

# QUEENSWAY

Railway Transformation for Sustainable and Active Everyday Life in a New York Suburb





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Everyday Life in a New York Suburb  
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**CHALMERS**  
UNIVERSITY OF TECHNOLOGY

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Architecture, Chalmers University of Technology,  
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## ABSTRACT

Queensway is an abandoned elevated railway located in Southwest Queens, New York City. Queensway was formerly a part of the Long Island Rail Road Rockaway Beach Branch, built at the turn of the 20th century and abandoned since 1962. Queensway is surrounded by residential neighbourhoods dominated by small buildings. Building stock mainly originates from pre-war time up to 1970s.

The purpose of this thesis is to transform Queensway into public facilities and a park that also serves as a pedestrian and biking connection. This urban transformation is set to improve the community's over-all sustainability and life quality while preserving the railway's historic features. The transformation is done through sustainable adaptive reuse and active design principles. The challenge is to give Queensway's residents and users an easily graspable chance to become more physically active and sustainable in everyday life. This is seen as the improvement in life quality.

This thesis is design based. The work is divided in four parts; theory and history, site analysis, activation master plan and finally in-depth design as a showcase project. The method was to analyse Queensway and its surrounding community districts to determine most relevant themes that serve the aim of improving over-all sustainability and life quality. The analysis was done through online research and by visiting the site in New York. GIS and New York City datasets were used as a mapping tool. The results of the studies were put together in SWOT-analysis and as an activator map. This formed the base for overall vision and design strategies. The first step of design was a master plan to give an overview how to activate Queensway. The master plan shows what kind facilities and activities are appropriate and where they can be placed. The master plan also includes a cycling network that connects Queensway and the surrounding subway stations.

As the neighbourhoods surrounding Queensway have an ageing building stock, the in-depth design proposal is a sustainability centre. The centre educates residents on sustainable housing improvements, especially how to reduce energy consumption and save money. This is a significant improvement in the overall sustainability as buildings account for 75 % greenhouse emissions in New York City. The centre also offers education on urban farming and has adjoined retail spaces for local businesses.

Keywords: elevated railway, urban transformation, sustainable life quality



## PREFACE

This master's thesis in architecture was written as a completion of the degree of Master of Science in Design for Sustainable Development at Chalmers University of Technology in Gothenburg, Sweden. The thesis was carried out at the Department of Architecture in the spring term of 2014.

The topic of the thesis is Queensway, an abandoned elevated railway located in Queens, New York. The thesis topic was initiated by the ENYA 2014 architectural competition *Queensway Connection: Elevating the Public Realm* and the material that was obtainable from the competition.

I chose to write my thesis about Queensway because to me it's the perfect mix of urban transformation, old structures and transportation engineering. These fields are the ones I'm most interested in. My professional and educational background is in civil engineering. I hold a bachelor's degree in Civil and Environmental Engineering (2008) and I'm also a Master of Science in Technology in Transportation and Environmental Engineering (2011). These degrees were completed at Aalto University in my home country Finland. For the past six years I have worked as a street designer in a consulting company in Finland and have built a solid knowledge of urban infrastructure. Wanting to work further with urban design and transformation led me to study architecture for a second master's degree.

For this thesis I travelled to New York to see Queensway and to meet members of the Friends of the Queensway organisation. I would like to thank Peter W. Beadle and Anandi A. Premalal for meeting and discussing Queensway with me. At Chalmers I would like to thank my supervisor Inger Lise Syversen and examiner Lisa Brunnström as well as Professor Lena Falkheden, the director and excellent organiser of the master's programme Design for Sustainable Development.

A massive thank you goes out to my family in Finland for all the support living in another country required. Also, thank you so much to all my friends. To Liz Donovan, my darling friend from New Zealand and fellow student at Chalmers, thank you for being the best and most helpful master's thesis study buddy ever. Being able to skype with you everyday, having your comments and going through anything between heaven and earth kept me on track this spring.

This thesis is written in the form of a booklet. It is not intended to be read as a book from cover to cover, but as a booklet that you can flip through and first take in the illustrations and images. When flipping through you can start your reading in the parts that you're most interested and want to find out more. The booklet contains all relevant information to the thesis and its result, but not everything I have thought of during the process. In keeping with my engineering background and personality, the style of writing is straightforward and fast at getting to the point.

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# 01 INTRODUCTION

**What?** **Queensway** - abandoned 5.5 km long elevated railway

**Where?** Queens, New York City, US  
between Rego Park and Ozone Park

**Purpose?** To transform Queensway into public facilities and a park that also serves as a pedestrian and biking connection.

**Why?** Transformation of Queensway is a chance to improve over-all sustainability and life quality in the surrounding neighbourhoods while preserving the railway's historic features.

**How?** The transformation is based on sustainable adaptive reuse and active design principles. The goal is to give Queensway's residents and users an easily graspable chance to become more physically active and sustainable in everyday life. This is seen as the improvement in life quality.



## BACKGROUND

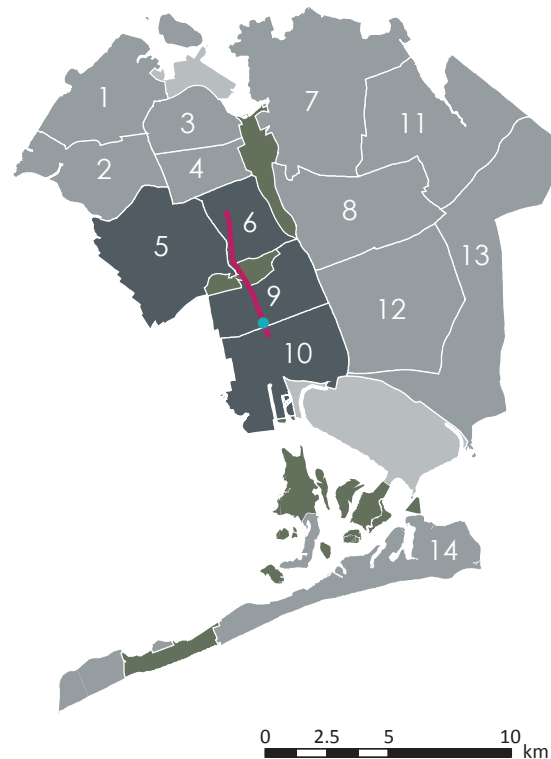
Queensway is a 5.5 km long abandoned railway located in Southwest Queens, New York City, United States. The railway is mainly elevated either on an embankment or a viaduct, but a small portion of it runs in a ravine. Queensway stretches from Rego Park in the north to Rockaway Boulevard in the south. Both Rego Park and Rockaway Boulevard have subway stations that connect to Manhattan.

Queensway was formerly a part of the Long Island Rail Road's Rockaway Beach Branch, a commuter railway network that runs between Manhattan and Long Island. Construction of the railway started in 1877 with service being initiated in the 1880s. Expansion was slow and Queensway stretch wasn't fully completed until the 1920s. After a series of track fires in the cost of maintaining the service for the railway became infeasible. The Queensway stretch was closed down for service in 1962. (Friends of the QueensWay, 2012a)

### Location & surroundings

New York City is divided into five administrative boroughs Manhattan, Bronx, Staten Island, Brooklyn and Queens. The boroughs are further divided into community districts, which are numbered. Much of the local decision making and planning takes place in these districts which are managed by community boards. The community districts that surround Queensway are districts 5,6, 9 and 10. In total these districts have some 530 000 inhabitants. Within a one kilometre radius from Queensway there are estimated 150 000 inhabitants.

Queens community districts



Neighbourhoods



Queensway is surrounded by the residential neighbourhoods of Rego Park and Forest Hills in the north, and Richmond Hill, Woodhaven and Ozone park in the south. Forest Park is a over 200 ha park in the middle of Queensway with various activities from hiking on wooded hill trails to playing ball games or horseback riding (NYC Parks, 2014b). Currently, accessing the park directly is difficult because of road and railway barriers. Pedestrian and biking access is also cut off between the north and south neighbourhoods for the same reason.

### Architectural competition

The initiative for this master's thesis came from the architectural competition *Queensway Connection: Elevating the Public Realm* organised by ENYA, the Emerging New York Architects Committee in AIANY (American Institute of Architects New York Chapter). The competition itself ended in early January 2014 but this thesis further builds on the material obtained from the competition.

The ENYA Queensway competition is centred on a site around the former Ozone Park Station at the south end of Queensway. It is a narrow section located at the south end of Queensway. ENYA selected this to serve as a gateway to the larger park system and to also be a model for what community hubs along the railway can become. The challenge of the competition is to design around cultural diversity the connection between the elevated and ground plane. (ENYA, 2014)



● Ozone Park Station

## Stakeholders & community activity

Transforming Queensway into a park with a pedestrian and biking connection is under actual planning in New York. It is driven by *Friends of the QueensWay*, a local community organisation and by *Trust for Public Land*, a national non-profit organisation. The right of way, that is the term used for the land Queensway sits on, is owned by the City of New York. It is mainly closed off to the public. In the south end where the railway is a viaduct, the space beneath the railway is rented out by the city for storage and workshop purposes.



The City of New York doesn't plan Queensway. The planning is led privately by the Friends of QueensWay and Trust of Public Land. The Friends of the QueensWay is an organization consisting of thousands of people, mainly Queens residents (Friends of the QueensWay, 2012a). They work together with The Trust for Public Land, the leading park creation organisation in the United States. Trust of Public Land has received \$ 467 000 grant from the State of New York for the planning work (Maloney, 2013). On top of that the two organisations collect private donations. With the funding two consultants, WXY Architecture + Urban Design and Dlandstudio, have been hired to carry out a feasibility study (Maloney, 2013).

The feasibility study and planning initiative is called the Queensway Plan. It is a public process where local residents are involved. WXY Architecture + Urban Design and Dlandstudio lead the work of designers and technical experts. Hester Street Collaborative coordinates the QueensWay Plan public engagement process including six community workshops, an online forum, and other opportunities for community input. This process "will create a vision for the QueensWay, conducting analysis that considers recreational and educational activities; safety and security measures; developing a conceptual design; estimating costs and considering implementation strategies". The process began in early fall 2013 and should be concluded in the summer of 2014. (Friends of the QueensWay, 2014) First three workshops in different neighbourhoods were organised in November 2013, and the next three in March-April 2014 (The QueensWay Plan, 2014)

The goal of Friends of the Queensway and its collaborators is to:

- *"Improve quality of life*
- *Create new park space*
- *Catalyze economic development and job creation*
- *Support local small businesses*
- *Upgrade environmental conditions*
- *Celebrate the diversity of Queens*
- *Improve public health and active living".*

(Friends of the QueensWay, 2014)

ENYA and Friends of the QueensWay believe in activating the Queensway through the community. If local residents, community groups and businesses were allowed to adopt portions of the railway, the result would be a "park whose usefulness was truly defined by the will of the community" (ENYA, 2014). Supporting small local businesses is also a key factor. A variety of local community groups such the Forest Hills Little League and Garden of Eden Project, an urban farming initiative, have popped up in vacant spaces close to Queensway (ENYA, 2014). They show that over time other community groups can easily activate more of the Queensway.



Queensway residents workshop, Forest Hills November 2013  
Source: The QueensWay Plan, 2014

STAKEHOLDERS

Friends of the QueensWay

Trust of Public Land

Community

Existing tenants

City of New York  
Departments of  
• City Planning  
• Parks & Recreation  
• Transportation  
• Environmental Protection

State of New York

ACTORS

Community

Friends of the QueensWay

Trust of Public Land

WXY Architecture + Urban Design  
Dlandstudio  
Hester Street Collaborative

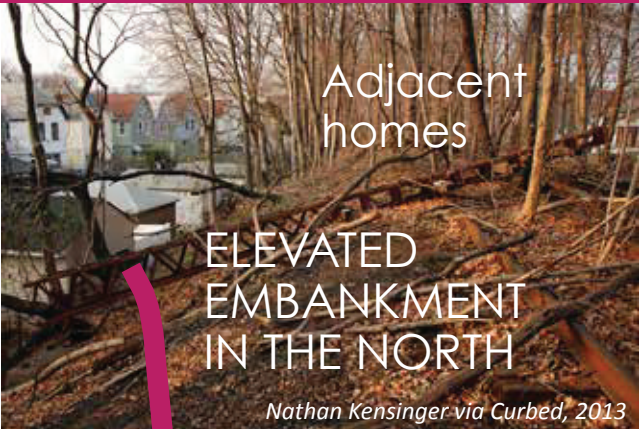
Current conditions

Queensway has been abandoned for 52 years. It is mostly closed off and fenced to keep public out. Queensway has become wild with plants, in many parts it's a full forest. There are downed trees, collapsed signal towers, and rotting third rails (Curbed, 2013). At a slow pace, steel is rusting away and concrete is wearing out. Damages especially to concrete are quite extensive, but not unmanageable.

However people don't stay out of Queensway. There are stray cat sanctuaries and graffiti spots. Trash is strewn everywhere and there is evidence of drug and alcohol use. (Curbed, 2013) Interestingly, many people living adjacent to the Queensway are opposing the plans for a park. They feel they lose their privacy with people being able to look into the homes and backyards. They fear for lowered property values and safety as the park would bring strange people and criminal activity. (Inhabitat, 2013)

Housing in the Queensway neighbourhoods consists mainly of small buildings with 1-2 residential units. About half are owner occupied and half renter occupied. Most of the housing stock was built pre-war time up to 1970s. **About 98 % of houses use gas, oil and electricity as heating fuels.** Utility gas and oil are the most common forms of heating. (American Community Survey 3-Year Estimates 2008-2010) Heating is needed for several months a year as New York has proper snowy winters.

The neighbourhoods surrounding Queensway are average New York suburbs on many levels. Majority of people living there have middle income and are middle aged. Health wise over half of the population is overweight or obese and about 10 % has diabetes. Over 30 % are on cholesterol medication. Interestingly less than 60 % of the population meets recommendations for physical activity. **Over 75 % hasn't used a bicycle at all for the past year.** Health and activity problems are more prevailing in the southern neighbourhoods which are also slightly poorer than the ones in the north. There is a lot of cultural diversity in the area. In the north largest ethnic groups are white and Asian, in the south Hispanic and white, in that order. (NYC Department of City Planning, 2014 & Department of Health and Mental Hygiene, 2013) There is a clear difference between northern and southern neighbourhoods.



Adjacent homes

ELEVATED EMBANKMENT IN THE NORTH

Nathan Kensinger via Curbed, 2013



Park

RAVINE IN THE MIDDLE

Jeff Chien-Hsing Liao, 2013



Workshops

ELEVATED VIADUCT IN THE SOUTH

ENYA, 2014

## PROBLEMS IDENTIFIED

- Historical railway line with a lot of character is deteriorating and slowly disappearing
- Concerns over safety and privacy
- Public health issues, residents are overweight and not so physically active
- Lack of access to park areas, especially to Forest Park
- Cycling is uncommon, there are no facilities for cycling
- Housing stock is ageing and depended on unsustainable heating methods

## POSSIBILITIES DETECTED

On a city wide level, New York has a visionary plan called PlaNYC 2030 to prepare the city for one million more residents, strengthen economy, combat climate change, and enhance the quality of life for all New Yorkers. The aim is a greener, greater New York. To achieve that some of the goals are to:

- *“Create homes for almost a million more New Yorkers while making housing and neighbourhoods more affordable and sustainable*
- *Ensure all New Yorkers live within a 10-minute walk of a park*
- *Reduce energy consumption and make our energy systems cleaner and more reliable*
- *Reduce greenhouse gas emissions by more than 30%”*

(City of New York, 2011)

Queensway can do a lot for improving everyday life quality in the local communities. Firstly, it would greatly improve access to park areas and physical activities. 150 000 people who currently have restricted access to parks live within a 10 minute walk from Queensway. With Queensway riding a bike could also become a daily activity for everyone in the area instead of a unusual occurrence. Cycling could also be connected to the public transport network, for example with safe bike storage at subway stations.

In addition to improving public health through increased physical activity Queensway can also improve access to green food in a wider area. With urban farming initiatives already in the area and most of the residents having their own gardens, Queensway could become a hub for farmer’s markets and community gardening.

Housing stock in the area is mainly 40-80 years old, in the age where a lot of renovations are most likely needed. This is an opportunity to reduce dependency on gas and oil heating in favour of sustainable methods and improving insulation qualities. Other sustainable features such as rainwater harvesting and solar panels could also be introduced. Queensway could be a centre of sustainable housing education for home owners and a showcase of sustainable design. This idea also goes well together with the PlaNYC goal of reducing energy consumption and having cleaner energy. Energy use in buildings accounts for 75 % of greenhouse emissions in New York and furthermore, energy retail prices in New York are one of the highest in the US (City of New York, 2011). Therefore sustainable home improvements would save money for residents and greatly improve overall sustainability.

There seems to be a case of “Not In My Backyard” among the opponents of Queensway park. However it can be argued that safety in the area would improve through Queensway if it was properly active public space. An all day active park is a better option than having drug-users staying close to people’s homes. Concerns for privacy and safety can be addressed through design.

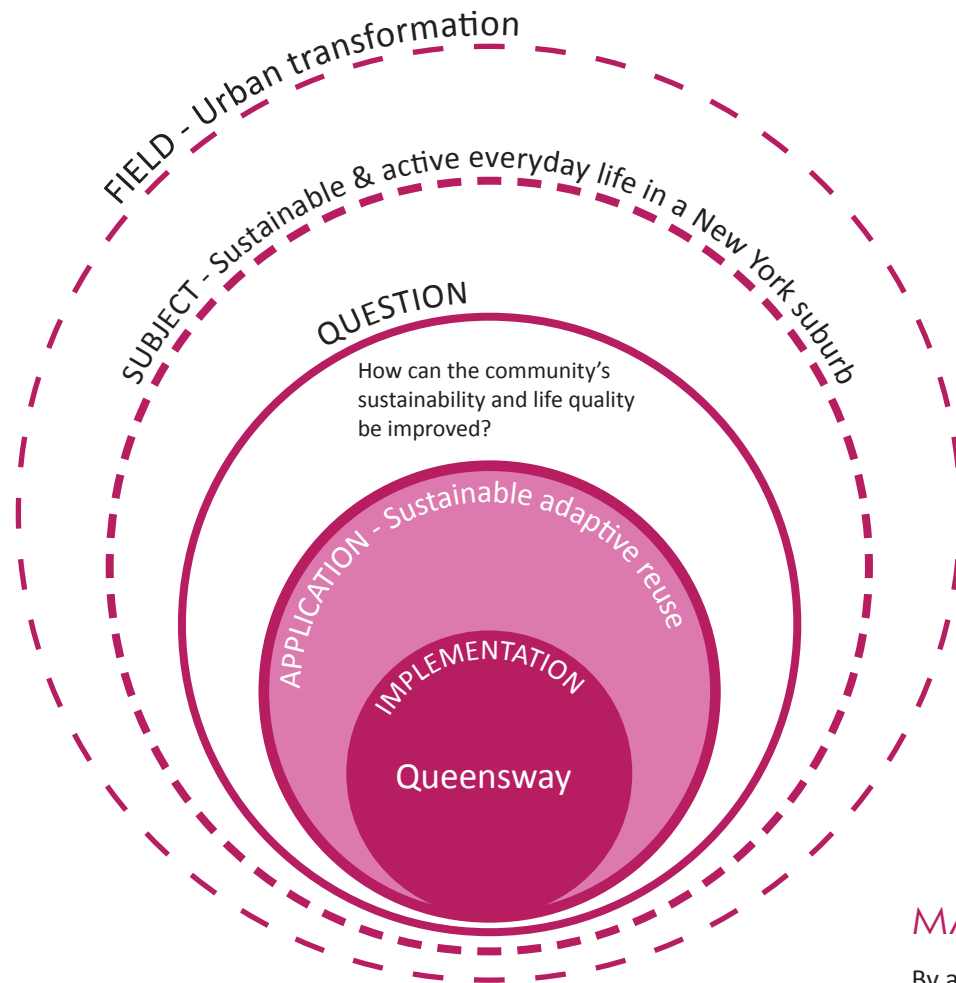
Community activity is the driving force behind Queensway. Their work and ideas are studied and taken into account in the master’s thesis. Queensway needs community activators to produce activities. Involving local small businesses and integrating them into Queensway, for example by offering operational space for them, is essential.

