and Library

Kodaira-shi, Tokyo, Japan, 2007 - 2010

Architect / Biography

Toyo Ito

1965-1969 Graduated from The University of Tokyo, Department of Architecture
Worked at Kiyonori Kikutake Architects and Associates
1971 Started his own studio, Urban Robot (URBOT) in Tokyo
1979 Changed its name to **Toyo Ito & Associates**

Kazuyo Sejima

1981-1987 Graduated from The Japan Women's University with a master's degree in Architecture
Worked at **Toyo Ito and Associates**
1987 Started her own studio, Kazuyo Sejima & Associates
1995 Started SANAA with Ryue Nishizawa, Architects

Ryue Nishizawa

1990-1995 Graduated from The Yokohama National University
Worked at **Kazuyo Sejima & Associates**
1995 Started **SANAA** with Kazuyo Sejima, Architects
1997 Started Office of Ryue Nishizawa

Sou Fujimoto

1994-1999 Graduated from The University of Tokyo, Department of Architecture
Worked at **Toyo Ito & Associates**
2000 Started his own studio, Sou Fujimoto Architects in Tokyo

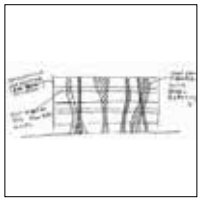
Main Program

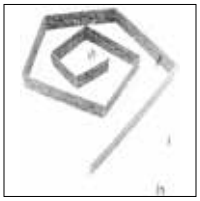
Visual image center

Museum

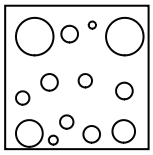
Library

Concept

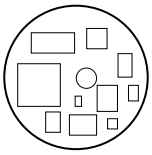




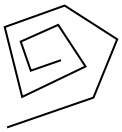
Spatial Strategy



Framework - Organization of Structural Tube Elements

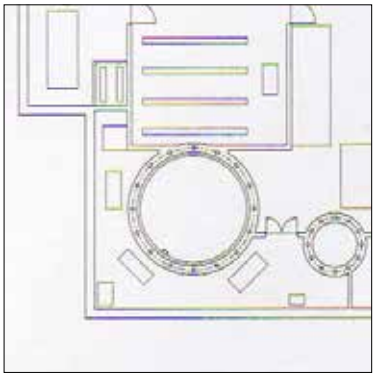


Framework - Organization of Room Elements

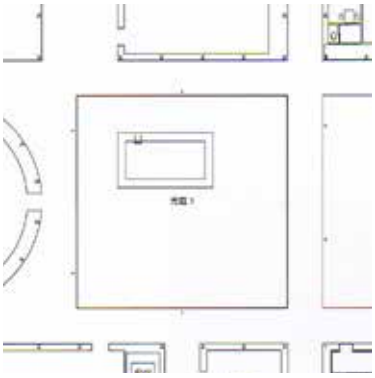


Framework - Organization of Structural Bookshelves

Spatial Element



Structural Tube Element: Vertical Circulation / Mechanical Space



Room Element: Gallery / Courtyard / Lecture Hall

Structural Bookshelf

House N

Oita-Shi, Oita, Japan, 2006 - 2008

Kanagawa Institute of Technology Workshop

Kanagawa Institute of Technology, Japan, 2004 - 2008

Sou Fujimoto

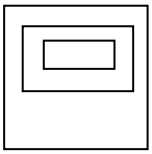
1994-1999 Graduated from The University of Tokyo, Department of Architecture
Worked at **Toyo Ito & Associates**
2000 Started his own studio, Sou Fujimoto Architects in Tokyo

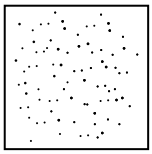
Junya Ishigami

2000 M.F.A. in Architecture, Tokyo University of the Arts
2000-04 Joined **Kazuyo Sejima & Associates**
2004 Established Junya.Ishigami+associates

House

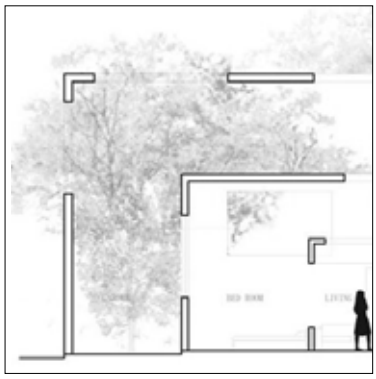
Workshop





Framework - Organization of Spatial Shells

Framework - Organization of Column-enclosed Spaces



Spatial Shell: Courtyard / Kitchen / Living Room / Bedroom

Column-enclosed Space: Multiple Workshop Space

Spatial Elements and Framework: Similarity in Five Projects

These architects' biographies show that Sou Fujimoto and Kazuyo Sejima both worked with Toyo Ito before they started their own studios. Actually, Ryue Nishizawa also worked with Toyo Ito as an intern student, which is not mentioned in his biography. Junya Ishigami joined SANAA before establishing his own firm. Japanese mentorship is well known in architects' associations. The mentorship among these four architects can be explained by their similarity and continuity in spatial strategies.

As a revolutionary project, Sendai Mediatheque conceals the possibility of transforming all architectural elements into spaces. The gallery rooms in the 21st Century Museum, the bookshelves in the Musashino Library, the shells in House N, and the columns in the Kanagawa workshop are all captured by architects as spatial elements and organized in a specific order, a framework, to form new buildings.

Figure 61: Spatial elements and framework in five projects

Sendai Mediatheque

Sendai-shi, Japan, 1995-2001

Toyo Ito

The Sendai Mediatheque proposes architectural programs in a new way. The building includes an art gallery, a library, a visual image center, and a services center for people with visual or hearing difficulties. In this project, structural elements, mechanical services and vertical circulation elements are combined and placed in tubes. Providing vertical circulation, these tubes are used to organize programs, and this spatial organization results in a free and boundless space.

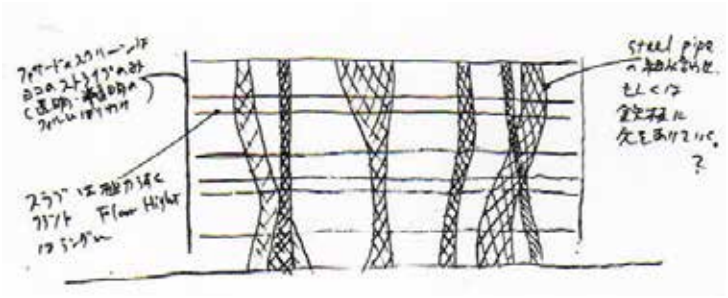
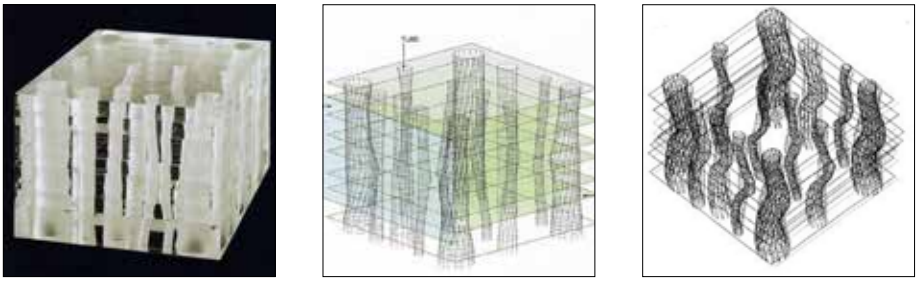


Figure 62: The concept of Sendai Mediatheque

In this project, structural elements, mechanical services and vertical circulation elements are combined and placed in tubes. Providing vertical circulation, these tubes are used to organize programs, and this spatial organization results in a free and boundless space.

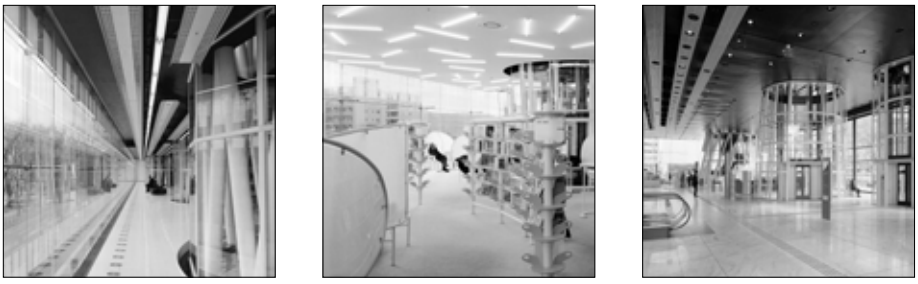
Analysis of Precedents

Framework of Structural tubes / vertical circulation and mechanical space

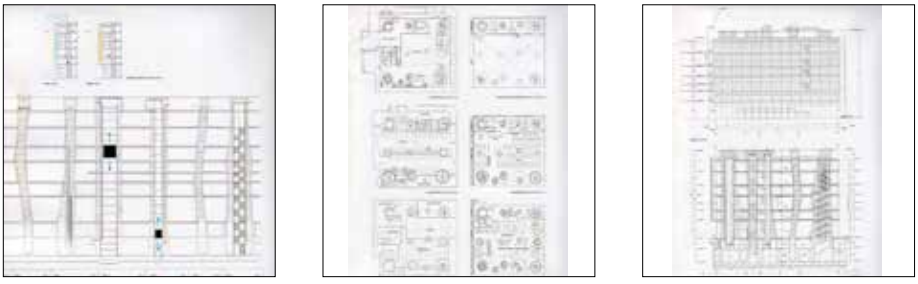


Architect's concept

Exterior photos



Interior photos



Technical Drawings

Figure 63: Analysis of Sendai Mediatheque

From Toyo Ito's conceptual model and sketch, tubes in the Sendai Mediatheque are used as elements to organize space. The exterior and interior photographs show the free and boundless space within the "tube framework." Mechanical services, vertical circulation, and structure are well organized in these tubes as shown in the technical drawings

The Methodology of "Framework"

The architects' main objective is to pose alternatives to conventional ideas employed in museum and library complexes. The Sendai Mediatheque consists of three elements: plates, tubes, and skin. The architectural hardware had to be flexible enough to respond to any new future development and be able to integrate any other program. It is a unifying point between the primitive human body that is connected to nature and the body that is part of the fluid electronic world. To realize architectural hardware flexibility, vertical circulation takes place in tubes, where the entrances to each floor are situated. This creates an open and free space in response to any new future development and new programs. Tubes, as an spatial element in this project, are organized in a specified order. These create two types of space inside the Sendai Mediatheque: the space in tubes and the space between tubes.

Figure 64: The view in Sendai Mediatheque
This photography shows the space formed by a vertical tube and the space around this tube or between tubes. In this in-between tube space, various social activities can be organized according to the required programs.

Boundaries in the "Framework"

The tubes act not only as flexible structural elements but also as spaces where information and different types of energy - light, air, water, sound, etc. - flow while facilitating vertical circulation. The design intent unveils the possibility of discovering "space" in what was thought to be "objects" in conventional architecture.[44] In Toyo Ito's Work, columns, as traditional elements consisting of an architecture with other elements, are transformed into spaces to pose alternatives to conventional ideas employed in museum and library complexes.

With this tube spatial organization, interior boundaries - walls between rooms - are mostly eliminated as static space dividers and replaced with expanded functional space. The free interior space created by this tube spatial strategy gives users more flexibility and freedom to customize ways of using this space for demanded programs, which allows for responds to any new, future development as a media center.

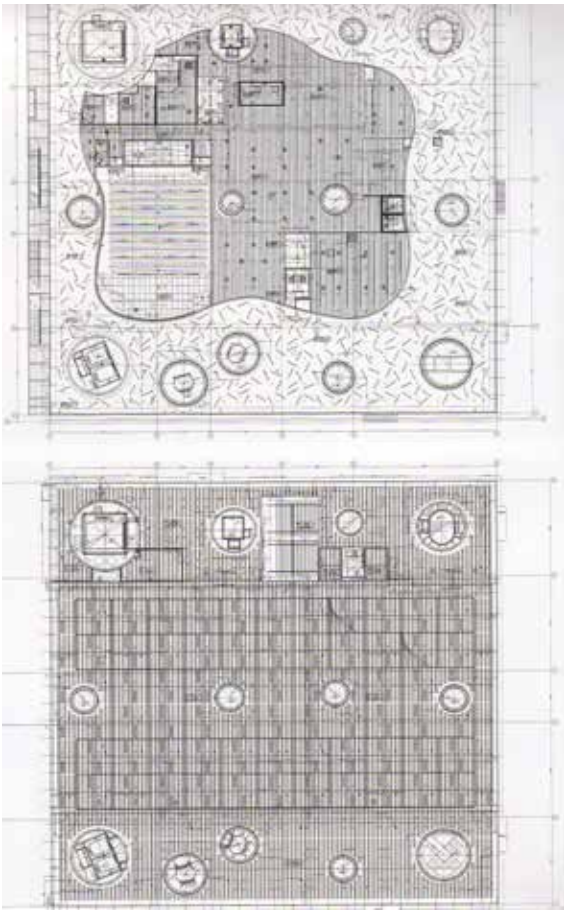


Figure 65: The plans of Sendai Mediatheque
The free interior space created by this tube spatial strategy gives users more feasibility and freedom to customize ways of using this space to the demanded programs, which responds to any new development as a media center.

21st Century Museum of Contemporary Art

Kanazawa, Japan, 1999 - 2004

SANAA

Kanazawa is situated on the north coast of Japan and is one of the nation's historical centers. The museum stands in the center of Kanazawa. The building includes community gathering spaces, such as a library, lecture hall, and children's workshop, as well as museum spaces. In this museum, programs are placed in transparent glazed rooms, including the courtyards, and these transparent spaces are organized within a larger circular space. The spaces between glazed rooms and the outside envelope of the large circle are experienced as free areas.

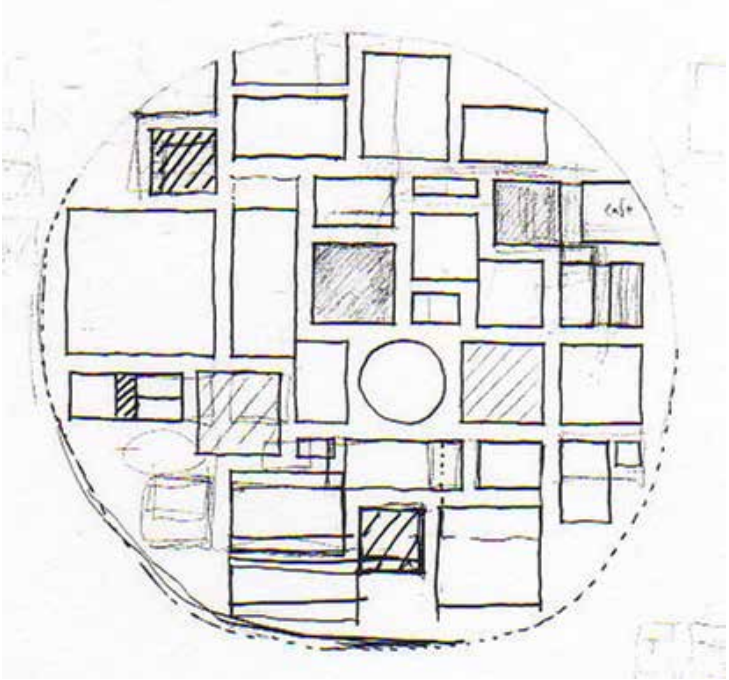
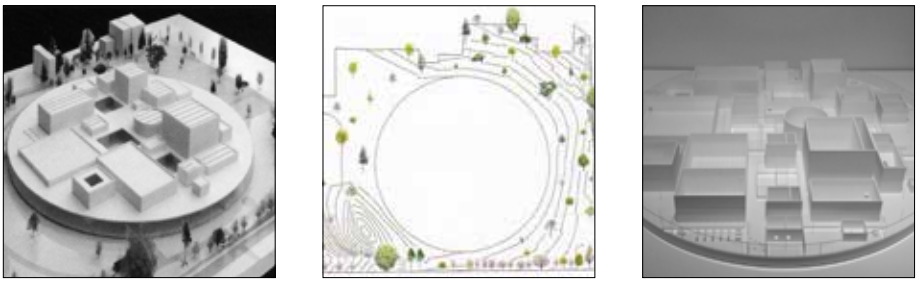


Figure 66: The concept of 21st Century Museum of Contemporary Art
In this museum, programs are placed in transparent glazed rooms, including the courtyards, and these transparent spaces are organized within a larger circular space. The spaces between glazed rooms and the outside envelope of the large circle are experienced as free areas.

Analysis of Precedents

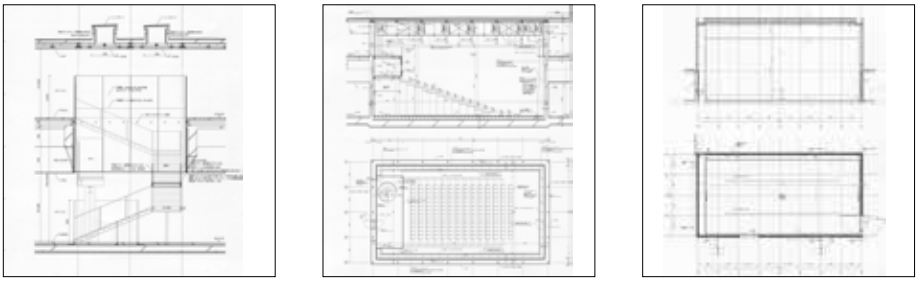
Framework of Room Elements / Gallery, courtyard,etc.



Architect's concept

Exterior photos

Interior photos



Technical Drawings

Figure 67: Analysis of 21st Century Museum of Contemporary Art

The conceptual model of this museum clearly shows SANAA's design intention, which organizes functional rooms as a system and contains this system within a larger volume. The space between interfaces of programmatic rooms and interfaces of a larger circular volume is free and boundless, which is shown in the exterior and interior photographs. The technical drawings illustrate the details of the glazed walls.

Figure 68: The conceptual plans in process

The Methodology of "Framework"

The Mayor of Kanazawa wanted to have a very open museum to be accessible to the public. SANAA realized that the plan could not be complicated; otherwise, people would not be able to see where their friends were going or know what was happening elsewhere in the museum.

According to Ryue Nishizawa's interview, "For the basic structuring of the program, we decided to have the museum area inside and the free area in the periphery of the same floor. This outer ring contains public programs like a library or cafe, where people can enter freely without having to go through the actual museum."[45]

In response to the demand for of open and accessible space and uncomplicated spatial organization, SANAA proposed a combination of a "outer ring" and groups of programmatic rooms. These rooms, enclosed with glazed walls, contain the required programs and are transparent and open to the public. The space between this set of glazed rooms is free and enclosed by the "outer ring." This spatial strategy creates an open, accessible, and abundant space within a simple organization.[46]

Boundaries in the "Framework"

"Normally, one wall has two sides, so if you define the shape of the wall, this will affect two adjacent spaces. This relationship between the wall and the two adjacent spaces is always accepted and not discussed. We decided to make a wall with two thin membranes, not necessarily linked together, and we found that this created a kind of double wall between these two spaces and marked the independence of each room. Both are close, you can perceive one from the other, but they keep their independence." So said Ryue Nishizawa in an interview with El Croquis.[47]

Figure 69: The courtyard view in the museum
The using of a new double wall, with two thin membranes, allows each room to stay independence, but the scene in the room can still been perceived from adjacent space.

Musashino Art University Museum and Library

Kodaira-shi, Tokyo, Japan, 2007 - 2010

Sou Fujimoto

This project involved designing a new library building and refurbishing the existing building as an art gallery in Japan. The two-story library has 6500 square meters of floor area, of which half is available in the open archive, while the other half is a closed area. Bookshelves, as functional elements in every library, are transformed as spatial separation and used to organize the space of exploration, which is considered part of the process of searching for books.

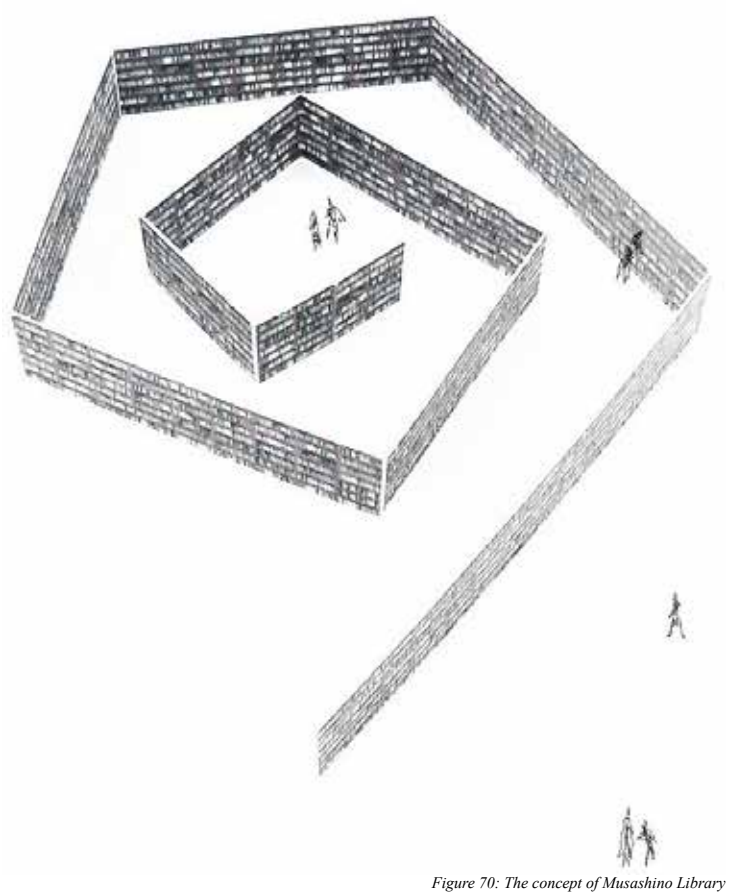
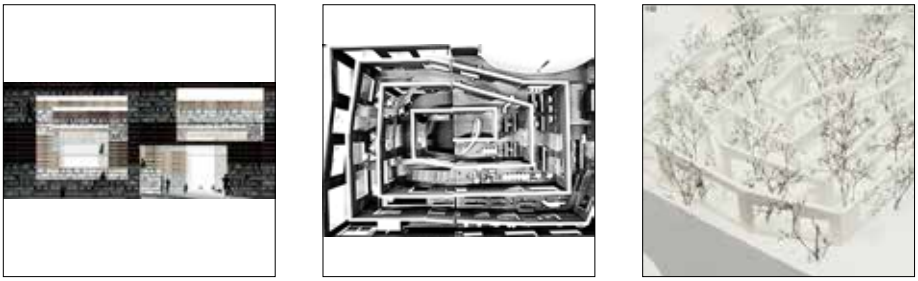


Figure 70: The concept of Musashino Library
Bookshelves, as functional elements in every library, are transformed as spatial separation and used to organize the space of exploration, which is considered part of the process of searching for books.