After 52 years of abandonment the Queensway is unarguably a mess. However, in the south end at Ozone Park Station people are using the space under the elevated railway. This gives an indication that structure of the elevated viaduct is safe enough and it can be used in future. After all it was built to support the weight of trains. Some reinforcements and extensive renovations of the concrete structure are needed. The original steel and concrete structure is partly visible and it could serve as the basis for the transformation. The historic features can and should be preserved.

The former Ozone Park Station has a lot of historical character. The exposed steel and concrete columns and beams are beautiful in their structural simplicity. The cantilever concrete platforms with very distinctive arched sides are the most distinctive and recognisable part of Queensway. Because of the 3D model material supplied by the ENYA competition, this is an excellent site for in-depth design in the thesis.



# RESEARCH RELEVANCE MODEL



- Field Urban transformation
- Subject Sustainable and active everyday life in a New York suburb
- Question How can the community’s sustainability and life quality be improved?
- Application Sustainable adaptive reuse  
Adaptive reuse is a process that modifies or reshapes old structures for new purposes while retaining their historic features (About.com Architecture)
- Implementation QUEENSWAY



## MAIN ARGUMENT

By adaptively reusing the abandoned Queensway as a park and public facilities you can improve the community’s overall sustainability and life quality while preserving the railway’s historic features.

## AIMS

As an overall vision, Queensway is to generate sustainable and active everyday life in the surrounding communities. The main aim of the thesis is to transform the abandoned Queensway into a park and public facilities so that it improves the community's overall sustainability and life quality while preserving the railway's historic features. The transformation is done through sustainable adaptive reuse.

The main challenge is to activate Queensway and its residents and users. Activation does not only mean involvement in the planning processes. It also means that the residents have an easily graspable chance to become more physically active and sustainable in everyday life. That is seen as the improvement of life quality.

Another challenge for the thesis work itself is to make a clear visual presentation of the design ideas and surrounding discussion. The design process has to turn into a graspable design proposal. On a personal level it's a challenge to move further away from my background as an engineer to carry out a master's thesis in architecture and be architectural.

## SCOPE & METHODS

This thesis is design based. Most of the work consists of design and site analysis. Additionally, the design work supported by theoretical research. The thesis is divided in four parts; theory and history, site analysis, activation master plan and finally in-depth design as a showcase project.

In part one theoretical research will give an overview on the topic of sustainable transformation. Literature studies include the concepts of adaptive reuse, active design and sustainable home improvements. Also historical research and transformation case studies are taken into account.

For part two, site research and analysis is carried out through online material and by visiting New York. The site visit took place in February 2014 and included meetings with members of the Friends of Queensway Steering Committee Peter W. Beadle and Anandi A. Premllal.

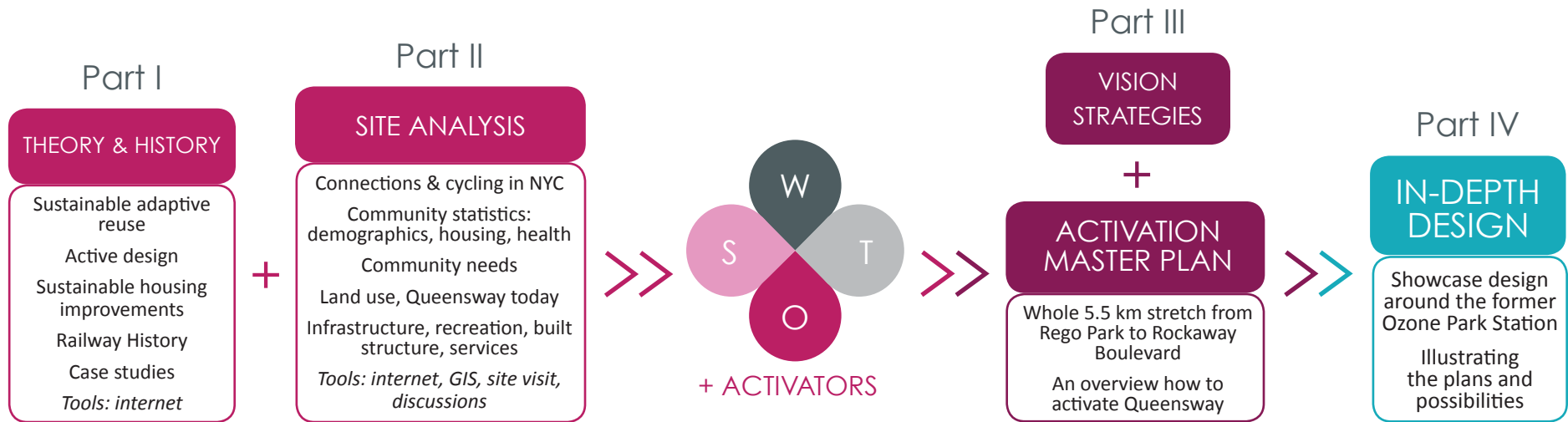
The City New York has extensive online databases that are the main online sources for site analysis. They include statistical community information and GIS datasets for zoning and mapping. GIS is used as a mapping tool.

The site analysis covers four community districts that surround Queensway. Subjects of study are history, current state and character of Queensway, community statistics and community needs, land use, infrastructure and connections, recreation, built structure and services.

The results of the studies are put together in SWOT-analysis and as an activator map. This forms the base for overall vision and design strategies.

Part three, the master plan, is an overview how to activate Queensway. It consists of the full Queensway between Rego Park and Rockaway Boulevard. The master plan shows what kind facilities and activities are appropriate and where they can be placed. The master plan also includes a cycling network that connects Queensway and the surrounding subway stations. The master plan is presented in a diagrammatic form of 3D maps.

The last part is an in-depth design of the former Ozone Park Station. The station was built in 1930-1931. The transformation of the station showcases what the presented ideas and plans can look like and how they work. Part four also includes a more detailed characterisation for conservation, overview on concrete damages and shows how sustainable adaptive use is applied. The in-depth design proposal is a sustainability centre. The centre educates residents on sustainable housing improvements, especially how to reduce energy consumption and save money. This is a significant improvement in the overall sustainability as buildings account for 75 % greenhouse emissions in New York City. The centre also offers education on urban farming and has adjoined retail spaces for local businesses. The design work is carried out in Revit and presented in renders, plans and sections.



## THEORY

The architectural conservation theory of adaptive reuse is applied to the Queensway transformation. This especially concerns the in-depth design process at Ozone Park Station. As a basic definition adaptive reuse is a process that modifies or reshapes old structures for new purposes while retaining their historic features. In the United States adaptive reuse is also defined as rehabilitation. Adaptive reuse is usually applied to building conversions, but it can also be applied to urban structures such as the Queensway. The process of adaptive reuse will also be viewed as a tool for sustainable development and is therefore called sustainable adaptive reuse.

Another theory that is applied to design is active design. Developed by the City of New York (2010), active design is urban design that encourages walking, stair climbing, bicycling, public transit use, active recreation, and healthy eating. It is based on academic research in addition with best practices and cost-effective solutions developed in the field (City of New York, 2010).

## LIMITATIONS

This is a one person master's thesis carried out in one study term and therefore the amount of work is kept under control. The key of the work method is the ability to distinct relevant information and pick it out for the booklet. Because the studied area is vast the thesis chooses to present the most relevant themes that serve the aim of improving the community's over-all sustainability and life quality.

When character, damages and repairs are concerned, this thesis doesn't study Queensway at the level of structural details. Time is limited and the information needed for such detail isn't available yet as the official feasibility study hasn't been completed. In the case of Ozone Park Station the thesis gives an overview of character and damages that are visible to the eye mainly on the outside. Some repair and protection methods are suggested based on this. Costs of repair and rebuilding are not discussed.



# PART I

Theory & History

# 02 SUSTAINABLE ADAPTIVE REUSE

## Definitions

To achieve sustainable urban transformation that respects the structures' historic features I have decided to transform Queensway through adaptive reuse. The basic definition for adaptive reuse is that is a process that modifies or reshapes old structures for new purposes while retaining their historic features (MIT - Greening East Campus, About.com Architecture).

When historical buildings are concerned, adaptive reuse is also defined as rehabilitation in the United States. In *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (2001) rehabilitation is defined as "the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values".

Queensway is a unique heritage structure that can serve as a platform of identity and sense of place and time for the local communities. However, as a structure Queensway creates a dilemma for conservation theories that can be applied. The south end of Queensway with the elevated viaduct can be seen as a building that wasn't a building originally. The walls have only been added as makeshift solutions later on when people found uses for the spaces beneath the elevated railway. What is original to the structure is the concrete structure of columns and beams. Because Queensway is not clearly a building, but a historical piece of infrastructure with some covered space beneath, existing theories of architectural conservation have to be somewhat modified.

## Sustainable point of view

In the field of architecture adaptive reuse is mainly discussed with regards to preserving historic buildings instead of demolishing them. This is to save resources and to be more sustainable because tearing down a building and building a new one results in a greater ecological footprint.

Bullen and Love (2011) write that adaptive reuse can transform heritage buildings into usable and accessible places as well as regenerate an area in a sustainable manner. This is what this transformation of Queensway aims for. Bullen and Love continue, that adaptive reuse may help communities, governments and developers to reduce the environmental, social and economic costs of continued urban development.

What should sustainable adaptive reuse include? Pickard (1996) writes that sustainable historic environments should:

- reflect local life
- improve quality of life
- maintain local identity, diversity and vitality
- minimise the depletion of non-renewal heritage assets
- develop collective responsibility for heritage assets
- empower community action and involvement
- and provide a robust policy framework for integrating conservation objectives with the aims of sustainable development more generally.

But why does adaptive reuse make local communities more sustainable? Bullen and Love conclude that "to a large extent, sustainability of local communities depends on the sense of place and value they place in their local community". Basically, unique heritage gives local people a stronger sense of connection with their surroundings, which gives a powerful reason to look after their local environment.

## Standards and guidelines

Standards for rehabilitation in the United States (The Secretary of the Interior's Standards for the Treatment of Historic Properties, 2001):

1. A property will be used as it was historically or be **given a new use** that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.
2. **The historic character of a property will be retained and preserved.** The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. **Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.**
6. **Deteriorated historic features will be repaired rather than replaced.** Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, colour, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.
7. Chemical or physical treatments, if appropriate, will be undertaken using the **gentlest means possible.** Treatments that cause damage to historic materials will not be used.
8. Archaeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.
9. **New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property.** The new work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.
10. **New additions and adjacent or related new construction will be undertaken in a such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.**

Based on the US standards and approach guidelines I have drawn up a roadmap to transform Queensway into new sustainable use. The roadmap is modified to fit Queensway as a historic piece of infrastructure that can be seen as a building where it's an elevated viaduct.

### Roadmap to transform Queensway into new sustainable use:

1. Identify historic materials and features and preserve them.
2. Repair historic materials and features rather than replace them. Try to be gentle with the repair methods.
3. If deteriorated historic materials and features need to be replaced for structural integrity try to match the old material and appearance.
4. Design and construct alterations and additions so that they can be clearly differentiated from the historic building and so that the character-defining features are not radically changed, obscured, damaged, or destroyed.
5. Design and construct alterations and additions so that they can be removed in the future.
6. Consider energy efficiency, accessibility and health and safety codes in design and construction.

Source: The Secretary of the Interior's Standards for the Treatment of Historic Properties, 2001

# 03 ACTIVE DESIGN

## New York City design guidelines

Being physically active in your everyday life to full fill your daily needs, like walking to do your shopping and taking stairs up to your office, can have a tremendous effect on your health preventing obesity and chronic diseases. This is what active design taps into. The goal of *Active Design Guidelines* is to design the urban environment so that it encourages walking, stair climbing, bicycling, transit use, active recreation and healthy eating (City of New York, 2010).

In New York City, the majority of adults and 43 % of elementary school children are overweight or obese. To battle the epidemic of raising obesity and chronic diseases the city has recognised the importance of design for a more active and healthier lifestyle in a city that is already exceptionally dense, diverse in land-use and has high access to public transit. (City of New York, 2010) Starting in 2006, the city has organised a yearly Fit-City Conference to explore ideas, recommendations and best practices for design solutions (AIA, 2012). This led to the establishment of Active Design Guidelines, which were published by the City of New York in 2010. The guidelines are based on academic research in addition with best practices and cost-effective solutions developed in the field (City of New York, 2010).

## Public health

We are not healthy because we don't move enough. According to studies by the World Health Organization (WHO, 2003) inactivity, unhealthy diets, caloric excess, obesity and associated chronic diseases are the greatest public health problems in most countries in the world. They also make up for the most of the rising health care expenses. In the United States, where health care expenses per capita and obesity rates are the highest in the world, it is estimated that 75 % of healthcare spending goes toward treating chronic diseases (AIA, 2012).

These non-communicable diseases, such as diabetes, cardiovascular diseases, some types of cancer and chronic respiratory diseases are preventable with physical activity, healthy diet and not smoking. According to WHO recommendations, much of the health gain can be obtained already from a minimum of 30 minutes of cumulative moderate physical activity every day. This can be reached through enjoyable physical activities and body movements in people's daily lives, such as walking to work, climbing stairs, and gardening. (WHO, 2003)

## Active design strategies

The Active Design Guidelines are divided into strategies for building design in indoor spaces and urban design. Building design covers indoor spaces a in outdoor spaces. For urban design the goal is to create an active city with neighbourhoods, streets, and outdoor spaces that encourage active transportation and recreation, including walking and cycling. Key strategies recommended in the guidelines include:

- *“Develop and maintain mixed land use in city neighbourhoods;*
- *Improve access to transit and transit facilities;*
- *Improve access to plazas, parks, open spaces, and recreational facilities, and design these spaces to maximize their active use where appropriate;*
- *Improve access to full-service grocery stores and fresh produce;*
- *Design accessible, pedestrian-friendly streets with high connectivity, traffic calming features, landscaping, lighting, benches, and water fountains;*
- *Facilitate bicycling for recreation and transportation by developing continuous bicycle networks and incorporating infrastructure like safe indoor and outdoor bicycle parking.”*

(City of New York, 2010)



Other strategies that are suitable for the case of Queensway include:

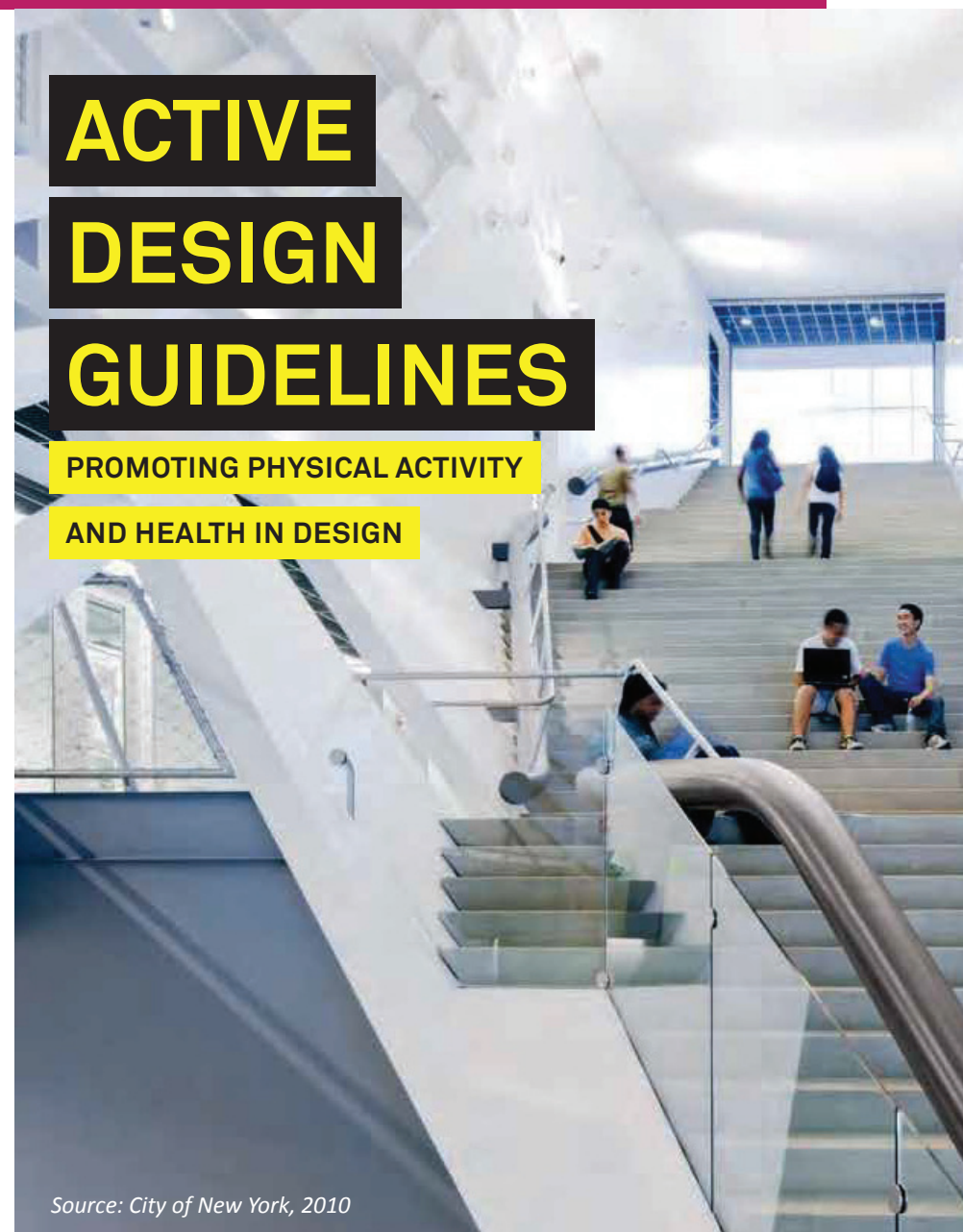
- Make bicycle and pedestrian routes to parks and public spaces safe and visible.
- Locate new projects near existing public and private recreational facilities and encourage development of new facilities, including indoor activity spaces.
- Design parks, open spaces, and recreational facilities to complement the cultural preferences of the local population, and to accommodate a range of age groups, including both children and their parents and guardians.
- Provide lights on sidewalks and active play areas to extend opportunities for physical activity into the evening.
- In the design of parks and playgrounds, create a variety of climate environments to facilitate activity in different seasons and weather conditions.
- Design plazas that allow for diverse functions.
- Introduce farmers' markets as a complement to grocery stores.
- Support physical activity among people with disabilities by making streets and paths universally accessible.
- Incorporate temporary and permanent public art installations into the streetscape to provide a more attractive and engaging environment.
- Increase the number of outdoor cafés to enhance street activity.
- Make links between bicycling and transit.