Analysis of Precedents

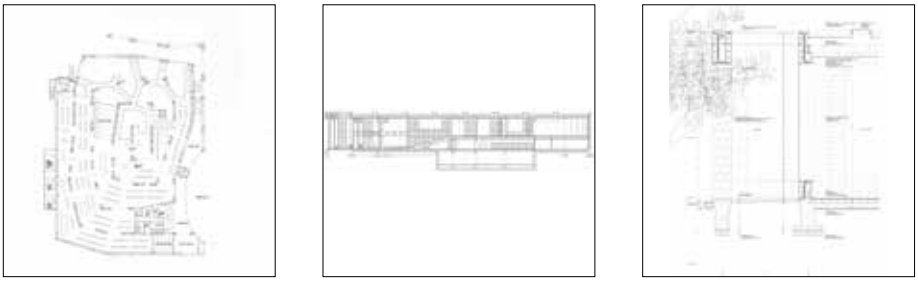
Framework of structural bookshelves



Architect's concept

Exterior photos

Interior photos



Technical Drawings

Figure 71: Analysis of Musashino Art University Museum and Library

In the conceptual model and collages, bookshelves are defined as an architectural element, which is used to frame the space of the entire library. The interior and exterior photographs shows the free space formed by bookshelves. The technical drawings show how Sou Fujimoto transforms bookshelves into structural elements.

The Methodology of "Framework"

Sou Fujimoto explains his design of the project as follows:

"Investigation and exploration are two apparent contradictions inherent to the design of libraries. Investigation is, by definition, a systematic spatial arrangement for the purpose of finding specific books. Even in the age of Google, the experience of searching for books in a library is marked by the order and arrangement of the physical volume of book."[48]

"The opposite concept to investigation is the notion of exploration. The significance of the library experience also involves discoveries engendered by the space for users, who perceive it as being in constant renewal and transformation, discovering undefined relationships, and being inspired by unfamiliar fields. The coexistence of the two concepts requires the use of spatial and configuration logics beyond mere systematics."[49]

The architectural element in the ultimate impression: bookshelves

"Here, the two apparent contractions inherent to libraries are allowed to coexist by the form of spiral possessing two antinomic movement with radical paths and rotation. This rotation or polar configuration facilities investigation, while the numerous layers through the radical apertures engender the notion of exploration through an infinite depth of books."[50]

Again, Sou Fujimoto described his concept in a very objective way:

"When I thought of the elements that compose an ultimate library, book, bookshelves, light and the place came to mind."[51]

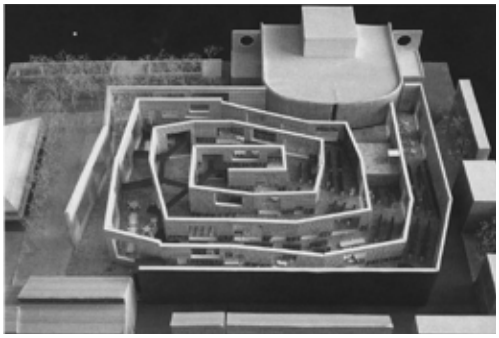


Figure 72: The spatial arrangement: spiral form possessing two antinomic movement with radical paths and rotation

Boundaries in the "Framework"

The "Framework"[52] methodology requires the architectural elements, which are bookshelves in the Musashino Library, to be arranged as a specific spatial sequence, which is a spiral form in this instance. To meet this demand, the elements simultaneously act as structural separations. As a functional and structural separation, this element builds a distinguishing relationship among rooms as a new type of boundary. Within this building, interior boundaries - walls between rooms - are eliminated as static space dividers and replaced as expanded functional space.

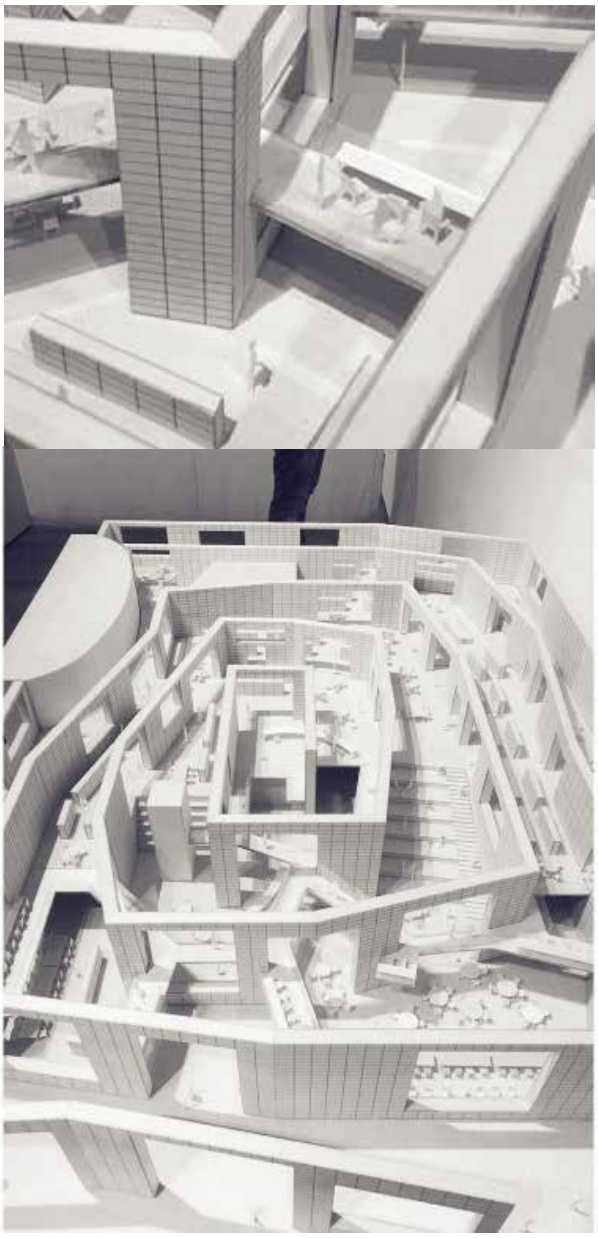


Figure 73: The photos of the physical model

House N

Oita-Shi, Oita, Japan, 2006 - 2008

Sou Fujimoto

House N is a home to accommodate a young couple and their dog. Openings in the outer wall and roofs are not glazed. Three "envelopes" overlap each other and create a series of spaces, from open space to semi-open space to closed space. The basic element in House N, the envelope called "shell"[53] by Sou Fujimoto, is used to pose alternatives to conventional ideas employed in houses design.

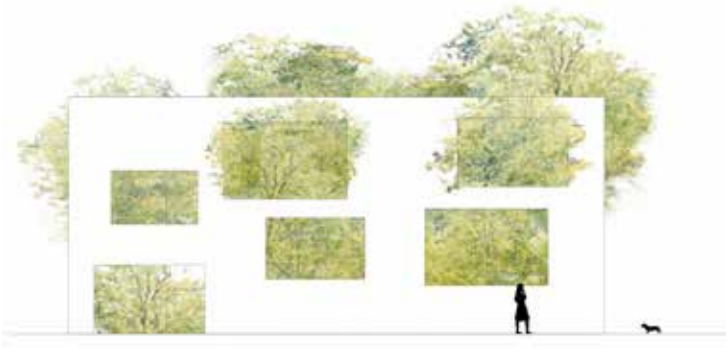


Figure 74: The concept of House N

Three "envelopes" overlap each other and create a series of spaces, from open space to semi-open space to closed space.

Analysis of Precedents

Framework of three shells / courtyard, kitchen, living room and bedroom

Architect's concept

Exterior photos

Interior photos

Technical Drawings

Figure 75: Analysis of House N

The sketch models illustrate the architect's design intention, defining pubic and private functions with open and closed spaces by three envelopes. The interior and exterior photographs shows the interesting spaces created by the overlapping strategy. Technical drawings show the spatial hierarchy in sections and plans.

The Methodology of "Framework"

The program for House N includes bedrooms, bathrooms, living rooms, kitchen, garden, and garage. The sequence among them is from private function to semi-private function to public function. Transcoded into architectural language, we have closed space, semi-open space and open space.

In House N, Sou Fujimoto created three shells to address this spatial relationship. As he puts it: "The house itself consists of three increasingly sized shells nested inside one another. The outermost shell covers the entire premises, creating a covered, semi-indoor garden. The second shell encloses a limited space inside the covered outdoor space. The third shell creates a smaller interior space."[54] As mentioned, the spaces created by this three-shell strategy are defined as open space, semi-open space, and closed space, which are associated with the public and private programs of courtyard, kitchen, living room, and bedroom.

Figure 76: The view in House N
Spaces created by this three shell strategy are defined as open space, semi-open space and closed space, which are associated to the public and private programs of courtyard, kitchen, living room and bedroom.

Boundaries in the "Framework"

The shells, including walls and floors, are created as separations and structural elements according to the framework. The distributed windows on the shells have a visual function: scenery collecting. All three shells offer multiple light conditions and rich sceneries from the street to the users.

Again Sou Fujimoto: "A distinct boundary is nowhere to be found, except for a gradual change in the domain."[55] Adding relevant functions to the structural separations, which are usually the physical boundaries of a building, mean exploring new types of boundaries in architecture.

Figure 77: The view in House N

Kanagawa Institute of Technology Workshop

Kanagawa Institute of Technology, Japan, 2004 - 2008

Junya Ishigami

This workshop, on a university campus in the suburbs of Tokyo, is a facility where students can work on their own creative projects. The programs include areas for woodwork, machinery engineering, ceramics, printing, electron-engineering, offices, and so on. In this project, columns are used as elements to define spaces instead of walls, which poses alternatives to conventional ideas employed in workshops.

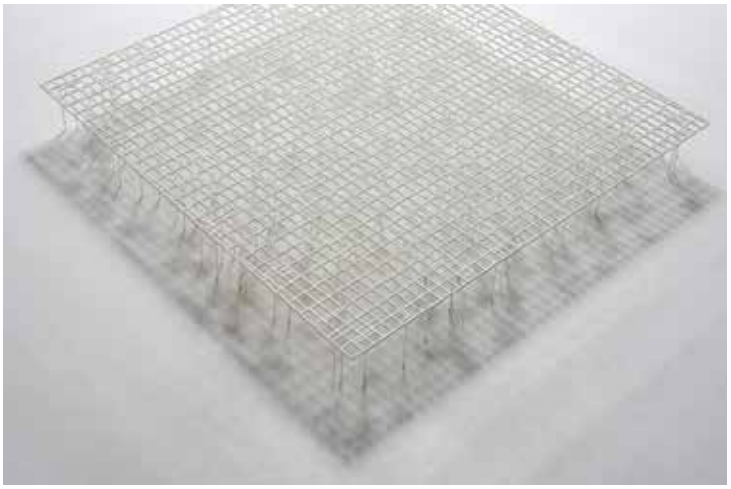


Figure 78: The concept of Kanagawa Institute of Technology Workshop
In this project, columns are used as elements to define spaces instead of walls, which poses alternatives to conventional ideas employed in workshops.

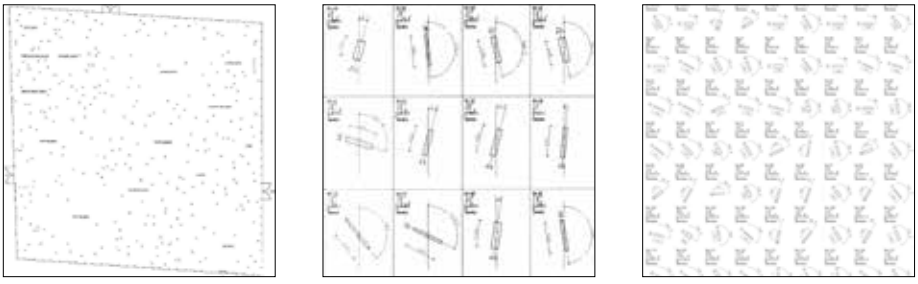
Analysis of Precedents

Framework of column-defined space / workshop

Architect's concept

Exterior photos

Interior photos



Technical Drawings

Figure 79: Analysis of Kanagawa Institute of Technology Workshop

In the conceptual model and sketch, columns are defined as spatial elements, and used to frame the required programs. The interior and exterior photographs shows the free space formed by columns. The technical drawings show how Junya Ishigami uses columns to define the spaces demanded by the programs.

The Methodology of "Framework"

In this workshop, the client required conditions in which an array of activities on various scales could be implemented in different types of spaces within the building. Ishigami explains his design intention: "Our objective was not to create a plan that drew clear lines to partition the building, but instead to use 'dots' in order to instill the respective spaces with specific characteristics while at the same time making their boundaries ambiguous."[56] Columns in this project are not only structural elements but also separation elements. Instead of interior walls, the array of columns encloses a space according to the requirements of a program and creates invisible boundaries .

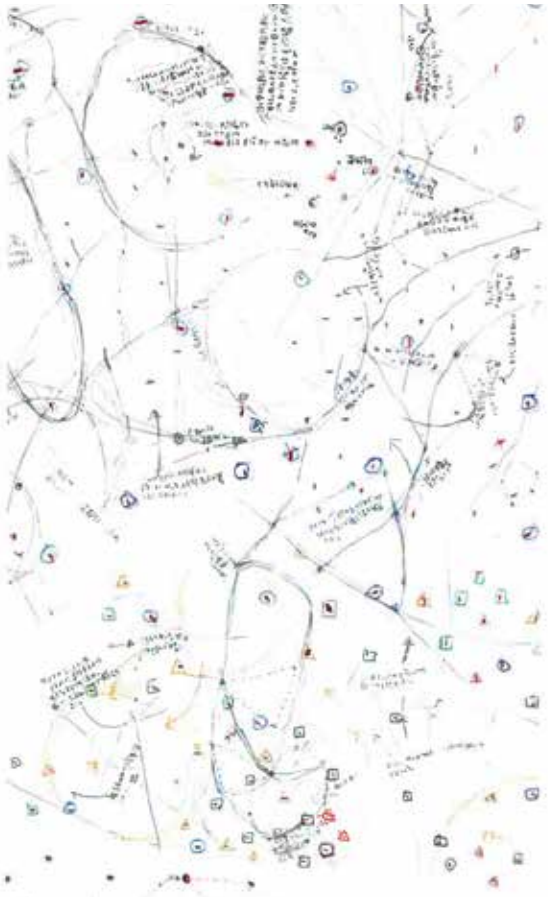


Figure 80 :The notations of the decisions made with the models on printouts of the floor plan by Junya Ishigami

Junya Ishigami calculated the space area demanded by proposed programs and placed columns along the invisible borders to create a space between columns.

Boundaries in the "Framework"

The decision on the "dots"[57] placement is intentional, and the plan is revised to make the dots seem to be located at random. When people cannot detect the motives for the design, the space can be appropriated in numerous ways with different ideas and perspectives. Intentional placement of columns provides a possibility to use the in-between space according to program requirements, and it also offers a freedom for users to adjust furniture arrangements to customize this space.

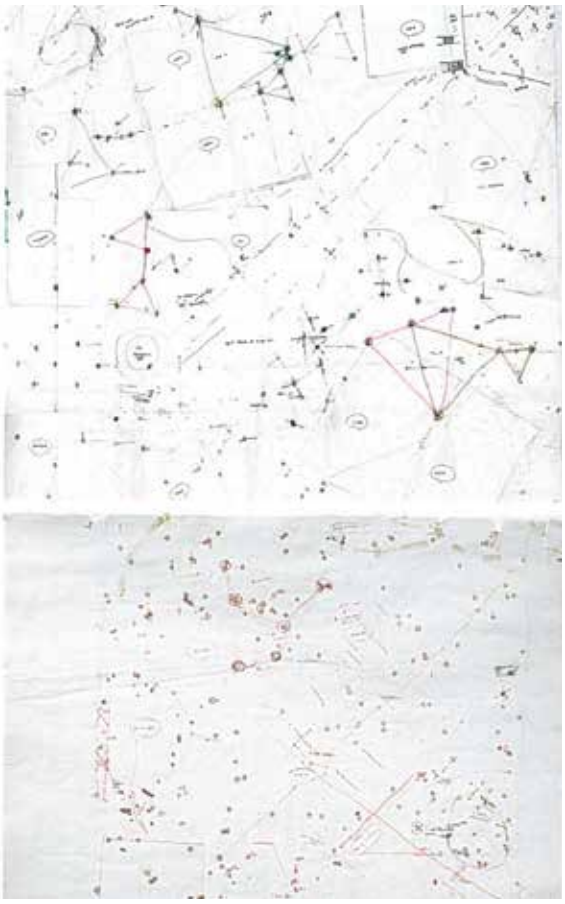


Figure 81: The notations of the decisions made with the models on printouts of the floor plan by Junya Ishigami

In keeping with these five precedents, a traditional architectural element would be transformed into functional space, with the interior boundaries - walls between rooms - eliminated as static space dividers, and new alternatives would be posed, critiquing conventional ideas employed in buildings. In order to continue the strategy of planning and site design - overcoming boundaries - in this thesis, this spatial strategy would be applied to the building's design.

Five Typologies Related to Programs / Activities

Extracting Scenarios from Historic Photographs

According to the historic photographs from Mike Filey's book "I Remember Sunnyside: The Rise and Fall of a Magical Era," Sunnyside was a popular recreation park in the summer. In this section, activities and spaces that formerly existed on the site are referenced for generating some of the proposed spatial arrangements and programming, as a way of recalling and reactivating the energy and vitality of the early years of Sunnyside's most active and vibrant period. [58]

This proposal is tied up with and evokes a narrative of memory and retrieval of past event in this locations. In "Cities of Artificial Excavation" Peter Eisenman gathered a series of projects and generated some of the spatial character and geometry of the new buildings through a rendering of past occupations of the given site.[59] Similarly, the Vancouver architect Richard Henriquez recalled narratives of past occupations of the sites of some of his buildings and then created motifs and decorative elements recalling these past histories.[60] In this section, a series of scenarios and typologies are considered for generating the spatial typologies and programming used in my thesis proposals.

Scenario 1

In deference to residents who could not afford the luxury of paying to swim, the City of Toronto established a free bathing beach west of Mr. Brooker's operation. The beach with its water slide, participants, and spectators is shown in the right page photo.[61]

Figure 82: Photo of activities in Sunnyside from "I remember Sunnyside" This photo shows activities and spaces that formerly existed in the Sunnyside beach area. The scenario in this photo would be used to generate some of the spatial arrangements and programming in the proposals.

Spatial Typology A: Landscaped Stairs

According to scenario 1, some activities will be continued in the new design proposals. The characters of the spatial typology are as follows:

- Natural circumstance
- Ascending and descending movements
- Multiple level spectating, looking up and looking down.

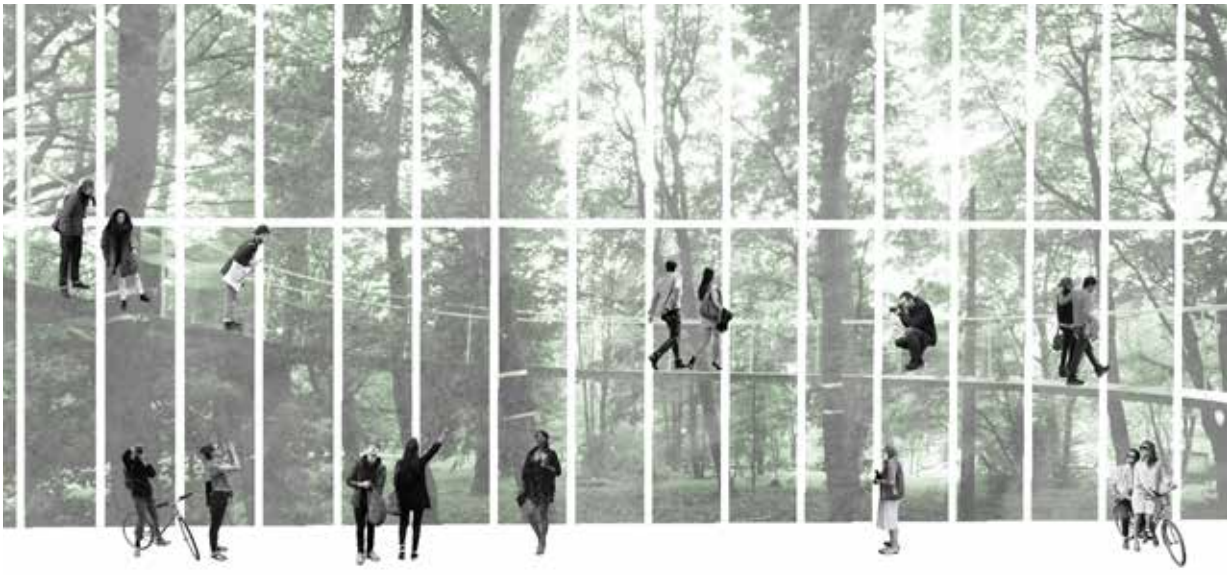


Figure 83: Landscaped Stairs Typology collage
As a way of recalling and reactivating the energy and vitality of the early years of Sunnyside's most active and vibrant period, the characters of the spatial typology would be applied in the proposals.

Scenario 2

The photo on the right page was taken inside the Sunnyside Pavilion Restaurant in 1920. The restaurant was located on the south side of the old Lake Shore Road, right on the site of the once-popular restaurant that was operated by Mrs. Pauline Myers and backed onto Lake Ontario.[62]

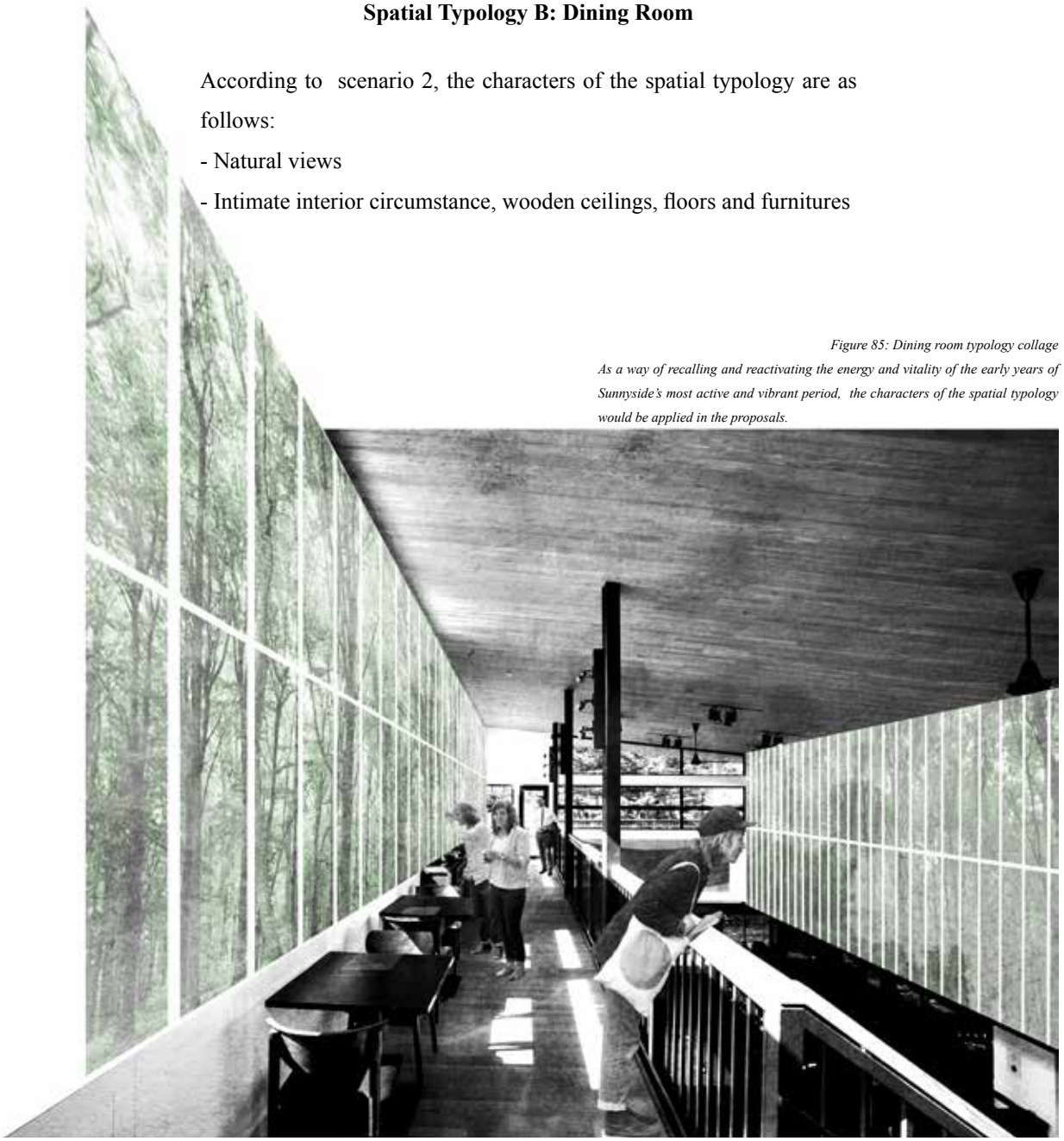
Figure 84: Photo of activities in Sunnyside from "I remember Sunnyside"
This photo shows activities and spaces that formerly existed in the Sunnyside beach area. The scenario in this photo would be used to generate some of the spatial arrangements and programming in the proposals.

Spatial Typology B: Dining Room

According to scenario 2, the characters of the spatial typology are as follows:

- Natural views
- Intimate interior circumstance, wooden ceilings, floors and furnitures

Figure 85: Dining room typology collage
As a way of recalling and reactivating the energy and vitality of the early years of Sunnyside's most active and vibrant period, the characters of the spatial typology would be applied in the proposals.



Scenario 3

These three photos show views of the famed Sunnyside boardwalk. The increasing popularity of the boardwalk contributed once again to the deterioration of its planking soon after the end of the war.[63]

Figure 86: Photo of activities in Sunnyside from "I remember Sunnyside"
This photo shows activities and spaces that formerly existed in the Sunnyside beach area. The scenario in this photo would be used to generate some of the spatial arrangements and programming in the proposals.

Spatial Typology C: Boardwalk

According to scenario 3, the characters of the spatial typology are as follows:

- Natural circumstance
- Intimate material, wooden pavement
- Linear pedestrian movement
- Vegetation

Figure 87: Boardwalk typology collage
As a way of recalling and reactivating the energy and vitality of the early years of Sunnyside's most active and vibrant period, the characters of the spatial typology would be applied in the proposals.

Scenario 4

The two photos on the left were taken in 1924, when Sunnyside introduced dog racing on the lawn across from the bathing pavilion. “What is interesting, however, is the hue and cry that went up fifty years later when the Canadian National Exhibition announced that it was looking into the possibility of holding greyhound racing at the Grandstand. It never happened.”[64]

Figure 88: Photo of activities in Sunnyside from “I remember Sunnyside”
This photo shows activities and spaces that formerly existed in the Sunnyside beach area. The scenario in this photo would be used to generate some of the spatial arrangements and programming in the proposals.

Spatial Typology D: Sports Field

According to scenario 4, the characters of the spatial typology are as follows:

- Natural circumstance
- Field surrounded distribution of audience

Figure 89: Sports field typology collage
As a way of recalling and reactivating the energy and vitality of the early years of Sunnyside's most active and vibrant period, the characters of the spatial typology would be applied in the proposals.

Scenario 5

One of the best-attended attractions at Sunnyside was the Community Sing Song, which was introduced in 1938 on the former Merry Makers Stage, as shown in the three photos.[65]

Figure 90: Photo of activities in Sunnyside from "I remember Sunnyside" This photo shows activities and spaces that formerly existed in the Sunnyside beach area. The scenario in this photo would be used to generate some of the spatial arrangements and programming in the proposals.

Spatial Typology E: Outdoor Theater

According to scenario 5, the characters of the spatial typology are as follows:

- Natural circumstance
- Gathered crowds
- Performance activities

Figure 91: Outdoor theater typology collage
As a way of recalling and reactivating the energy and vitality of the early years of Sunnyside's most active and vibrant period, the characters of the spatial typology would be applied in the proposals.

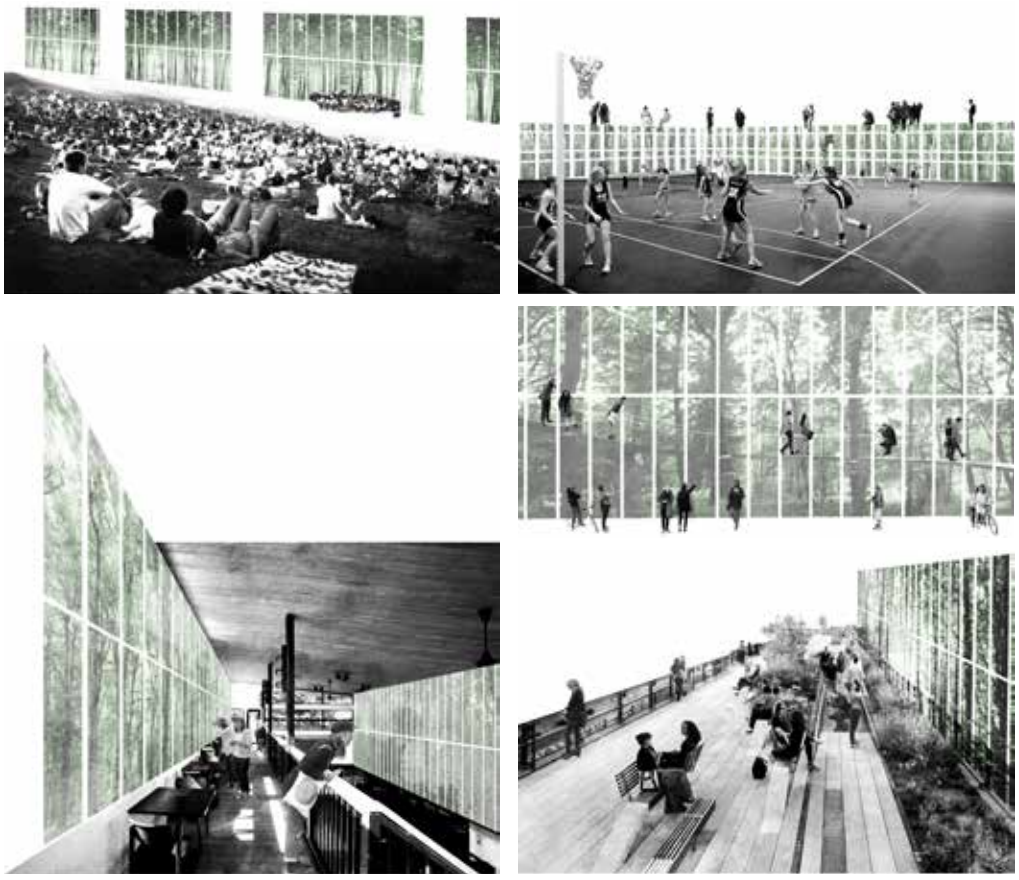


Figure 92: Five typologies related to programs / activities
These five important former recreation scenarios in the Sunnyside beach area show various social activities and spatial characters that can be categorized in five main spatial typologies.

Five typologies related to programs / activities

These five important former recreation scenarios in the Sunnyside beach area show various social activities and spatial characters that can be categorized in five main spatial typologies. These spatial typologies can still be applied in the proposed design as some activities are on-going still and popular in contemporary social life, including wandering about on landscape d stairs, eating in a dining room, playing sports in a field, etc. Additionally, these five spatial typologies have some characters in common. The spatial character of natural circumstance appears in all five spatial typologies; the intimate material application (the use of wood, for example)can be able to be found in the Broadway and Dinning Room spatial typologies. These spatial character similarities not only can be referenced in specific parts of building design, but also can be summarized as the architectural design philosophy of these two sites. Actually, this philosophy is a bridge connecting Sunnyside local culture/history to new architectural space / new urban social life.

Spatial and Programmatic Walls Typologies

Based on the land use and program studies discussed, there are six main programs in this project: sport facility, restaurant, food market, retail outlet, bookstore, and gallery. This following analysis explores the potential to transform architectural elements from these programs into space and addresses a new definition in interior boundaries.

In the contemporary Big Data era, computers and the Internet are widely used in people's everyday lives. The Google searching is a key, contemporary cultural activity, which this thesis is exploring in a slightly humorous way as a reflect on of this current reality.

Sports Facilities

These images are among the first-page results of searching “sports facility” on Google Image.

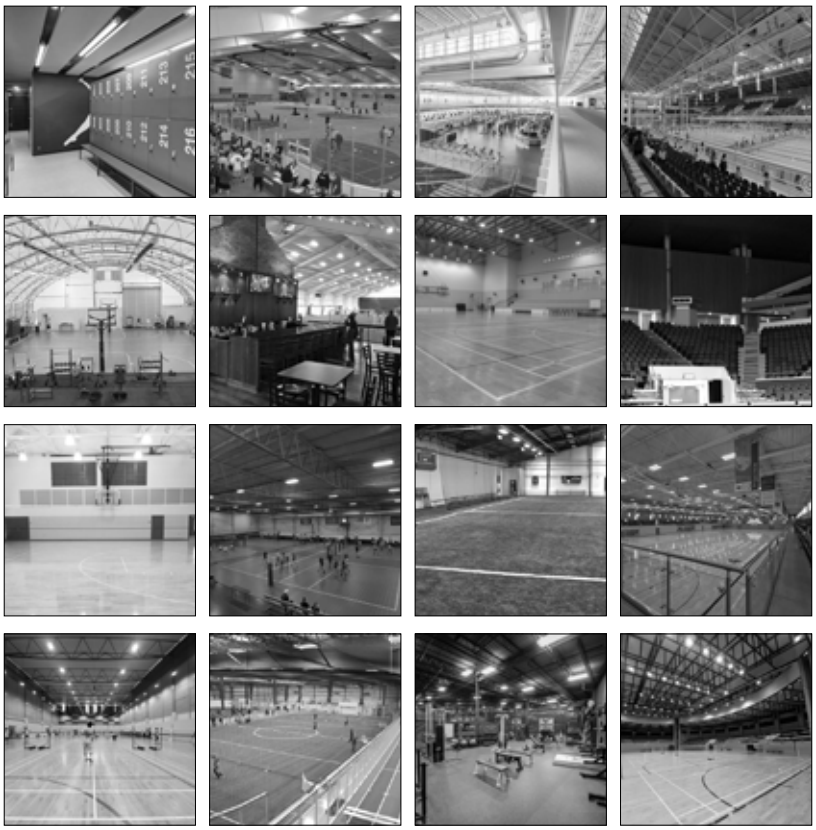


Figure 93: The results of Google Image “Sports facilities” search

Figure 94: Programmatic elements

Among the above images, lockers and seats appear frequently, which shows the functional requirements of storage and sitting in sports facilities.

New Space Discovered in Sports Facilities

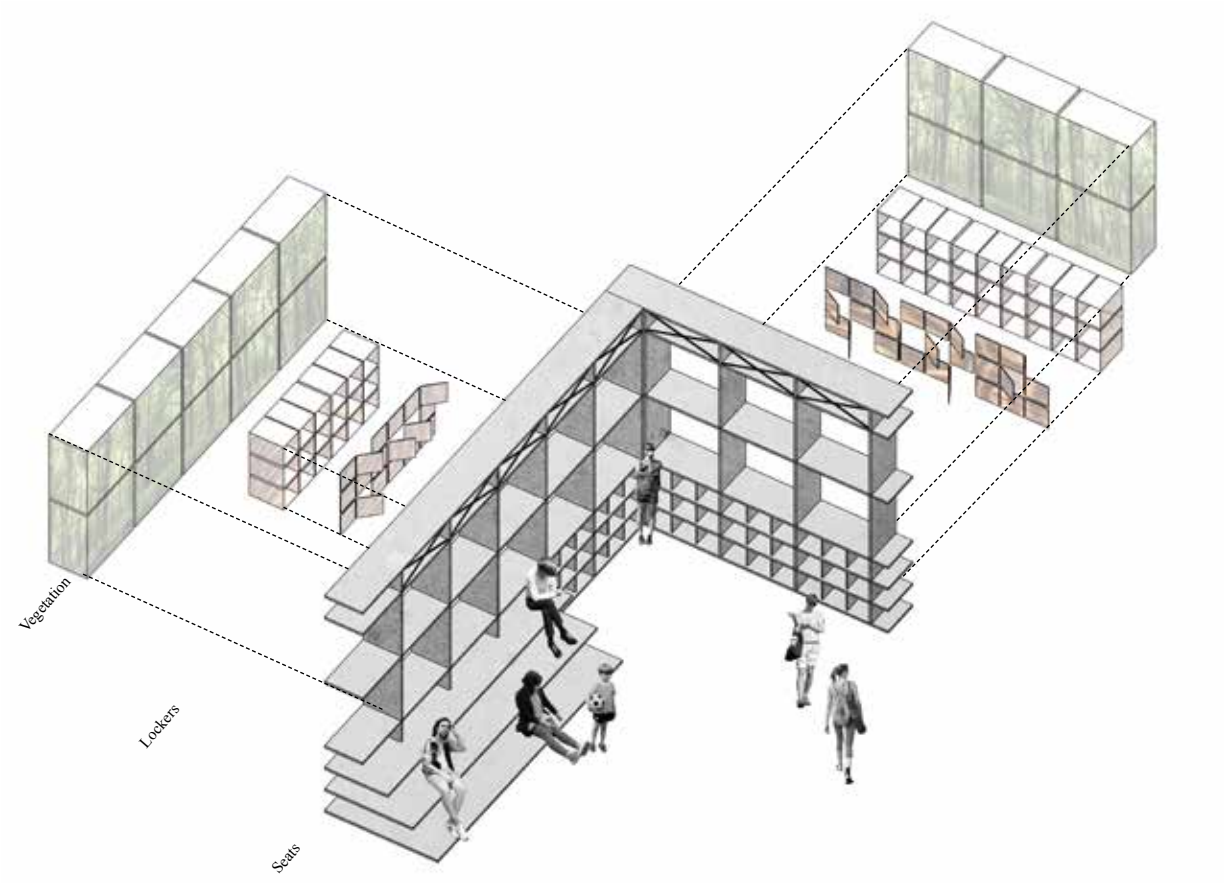


Figure 95: New space discovered in sports facilities

Sports facilities are proposed in the building on the west site. The above drawing shows how walls in the sports facilities are combined with programmatic elements - lockers and seats. With this combination, interior boundaries - walls between rooms - are eliminated as static space dividers and replaced as expanded functional space.

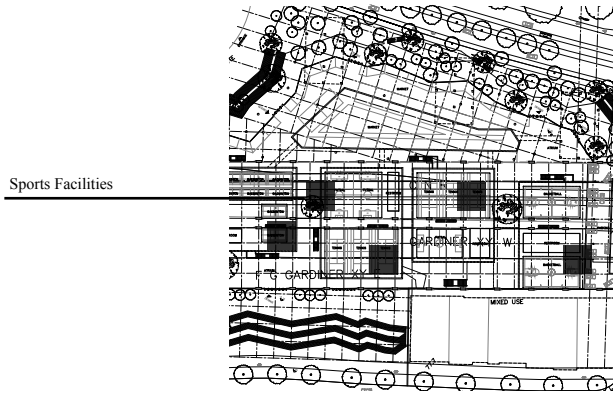


Figure 96: the legend of above space on the west site

Restaurants

These images are among the first-page results of searching “restaurant” on Google Image.

Figure 97: The results of Google Image “Restaurants” search

Chairs Tables Wine Shelves

Figure 98: Programmatic elements

Among the above images, chairs, tables, and wine shelves appear frequently, which shows the functional requirements of eating and storage in restaurants.

New Space Discovered in Restaurants

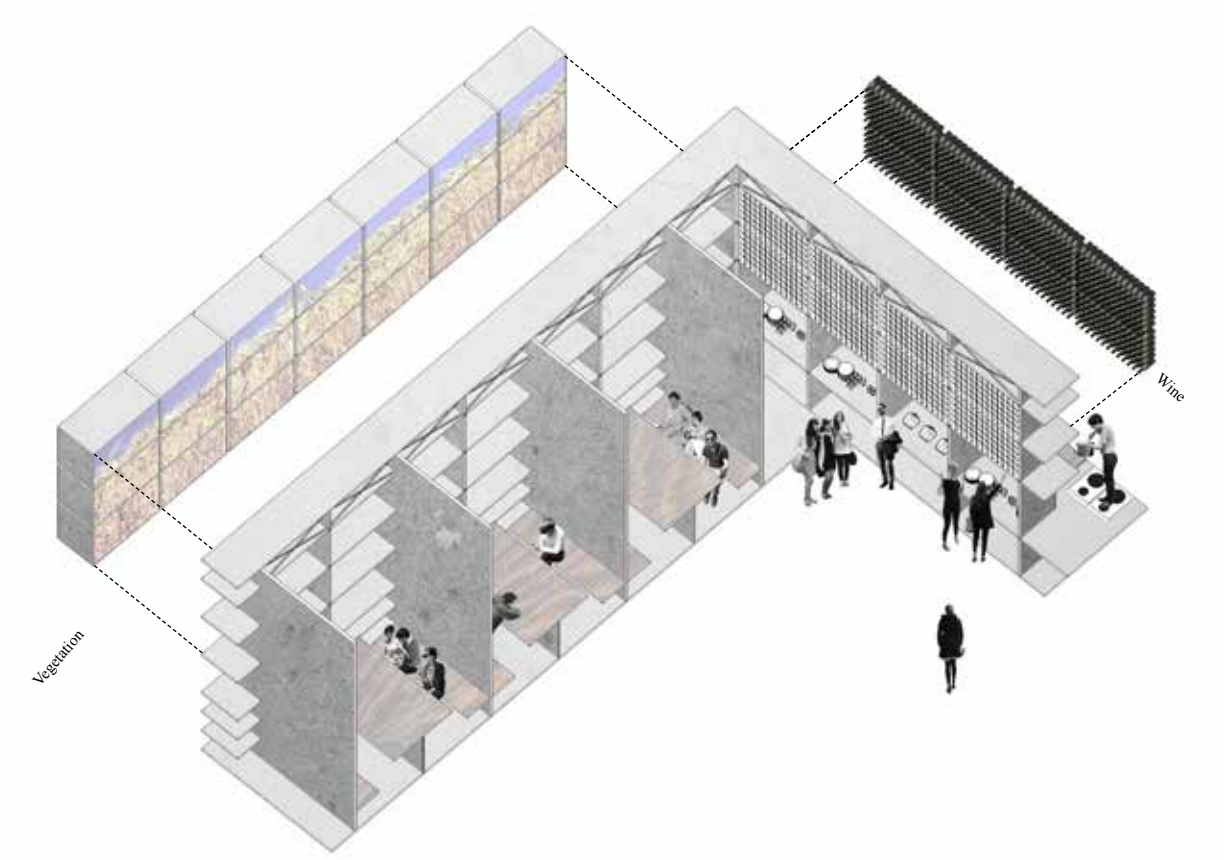


Figure 99: New space discovered in restaurants

Restaurants are proposed in the building on the west site. The above drawing shows how walls in restaurants are combined with programmatic elements - chairs, tables, and wine shelves. With this combination, interior boundaries - walls between rooms - are eliminated as static space dividers and replaced as expanded functional space.

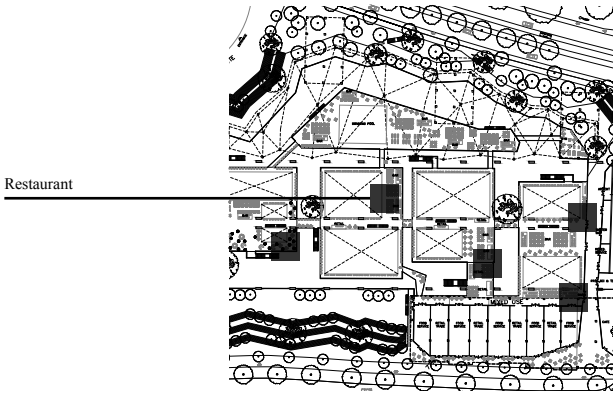


Figure 100: the legend of above space on the west site

Food Markets

These images are among the first-page results of searching "food markets" on Google Image. Food shelves are the most frequently found items in these images.

Figure 101: The results of Google Image "Food markets" search

Food Shelves

Figure 102: Programmatic elements

Among the above images, food shelves appear frequently, which shows the functional requirements of storage in food markets.