(City of New York, 2010)

# ACTIVE DESIGN GUIDELINES

PROMOTING PHYSICAL ACTIVITY

AND HEALTH IN DESIGN



Source: City of New York, 2010

# 04 SUSTAINABLE HOME IMPROVEMENTS

## Why home improvements?

In New York City, energy use in buildings accounts for 75 % of greenhouse emissions. Also energy retail prices in New York are one of the highest in the United States. (City of New York, 2011) Furthermore, about half of the US energy demand comes from single-family homes (Gelfand & Duncan, 2012).

Well, the residential neighbourhoods surrounding Queensway are filled with mainly 1-2 unit family homes. The houses are for larger part between 40-70 years old with oil and gas as the main heating methods (more detailed information on housing in chapter 08). With a total of 210 000 housing units the market for sustainable home improvements to reduce energy use and operating costs is immense.

I have chosen to talk about home improvements instead of more general building improvements because home is something that is included in everyone's daily life. Home comes close to you and it's something you feel passionate about. With the incentive of reduced operation costs the goal is to lead people wanting to have a more sustainable home and the end, to be more sustainable in their everyday life.

## Energy use in homes

Energy use translates directly into home utility bills, indoor air quality, waste and water use which have direct effect on family finances and well-being. The benefits of sustainable renovations are equally direct. (Gelfand & Duncan, 2012) The bills lower and you feel better in your home.

In a typical American house most of energy use goes into heating. Of a typical annual energy bill of 2 200 dollars, 29 % goes into heating, 17 % into cooling, 14 % into water heating, 13 % into appliance use and 12 % into lighting. (Energy Star, n.d.)

## New energy efficient building codes

In the United States minimum insulation requirements for homes are regulated by codes according to climate zones. This coding is known as the Building America programme. The goal of Building America is to have climate specific high-performance buildings that require much less energy. New York City is located in climate zone A4, which is a mixed-humid zone. (U.S. Department of Energy, 2013) This means rains, cold winters when heating is needed and hot, humid summers that require cooling.

For example, in zone 4A, the U-value requirement for windows is 0.35 (IECC Climate Zone Map, 2009). This translates into low-energy double glazing or standard triple glazing (Gelfand & Duncan, 2012). That sounds like a very good and efficient standard for the climate in question. However, the climate zone requirements have only existed since 2004 (U.S. Department of Energy, 2013). Therefore the much older homes around Queensway have never been affected by the new codes unless they have been recently renovated. Most likely many homes are still drafty and single glazing isn't that uncommon. After all, I stayed in a single glazed, drafty hotel room while in New York.

## Where and how much can you save?

Christian and Bonar (2007) made an experiment where they designed, built and monitored five energy saving houses in a mixed-humid climate. They used the new Building America energy efficient codes for structure, insulation and windows and fitted the houses with energy saving building systems, lighting and appliances. With this they were able to reduce annual energy use by 47 %. When they added solar panels the reduction was 62 %.

Reducing your home energy use by 40 % could save you an average of \$ 880 a year. Heating, cooling and insulation are where you can save the most. For example, the cost of installing a geothermal heat pump starts at around \$ 7 000 (QualitySmith.com, 2014). You can have that paid off in under 10 years and enjoy cheap heating and cooling, not to mention be very sustainable, for the next several decades. Also, home upgrades increase the value of your property.

## What kind of home improvements are suitable in New York?

To introduce sustainable home improvements to residents I have put together two lists. The first list comprises of less invasive, quicker fixes that are cheaper and easier to install. The second list is for more invasive long term solutions which require a more thorough and costlier home retrofit. However at the end, the second list is where home comfort increases the most while operating costs diminish.

Because almost all homes in the Queensway area are heated buy gas or oil and heating consumes the most energy, changing the heating supply is the most sustainable home improvement in the long run. Active solar heating might possible to use in New York if the house is well positioned towards the sun. Active solar heating is system where sun heats a liquid or air in a solar collector and then transfers the solar heat directly to the interior space or to a storage system for later use (U.S. Department of Energy, 2012). However in my opinion, the best over all heating solution is geothermal heating. You can install it in any building as long you have a yard to drill and the system can be used for geothermal cooling as well. The pump can also heat hot water and even a pool. The City of New York has even published a *Geothermal Heat Pump Manual* (2012), so going geothermal is very viable and preferable in New York. Finally, also installing a heat recovery system that reduces heat loss and also helps with cooling, is extremely important.

### Quicker fixes

Insulation measures to reduce heating costs and improve comfort:

- Low-e double glazing
- Draft proofing - seal the leaks
- Underfloor insulation
- Ceiling insulation
- Better insulated outer doors

*Install a door sweep, a second door or replace doors.*

- Pipe and hot water tank insulation

*One of the easiest ways to cut water heating bills is to insulate your older hot water tank and your hot and cold water pipes. (EPA, 2012)*

Heating and energy saving measures:

- Maximise passive solar heating
  - Use daylighting and thermal mass materials.*
- Heat recovery system - minimise heat loss
- Solar panels
- Visible energy use monitor
- Low-energy lighting and appliances

Cooling measures:

- Shading of windows both outdoor and indoor
  - Reduce solar gain.*
- Natural ventilation
  - Have inlets for cool air lower and outlets for hot air higher.*
- Light-coloured roofs
  - "Cool roofs" with high reflectance and emissivity can stay up to 39°C cooler than traditional dark roofs during peak summer weather. (EPA, 2012)*

Water saving measures:

- Fully mixing water saving taps
- Dual-flushing water saving toilets
- Rainwater harvesting
  - To irrigate your garden.*

### Long term solutions

Insulation measures:

- Low-e triple glazing
- Wall insulation
  - Most effective place to insulate.*

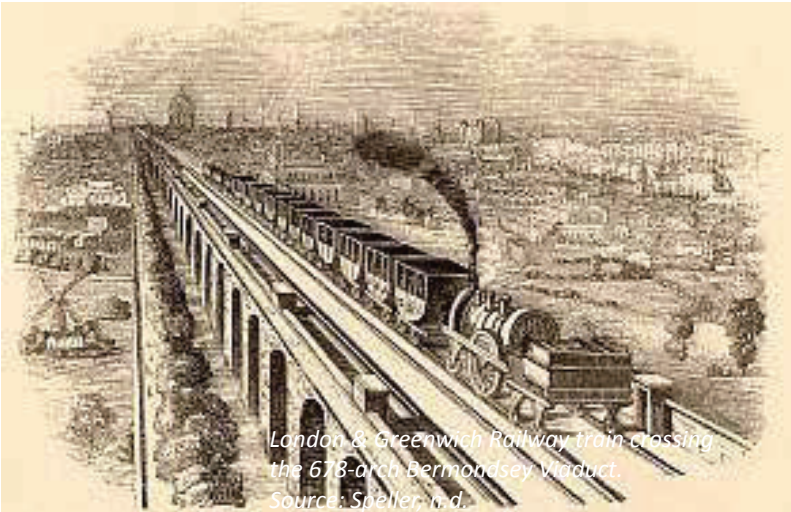
Heating and cooling measures:

- Active solar heating
- Geothermal heating and cooling
  - Best money saving solution.*
- Underfloor heating
  - Most comfortable and effective way to distribute heat.*
- Room designated thermostat control system with time control
  - Heating and cooling only operates when needed.*

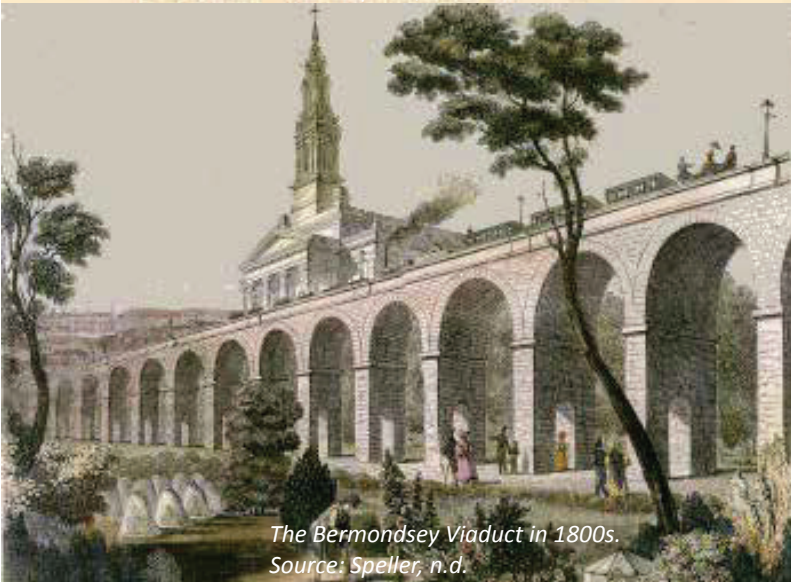
Water saving measures:

- Grey water recycling
- Full rainwater harvesting, filtration and purification system for house use

# 05 RAILWAY HISTORY



*London & Greenwich Railway train crossing the 678-arch Bermondsey Viaduct.  
Source: Speller, n.d.*



*The Bermondsey Viaduct in 1800s.  
Source: Speller, n.d.*

## ELEVATED RAILWAYS

Elevated railways were the early forms of rapid transit systems, that is high-capacity public transport in urban areas. Rapid transport is defined by high speed and grade separation.

The elevated railway was product of 19th century urbanisation and population growth that led to a need to transport larger numbers of people at higher speed. In other words people started to commute. Because railway tracks on the ground level would have lead to level crossings slowing down speed and reducing capacity, the solution was to go up to achieve grade separation. Later on, the grade separation was achieved by going underground and the subway was born. In short the elevated railway was the cheaper, technically simpler predecessor of the subway. Also, on elevated railways, you could use steam engines while undergrounds required electricity.

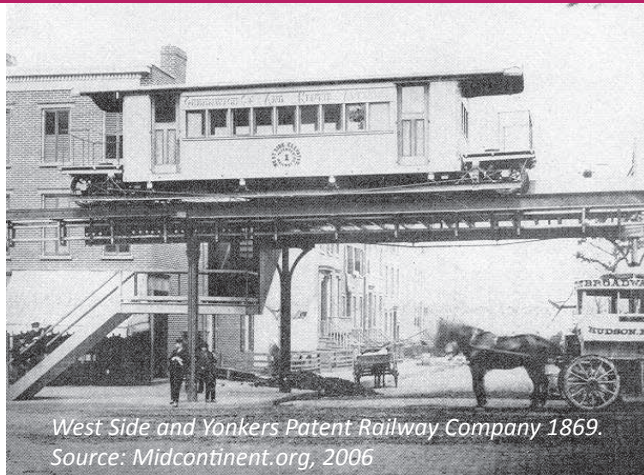
The first elevated railway was the London and Greenwich Railway, opened between 1836-1838. It ran on a brick viaduct. (Speller, n.d.) It was a common construction type for early elevated railways along with steel frame structures. Concrete was used later on. Some 19th century elevated railways that still run today are the L in Chicago, and Stadtbahn (S-Bahn) in Berlin and Vienna. Many others have died out, mainly because subways have taken over.



*Berlin Stadtbahn viaduct under construction in 1882.  
Source: Ponton's Brücken, 2009*



*Berlin Stadtbahn in early 1900s.  
Source: Ponton's brücken, 2009*



West Side and Yonkers Patent Railway Company 1869.  
Source: Midcontinent.org, 2006



3rd Avenue El along the Bowery, Manhattan in 1900.  
Source: Detroit Publishing Co. via Nycsubway.org



## ELS RAN OVER THE STREETS

Under the 3rd Avenue El at Chatman Square in 1916.  
Source: Paul Smeilus collection via Nycsubway.org

## STEEL STRUCTURE

## PUBLIC TRANSIT IN NEW YORK

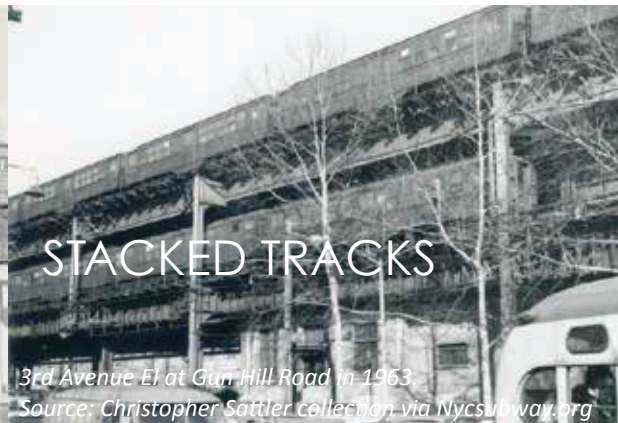
Elevated railways became popular in the growing US cities, especially so in New York. The first elevated line for passenger service was the cable-powered West Side and Yonkers Patent Railway, which opened in 1868 and ran for only a few years (New York Transit Museum, 2014). As technique cable wasn't successful. The city's first regular, small locomotive powered elevated railway began service in Manhattan in 1870 (MTA, n.d.). The El was born. The Els ran on steel columns above streets and other traffic, sometimes in several levels of tracks. It was essentially an overground subway.

The Els changed New York. They made it possible to live, work and shop in different parts of the city. In the words of New York Transportation Museum: "although the Els were dirty and noisy and blocked sunlight from the streets below, they allowed people to travel quickly and cheaply throughout the city for nearly a hundred years, helping transform New York into a bustling metropolis".

As the New York subway first opened in 1904 and started growing, the El slowly died out (MTA, n.d.). But first, the elevated railways branched out from Manhattan to the growing suburbs.



2nd Avenue El close to Queensboro Bridge in 1939.  
Source: Ed Watson via Nycsubway.org



3rd Avenue El at Gun Hill Road in 1963.  
Source: Christopher Sattler collection via Nycsubway.org



3rd Avenue El at Gun Hill Road in 1970.  
Source: Joe Testagrose via Nycsubway.org

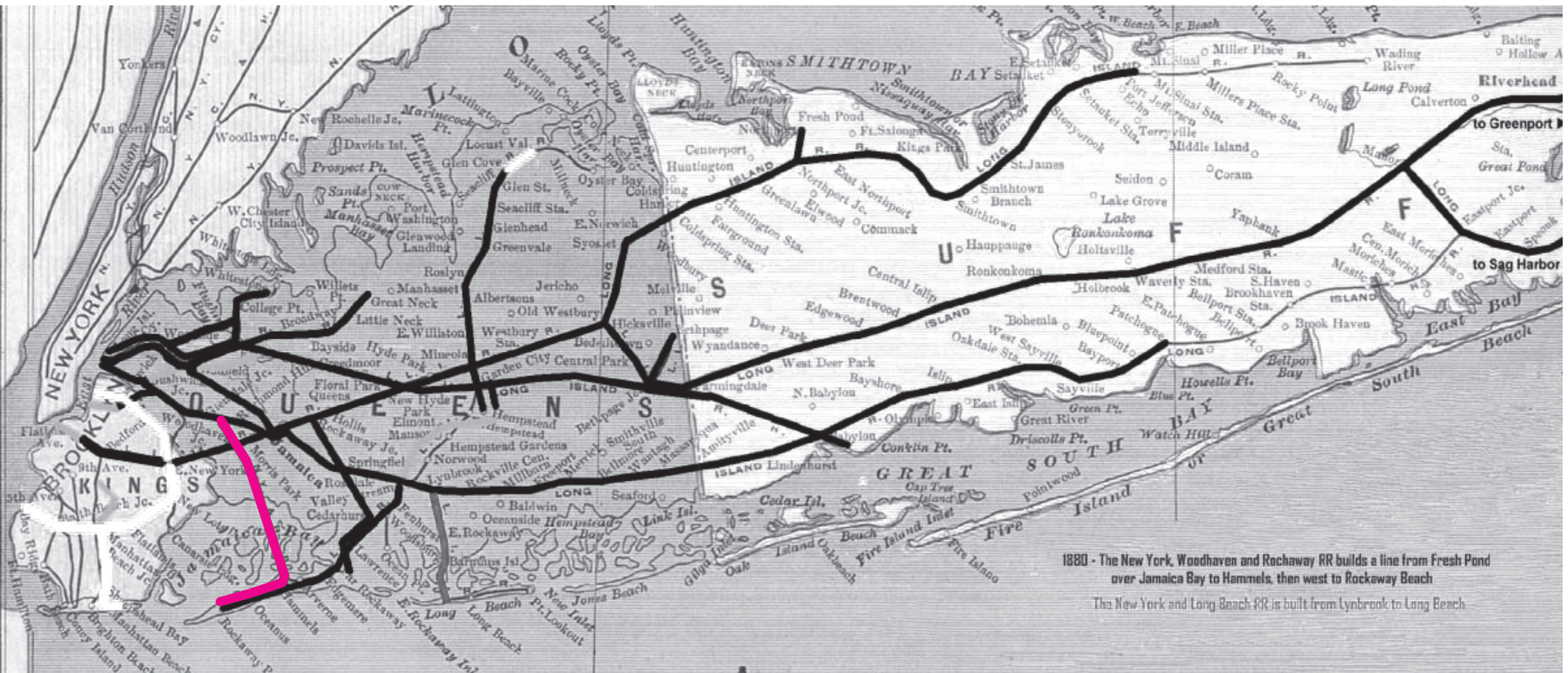
## STACKED TRACKS

## QUEENS & LONG ISLAND RAIL ROAD

The borough of Queens, as part of New York City, was formed in 1898. Before that Queens was a county in the State of New York dating back to the 1600s. (USA People Search, 2014)

The development of rapid transit in Queens is tied to the Long Island Rail Road (LIRR), a railway system connecting different parts of Long Island; Brooklyn, Queens and Suffolk. The Long Island Rail Road Company was established in 1834 (Long Island Rail Road History Website, n.d.).