New Space Discovered in Food Markets

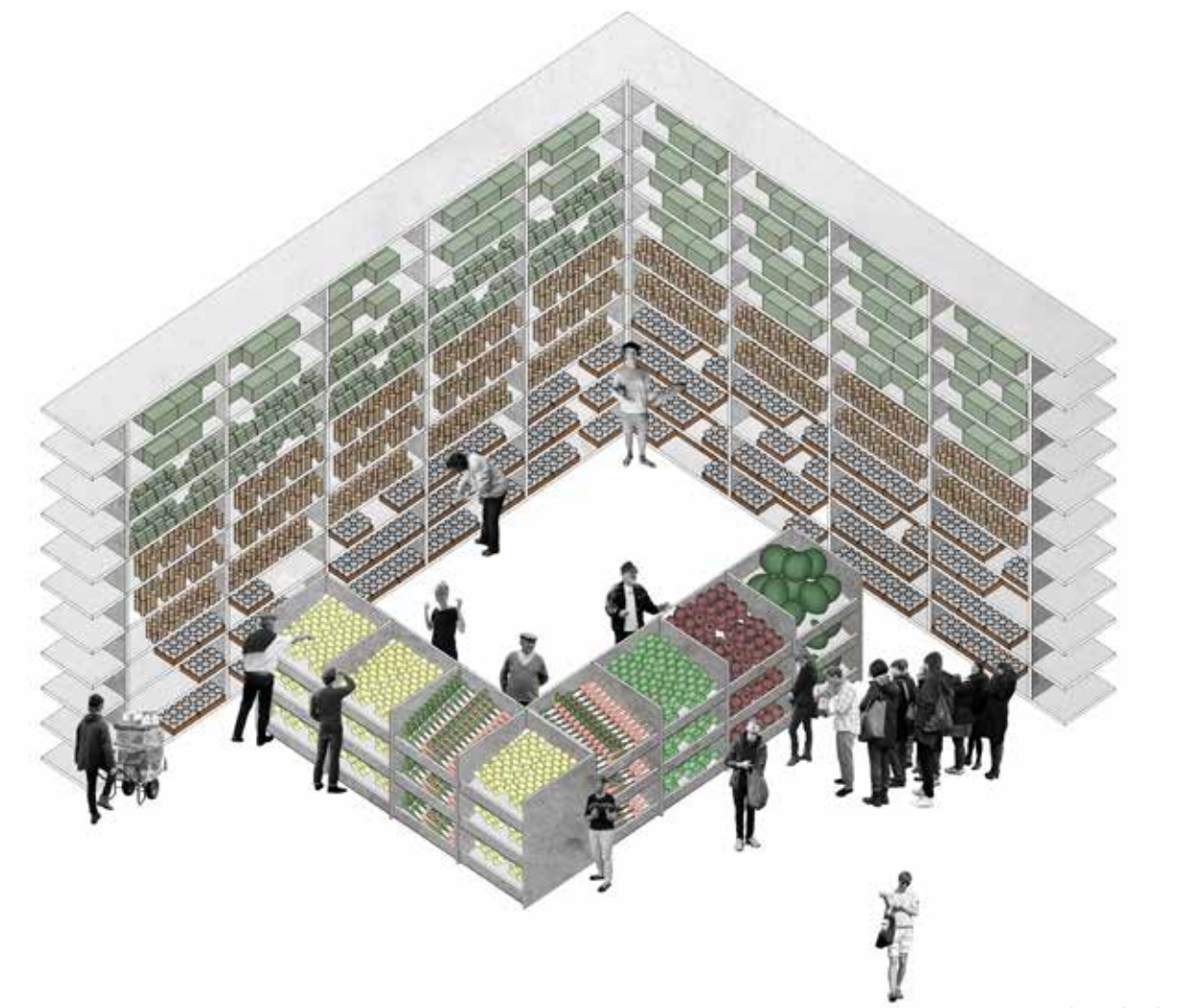


Figure 103: New Space Discovered in Food Markets

Food markets are proposed in the building on the west site. The above drawing shows how walls in the food markets are combined with programmatic elements - food shelves. With this combination, interior boundaries - walls between rooms - are eliminated as static space dividers and replaced as expanded functional space.

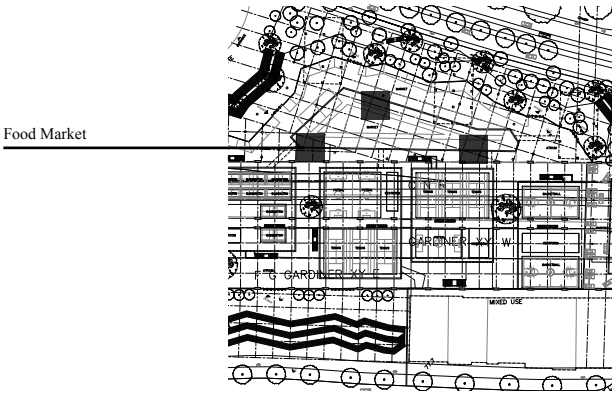


Figure 104: the legend of above space on the west site

Retail Stores

These images are among the first-page results of searching “retail stores” on Google Image. The cloth shelves, shoe shelves, and display shelves are frequently found in these images.

Figure 105: The results of Google Image “Retail stores” search

Cloth shelves Shoe shelves Display shelves

Figure 106: Programmatic elements

Among the above images, cloth shelves, shoe shelves, and display shelves appear frequently, which shows the functional requirements of storage and display in retail stores.

New Space Discovered in Retail Stores

Figure 107: New Space Discovered in Retail Stores

Retail stores are proposed in the building on the east site. The above drawing shows how walls in the retail stores are combined with programmatic elements - cloth shelves, shoe shelves and display shelves. With this combination, interior boundaries - walls between rooms - are eliminated as static space dividers and replaced as expanded functional space.

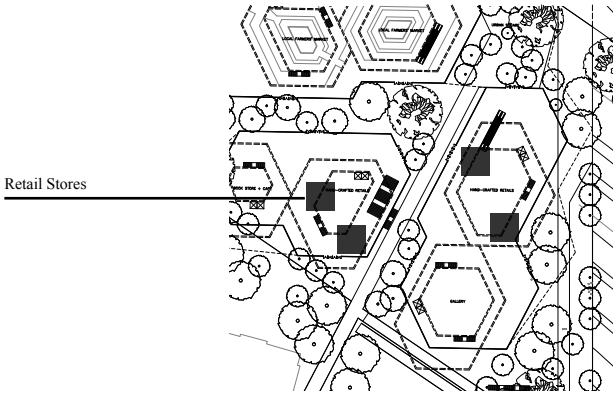
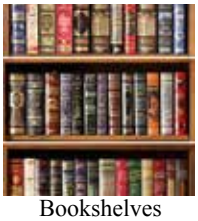


Figure 108: the legend of above space on the east site

Bookstores

These images are among the first-page results of searching “bookstores” on Google Image. Book shelves are the most frequently found items in these images.

Figure 109: The results of Google Image “Bookstores” search



Bookshelves

Figure 110: Programmatic elements

Among the above images, bookshelves appear frequently, which shows the functional requirements of eating and storage in bookstores.

New Space Discovered in Bookstores

Figure 111: New Space Discovered in Bookstores

Bookstores are proposed in the building on the west site. The above drawing shows how walls in the bookstores are combined with programmatic elements - bookshelves. With this combination, interior boundaries - walls between rooms - are eliminated as static space dividers and replaced as expanded functional space.

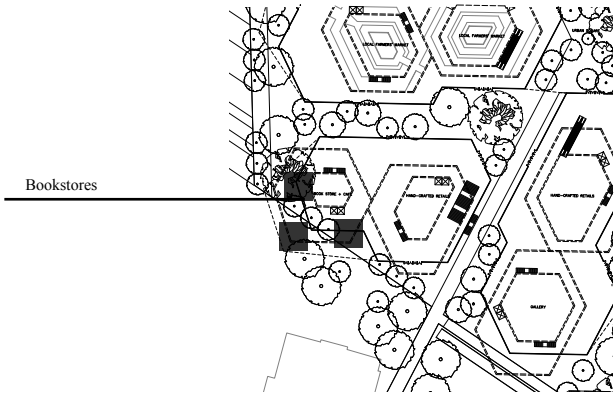


Figure 112: the legend of above space on the east site

Galleries

These images are among the first-page results of searching “galleries” on Google Image. Show walls and benches are frequently found in these images.

Figure 113: The results of Google Image “Galleries” search

Gallery walls Rest benches

Figure 114: Programmatic elements

Among the above images, gallery walls, and rest benches appear frequently, which shows the functional requirements of displaying and resting in galleries.

New Space Discovered in Galleries

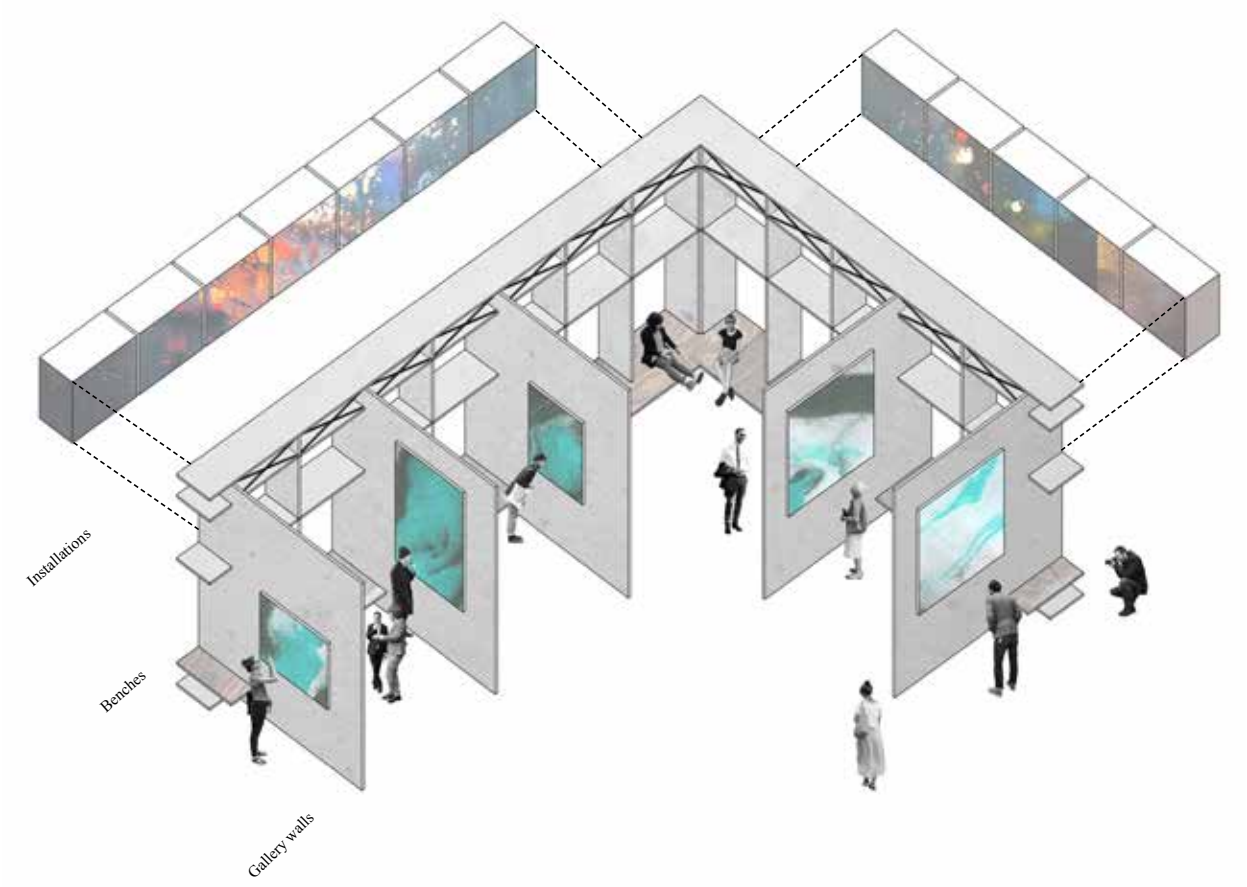


Figure 115: New Space Discovered in Galleries

Galleries are proposed in the building on the west site. The above drawing shows how walls in the galleries are combined with programmatic elements - gallery walls and rest benches. With this combination, interior boundaries - walls between rooms - are eliminated as static space dividers and replaced as expanded functional space.

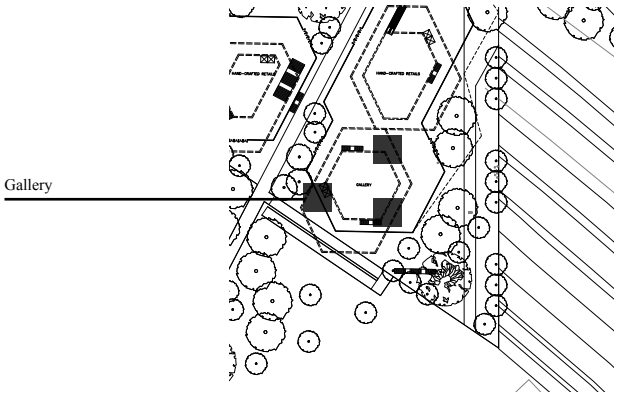


Figure 116: the legend of above space on the east site

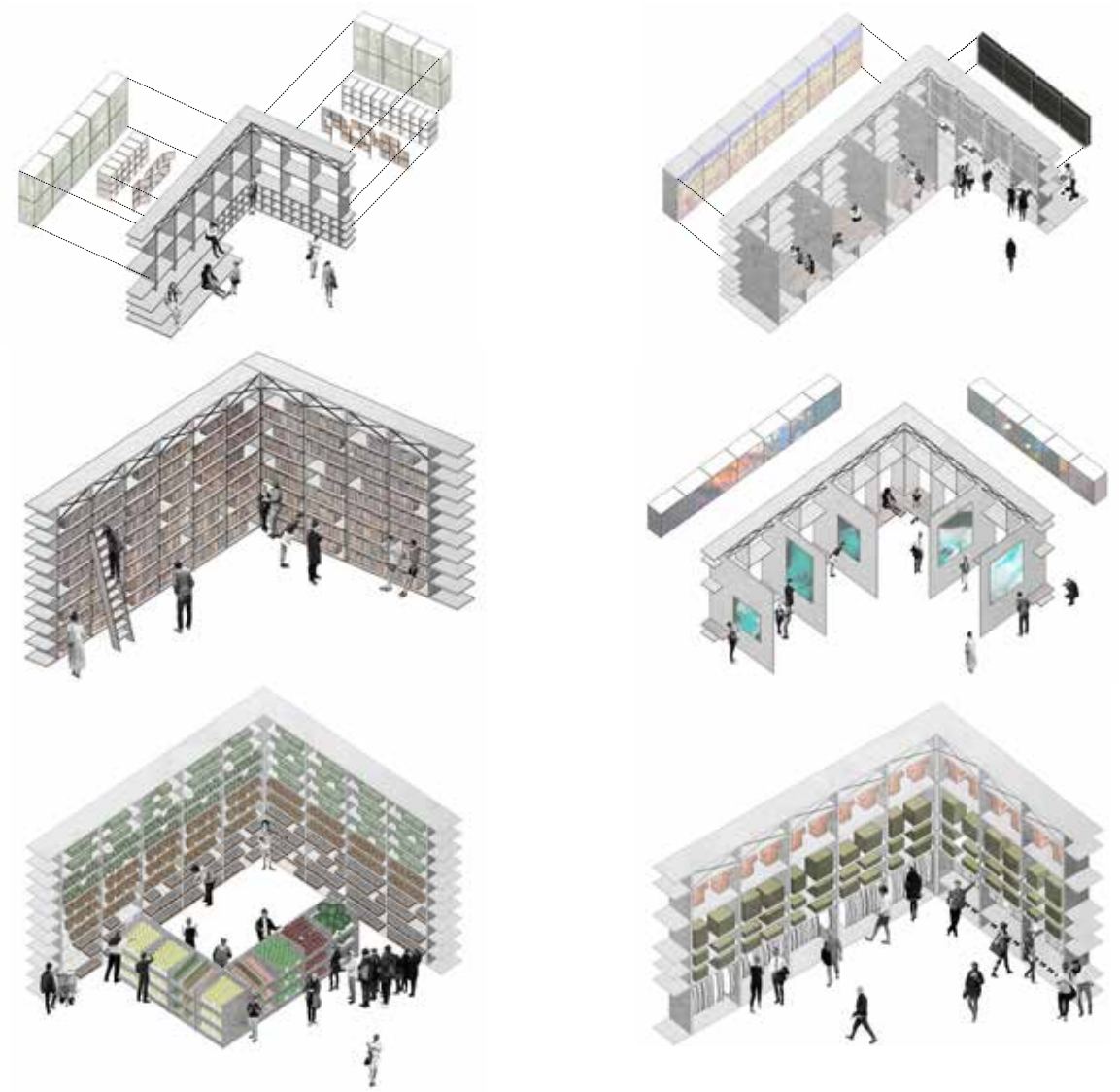


Figure 117: Six spatial and programmatic walls typologies
Walls are transformed as functional spaces based on the programs of rooms, and interior physical and psychological boundaries do not exist in the proposed social programs, including those for sport facilities, restaurants, food markets, retail stores, bookstores and galleries.

Six Spatial and Programmatic Walls Typologies

Walls, basic architectural elements, are used as physical boundaries for separating rooms. For certain functional spaces with specific requirements like confidential meeting rooms and quiet studying rooms, walls as physical and psychological boundaries are absolutely necessary. However, the use of walls to separate are in more socially functional space like galleries, restaurants, or food markets is more like a result of architectural unconsciousness.

In this part, walls are not considered as normal architectural elements. Instead, walls are transformed as functional spaces based on the programs of rooms, and interior physical and psychological boundaries do not exist in the proposed social programs, including those for sport facilities, restaurants, food markets, retail stores, bookstores and galleries.

05 Design Proposals

5.1 Exploded Architectural Elemental Layers of Two Sites
5.2 The Conceptual Sections of the Two Sites
5.3 Site Plans
5.4 Plans
5.5 Site Sections
5.6 Renderings

Based on the results of former four parts, the last part shows the drawings of the two design proposals on the west and east sites.

Exploded Architectural Elemental Layers of West Site

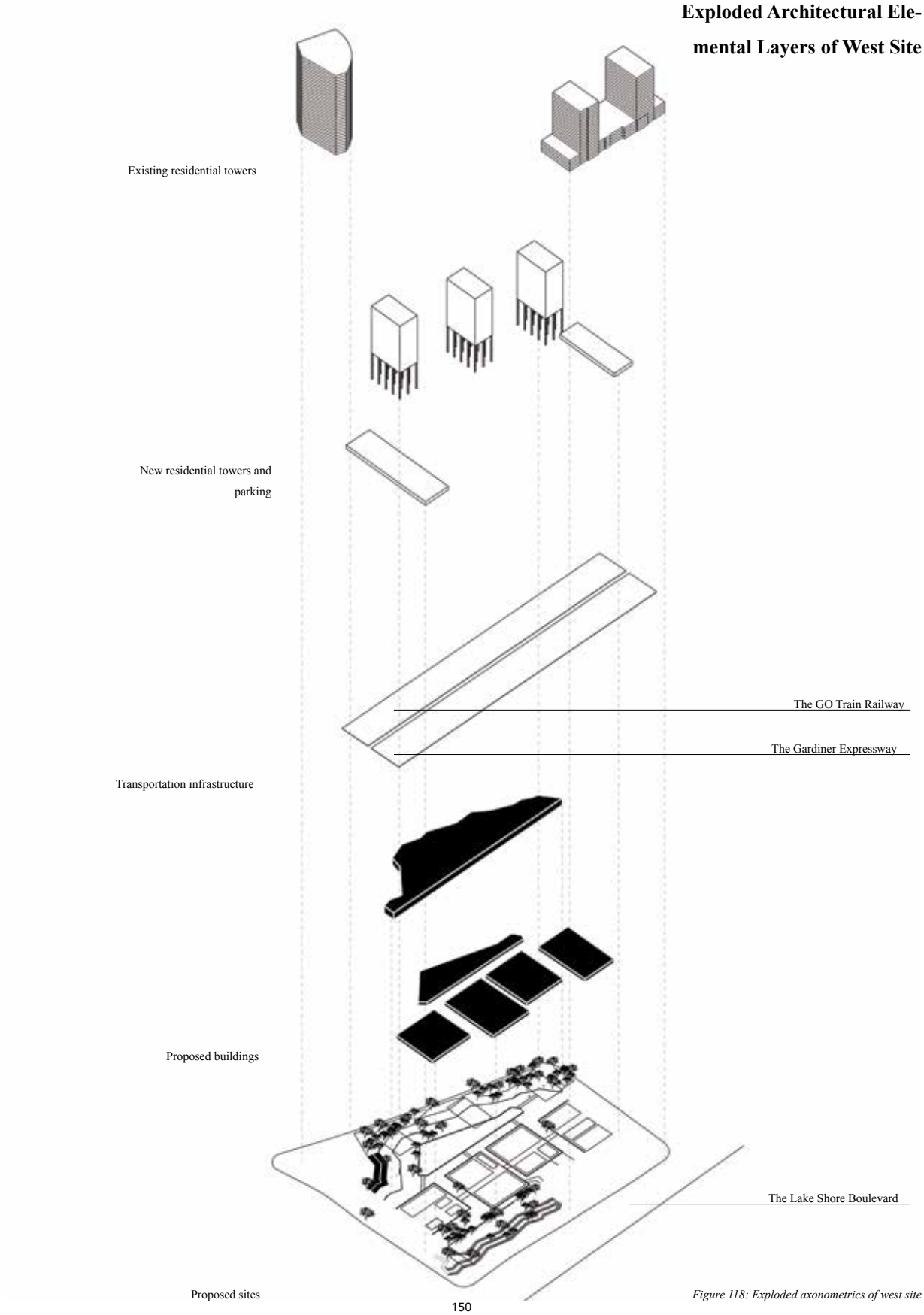
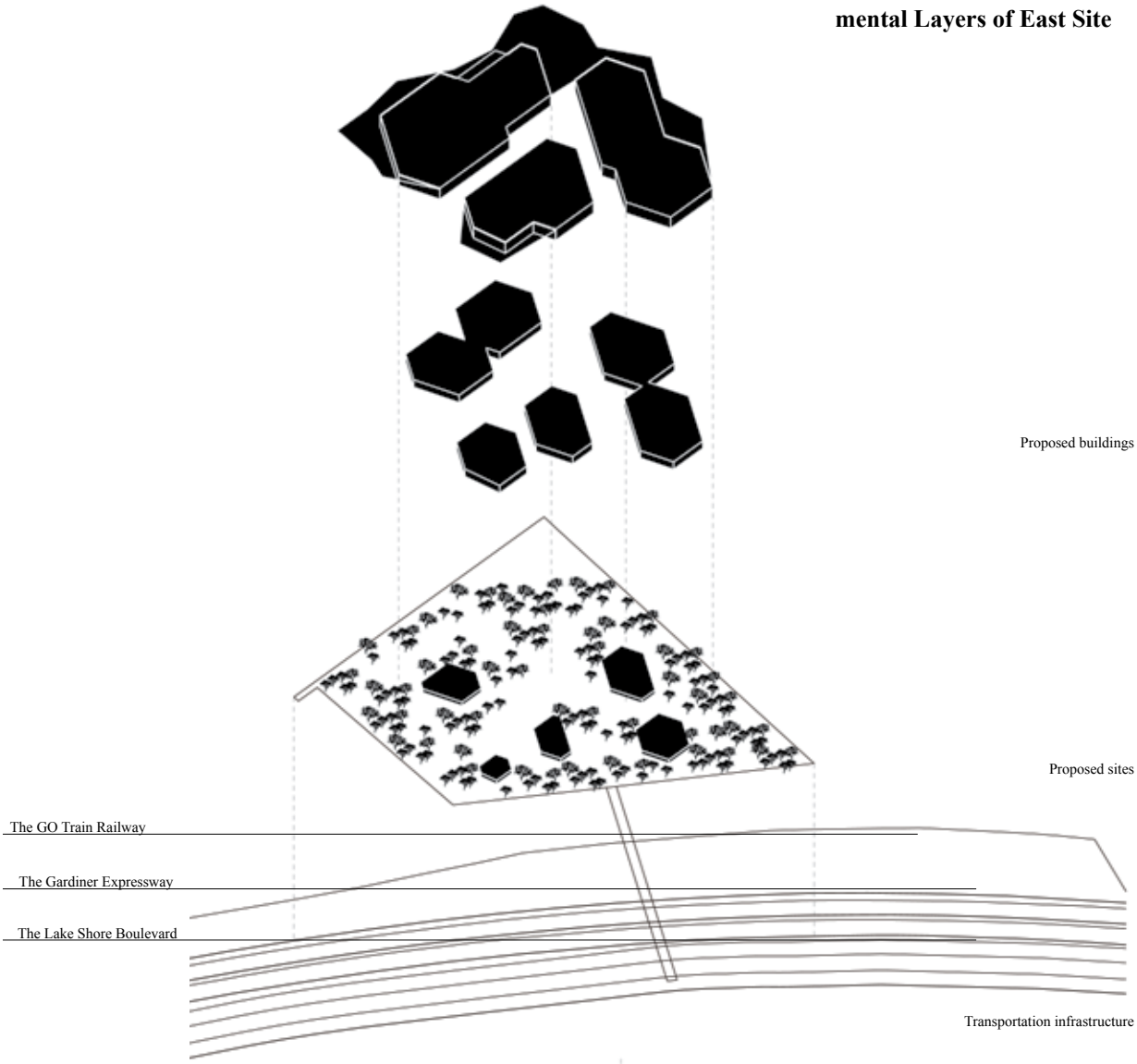