*Long Island Rail Road in 1880. The Rockaway Beach Branch was under construction.  
Source: Long Island Rail Road History Website*



1880 - The New York, Woodhaven and Rochaway RR builds a line from Fresh Pond over Jamaica Bay to Hammels, then west to Rockaway Beach

The New York and Long Beach RR is built from Lynbrook to Long Beach

## ROCKAWAY BEACH BRANCH

LIRR Rockaway Beach Branch was the elevated railway that is today called Queensway. It ran from Rego Park to Ozone Park and further down to Jamaica Bay and Rockaway Peninsula. Construction of the Rockaway Beach Branch started in 1877 with service being initiated in the 1880s. Expansion was slow and the Queensway stretch stations were not fully completed until the 1920s. After a series of track fires and accidents the cost of maintaining the service became infeasible. The Queensway stretch was closed down for service in 1962. (Friends of the QueensWay, 2013)

The stations of Queensway were in construction order:

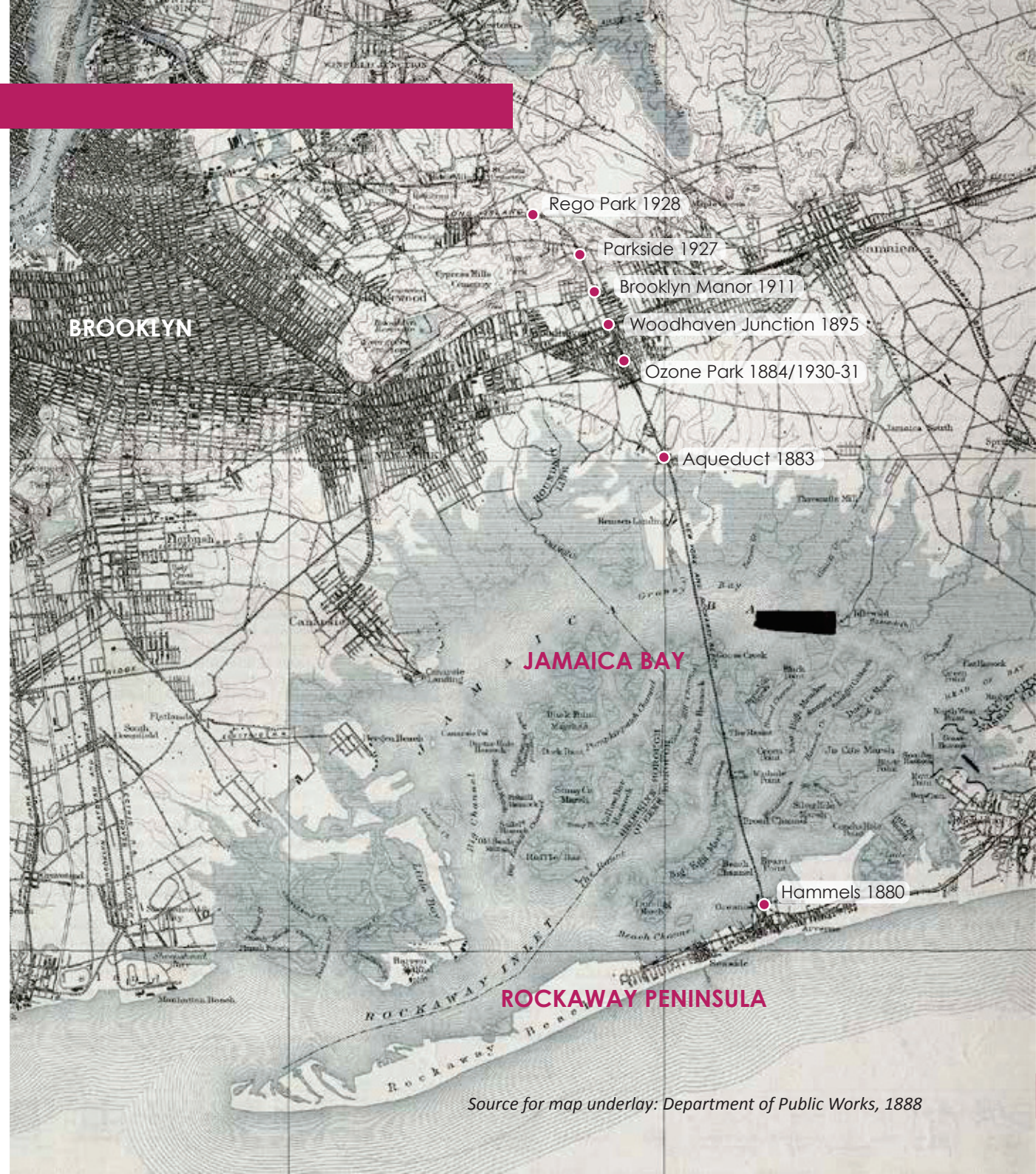
- Ozone Park 1884
- Woodhaven Junction 1895
- Brooklyn Manor 1911
- Parkside 1927
- Rego park 1928

Ozone Park wasn't an elevated station at first. It moved a bit north and was rebuilt as an elevated station in 1930-1931. (Seyfried et al., n.d.)



Queensway at Ozone Park station in the 1950s.  
Source: Friends of the QueensWay, 2012b

Structurally the Rockaway Beach Branch was different from the Els. While Els were steel structures above streets, the Beach Branch was built as an embankment and concrete viaduct.



Source for map underlay: Department of Public Works, 1888

QUEENSWAY TIME LINE



1832  
Building of  
Brooklyn-Jamaica  
Rail Road started

1834  
Long Island Rail  
Road Company  
established



Friends of the QueensWay, 2012b

1877  
Building of Rockaway  
Beach Branch started

1880s  
Rockaway Beach Branch  
started service

1884  
Ozone Park Station opened  
as a ground level station



Friends of the QueensWay, 2012b

1895  
Woodhaven Junction  
Station

1835  
Woodhaven



La Guardia and Wagner Archives  
No. 3 - Fifth Street, Jamaica, N. Y.

1868  
Glendale

1869  
Richmond Hill

1882  
Ozone Park



Anonymous, ca. 1925

1890s  
Forest Park



Ulrich, 1940

1898  
Queens became  
New York City  
borough





Long Island Rail Road  
History Website

1911  
Brooklyn  
Manor  
Station



Friends of the QueensWay, 2012b

1927  
Parkside Station



Edwards, 1952

1928  
Rego Park  
Station



Friends of the QueensWay, 2012b

1930-31  
Ozone Park Station moved and  
rebuilt as an elevated station

1962  
Line closed down



Nathan Kensinger via Curbed, 2013

2014  
Queensway

1906  
Forest Hills

1907  
South Ozone  
Park

1911  
Howard Beach

1923  
Rego Park

1912  
Kew Gardens



La Guardia and Wagner Archives

# 06 CASE STUDIES

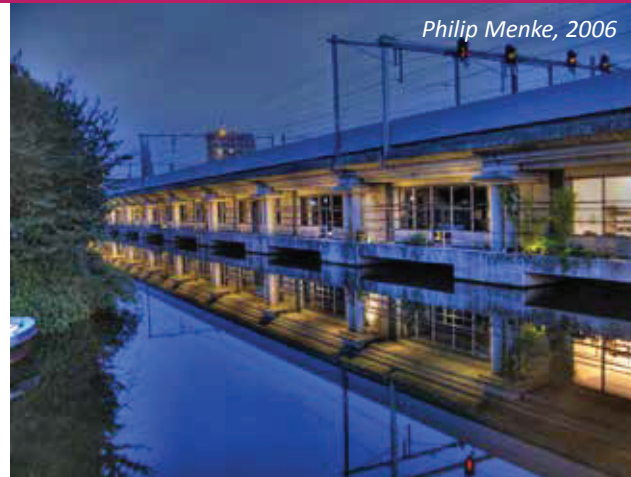
## Two types of railway transformations

There are two main types of elevated railway transformations. In the first type only the space beneath the railway is transformed as the railway is still used for rail traffic. I call this type of transformation *using the space beneath*. In the second type also the elevated railway tracks are transformed. This I call a *complete transformation*. In numbers using the space beneath is a more common way of transforming railways than having a complete transformation. The following text presents different elevated railways that have experienced a specific transformation project. The Stadtbahn in Berlin is not included in the case studies as it was originally built with retail space below and has maintained it's use in the same way.

## Commercial start in Europe

Most examples of elevated railway transformations are located in Europe, where they first took place. The planning of the first transformations started in the 1980s and 1990s. The combination of *Viaduc des Arts and Promenade Plantée* in Paris is the first complete transformation of an elevated railway, developed between 1983-2000. The first section of Viaduc des Arts opened in 1994. When only using the space beneath, early European examples are *Tussen de Bogen* in Amsterdam (development period 1994-1999) and the *Gürtel* line of Stadtbahn in Vienna (1995-2000). More recent European transformations are *Im Viadukt* in Zürich (2005-2010) and *Hofbogen* in Rotterdam, Netherlands (2008-). The European transformations mentioned are all commercial transformations where the main objective has been to build retail space.

A non-commercial transformation example can be found in Yokohama, Japan. There, under a busy railway in the former red light district of Koganecho, you can find space beneath that is used for mainly art and culture programmes and as a public plaza.



Philip Menke, 2006



Thomas Schlijper, 2012

*Tussen de Bogen, Amsterdam - Zeinstra, Ploeg, Van der Waals Architecten 1994-1999*  
Information source: *Crimson Architectural Historians, 2007*



Architekten Tillner & Willinger



RETAIL

Architekten Tillner & Willinger

*Gürtel, Vienna - Architekten Tillner & Willinger 1995-2000*  
Information source: *Architekten Tillner & Willinger*



NIGHT LIFE

Q[kju:] Bar



Im Viadukt



AFTER DARK

Im Viadukt



MARKET HALL

Im Viadukt

Im Viadukt, Zürich - EM2N Mathias Müller & Daniel Niggli 2005-2010  
Information source: World-Architects.com



Tomohiro Sakashita for Domus, 2013



ART & CULTURE

Tomohiro Sakashita for Domus, 2013



PUBLIC PLAZA

Tomohiro Sakashita for Domus, 2013

Koganecho, Yokohama - Contemporaries, Studio 2A, Workstation,  
Koizumi Atelier & Nishikura Architectural Design Office (ca 2010)  
Information source: Domus, 2013

## High Line inspiration in the United States

In the United States there is of course the New York High Line, that has taken the world by a storm. The High Line has given inspiration for dozens of new projects around the world and is also a strong inspiration and example factor for Queensway. The High Line is not a full complete transformation, as it doesn't use much space beneath the railway, but it is the number one example on transforming railway tracks into a park and public space.

The High Line is the only existing elevated railway transformation in the United States. Many other High Line inspired projects are currently under planning and it's a hot topic in the field of urban transformations in US cities. Of the ongoing projects, Bloomingdale Trail and Park in Chicago is the most similar one to Queensway when conditions of the embankment are observed.

### Ongoing elevated railway projects in the US:

- The 606 - Bloomingdale Trail and Park, Chicago
- The Harsimus Branch Embankment, Jersey City
- The Reading Viaduct, Philadelphia

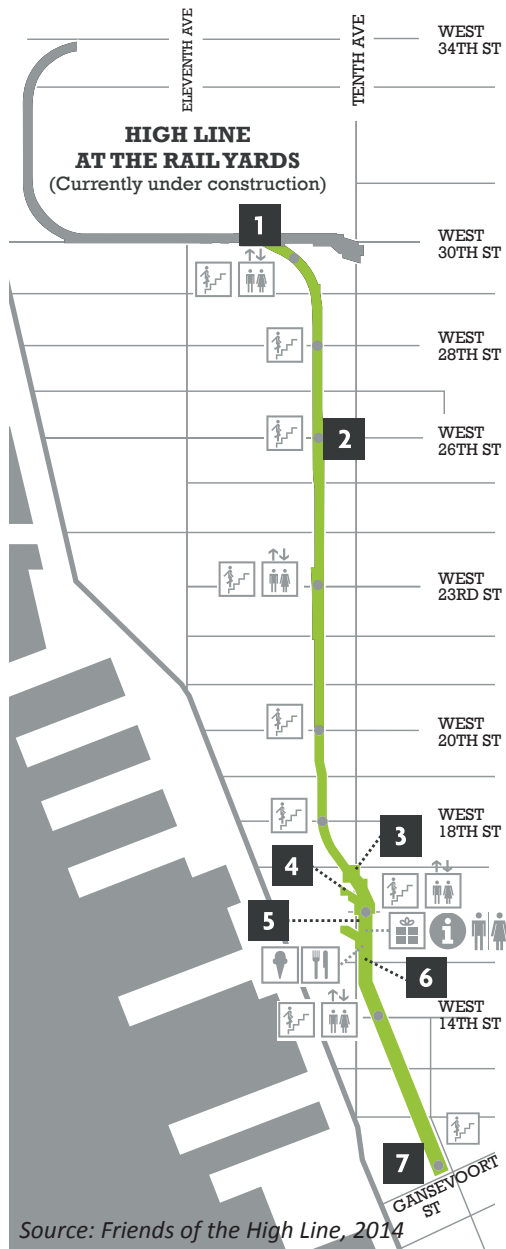
### Other ongoing High Line inspired railway and corridor projects in the US:

- The Atlanta BeltLine, Atlanta
- Farmington Canal Greenway, New Haven, Connecticut
- Great Rivers Greenway, St. Louis
- Park 101, Los Angeles
- The Lowline, New York City
- Dupont Underground, Washington D.C.



*Bloomingdale Trail and Park Framework Plan, 2013*





## THE HIGH LINE, NEW YORK

- Location** West Side, Manhattan, New York City
- Opened** 1st section 2009, 2nd section 2011, 3rd section under construction
- Designers** James Corner Field Operations, Diller Scofidio + Renfro, Piet Oudolf
- Origins** Freight railway for meat industry in the Meatpacking district. Built in 1930s, closed in 1980.
- Urban fabric** Surrounded by mainly high rise buildings with mixed commercial, office and residential use. Very high density.
- Structure** Steel columns and pillars
- Length/height** 2.3 km / 9 m above street level
- Activities** Walking, jogging, sitting, lounging, eating, looking at plants and art
- Specials** Art exhibitions and performances, guided tours in ecology and history, school field trips, food days, Play With Your Food - healthy eating programme for children
- Forbidden** Walking outside designated areas, biking, dog walking, skateboarding and touching plants





### Accessibility

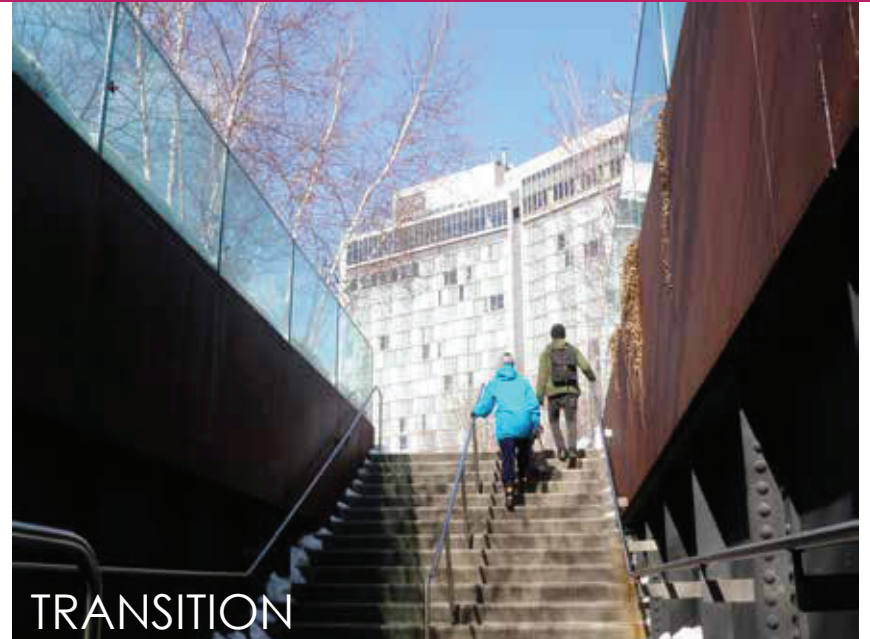
The High Line is mainly accessed through stairs. At the main access points stairs are designed as “slow stairs”. The purpose of the stair design is to have long landings to give an opportunity to pay attention to the industrial steel structure and enjoy the experience of transitioning up to the sunlight (AIA New York Chapter, 2009).

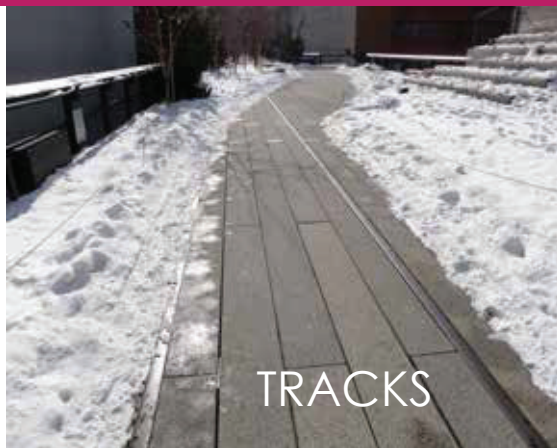
The High Line is accessible by lifts at five out of nine access points. However in winter time all lifts seemed to be closed. This might be because the lift entrances didn’t have roof covers prevent snow from tampering with the doors.

### Experience

I walked through and around the High Line on a cold winter day in February 2014. The plants were covered under snow but the walkways kept open for walking. A lot of people were out walking and sightseeing. As an city exploration experience the High Line was in general very enjoyable. Views were magnificent.

What struck to me was the change of atmosphere from the busy, noisy and shaded streets up to the bright, calm sun light. The “slow stairs” were not that special as stairs itself, but they did draw your attention to the steel structure under the park level. Just before reaching the top, corten steel walls and glass railings created a very appropriate frame for the awaiting transformed industrial scenery.





TRACKS

All designated walkways were mainly covered with concrete slabs in the pattern of a wooden floor boards. Concrete seemed to be an appropriate material for the climate conditions as the New York maintenance policy is in to entirely remove snow and ice from the surface. This is probably because of the threat of lawsuits. The pattern of the concrete gave the High Line a distinctive character. Railway tracks had been preserved or integrated in the concrete only at few points, which was a bit of an disappointment.



PICNIC

As far as activities go, the High Line is very one sided. You can basically walk, sit and look. Biking or having a dog with you is forbidden. Plants take up most of the park surface, but you are not allowed to walk trough them or touch them. You can only look at them. There are no play areas for children and you can't bring a dog along. The one sidedness of the park might be down to the fact it's quite narrow, only about 10 meters at most places.

When I was walking the High Line there was not a lot of people sitting but nobody was eating. However there was a lot of picnic tables and I can imagine that in warmer weather it's bustling with people eating lunch. The High Line does have several street food vendors that set up shops in the park and under the line in warmer seasons (Friends of the High Line, 2013).

### Comparison to Queensway

The High Line has its background in community activity like Queensway. The High Line was the result of a decade long work by *Friends of the Highline* who fought to preserve and transform the abandoned historic rail line instead of it being torn down. The High Line is still maintained by Friends of High Line today and they raise private funding to cover 90 % of the yearly operating costs. (Friends of the High Line, 2013)



LOUNGING

The pattern of community activity is very much the same compared Queensway but otherwise Queensway is very different. The High line is located in a mixed use urban fabric with a very high density. Queensway on the other hand is surrounded by residential neighbourhoods that have a much lower density. Queensway is also lower, longer, wider and for large parts it's basically a forest.



AMPHITHEATRE





Le Viaduc des Arts, 2012

PROMENADE PLANTÉE ON TOP

VIADUC DES ARTS BELOW

## VIADUC DES ARTS & PROMENADE PLANTÉE, PARIS

**Location** 12th arrondissement, Paris

**Opened** 1st section 1994, last arch vaults completed in 2000

**Designers** Viaduc des Arts: Patrick Berger  
Promenade Plantée: Philippe Mathieux & Jacques Vergel

**Origins** Passenger railway "ligne de la Bastille".  
Opened 1858, closed in 1969.

**Urban fabric** Surrounded by mid-rise buildings with mixed residential, commercial and office use. High density.

**Structure** Brick and stone viaduct, 64 arch vaults each 150-460 m<sup>2</sup>

**Length** Viaduc des Arts: 1.5 km  
Promenade Plantée: 4.5 km  
(continues past the viaduct)

**Arch vault activities** Craft studios & shops (e.g. porcelain, furniture), art galleries, café, restaurant

**Promenade activities** Walking, jogging, lounging, eating, looking at lush plantings and water ponds. Dogs allowed. Cycling allowed on the non-viaduct part.

**Specials** Promenade connected to adjoining city parks with playgrounds for children.

Sources: Le Viaduc des Arts, 2012; Paris.fr



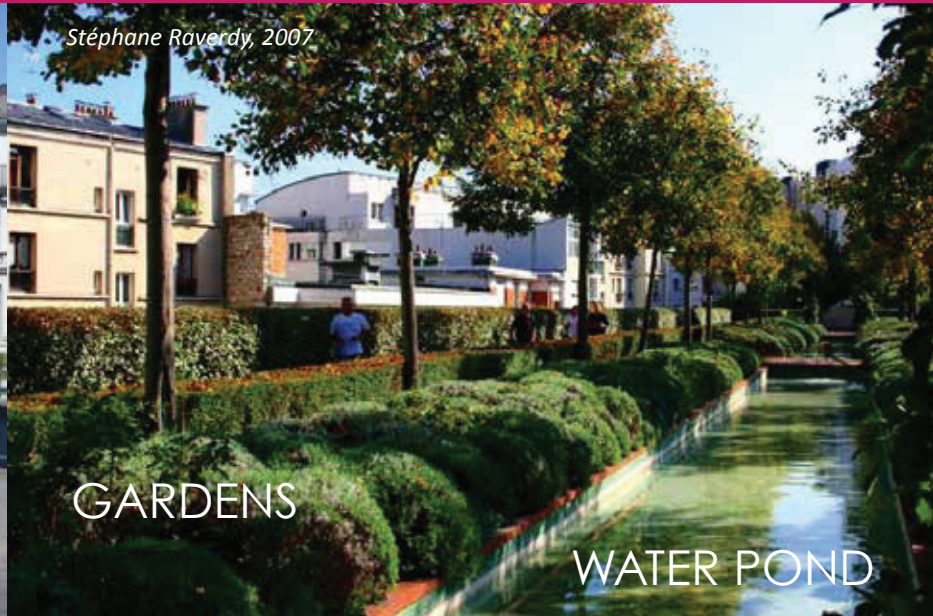
Le Viaduc des Arts, 2012





Anthony Atkielski, 2011

NEED FOR LOUNGING



Stéphane Raverdy, 2007

GARDENS

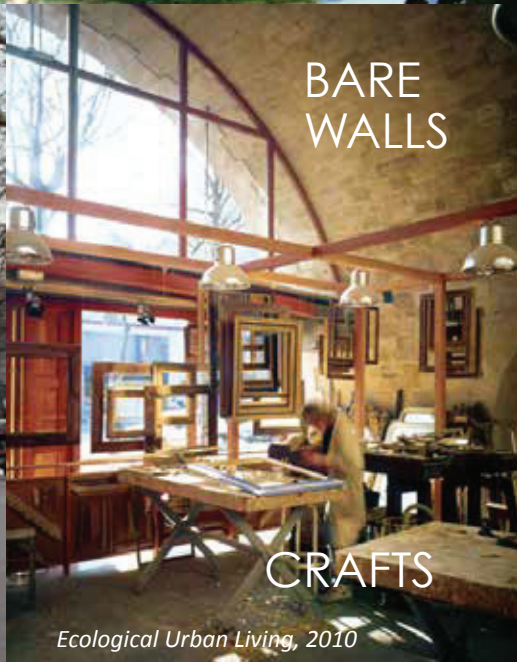
WATER POND



TRANSPARENCY

WIDE SIDEWALK IN FRONT OF SHOPS

Le Viaduc des Arts, 2012



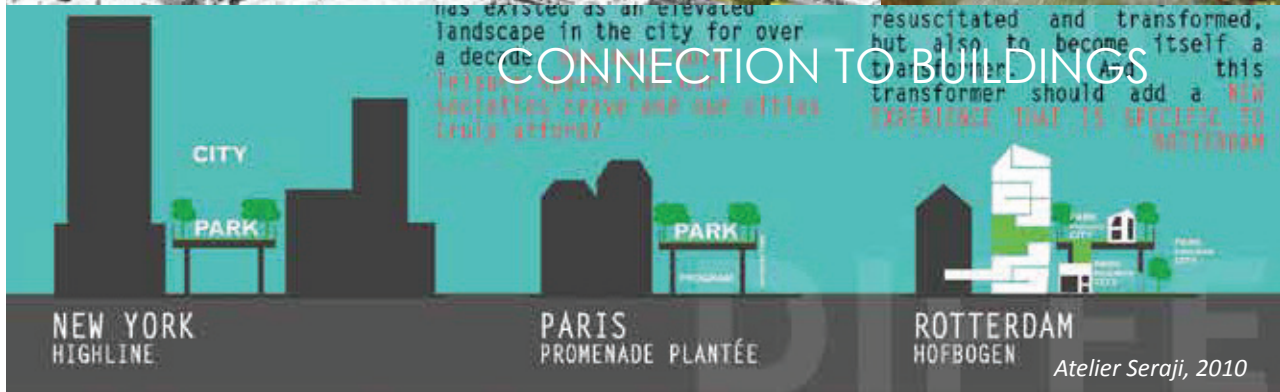
BARE WALLS

CRAFTS

Ecological Urban Living, 2010

**HOFBOGEN & STATION HOFPLEIN, ROTTERDAM**

- Location** Rotterdam North, Rotterdam
- Opened** Mini Mall at Station Hofplein 2011  
Luchtsingel bridge 2013  
Railway park under planning
- Designers** Mini Mall: PEÑA architecture & Afarai  
Luchtsingel: ZUS  
Various proposals for the elevated park
- Origins** Passenger railway to Scheveningen. Built in 1905-1908, closed in 1980.
- Urban fabric** Surrounded by mid-rise buildings with mainly residential and some mixed use. High density.
- Structure** Concrete viaduct with arch vaults
- Length** 1.9 km
- Activities** Currently: shopping, cafés, art exhibitions, concerts  
Future: walking, jogging, biking
- Specials** National monument since 2002. Hofbogen is a combination of several project phases with different designers. One the main goals is to connect the viaduct in the surrounding urban fabric.



## LEARNED FROM THE CASE STUDIES

Many of the found case studies are quite exclusive transformations with high-end stores. This is understandable because renovations are expensive and they are located in central areas of the city. However the residential setting of Queensway requires a transformation that is for the local people and serves their needs. Therefore inappropriate exclusivity has to be avoided.

The main point learned from the case studies is to create multi-purpose space that is as active as possible all year round. Having a park that isn't for everyone is the worst possible restriction when the goal is to give residents an easily graspable chance to become more physically active and sustainable in everyday life.

### What to include in Queensway:



Experience of transition between ground and elevated plane: busy street to calm light

Highlighting the structure: framing & drawing attention

Preservation of railway tracks

Transparent facades: light, sharing of experiences

Picnic and lounging areas

Water features

Paving material that can be fully cleaned in winter

Art and culture in park

Connecting the railway to surrounding buildings and facilities with direct access

Accessibility: lifts, ramps

Amphitheatre

Education programmes

### What to avoid:



Being one-sided and not including everyone

Strict rules: forbidding dogs, bikes and skateboards

Having no facilities for children

Having plants only for looking, nothing for touching

Lack of winter activities

Lifts that don't work in winter

Exclusiveness with only high-end stores



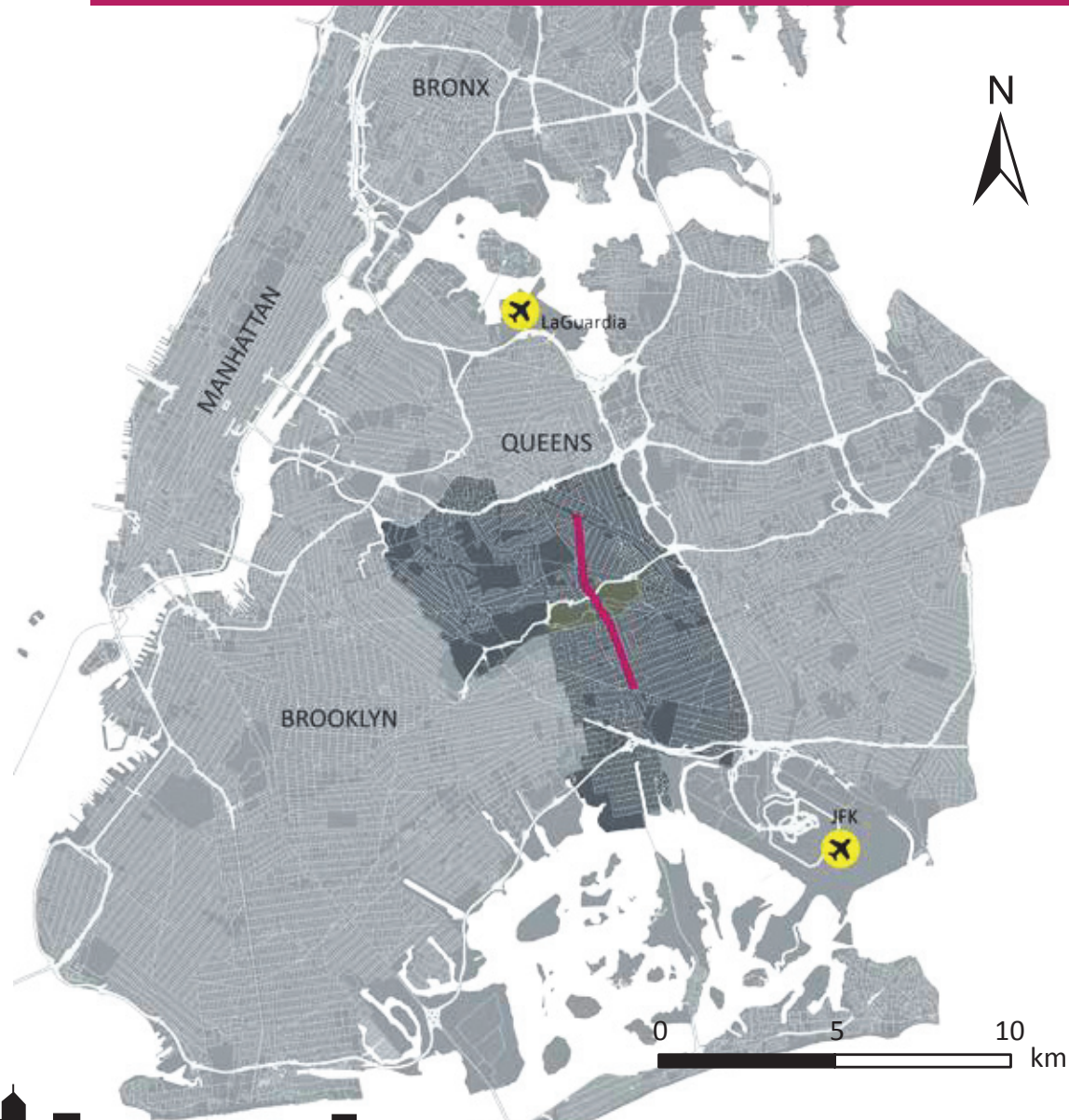
# PART II

Site Analysis

# 07 CONNECTIONS








Queensway is located in Southwest Queens some 10 kilometres from Manhattan. Even in a metropolis like New York City having a car is extremely popular, especially so in the suburbs such as Queens. Highways, bridges and tunnels connect the suburbs to Manhattan. The overall street infrastructure is car dominant.

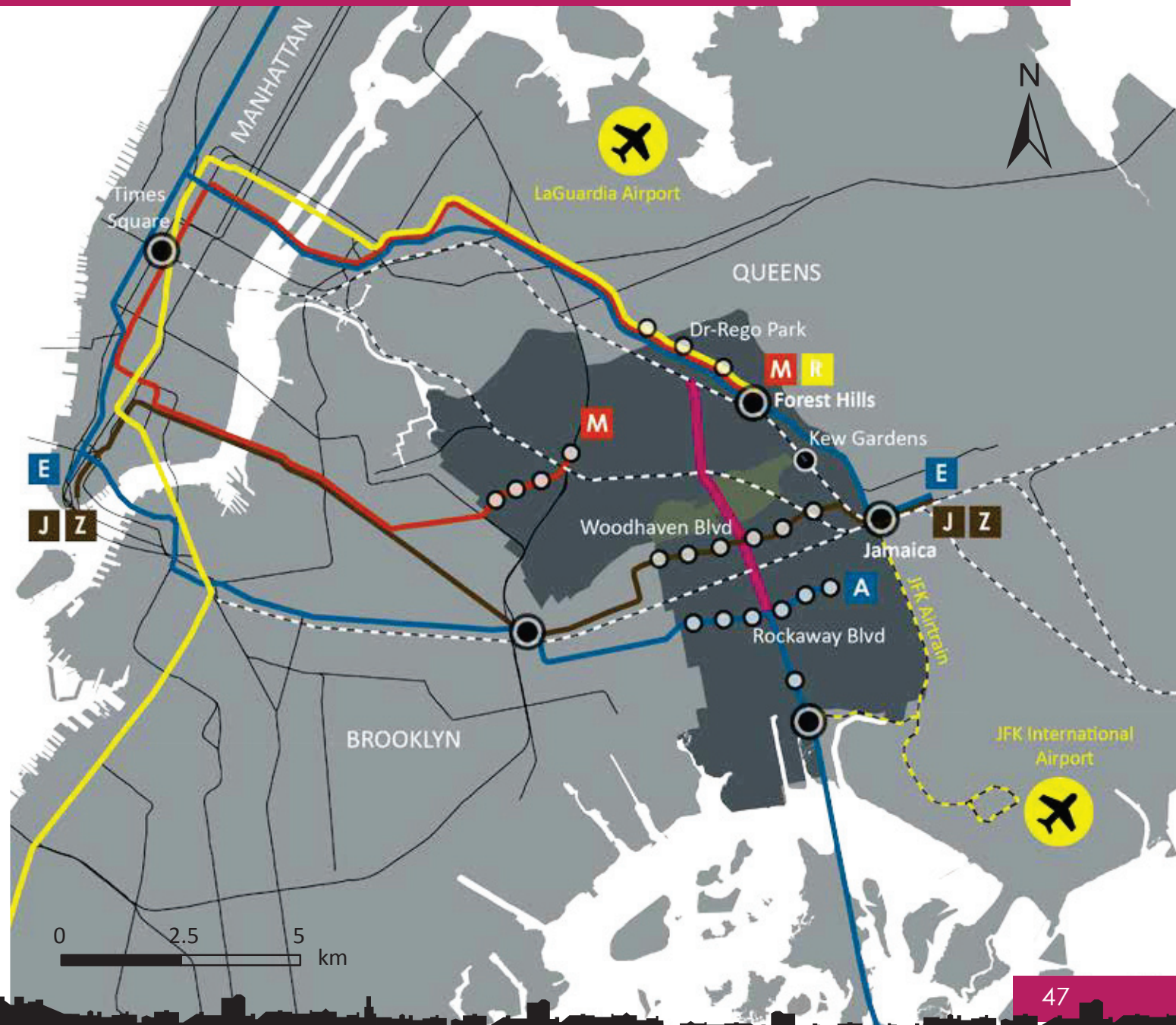
Two major airports, JFK International and LaGuardia are located in Queens, not very far from Queensway.

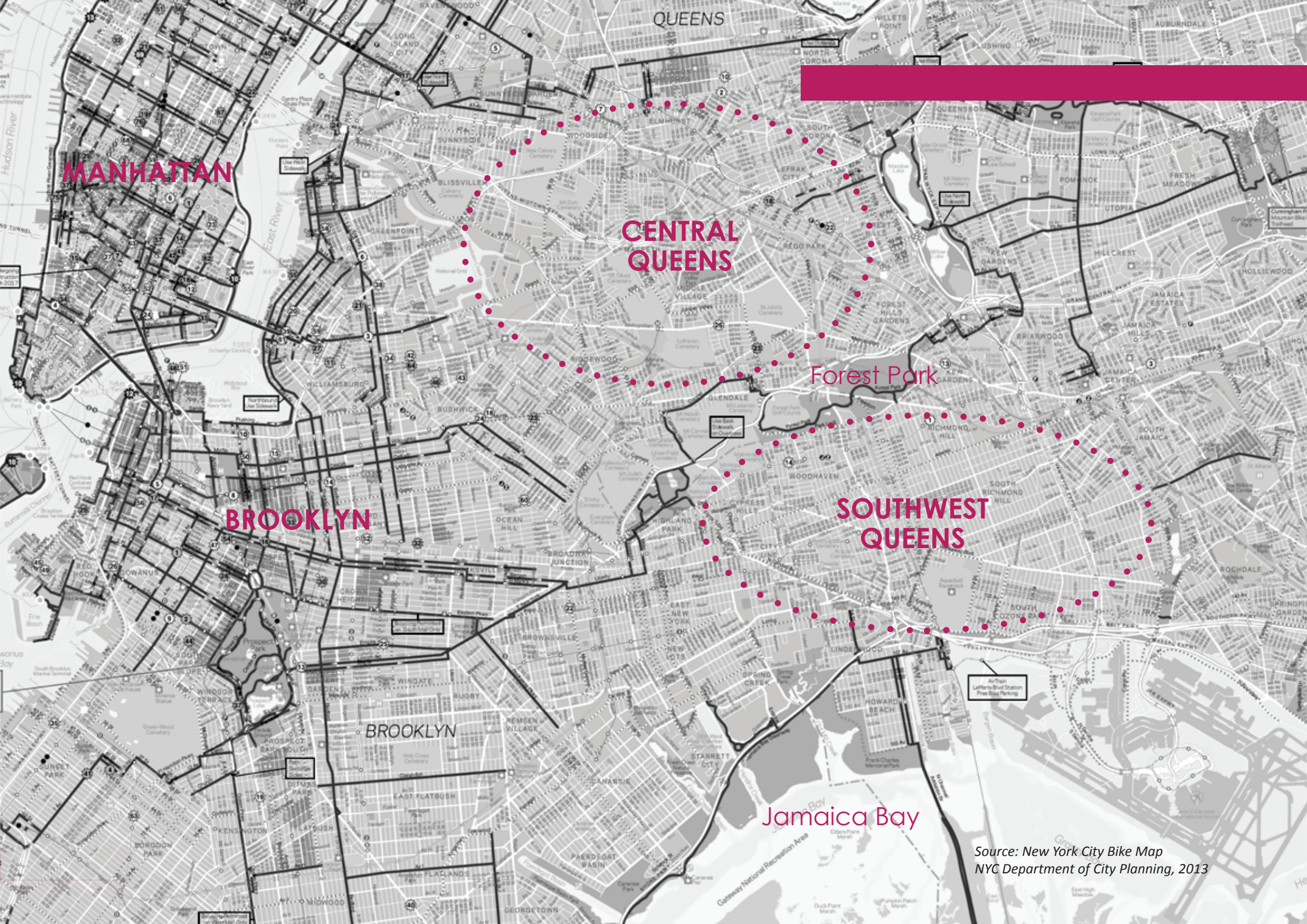


## PUBLIC TRANSPORTATION

The main mode of public transportation in New York City is the subway. The neighbourhoods surrounding Queensway are served by six subway lines and a total of 21 stations. The best subway service is in the north end of Queensway in Forest Hills where most lines and the express trains to Manhattan have a stop. Also, Long Island Rail Road has a station in Forest Hills. Travel time to Manhattan is 30 minutes on the express line and up to an hour on other subway lines. Most subway lines in Queens are elevated and not underground like Queensway. There are also local bus connections complementing the subway.

-  Queensway
-  Subway **A E M R J Z**
-  Long Island Rail Road LIRR
-  JFK Airtrain
-  Transportation hub
-  Subway stop
-  LIRR stop





MANHATTAN

CENTRAL  
QUEENS

Forest Park

BROOKLYN

SOUTHWEST  
QUEENS

Jamaica Bay

Source: New York City Bike Map  
NYC Department of City Planning, 2013



## CYCLING IN NEW YORK

Bicycle use in New York has had a remarkable growth in the past years. In five years between 2008-2012 all-year-round cycling volumes have grown by 60 %. Bike riding is at record high and increasingly a year-round activity. Cycling has consistently increased when the bicycle network has expanded. In 2008-2011 new and enhanced bicycle routes were built for more than 500 km. As a result, cycling has become everyday transportation. (New York City Department of Transportation, 2013)

Cycling is common as a lifestyle choice in Manhattan and Brooklyn where most of the cycling improvements have taken place. As seen on the map on the right, Manhattan and Brooklyn are the areas where existing bike routes and bike lanes are located. Queens however, is a blank spot on the bike map. Infrastructure for cycling is completely non-existent in large areas of southwest and central Queens except for the bicycle route going through Forest Park and some routes close to the Jamaica Bay shore.