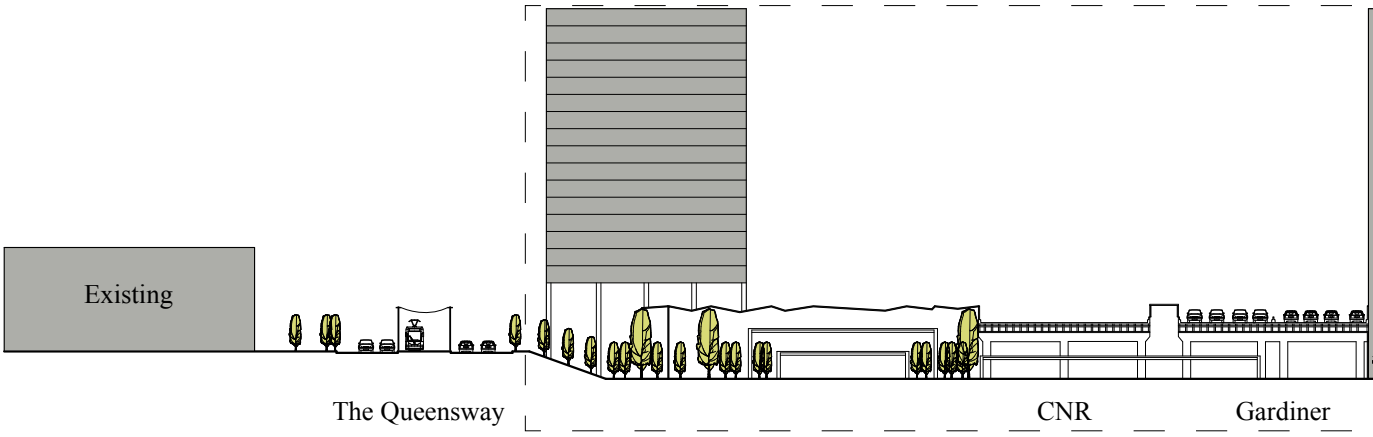
Figure 118: Exploded axonometrics of west site

Exploded Architectural Elemental Layers of East Site



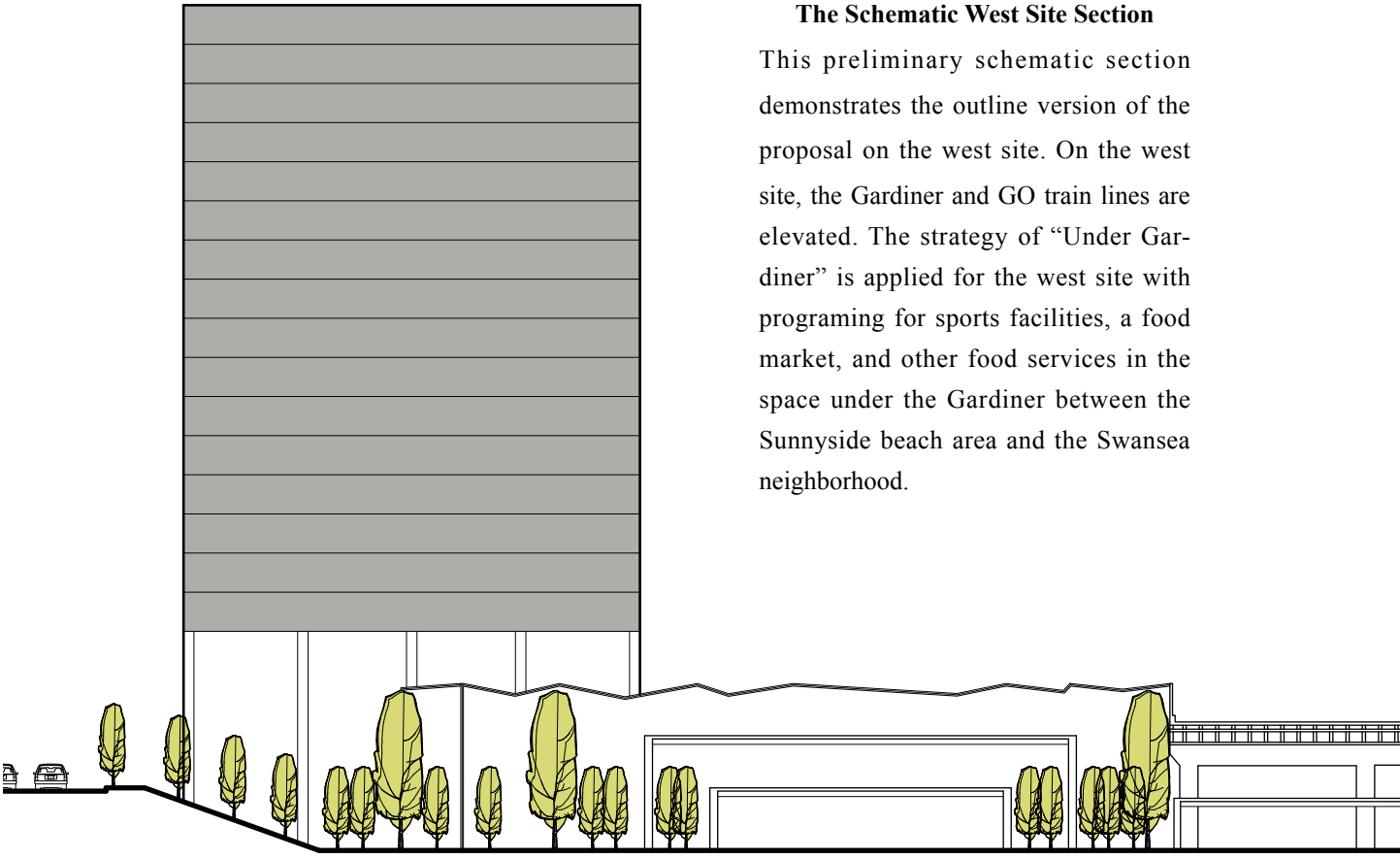
The Sunnyside beach area in Toronto is isolated by the Gardiner Expressway from the neighborhoods of Swansea, Sunnyside, Roncesvalles Village, and Parkdale. The elevation relationships between the Gardiner and its surroundings are different. On the west site, the Gardiner and GO train lines are elevated; on the east site the Gardiner, Lake Shore Boulevard, and GO train lines are sunken below the general grade of the neighborhood. These different topographic conditions contribute to the selection of prototype strategies: traversing underneath the infrastructure on the west site and bridging over the infrastructure on the east site.

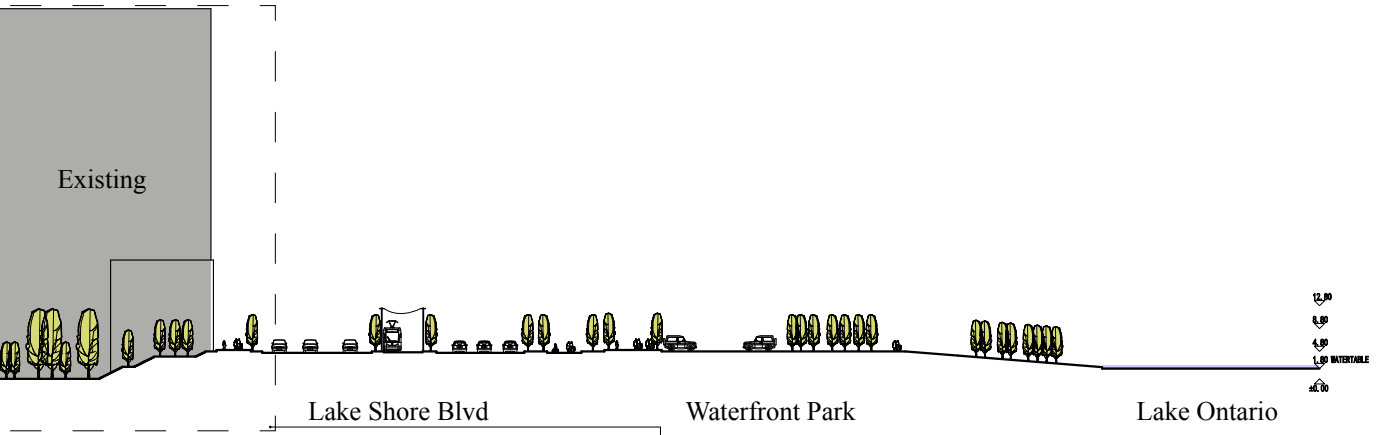
Figure 119: Exploded axonometrics of east site

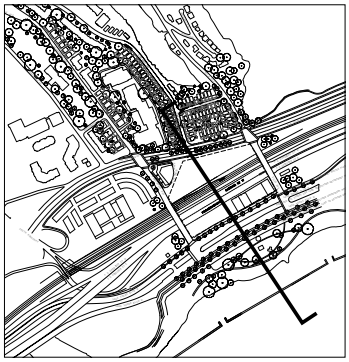


The Schematic West Site Section

This preliminary schematic section demonstrates the outline version of the proposal on the west site. On the west site, the Gardiner and GO train lines are elevated. The strategy of "Under Gardiner" is applied for the west site with programing for sports facilities, a food market, and other food services in the space under the Gardiner between the Sunnyside beach area and the Swansea neighborhood.

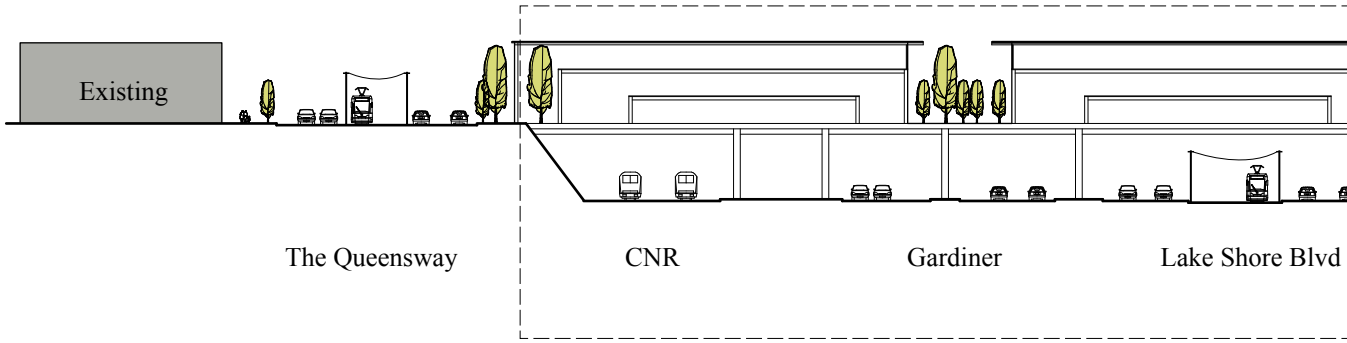


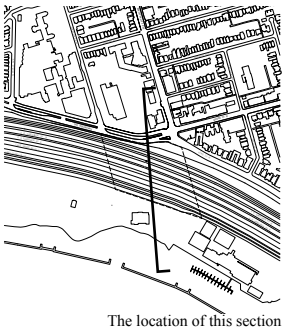




The location of this section

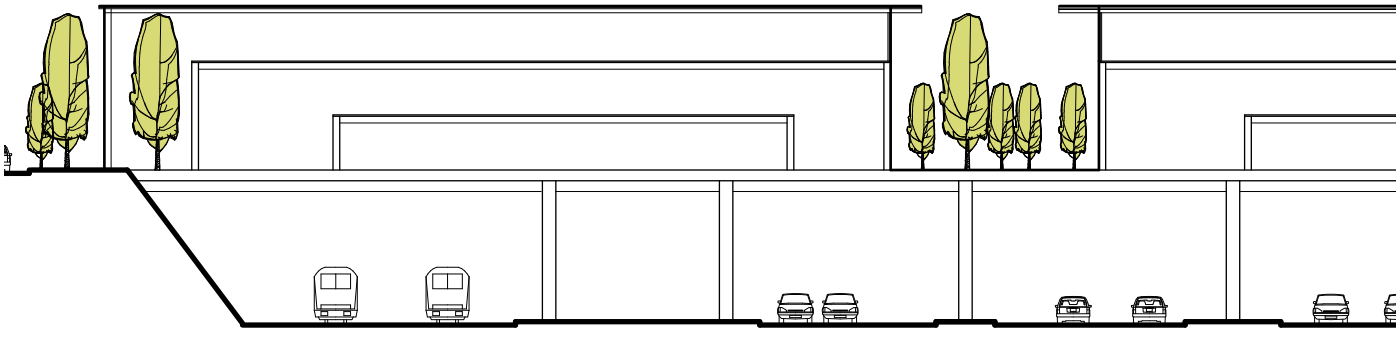
Figure 120 : The conceptual section of the west site

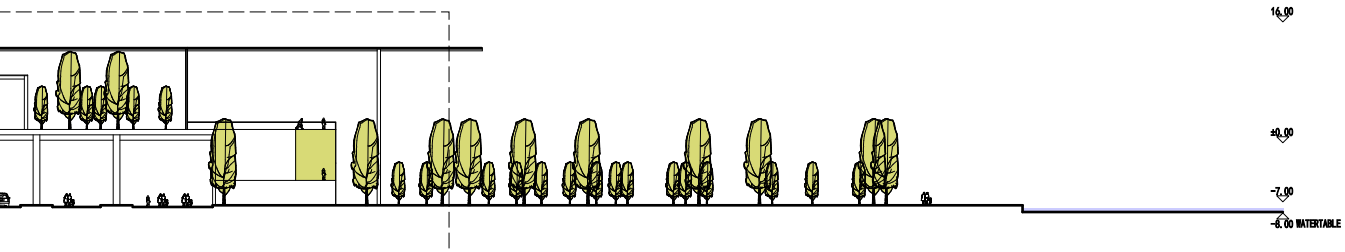



The location of this section

The Schematic East Site Sections

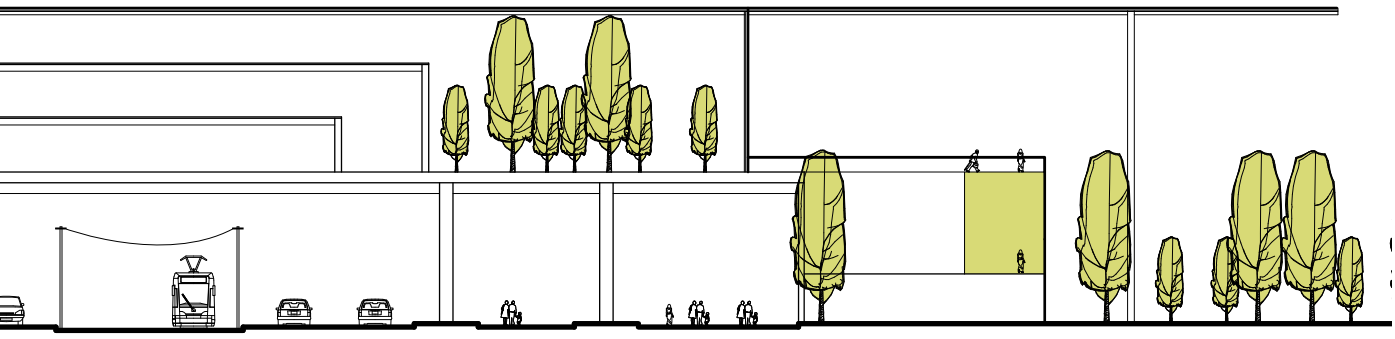
This preliminary schematic section demonstrates the outline version of the proposal on the west site. The strategy of "Above Gardiner" is applied for the east site with bridging and programming for a food market, galleries, and retail stores above the Gardiner between the Sunnyside beach area and the Sunnyside, Roncesvalles Village, and Parkdale neighborhoods.





Waterfront Park

Lake Ontario

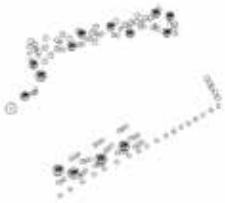


Lake Shore Blvd

Figure 121: The conceptual section of the east site

Layer-Vehicular zone

This layer shows the vehicular zones, which are also borders of site. It is the border where people start to enter this site.



Layer-Landscape

This layer shows vegetation environment/trees next to the vehicular zones.

Layer-Stairs between streets and buildings

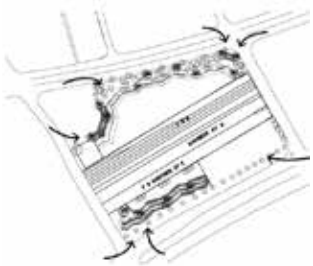
This layer shows stairs and sloped landscape that solve the different level issue.

Layer-Building interfaces

This layer shows outlines of the canopy and building envelopes. It illustrates the gray space under the canopy and outside envelopes.

West site plan

This layer shows the result of overlapping all three layers, the vehicular zone, landscape, Stairs and building interfaces, to create a fascinating atmosphere to attract people from streets.



Site entrance streams

This layer shows the places where people would enter this site.

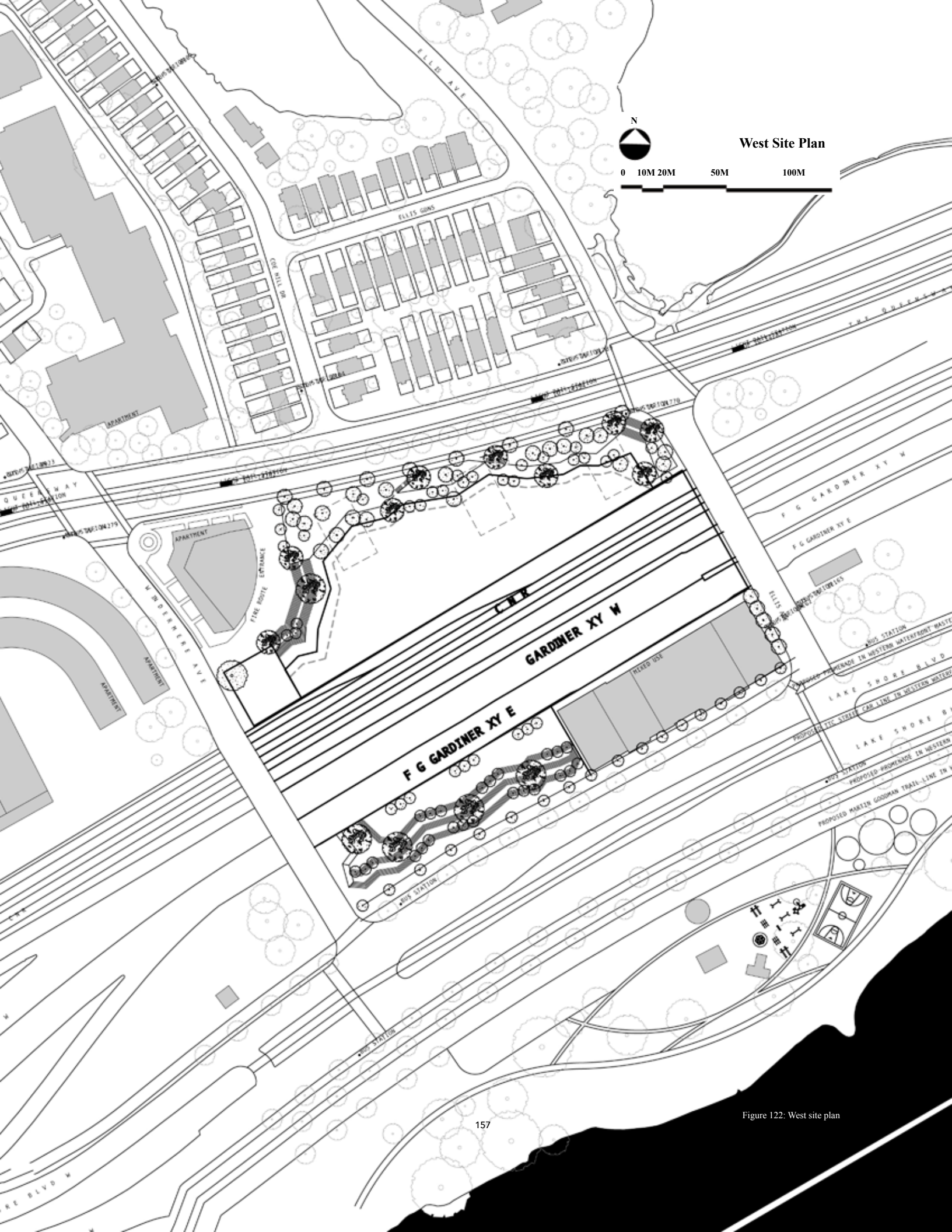
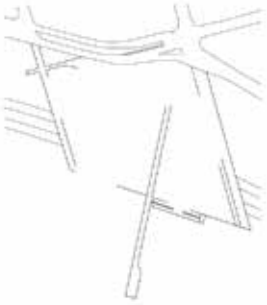


Figure 122: West site plan



Layer-Vehicular zone

This layer shows the vehicular zones, which are also borders of site. It is the border where people start to enter this site.