Manhattan and Brooklyn are also served by the popular Citi Bike shared bicycle system. Queens doesn't have Citi Bike but there are plans to include Queens in the future. At the earliest Citi Bike is coming to Queens late 2015 (Trapasso, 2013).

There are plans to improve cycling routes in Queens. The *Woodhaven - Cross Bay Bicycle Corridor Study* recommends bike lines and signed routes to connect Forest Park and Southwest Queens to the Jamaica Bay route (NYC Department of City Planning, Transportation Division, 2009b).

All areas in community districts 5, 6, 9 and 10 are within a two kilometre radius from a subway station. The potential for having a bicycle as a part of daily commutes is immense. The city has a policy called *Bike & Ride* to increase secure bicycle parking at or near transit stations, but stations in central and southwest Queens are bottom priorities (NYC Department of City Planning, Transportation Division, 2009a).



Citi Bike in Manhattan



Woodhaven - Cross Bay Bicycle Corridor Study proposal  
(NYC Department of City Planning, Transportation Division, 2009b)

# 08 STATISTICS

## DEMOGRAPHICS

### Community district 5

Total population 169 190

Ethnicity Dominantly **white** (55 %) & **Hispanic** (35 %)

Age and households **Families with children**  
 0-14 years 18 %  
 25-44 years 32 %  
 median age 37  
 average household size 2.7



Economics **Lowest earnings**  
 median household income \$ 53 913  
 14 % of people below poverty level

### Community district 10

Total population 122 396

Ethnicity Mixed community **white** (26 %), **Hispanic** (23 %),  
**Asian** (18 %) & **black** (17 %)

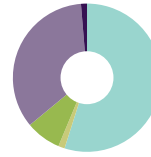
Age and households **Families with children and youth**  
 0-14 years 18 %  
 15-24 years 14 %  
 25-55 years 28 %  
 median age 38  
 average household size 3.1



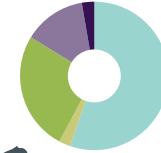
Economics **Medium earnings**  
 median household income \$ 59 064  
 11 % of people below poverty level

Total: 530 000 inhabitants

38 % foreign born



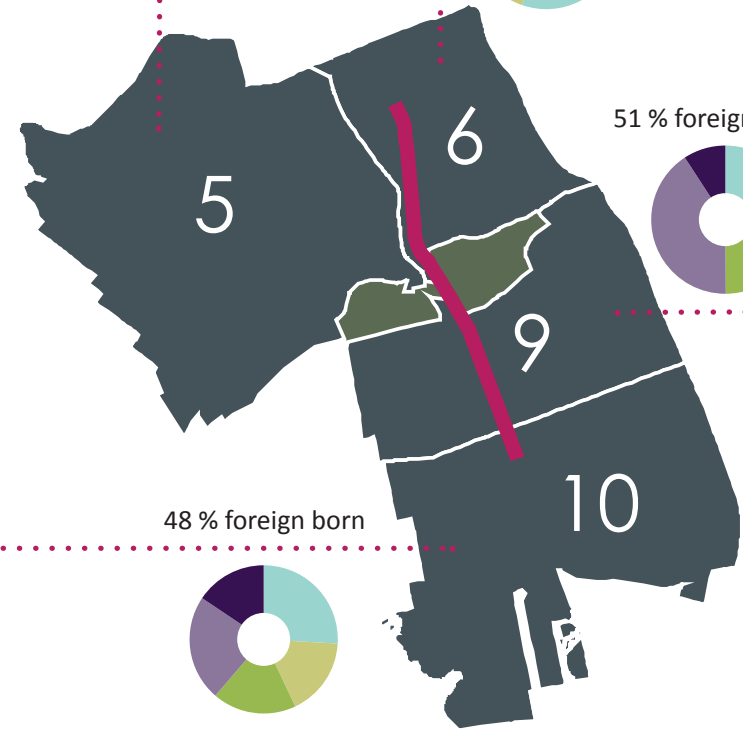
50 % foreign born



51 % foreign born



48 % foreign born



Ethnicity

white

black

asian

hispanic

other

Age

0-14 years

15-24 years

25-44 years

45-64 years

65+ years

## Community district 6

Total population 113 257

Ethnicity Dominantly **white** (55 %) & **Asian** (26 %)

Age and households **Older adult households**

0-14 years 13 %

15-24 years 9 %

25-55 years 31 %

65+ years 18 %

median age 41

average household size 2.2



Economics **High earnings**

median household income \$ 62 314

8 % of people below poverty level

Sources:

NYC Community Data Portal, New York City Department of City Planning, 2014

Selected Demographic, Economic & Social Characteristics - 3-Year Estimates 2008-2010, American Community Survey

## FAMILY NEIGHBOURHOODS

Based on earnings, all studied community districts are middle class neighbourhoods. Estimated median household income in New York City is 51 865 dollars per year (United States Census Bureau, 2014). All districts are above that.

The north side of Queensway is dominantly white and the south side is more ethnically mixed with Hispanic as the largest group. Although Asians are not the largest group in any district, they are most prevalent in district 6.

Community districts 6 and 9, which are also closest to Queensway, stand out. Community district 6 has the eldest population and the smallest household size. District 6 also has the highest income level. District 9 on the other hand has the youngest population with most children and largest families. Median earnings in district 9 are considerable lower than in district 6.

District 5 can be described as a family neighbourhood with children. The same goes for district 10 except for that they have more youth.

All districts have a high number of foreign born inhabitants. Around half of the population hasn't been born in the United States.

## Community district 9

Total population 122 396

Ethnicity Dominantly **Hispanic** (41 %) mixed with **Asian** (22 %) & **white** (20 %)

Age and households **Most families with children and youth**

0-14 years 19 %

15-24 years 15 %

25-55 years 31 %

65+ years 10 %

median age 35

average household size 3.2



Economics **Lower earnings**

median household income \$ 54 522

13 % of people below poverty level

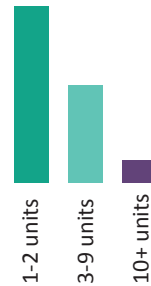
# HOUSING

Total: 210 000 housing units

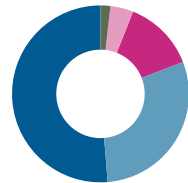
## Community district 5

Total housing units 65 631

Density & building sizes **Lower density & few units**  
 87 people/ha  
 59 % 1-2 unit buildings  
 33 % 3-9 unit buildings  
 8 % high-rise 10+ units



Building age **Mostly pre-war buildings**  
 51 % built before 1940  
 30 % 1940-1959  
 13 % 1960-1979



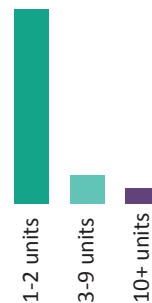
Owner occupancy 39 %

Heating fuel **Gas** 83%, **oil** 15 %, electricity 2 %

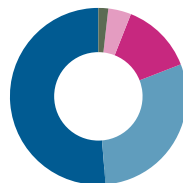
## Community district 10

Total housing units 42 881

Density & building sizes **Lowest density & detached units**  
 77 people/ha  
 82 % 1-2 unit buildings  
 12 % 3-9 unit buildings  
 6 % high-rise 10+ units



Building age **Mostly post-war buildings**  
 36 % built before 1940  
 34 % 1940-1959  
 22 % 1960-1979



Owner occupancy 61 %

Heating Fuel **Gas** 80%, **oil** 17 %, electricity 2 %



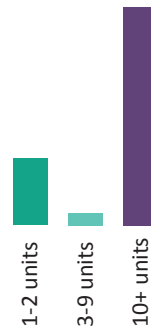
Year structure built

- -1939
- 1940-1959
- 1960-1979
- 1980-1999
- 2000-

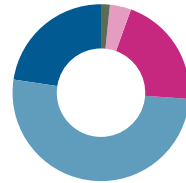
## Community district 6

Total housing units 54 559

Density & building sizes **Highest density & high-rises**  
 148 people/ha  
 22 % 1-2 unit buildings  
 4 % 3-9 unit buildings  
 73 % high-rise 10+ units



Building age **Mostly post-war buildings**  
 23 % built before 1940  
 51 % 1940-1959  
 21 % 1960-1979



Owner occupancy 47 %

Heating fuel **Gas** 59%, **oil** 33 %, electricity 5 %

Sources:

NYC Community Data Portal, New York City Department of City Planning, 2014

Selected Housing & Economic Characteristics - 3-Year Estimates 2008-2010, American Community Survey

## AGING NEIGHBOURHOODS

Queensway is surrounded by residential neighbourhoods. Community district 6 is the densest area with mostly high-rise buildings with 10 units or more. All other districts are areas with small residential buildings that mainly comprise of 1-2 units.

Community district 9 is also densely populated, but has fewer units than district 6. This is also evident in the average household size 3.2, which is the largest in the area.

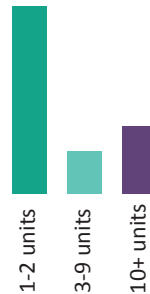
There are very few new buildings in the area. Districts 5 and 9 were built mainly in pre-war time before 1940. In districts 6 and 10 most buildings are from 1940s-1970s. In total districts surrounding Queensway have 88 300 housing units that were built pre-war before 1940 and 110 300 units that were built 1940-1979.

Almost all homes use either gas or oil for heating. This is not surprising as gas and oil were the prevailing heating methods when the houses were built. However today, this is the single most pressing issue in terms of sustainability as most of the energy used in homes goes into heating. Also, in New York City, energy use in buildings accounts for 75 % of greenhouse emissions (City of New York, 2011).

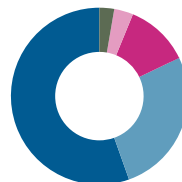
## Community district 9

Total housing units 48 030

Density & building sizes **High density but fewer units**  
 144 people/ha  
 63 % 1-2 unit buildings  
 14 % 3-9 unit buildings  
 23 % high-rise 10+ units



Building age **Mostly pre-war buildings**  
 56 % built before 1940  
 27 % 1940-1959  
 12 % 1960-1979



Owner occupancy 42 %

Heating fuel **Gas** 73%, **oil** 23 %, electricity 3 %

## HEALTH & ACTIVITY

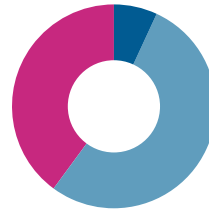
Total: 500 000 people who don't bike regularly

### Community district 5

Weight Over **half are obese** (17 %) or **overweight** (34 %)  
34 % on cholesterol medication  
7 % diabetic

Physical activity & biking **Most people never bike**  
only 58 % meet activity recommendations\*  
84 % haven't used a bike in the last year  
only 6 % use a bike regularly

Commuting to work **Using a car is common**  
39 % go by car  
52 % use public transportation  
7 % walk

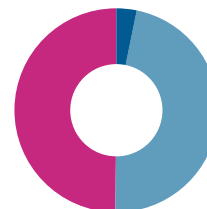


### Community district 10

Weight **Well over half are obese** (25 %) or **overweight** (39 %)  
41 % on cholesterol medication  
13 % diabetic

Physical activity & biking **Most people never bike**  
only 56 % meet activity recommendations\*  
78 % haven't used a bike in the last year  
only 6 % use a bike regularly

Commuting to work **Most car users, people don't walk**  
48 % go by car  
45 % use public transportation  
3 % walk



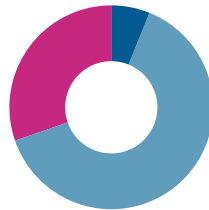
The collected health and activity information concerns adults aged 18 and over.

## Community district 6

Weight Over **half are obese** (17 %) or **overweight** (34 %)
   
34 % on cholesterol medication
   
7 % diabetic

Physical activity & **Most people never bike**
  
biking only 58 % meet activity recommendations\*
   
84 % haven't used a bike in the last year
   
only 6 % use a bike regularly

Commuting to work **Least car users, most public transport users**
  
28 % go by car
   
60 % use public transportation
   
6 % walk

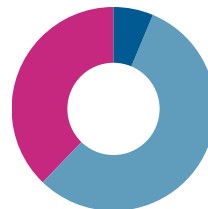


## Community district 9

Weight **Well over half are obese** (25 %) or **overweight** (39 %)
   
41 % on cholesterol medication
   
13 % diabetic

Physical activity & **Most people never bike**
  
biking only 56 % meet activity recommendations\*
   
78 % haven't used a bike in the last year
   
only 6 % use a bike regularly

Commuting to work **Both car and public transit users**
  
36 % go by car
   
53 % use public transportation
   
6 % walk



\* In US, the 2008 Federal physical activity recommendations are to engage in at least 150 moderate-equivalent minutes of physical activity per week

Sources:

Community Health Survey 2012, New York City Department of Health and Mental Hygiene, 2012

NYC Community Data Portal, New York City Department of Planning, 2014

Selected Economic Characteristics - 3-Year Estimates 2008-2010, American Community Survey

## INACTIVE PEOPLE

Over half of residents in the studied districts are overweight or obese. The north side of Queensway is somewhat healthier than the south side in terms of weight related medical issues. On the north side 51 % of adult population is overweight. 7 % are diabetic and 34 % use cholesterol medication. On the south side 64 % of adults are overweight. Percentages of diabetes (13 %) and cholesterol medication (41 %) are at the same time considerably higher.

In terms of physical activity north and south are quite the same. Only little over half meet the physical activity recommendation of at least 150 moderate-equivalent minutes of physical activity per week. Biking is very uncommon. In the north, 84 % haven't used a bike in the last year. In the south the number is 78 %. This is not a surprise as the studied districts basically don't have any facilitation for biking. In the south people have access to the Cross Bay bicycle corridor, which might explain why they bike a bit more.

Using public transportation is most common in district 6. They also use cars least. This probably because they are served by several subway lines and the railroad. Using the car becomes more prevalent the more south you go. It is most common in district 10 which also has the highest percentage of 1-2 unit buildings and detached homes.

# 09 COMMUNITY DISTRICT NEEDS

The following information is stated by the community districts boards in *Community District Needs for the Borough of Queens - Fiscal Year 2013*, a publication by New York City Department of City Planning, 2012.

## Community district 5

### BACKGROUND

- Illegal apartments & over-occupied residential buildings  
Since 1990, the population has increased by 20 000 people but little new housing has been built.
- Overcrowded schools  
Teaching takes place in auditoriums and staircases
- Large increases in car traffic
- Poorly maintained and vandalised parks



### NEEDS

- Affordable housing  
Suggestion to transform vacant buildings and empty lots for housing people without a stable place to live. The idea is to hire professionals to teach the people how to renovate and build themselves.
- New schools
- Reconstruction of parks

## Community district 10

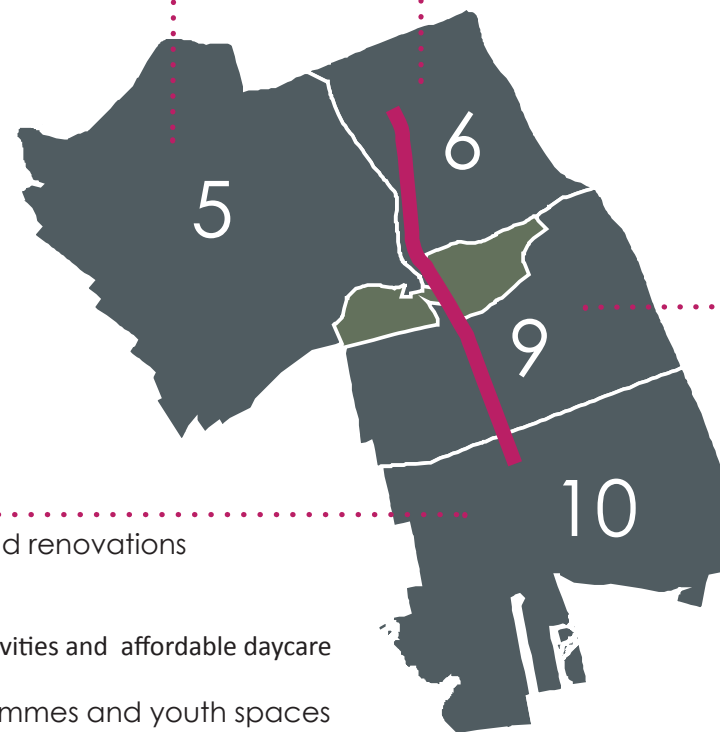
### BACKGROUND

- Illegal housing conversions  
Since 1990, the population has increased by 15 000 people but little new housing has been built.
- Overcrowded schools
- Increase in elderly population  
20 000 people over 60 served by one senior centre.
- Little open recreational space  
Except for the southern waterfront park
- High percentage of car users  
Lack of reliable and safe surface transportation.  
Most residents work in Queens.



### NEEDS

- School additions and renovations
- Multi-service centre  
To provide senior activities and affordable daycare
- After-school programmes and youth spaces  
Especially in Richmond Hill and South Ozone Park (areas closest to Queensway)
- Year round recreation and leisure activities  
Request for a recreation centre and public pool.
- Surface transportation  
Reliable transit to other parts of Queens
- Ways to attract additional businesses





## Community district 6

### BACKGROUND

Influx of immigrants  
Many from totalitarian countries - Asia and former Soviet states.

Increased number of children  
Children without a stay at home parent in need of daycare.

Newcomer immigrant youth  
Only one youth centre and long waiting lists to after school programmes. Youth are hanging out in streets and parks.

Largest elderly population in Queens  
Many lack English language skills.



### NEEDS

Increased senior and children services

- senior recreation and English language classes
- suggested combined affordable daycare for children and social daycare for seniors

Comprehensive youth services

- available 24/7 all year round
- summer activities & employment

Improved access to parks  
Parks are cut off by major roads.

Assist commercial strips  
Improve business and cope with growing problem of vacancies.

## COMMON NEEDS

All community districts have experienced a influx of new residents in the past decades, many of them immigrants. Neighbourhoods that were once dominantly white have become more multicultural. The influx has been so strong that development hasn't kept up with the numbers and single unit houses have been illegally converted to multi-unit houses. This is evident in the poorer community districts 5, 9 and 10. More legal affordable housing is greatly needed. Having more residents than planning allows has also led to overcrowded schools. Many of these are in bad conditions and in need of upgrades.

The need of more senior, youth and child services is common to all community districts. In many places the idea is to combine different age groups in one service centre. Seniors need more social activities and children need affordable daycare. Youth need comprehensive services in everything outside school hours.

In some parts parks and public spaces are not very well maintained which has led to less users. There is a need for rehabilitation and year round recreation. Commercial strips need assistance to be vibrant.

All community districts seem to have issues with storm water flooding. There are streets floods, basement floods and sewer backups. This is most likely due to a lack of permeable surfaces as cars take up much space. They are trying to solve the problem by building new sewer lines.

## Community district 9

### BACKGROUND

Illegal apartments & over-occupied residential buildings  
Since 1990, the population has increased by 30 000 people but little new housing has been built.

Overcrowded schools  
44 000 students in rundown school facilities.

Affordable daycare is non-existent

Use of Forest park has declined

Deteriorated playgrounds



### NEEDS

Affordable daycare

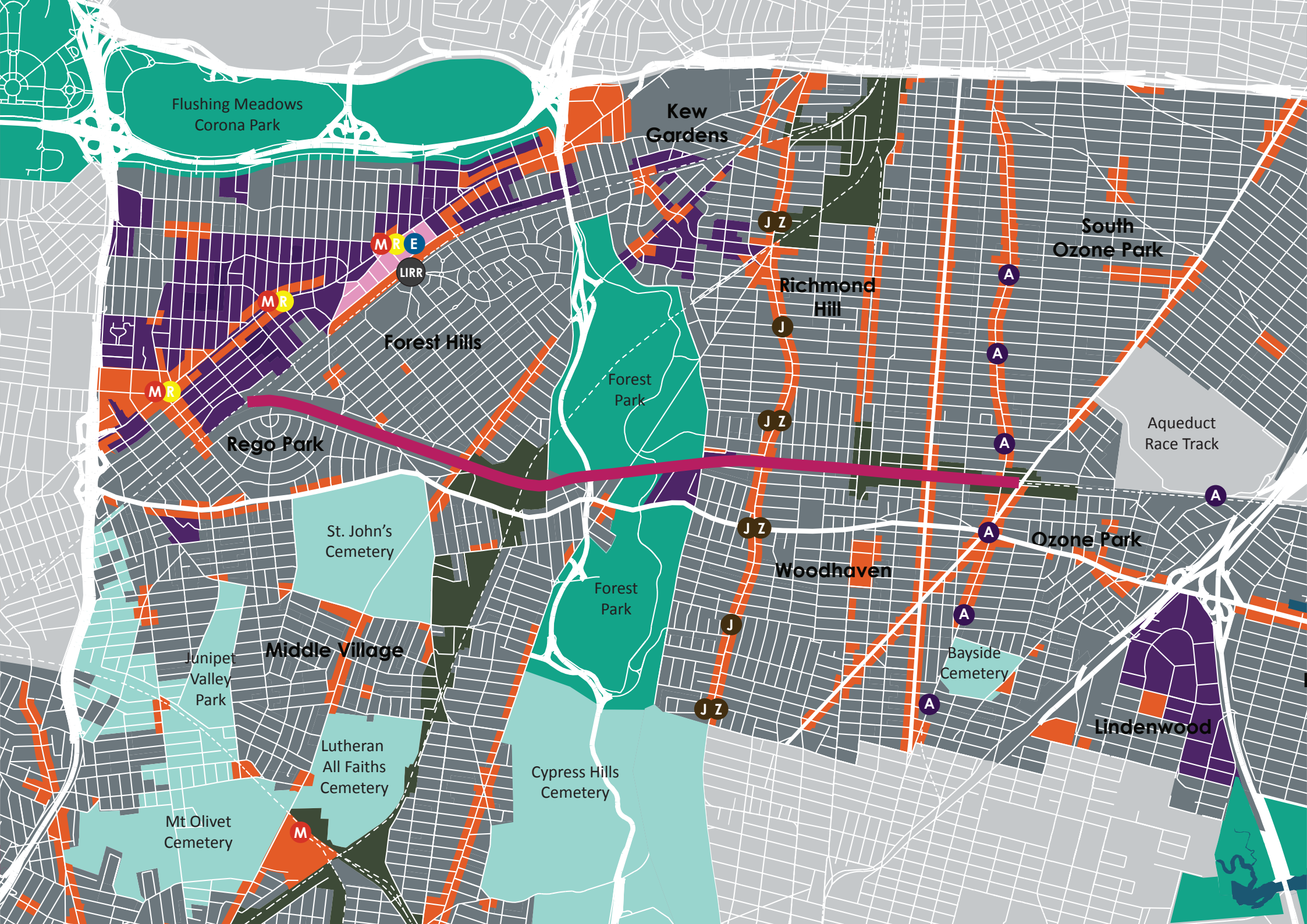
School upgrades

Comprehensive youth services

- programmes for cultural workshops, exhibits and performances
- education for alcohol and substance abuse

Rehabilitation of Forest Park and playgrounds  
Plans to transform the Forest Park Greenhouse into a education centre for senior and youth.

Assist commercial strips



Flushing Meadows  
Corona Park

Kew  
Gardens

South  
Ozone Park

M R E

LIRR

JZ

Richmond  
Hill

A

M R

Forest Hills

J

Forest  
Park

JZ

A

M R

Rego Park

Aqueduct  
Race Track

A

St. John's  
Cemetery

JZ

A

Ozone Park

Forest  
Park

Woodhaven

Bayside  
Cemetery

J

A

Junipet  
Valley  
Park

Middle Village

JZ

A

Lutheran  
All Faiths  
Cemetery

Cypress Hills  
Cemetery

Lindenwood

Mt Olivet  
Cemetery

M

# 10 LAND USE



Queensway is surrounded by residential neighbourhoods. They consist mainly of small attached and detached buildings with 1-2 units. High-rise residential buildings are concentrated to Rego Park and Forest Hills in the north and Lindenwood in the south. There are also some in Kew Gardens on the east side. Main streets form commercial strips with mainly local small businesses. Large chain stores and shopping centres are located in Rego park, Middle Village and Woodhaven. Industrial areas are clustered at various locations.

There are three large park areas; Forest Park in the middle, Spring Creek Park at the waterfront and Flushing Meadows Corona Park, which is actually outside the studied community districts. Other green areas are various cemeteries that account for large areas of land, but are not recreational areas. Outside the three main parks there are very little recreational areas with greenery.

- Queensway
- Residential, mainly 1-2 family
- Residential, high-rise
- Commercial / mixed use
- Industrial / commercial
- Future development area
- Park
- Cemetery
- Water
- A M R J Z Subway station
- LIRR Railway station LIRR

# 11 QUEENSWAY TODAY



As Queensway is a railway, it's practically flat on the track level. The gradient is at maximum only a few percent. Therefore it's naturally accessible.

## EMBANKMENT

## RAVINE

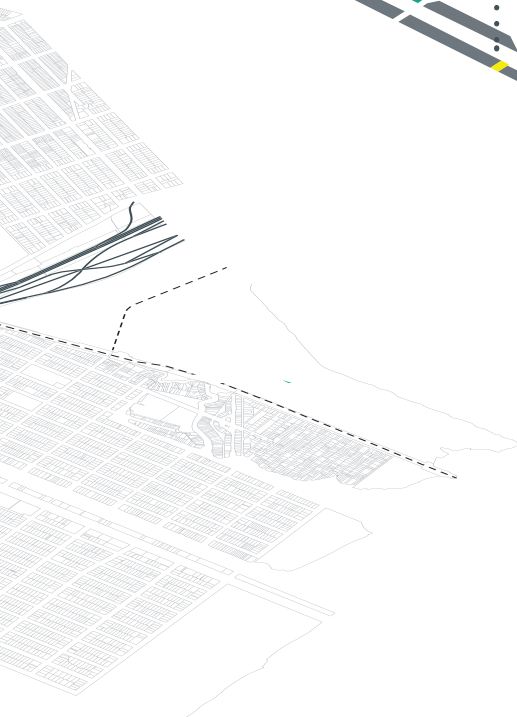
## VIADUCT



Tunnel under railway



Former Ozone Park Station



- Queensway
- School
- Residential, mainly 1-2 family
- Park
- Residential, high-rise
- Carpark
- Commercial / office / mixed use
- Underused or abandoned building
- Industrial

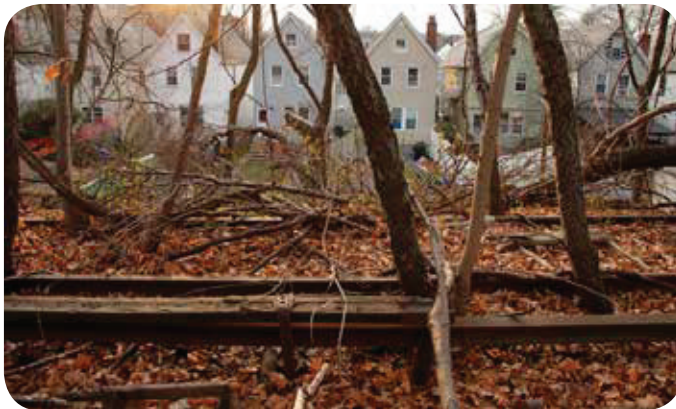
## HOW QUEENSWAY IS USED & STATE OF ABANDONMENT

Today Queensway is mainly fenced and closed off from the public. There is one place in Forest Park where you can enter the ravine part of Queensway without barriers. However, people do go onto Queensway even past fences. Queensway is mainly used for getting rid of large pieces of trash, so there are car tyres, pieces of metal, building materials and even furniture. There are also stray cat sanctuaries, graffiti spots and evidence of drug and alcohol use (Curbed, 2013). According to Peter W. Beadle (2014), who lives close by, seasonal workers have set up camps on the tracks when in need of accommodation.

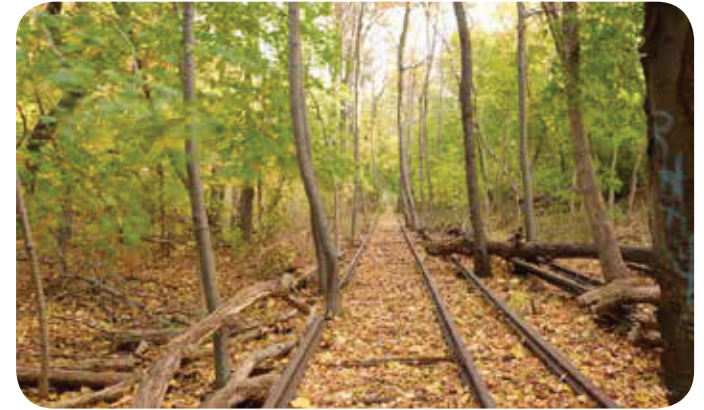
In the embankment and ravine sections Queensway is completely overgrown into a forest in with trees. The viaduct in the south also has bushes and other lower plants but not fully grown trees. The space below the viaducts is rented out by the City of New York and it's used for workshops and storage.

North of Forest Park, railway tracks have been removed from two areas that have been turned into car parks. One of is used for residential parking and other one is the backyard of a commercial centre. In the south a large school bus depot has spread onto Queensway.

The old railway tracks and passenger platforms are still present on Queensway along with old signal towers. That is, in the areas that haven't been turned into car parks. The tracks are rusting away and concrete at the platforms is crumbling or covered in graffiti, but everything is more or less in place.



Photos by Nathan Kensinger via Curbed, 2013

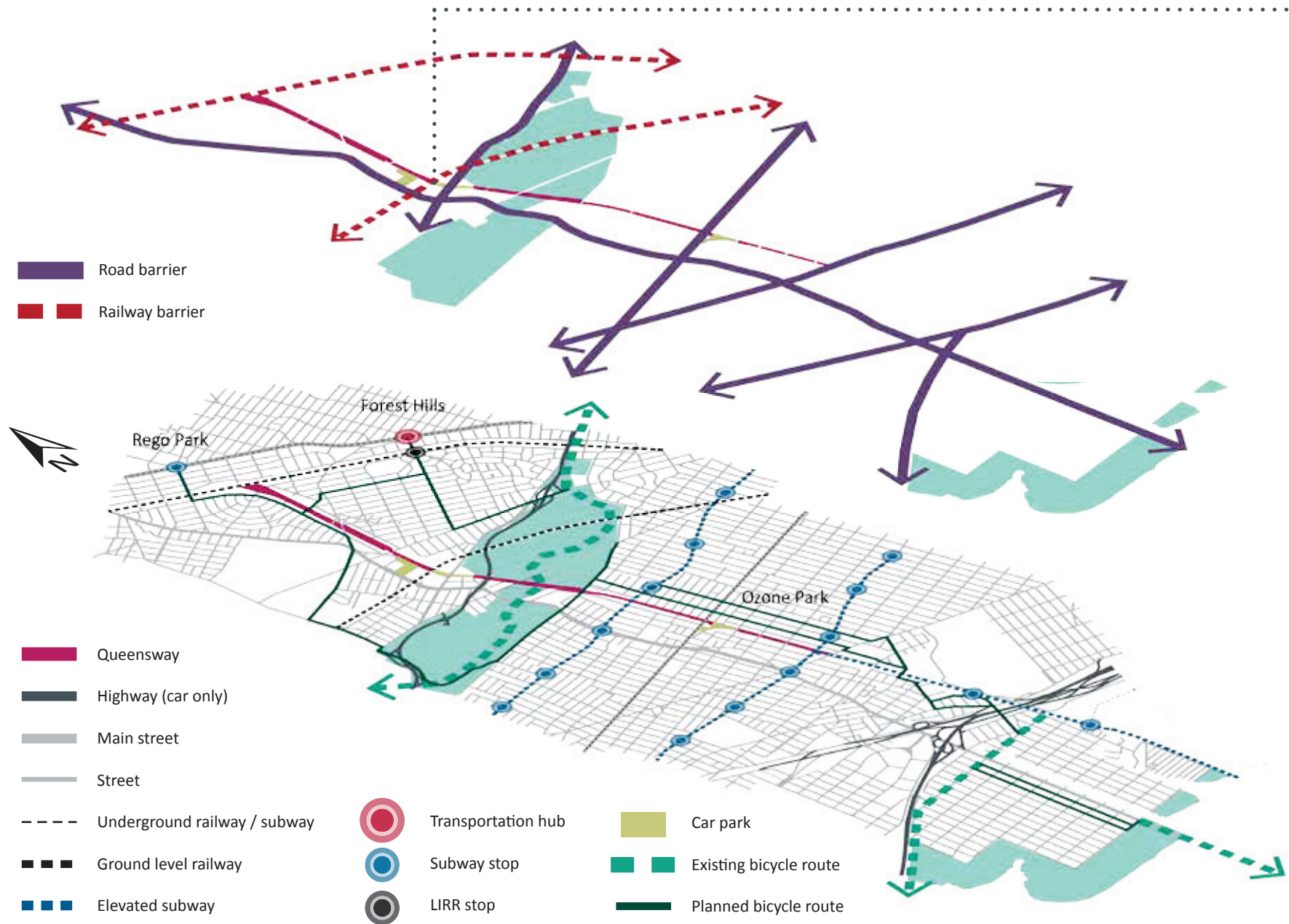


Photos by Jeff Chien-Hsing Liao, 2013



Photos by Jeff Chien-Hsing Liao, 2013

# 12 INFRASTRUCTURE







### Access cut off

Pedestrian access between south and north neighbourhoods is basically entirely cut off by the railway and major multi lane streets. This ramp is the only access point over the railway.



### Narrow sidewalks

All sidewalks are narrow. On-street parking takes place everywhere. There are no bike paths or lanes.



### Extensive parking

Even Queensway is use for parking at two points. First for commercial and residential parking, then as a school bus depot.

### WEAKNESSES

- Access is cut off by busy streets and railway
- Little pedestrian space, narrow sidewalks
- Pedestrians don't feel safe
- Virtually no cycling
- Cars take up most of the space due to parking
- Extensive use of non-permeable surfaces

### STRENGTHS

- A lot of subway stops
- Main transportation hub Forest Hills close by
- Bike access from Brooklyn through Forest Park
- New biking routes under planning

- Increasing car dependency and use of non-permeable surfaces for parking
- Overflow of sewerage system during heavy rains when ground cannot absorb water

### THREATS

- Queensway as a safe pedestrian and biking connector
- Connecting Queensway to parks and subway system to create a network

- Promotion of permeable surfaces and natural rainwater management

### OPPORTUNITIES

# 13 RECREATION



ENYA, 2014

**Two community gardens in the north end**  
 Because of the industrial past land is often contaminated. Therefore there is need for education before locals can start urban farming themselves. (Premlall, 2014)

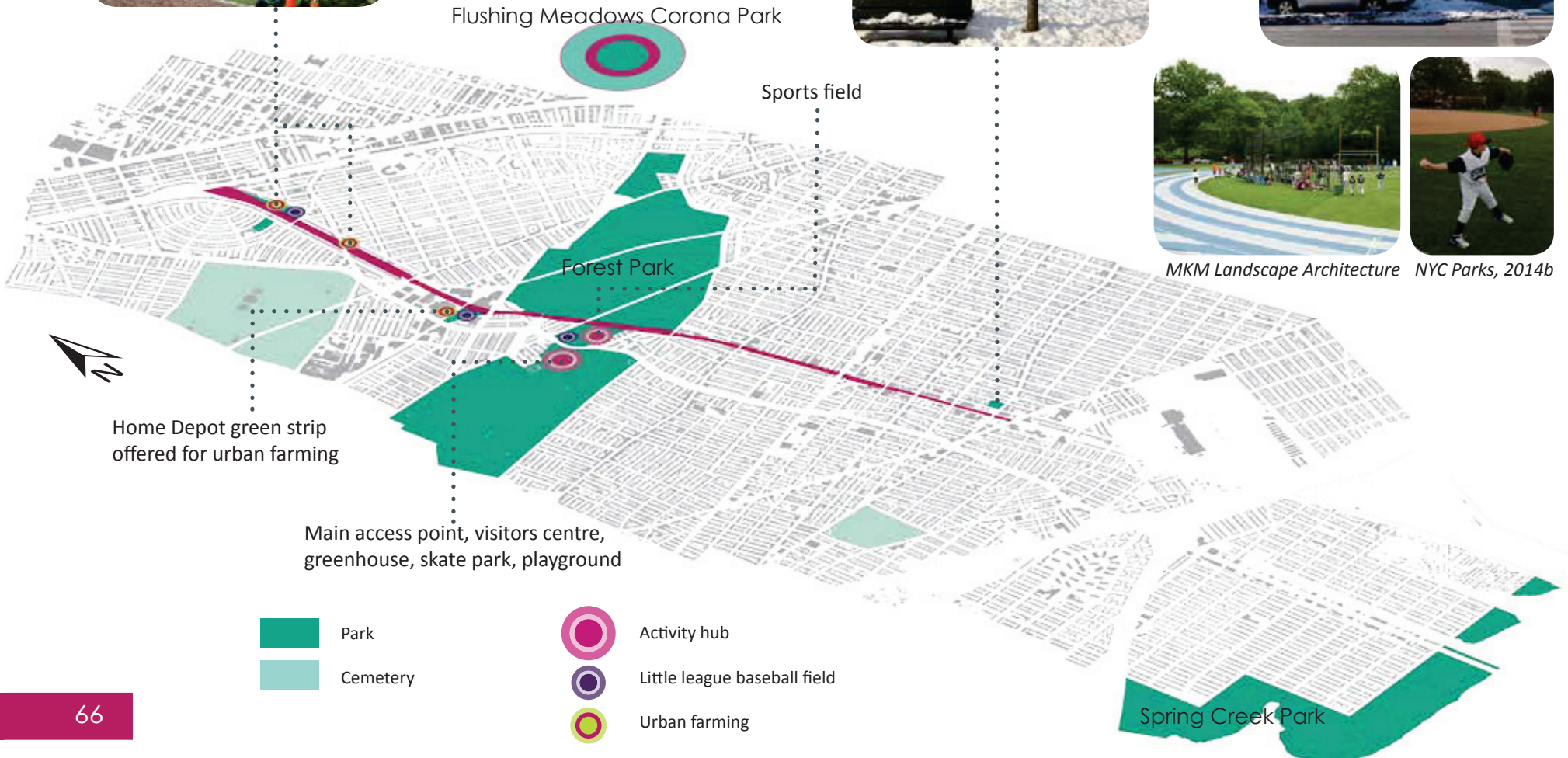
**Only park in Ozone Park Station area**  
 Paved, no grass.