Layer-Landscape

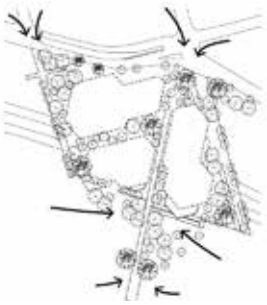
This layer shows vegetation environment/trees next to the vehicular zones.

Layer-Building interfaces

This layer shows outlines of the canopy and building envelopes. It illustrates the gray space under the canopy and outside envelopes.

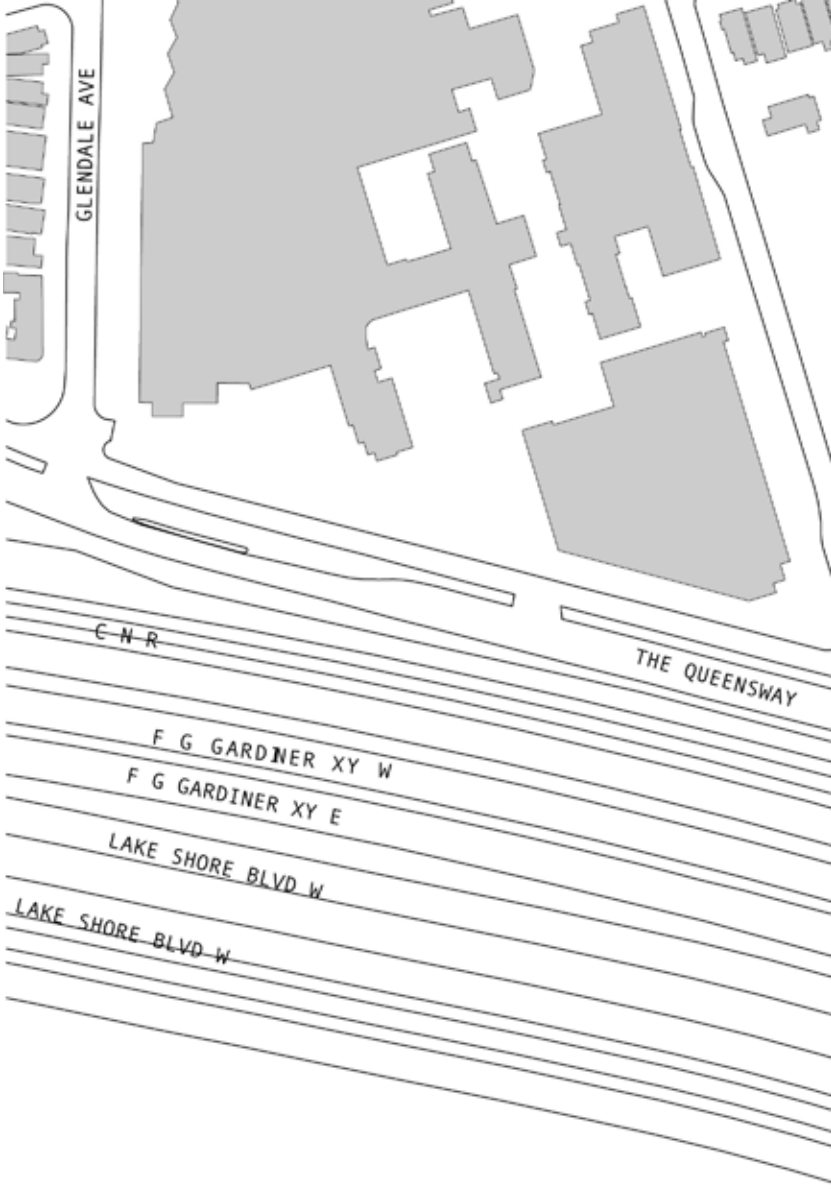
East site plan

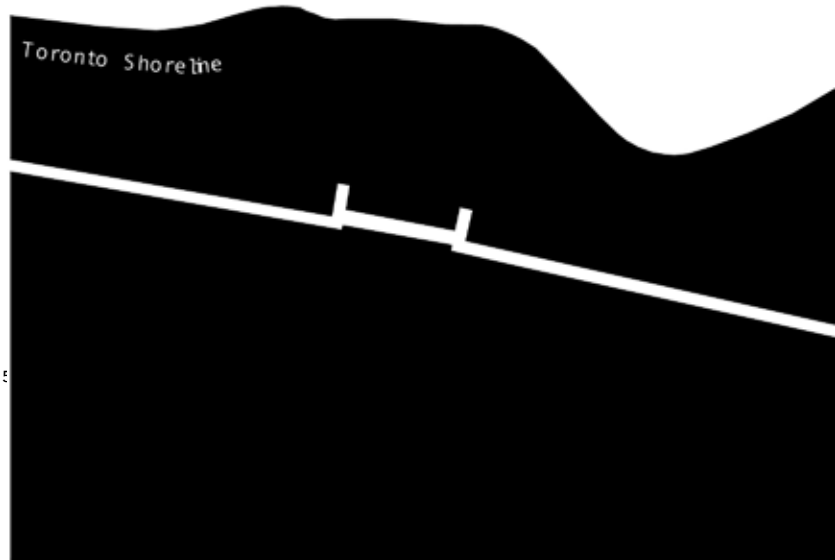
This layer shows the result of overlapping all three layers, the vehicular zone, landscape and building interfaces, to create a fascinating atmosphere to attract people from streets.



Site entrance streams

This layer shows the places where people would enter this site.





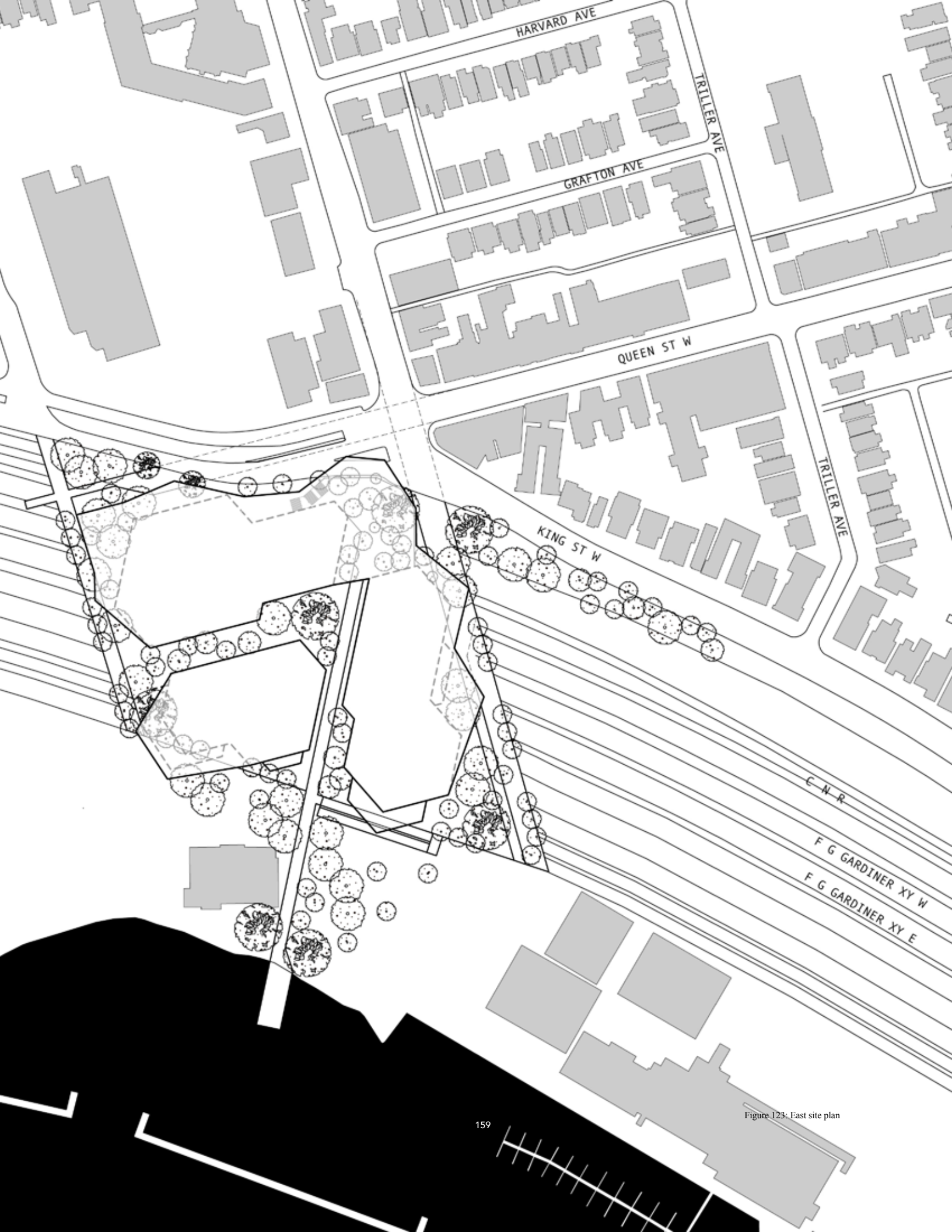


Figure 123: East site plan

01. Food service
02. Retail trade
03. Local service
04. Bar
05. Gym
06. Swimming pool

N

West Site Second Floor Plan
(Street Level/±0.00)

0 10M 20M 50M

Figure 124: West site second floor plan

01. Atrium
02. Restroom
03. Parking
04. Badminton courts
05. Soccer courts
06. Tennis courts
07. Basketball courts
08. Food Market
09. Outdoor gallery
10. Existing building

West Site First Floor Plan
(New Grade Level/-4.90)

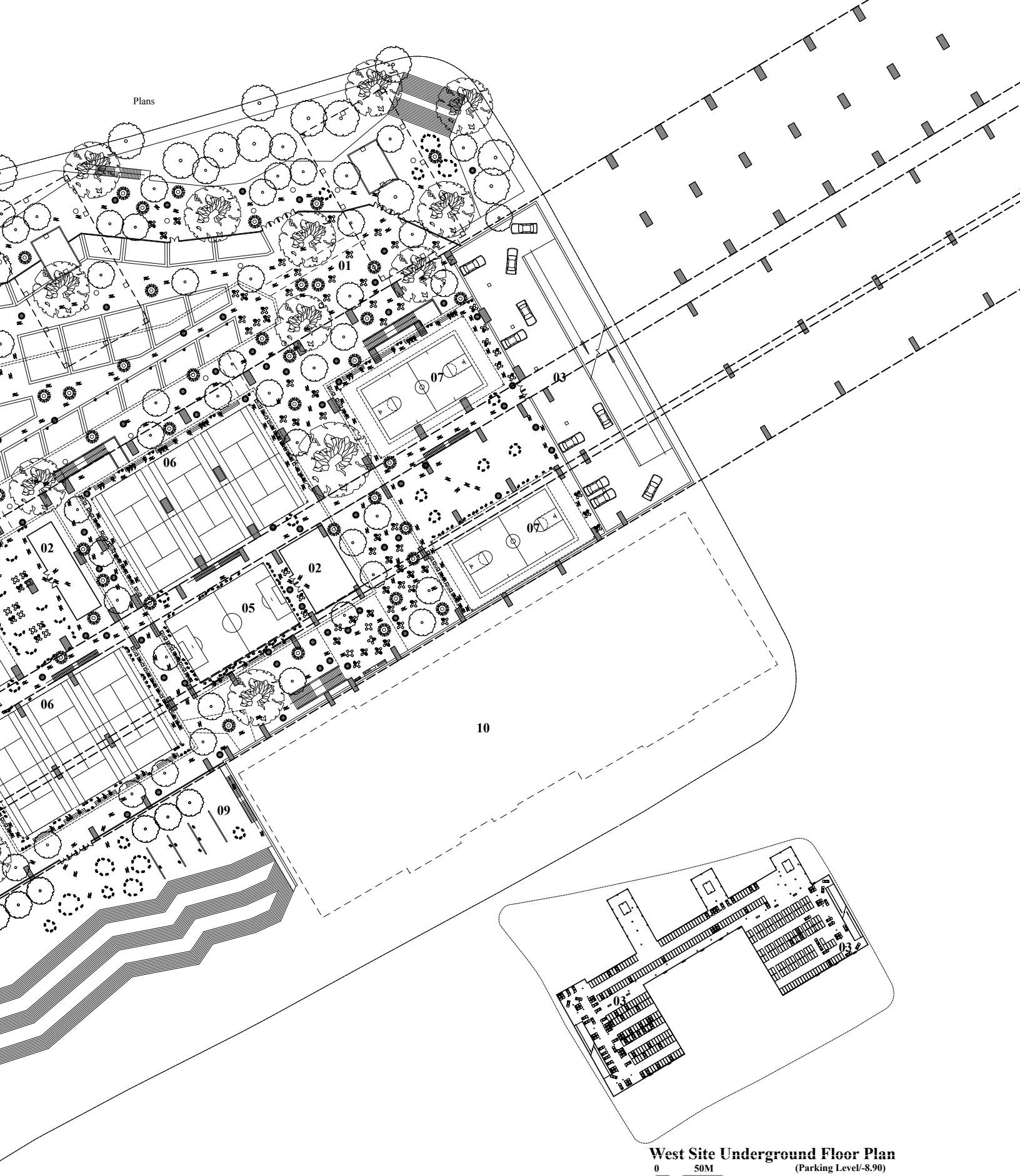
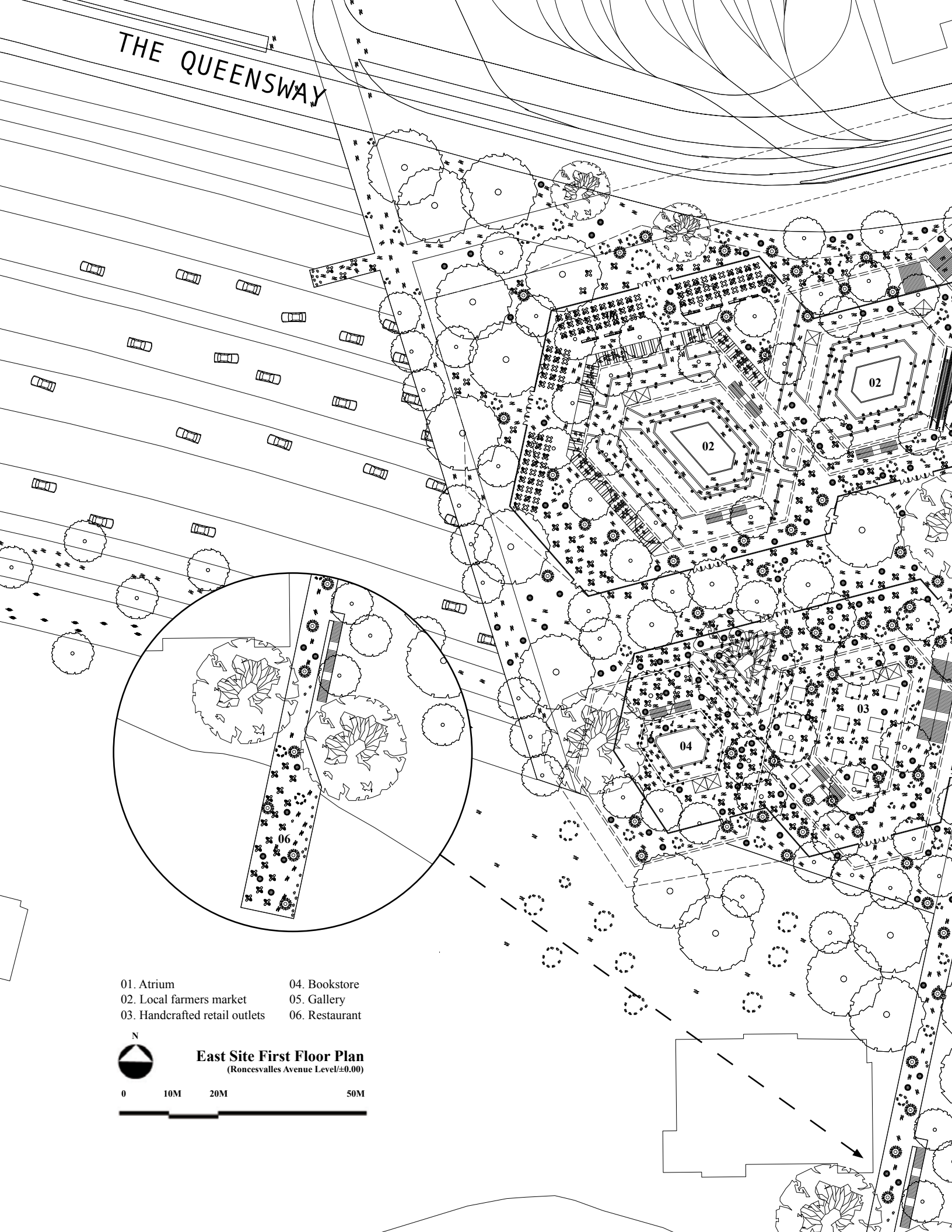


Figure 125: West site first and underground floor plans



01. Atrium
02. Local farmers market
03. Handcrafted retail outlets
04. Bookstore
05. Gallery
06. Restaurant

N

East Site First Floor Plan
(Roncesvalles Avenue Level/±0.00)

0 10M 20M 50M

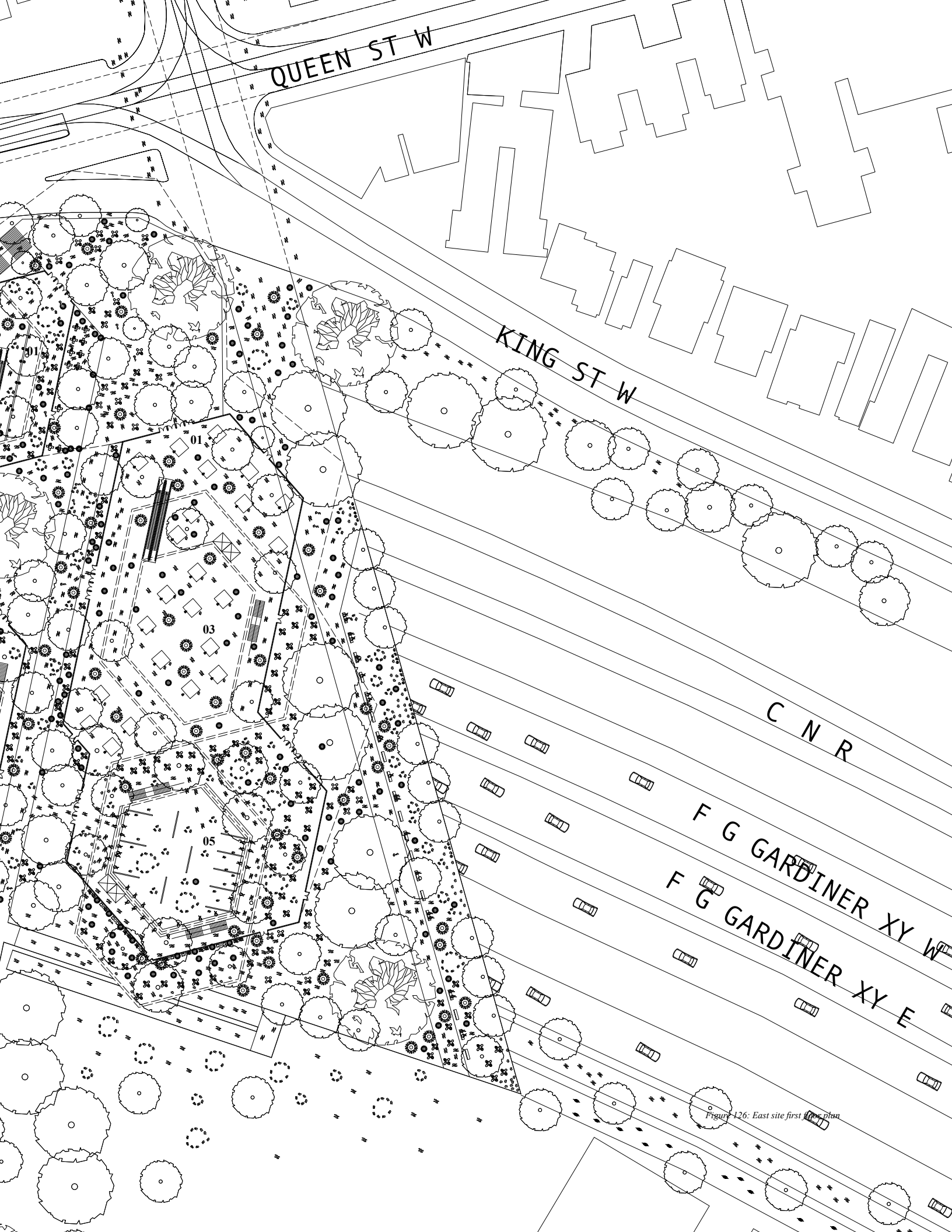
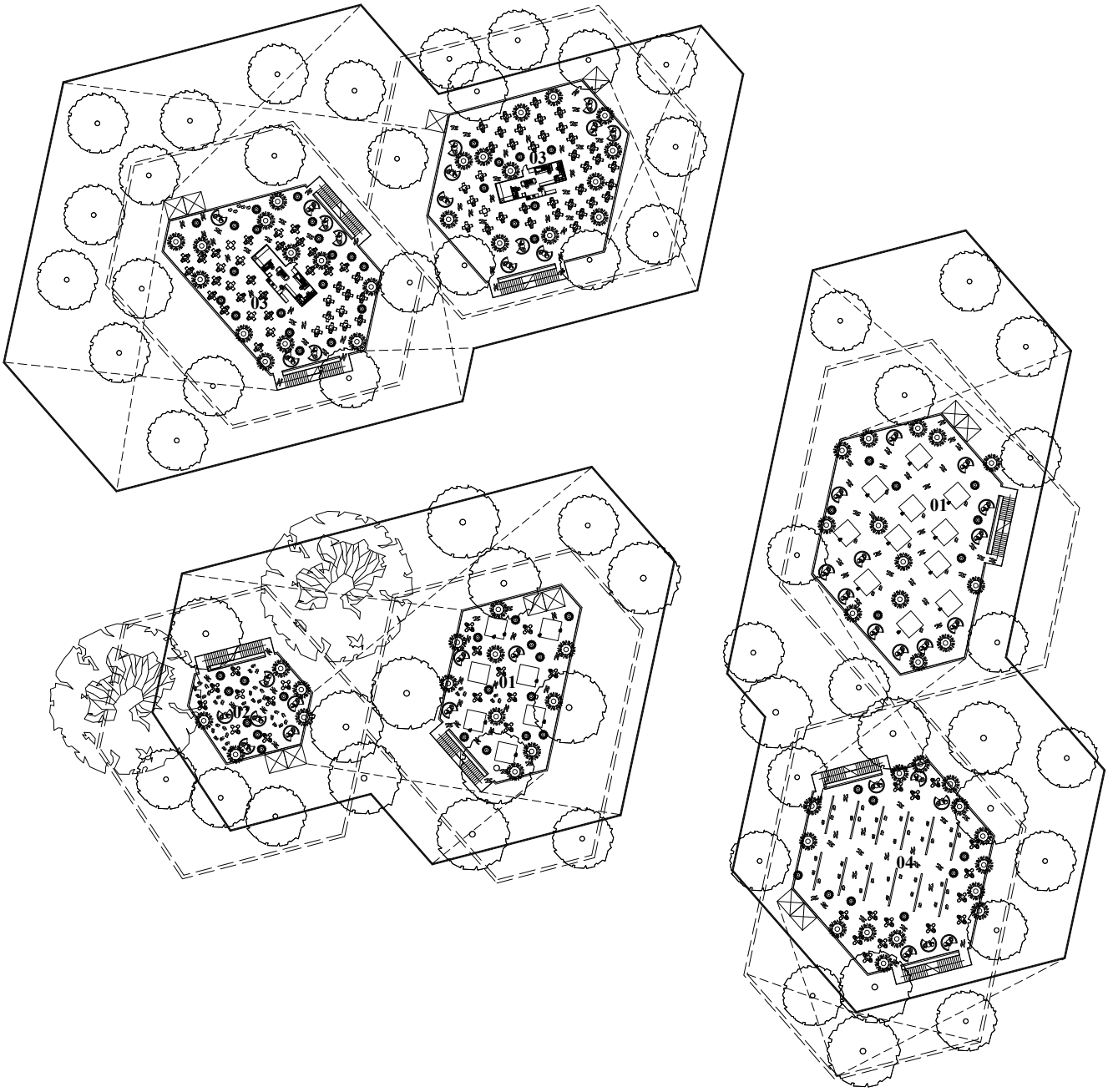


Figure 126: East site first floor plan



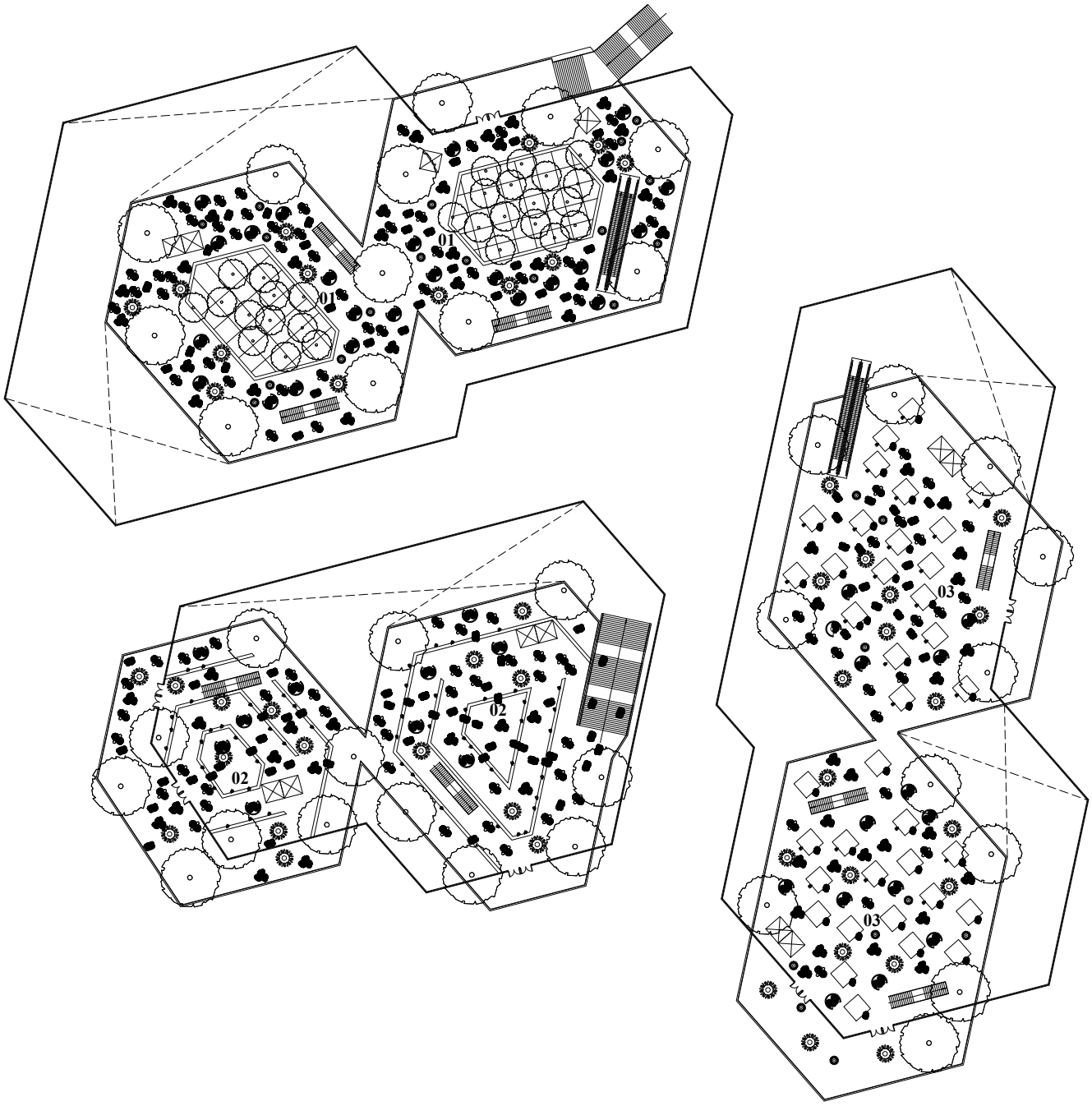
01. Handcrafted retail outlets
02. Bar
03. Restaurant
04. Gallery

N

East Site Second Floor Plan
(4.00)

0 10M 20M 50M

Figure 127: East site second floor plan



01. Farm education workshop
02. Bookstore
03. Handcrafted retail outlets

N

East Site Third Floor Plan
(8.00)

0 10M 20M 50M

Figure 128: East site third floor plan

Spatial and Programmatic Walls Typologies on the West Site

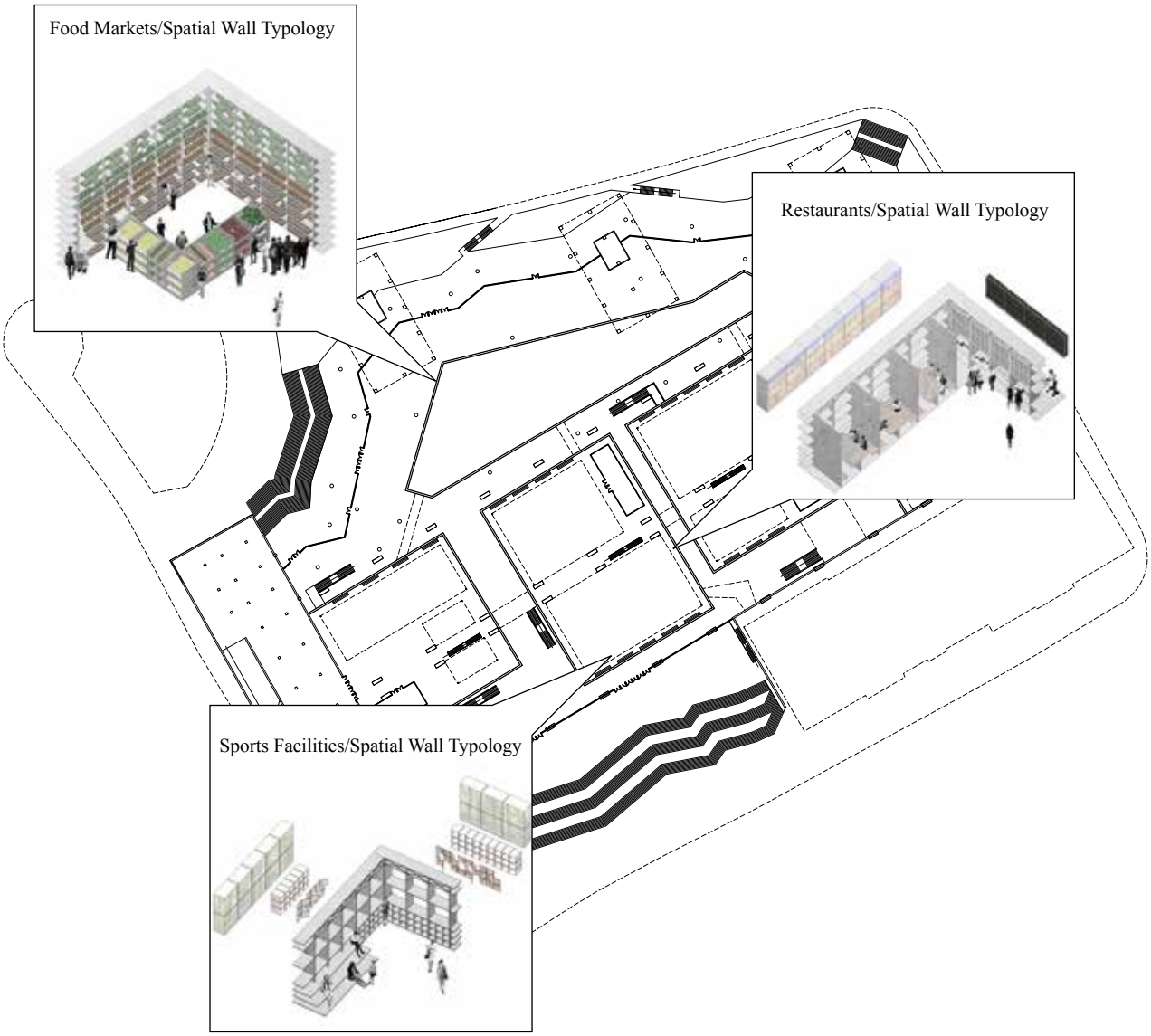


Figure 129: Spatial and programmatic walls typologies on the west site
Walls are transformed as functional spaces based on the programs of rooms, and interior physical and psychological boundaries do not exist in the proposed social programs, including those for sport facilities, restaurants, food markets, retail stores, bookstores and galleries.

Spatial Typologies Related to Programs/Activities on the West Site

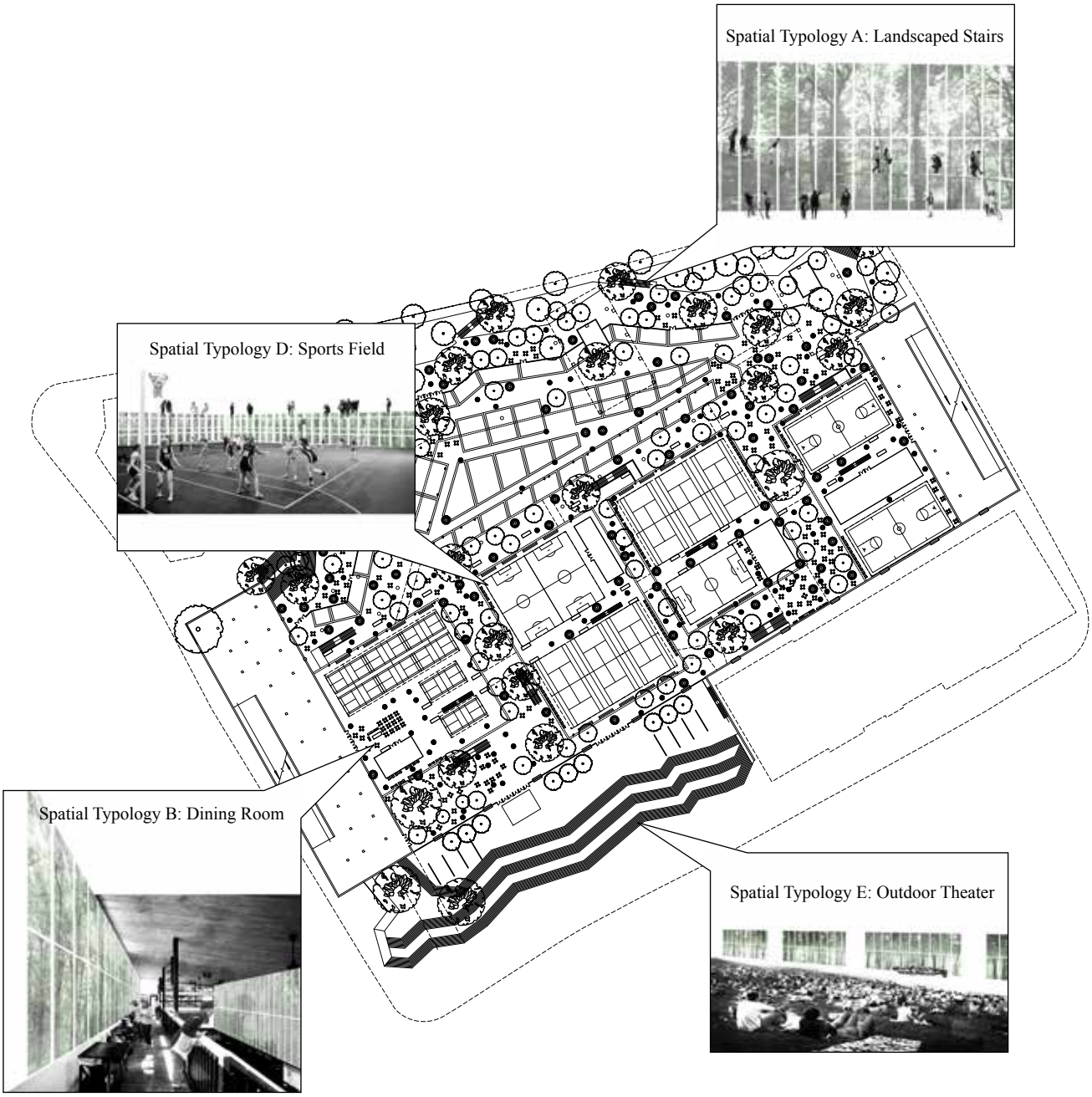


Figure 130: Spatial typologies related to programs / activities on the west site
These important former recreation scenarios in the Sunnyside beach area show various social activities and spatial characters that can be categorized in main spatial typologies.

Spatial and Programmatic Walls Typologies on the East Site

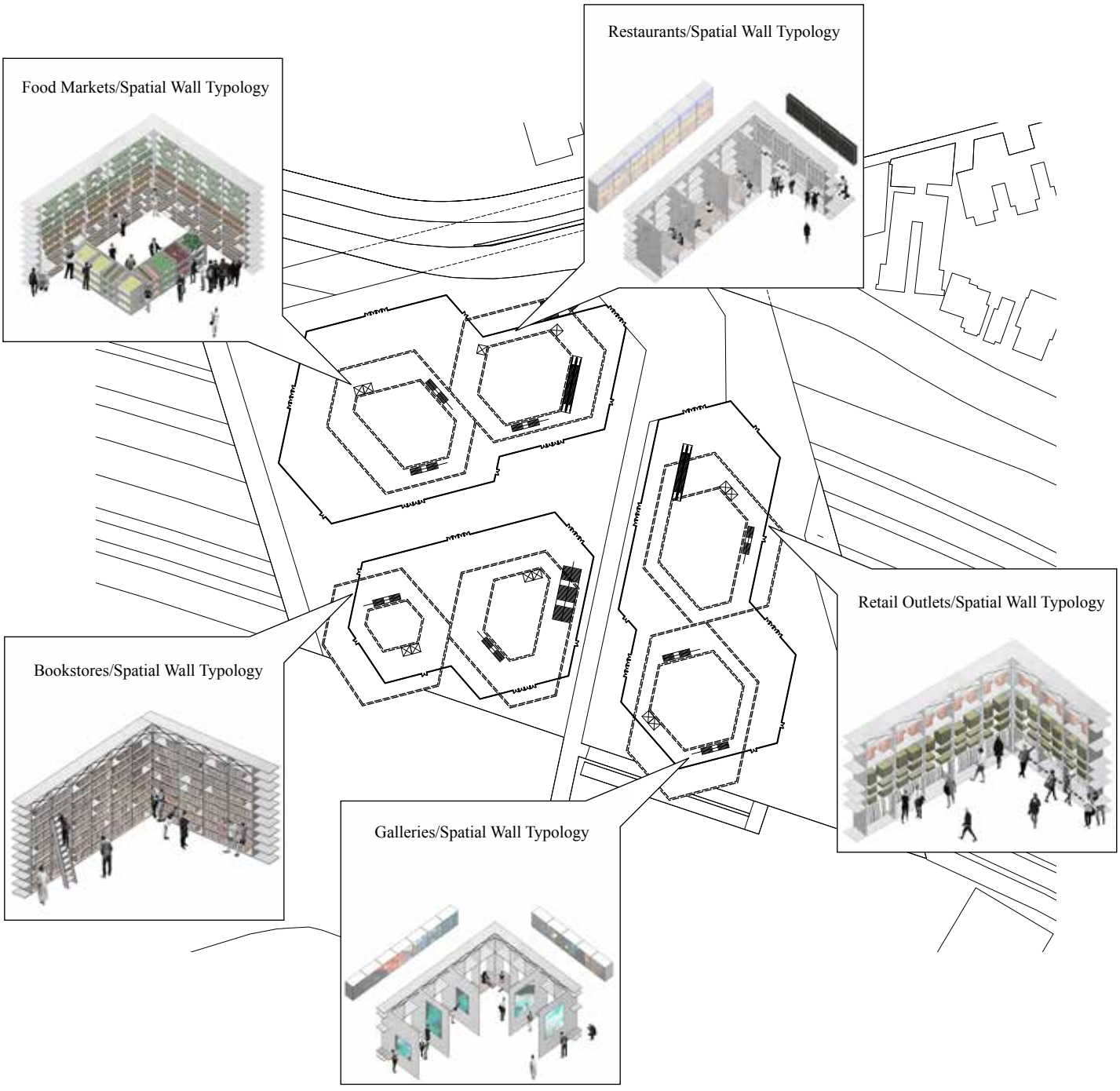


Figure 131: Spatial and programmatic walls typologies on the east site Walls are transformed as functional spaces based on the programs of rooms, and interior physical and psychological boundaries do not exist in the proposed social programs, including those for sport facilities, restaurants, food markets, retail stores, bookstores and galleries.

Spatial Typologies Related to Programs/Activities on the East Site

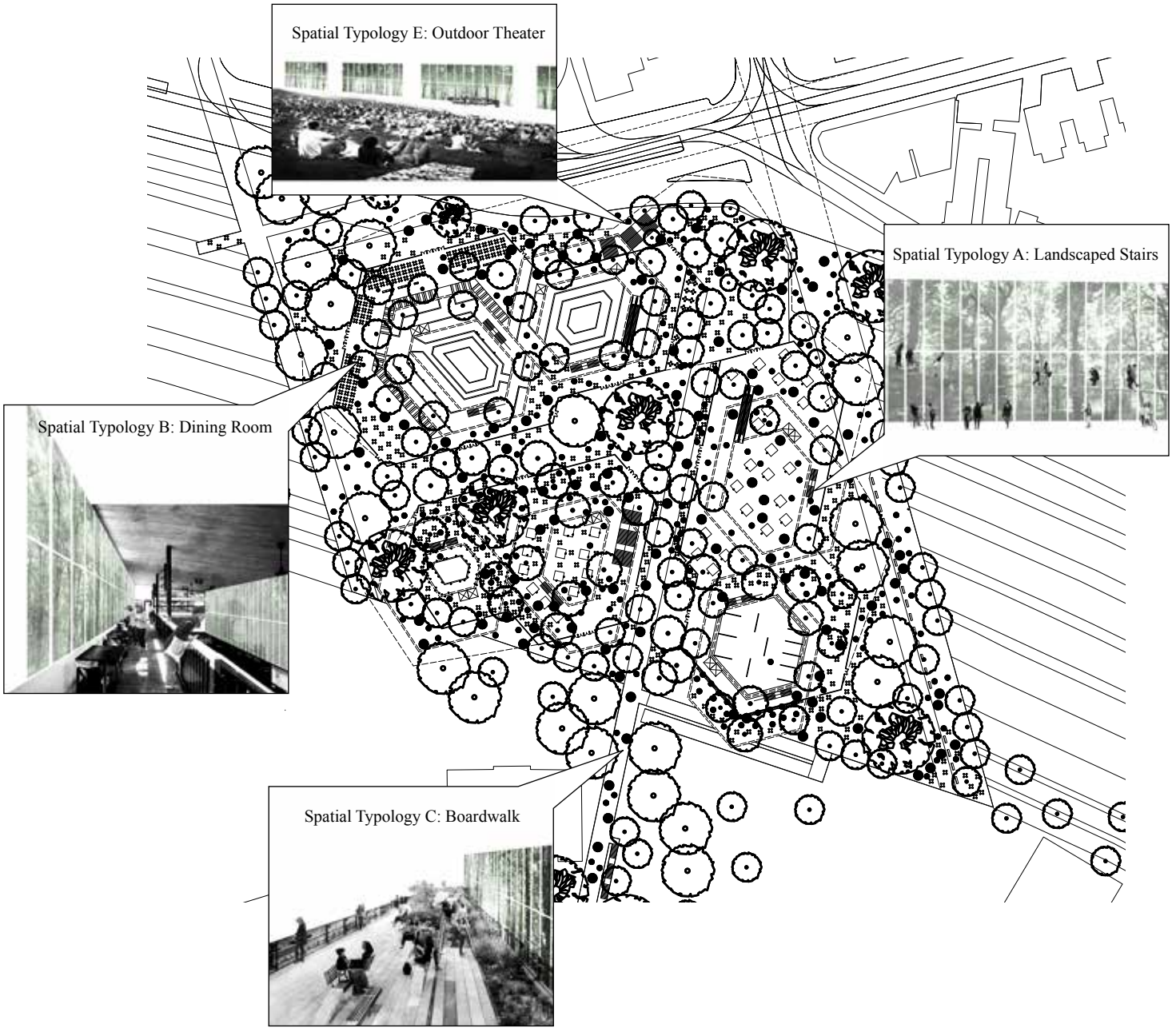
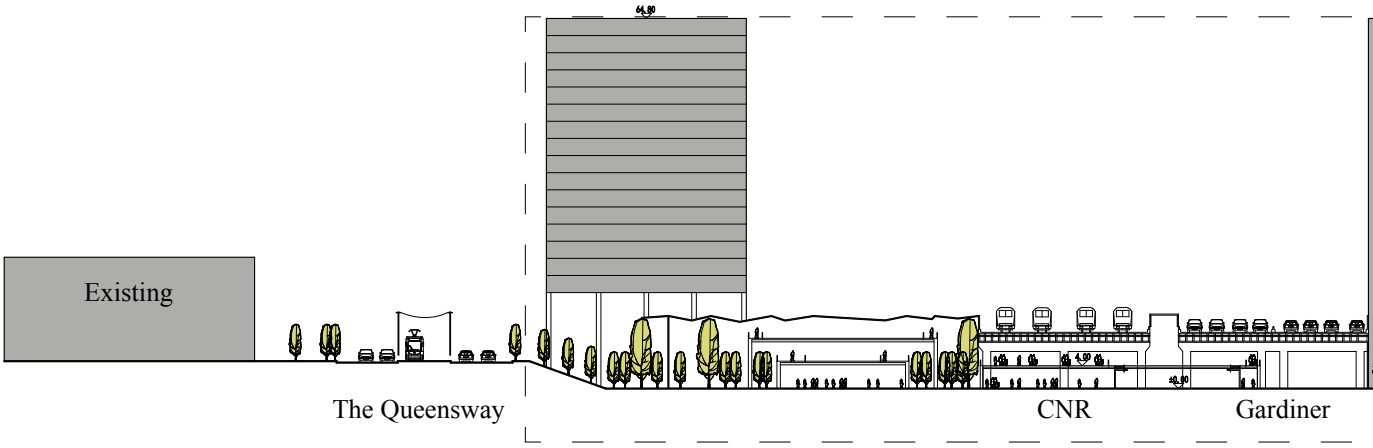
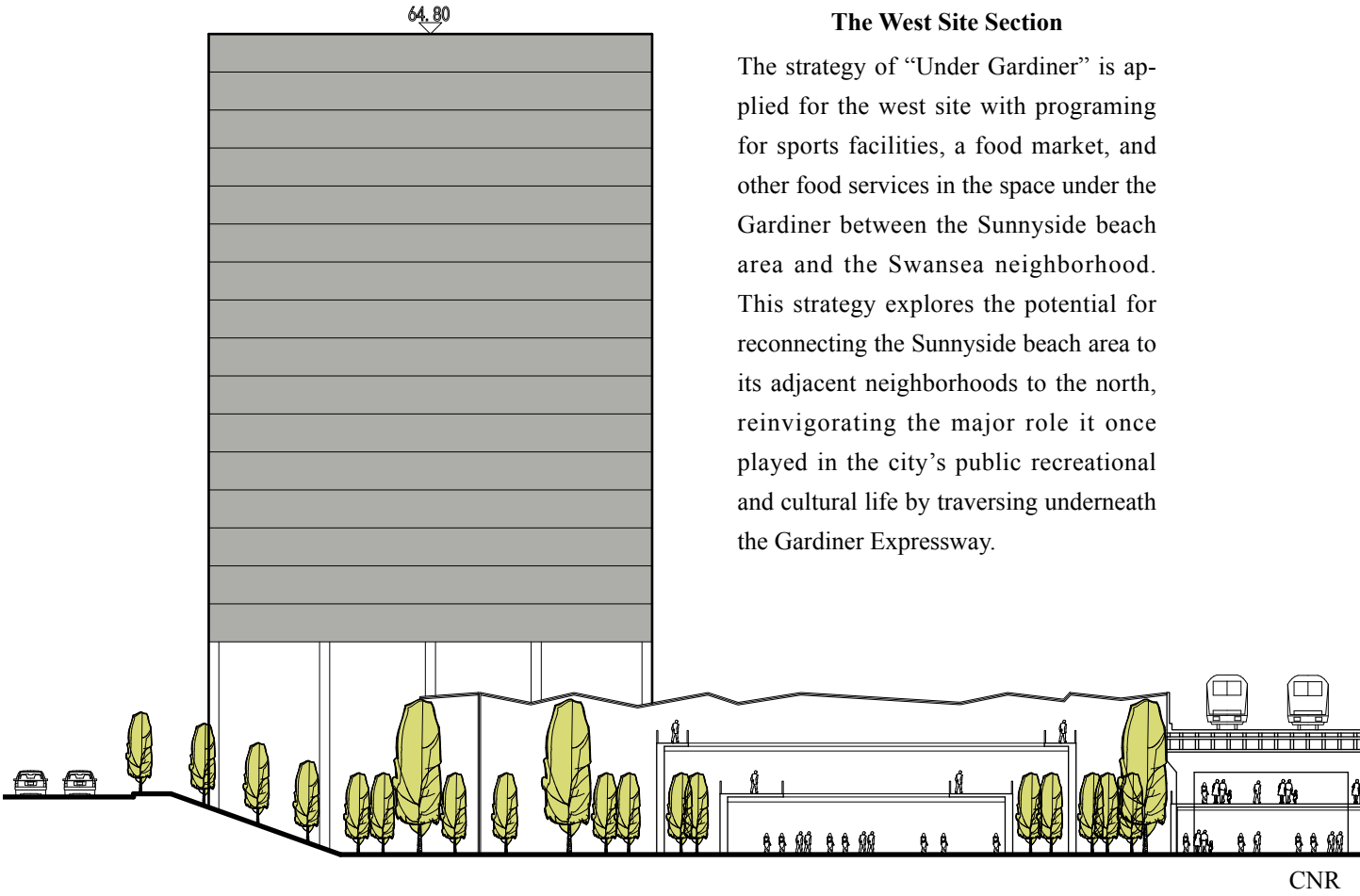


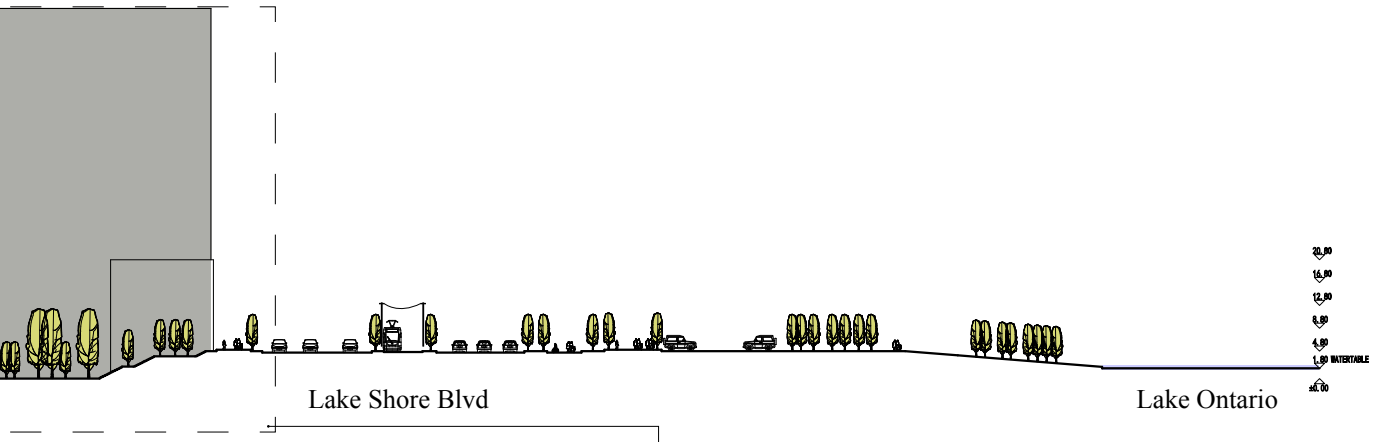
Figure 132: Spatial typologies related to programs / activities on the east site These important former recreation scenarios in the Sunnyside beach area show various social activities and spatial characters that can be categorized in main spatial typologies.





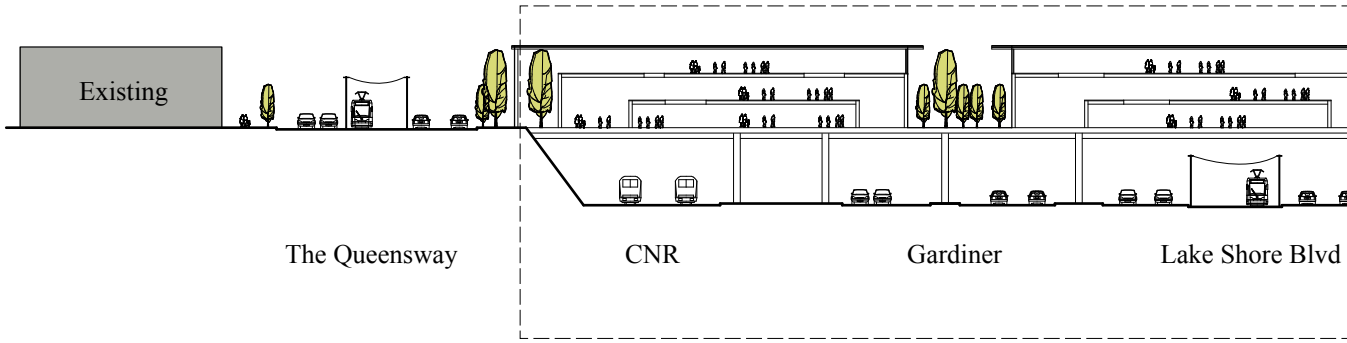
The West Site Section

The strategy of "Under Gardiner" is applied for the west site with programing for sports facilities, a food market, and other food services in the space under the Gardiner between the Sunnyside beach area and the Swansea neighborhood. This strategy explores the potential for reconnecting the Sunnyside beach area to its adjacent neighborhoods to the north, reinvigorating the major role it once played in the city's public recreational and cultural life by traversing underneath the Gardiner Expressway.

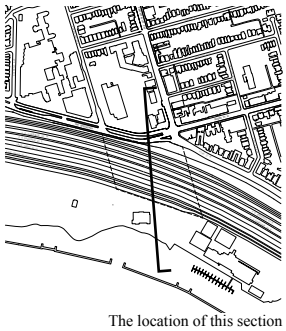


The location of this section

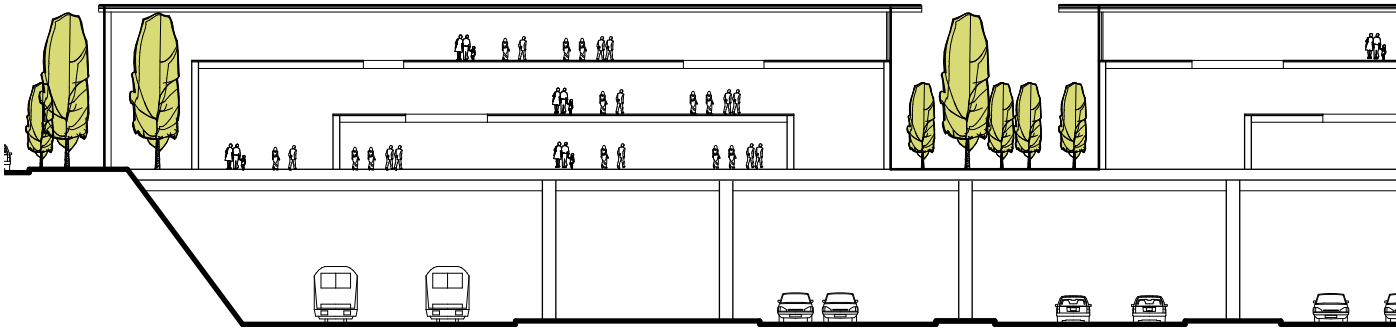
Figure 133 : The section of the west site



The East Site Sections


The location of this section

The strategy of “Above Gardiner” is applied for the east site with bridging and programming for a food market, galleries, and retail stores above the Gardiner between the Sunnyside beach area and the Sunnyside, Roncesvalles Village, and Parkdale neighborhoods. With the strategy of bridging over the expressway, an opportunity is created to add significant public building programs that can act as attractors to the public, augmenting both the existing activities on either side of the expressway boundary and further connecting the adjoining areas that have become separated with the insertion of the expressway infrastructure.



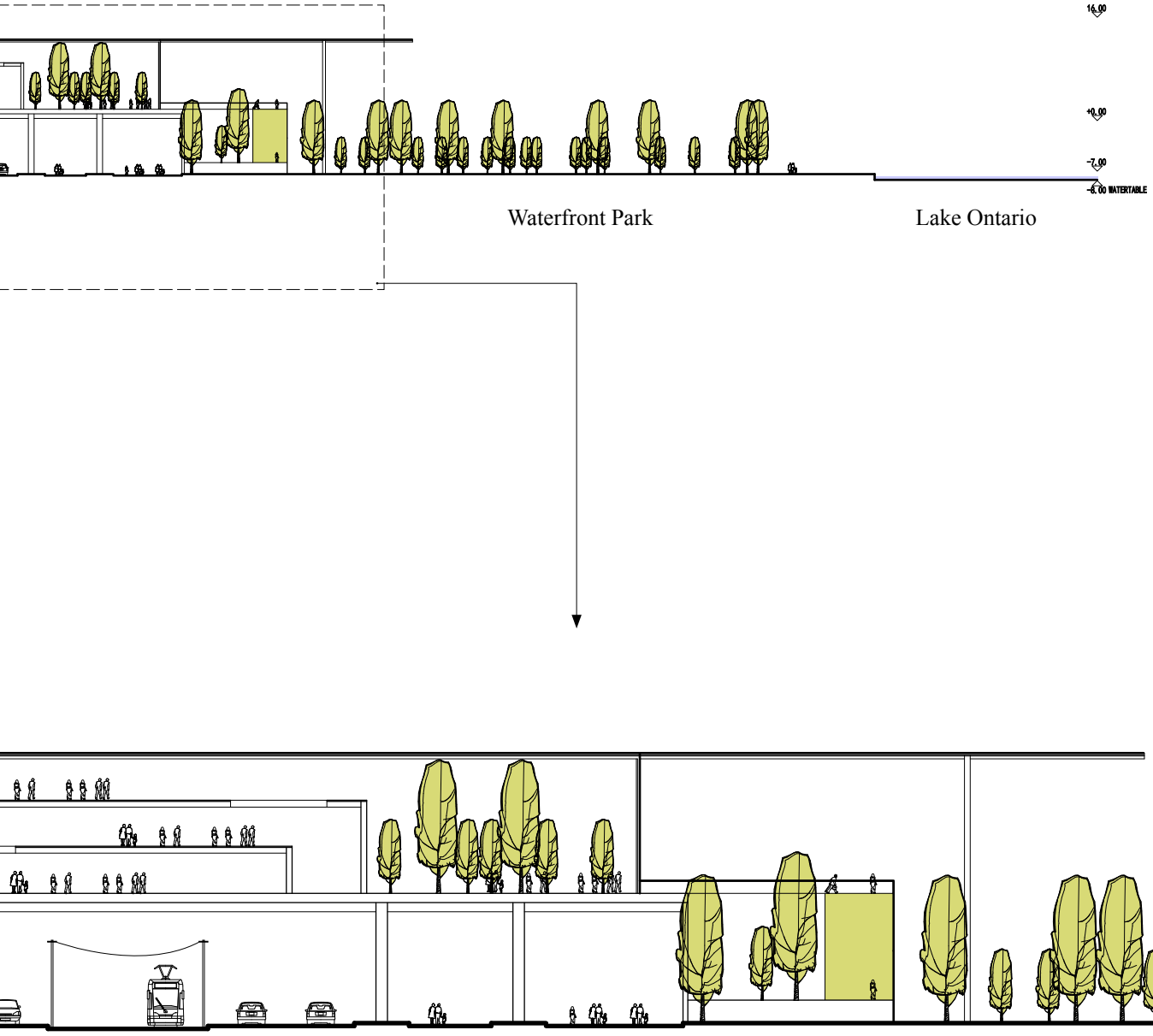


Figure 134: The section of the east site

Perspective of the building on the west site

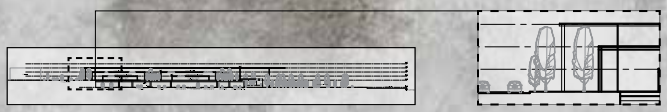
As a partial perspective of the building on the west site, this drawing shows the atmosphere of the “Lanes on one level + Trees + A canopy” type. The green area provides shade and help to mitigate noise from the vehicular traffic zone, while the canopy provides pedestrians a semi-open social space.

West Site Section

Figure 135: Perspective of the building on the west site

Perspective of the building on the east site

As a partial perspective of the building on the east site, this drawing illustrates the atmosphere of the “Lanes on one level + Trees+ A terrace” type, which is formed by “green infra-structure” and the terrace of the building.



East Site Section

Figure 136: Perspective of the building on the east site

Conclusion

Modern expressways, originating in the early 1920s, were intended to expedite the rapidly increasing use of automobiles. They are designed and built to meet the demand for quick movement between rural and urban communities, supported by improvements in paving processes, techniques, and materials. Expressways with limited access and grade separation create increased opportunities for people to travel for business, trade, or pleasure, and also provide trade routes for goods. While the highway infrastructure of North America provides great benefits by connecting both urban and rural communities, this infrastructure also comes with significant costs by separating and creating barriers between various communities. In cut-off neighborhoods, property values have decreased and housing quality has often been diminished.

Parts of the city of Toronto are separated and cut off from the Lake Ontario waterfront by the Gardiner Expressway, not only physically but also financially and psychologically. In order to break through these highway-created boundaries as they affect urban planning, site, and building scales, this thesis proposes certain architectural prototype strategies for two sites in the Sunnyside beach are of Toronto as an approach that could also be applied in other key locations along the Gardiner Expressway.

A highway is originally designed for automobiles to move quickly between cities.[66] Neighborhoods, in cities and along highways, are separated by highway boundaries, while cities are connected. The Sunnyside beach area in Toronto is an example of an important public area isolated by the Gardiner Expressway from the neighborhoods of Swansea, Sunnyside, Roncesvalles Village, and Parkdale.[67] The only way in which the safety boundary alongside the high-speed arterial infrastructure of an expressway can be overcome, creating linkages to the neighborhoods and recreational spaces on each side of it, is to bridge over it or to traverse underneath it. The strategy of "Under Gardiner" is applied for the west site with programing for sports facilities, a food market, and other food services in the space under the Gardiner between the Sunnyside beach area and the Swansea neighborhood. The strategy of "Above Gardiner" is applied for the east site with bridging and programming for a food market, galleries, and retail stores above the Gardiner between the Sunnyside beach area and the Sunnyside, Roncesvalles Village, and Parkdale neighborhoods.

With these strategies of bridging over or traversing beneath the expressway, an opportunity is created to add significant public building programs that can act as attractors to the public, augmenting both the existing activities on either side of the expressway boundary and further connecting the adjoining areas that have become separated with the insertion of the expressway infrastructure. Additionally, creating buildings that provide an exciting spatial experience, adds to the attractive potential that the new public programming offers. In order to build a relaxing, safe, and intimate walking space, pedestrian and vehicular circulations would be separated in this area. The spaces between vehicular zones and building facades would be well designed to encourage people to enter these sites. The land use study, main street spatial analysis, and business investment analysis are intended to ensure that these proposed programs are demanded by the local people and would attract them to use these spaces.

The spatial characteristics of the proposed buildings, as well as the spatial characters of Sunnyside's former rec-

reation activities would be applied to help organize the buildings. As these activities are still pursued and popular (relaxing on landscaped stairs, eating in a dining room, playing sports in a field, etc.), recalling these characterized spaces would bridge a connection between Sunnyside's local culture and history, to contemporary architectural space and new urban social life. Additionally, the usual walls between rooms would be replaced as functional space based on room programs, while interior physical boundaries are no longer as strongly demarcated within the proposed social facilities, including sport facilities, restaurants, food markets, retail stores, bookstores, and galleries.

The concept of In-between Boundaries offers a systematic perspective for analyzing certain issues in urban planning, site design and building design scales. It focuses on the bridging, connecting and overcoming the barrier conditions in the neighborhoods of Swansea, Sunnyside, Roncesvalles Village, and Parkdale. It offers positive building environment for the adjacent neighborhoods, brings in social and commercial activities and extends the urban fabric in this Sunnyside beach area. This thesis does not address the experience and use of the highways from "within", such as the experience of the highways as a driver, leaving that to other studies of the issue. Overall, the intention of the In-between Boundaries is utilizing the Sunnyside sites as a test case for intervention strategies that would be anticipated with further study. These approaches would be able to be used in other locations to address some of the similar issues that exist in many urban highway locations.

Introduction

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02. Boundaries in Planning: the Living Infrastructure

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[30] Ibid.

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