**Hobbies for children**



MKM Landscape Architecture NYC Parks, 2014b





NYC Parks, 2014a

## Flushing Meadows Corona Park - outside the area

### Place to spend family time

Largest park in Queens with lawns, picnic areas, ball game courts, lakes, ice rinks, aquatic centre, art museum, botanical garden and zoo.



NYC Parks, 2014b

## Forest Park

### A place to exercise

Third largest park in Queens at 200 ha with wooden hill trails, horseback riding, golf course, skate park, sports field and ballgame fields. Forest Park was established in 1890s. Several trees are more than 150 years old. There are also animals and birds to watch.



NYC Parks, 2014b

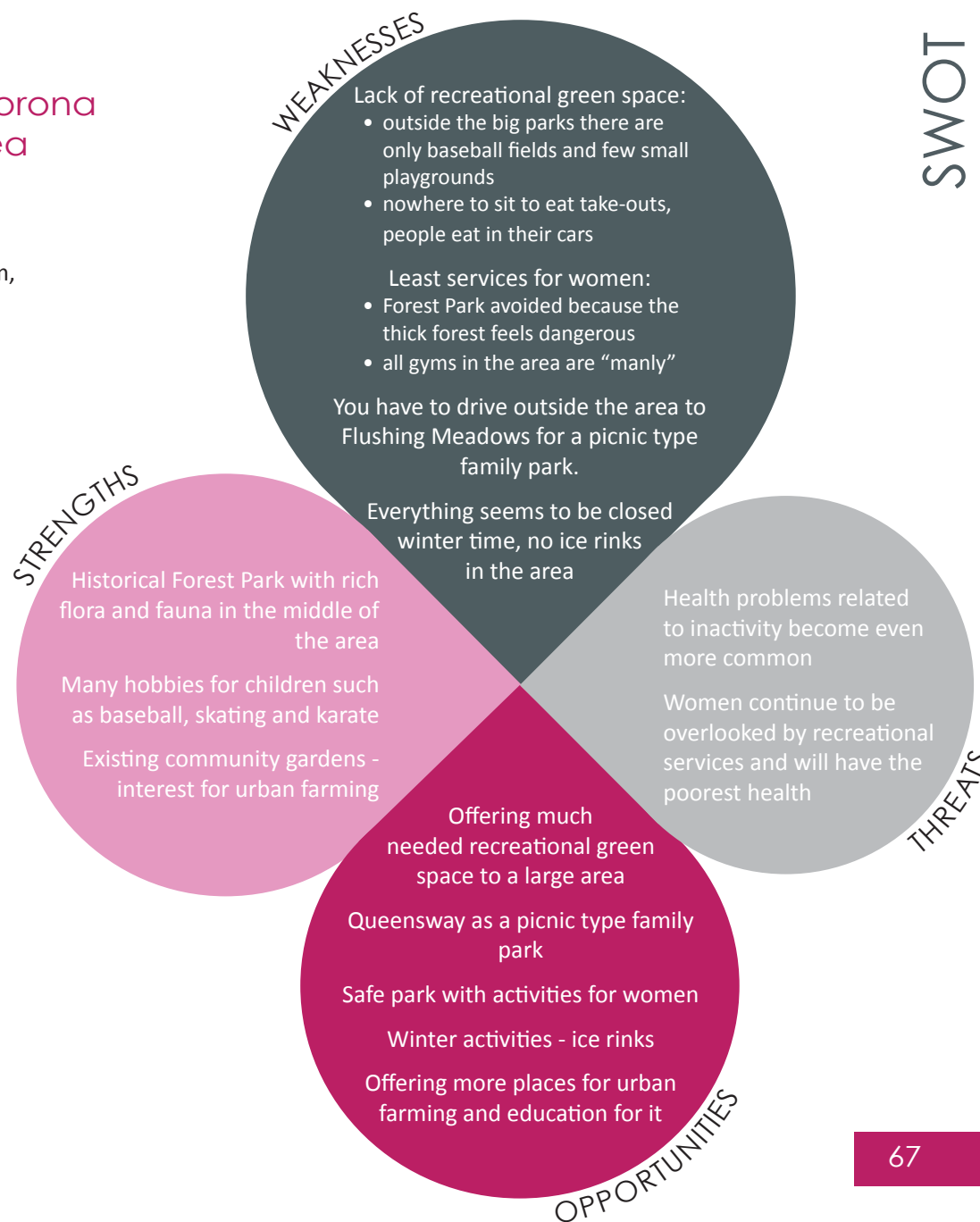


NYC Parks, 2014c

## Spring Creek Park

### A place for nature

Waterfront park that is mainly marshland and a bird sanctuary.



# 14 BUILT STRUCTURE





**North** High-rise buildings and houses are generally larger with more “curb appeal”.

VS

**South** Smaller homes with smaller yard space. Houses often (illegally) converted into more units than they originally were.



# 15 SERVICES

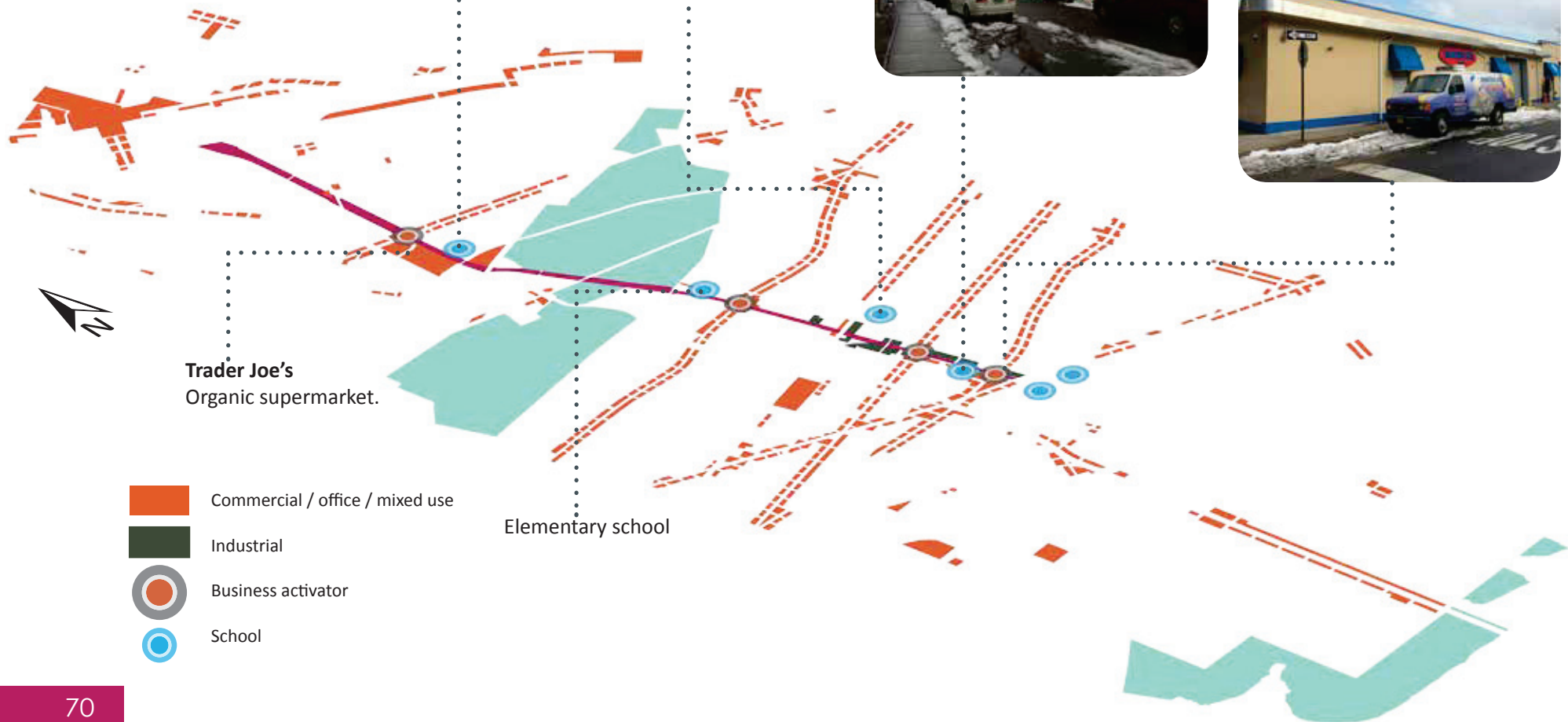
**Metropolitan Expeditionary Learning School**  
 School centre with outward bound programme for fieldwork with emphasis on science, technology, and sustainability.

**Forest Hills Greenmarket**  
 Popular locally grown fresh products, open year-round.

High School for Construction Trades, Engineering and Architecture

**PS65 Elementary School**  
 Nestled inside a commercial and industrial area the school doesn't have a proper yard for children, only paved small space.

**Mamita's Ices**  
 Family run popsicle factory without a store.



**Trader Joe's**  
 Organic supermarket.

Elementary school

- Commercial / office / mixed use
- Industrial
- Business activator
- School



Restaurants and cafés



Workshops

Inexpensive space leased under the Queensway viaduct



Workman Cycles

Americas oldest bicycle factory building bikes for everyday, industrial and cargo use. Even special bikes, food carts and vans.



Source: Workman Cycles, 2010a



# 16 CONCLUSIONS FOR ANALYSIS

## North vs. south

The analysis found that there is a definite difference between the north and south sides of Queensway. North is, simply put, more affluent than south. People in the north - especially in Rego Park and Forest Hills - earn more, have larger homes and are also a bit healthier than in the south. The population in the north is dominantly white and Asian, whereas the south has a more mixed population with a strong Hispanic influence. Also in the north, services are more varied.

Even though there is noticeable segregation between north and south, they also have a lot in common. The building stock is ageing and depended on unsustainable heating methods in both ends. Many areas have suffered from storm water floods due to sewer backups and extensive use of non-permeable surfaces. Population wise there is a strong influx of new residents, especially immigrants, all over. This has led to overcrowding and to a need of more child, youth and senior services in all community districts. There is also a need for better recreation that is easy to reach, safe and available all year round. Both north and south have a population that isn't active enough to avoid health problems related to physical inactivity. Over half are overweight or obese and shockingly, over one third of the adult population is on cholesterol medication.

Instead of a future where the segregation between north and south becomes even more apparent, Queensway has a possibility to work as a connector between the two sides. Queensway can tap into the mentioned common needs and offer services, equality and safety that benefit both sides.

## Pedestrian & cycling activity

In the site analysis it was found that there is a substantial lack of pedestrian and cycling access in the neighbourhoods surrounding Queensway. Sidewalks are narrow and you cannot walk very far without being cut off or having to go around. Facilitation for cycling is practically non-existent and even statistics show that people do not bike. All in all, everyday life is car dominant. This is a pressing matter both in terms of both sustainability and public well being. Residents are car depended and physical activity isn't a natural part of daily life. Queensway,

however, is a natural access point for more pedestrian and biking activity in the whole community.

As an old railway Queensway is practically flat. Moving on top of it would be accessible and fast. It's clear Queensway is very suitable to form the core of a pedestrian and cycling network. However, Queensway has to be more than just a fast lane to get from point A to point B. Otherwise just taking the car would achieve the same thing. Queensway has to be a part of everyday life and activate the whole family. After all, it's specifically family neighbourhoods that surround Queensway.

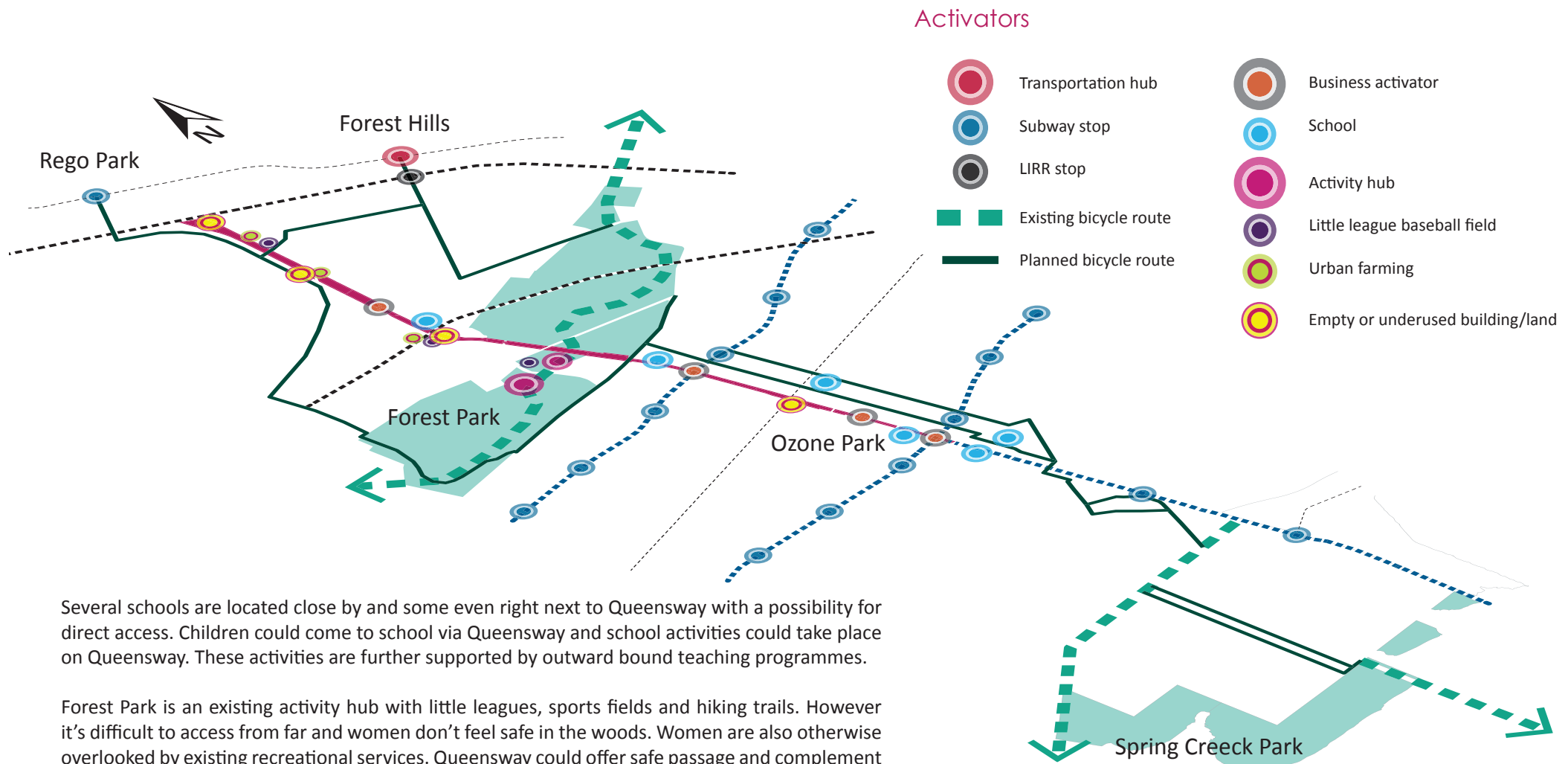
## Finding activators for Queensway

To help create an everyday life that is more sustainable and active, Queensway has a lot of potential activators surrounding it. These activators can attract people to use Queensway. Some are located on Queensway or right next to it, some are a bit further away.

There are many public transit stops within a short distance of Queensway. These stops can be connected to the Queensway network, especially in terms of cycling. The potential for having a bicycle as a part of daily commute is immense. Even though current cycling facilities are non-existent there are new cycling routes under planning that can be connected to Queensway.

Queensway cuts through several commercial strips with many local small businesses. Some of these are even in need of assistance according to the community district statements. Development of Queensway would bring more people passing through the strips on foot. Local businesses, especially food related ones, could even branch out to Queensway with cart sale. The carts in turn can be manufactured in the local bicycle factory Workman Cycles along other bicycles used on Queensway. There are also several empty or underused spaces situated on and next to Queensway. These buildings and open spaces could be further utilised for business purposes.





Several schools are located close by and some even right next to Queensway with a possibility for direct access. Children could come to school via Queensway and school activities could take place on Queensway. These activities are further supported by outward bound teaching programmes.

Forest Park is an existing activity hub with little leagues, sports fields and hiking trails. However it's difficult to access from far and women don't feel safe in the woods. Women are also otherwise overlooked by existing recreational services. Queensway could offer safe passage and complement the activities of Forest Park with activities for families and women.

Finally, Queensway also has activators for increasing sustainability in everyday life. There are existing community gardens which speaks for an interest in urban farming and new community gardens. Housing stock is ageing, but home ownership rates are high and houses look maintained. This indicates interest to carry out home improvements.



# PART III

Activation Master Plan

# 17 VISION & STRATEGIES

The main vision for Queensway is to generate sustainable and active everyday life. Based on the analysis I have formed strategies to carry out the vision.

The strategies led to a formulation of functions and activities for Queensway. The functions and activities with relation to strategies are presented on the next page.

## Queensway generates

Vision

Sustainable Everyday Life

&

Active Everyday Life

Strategies

- Offer education on sustainable home improvements
- Incorporate sustainable design solutions and rainwater management and promote them
- Connect Queensway to surrounding schools and underused buildings
- Restore the distinctive physical character and highlight heritage in design
- Include urban farming and education for it
- Connect Queensway to parks and subway system to create a biking network
- Make Queensway safe, accessible and active at all times of the year
- Especially note women and families when planning activities
- Plan activities for different cultural backgrounds
- Facilitate for services for seniors, youth and children and try combining them
- Give pedestrians and bikers hierarchy over cars
- Activate Queensway through local businesses
- Include services in art



# 18 PLANNING OF ACTIVITIES

## Year-round basics

When planning the activities most important was to make Queensway as versatile as possible all year round while taking in account different user groups and cultural backgrounds so that Queensway wouldn't exclude anyone. Families and women were especially important as the area consists of family neighbourhoods and women are undeserved in terms of activities.

Monthly activities are presented as a diagram on the next page. They have been planned according to the climate. The basic activities that can be done all year round are cycling, walking, running, dog walking, going to playgrounds and having a picnic with food cart service. Also urban art, for example paintings on walls and art installations, is available all year round along the full length of the park.

Cultural activity is further boosted by year round public celebrations, festivals and markets for holidays and happenings observed in different cultures and in American culture as a whole. For Asian cultures there are Chinese New Year, Indian colour festival Holi and Asian night market. For Hispanic cultures there are Cinco de Mayo, which is celebrated by Mexican-Americans, and Puerto Rican Day as Puerto Ricans are a large immigrant group around Queensway.

## Involving local businesses

Local businesses can activate Queensway by branching out to the park through food carts. Mamita's Ice can sell popsicles, cafés and restaurants can sell anything needed for a family picnic. Furthermore, Workman Cycles can manufacture the food carts. Also, Workman Cycles can set up a bike centre to hire, repair and sell bikes.

## Winter activation

Keeping in mind that the paths in the park will be cleared from snow and ice during winter, cycling is possible throughout the year. Keeping family activities such as dog runs, playgrounds and picnic areas open all year round is essential to activate family neighbourhoods. At the High Line in Manhattan food carts had disappeared during wintertime, which should not be the case with Queensway. Wouldn't it be fun to have a family day out on a crispy winter day with a picnic of steaming hot chocolate and tacos?

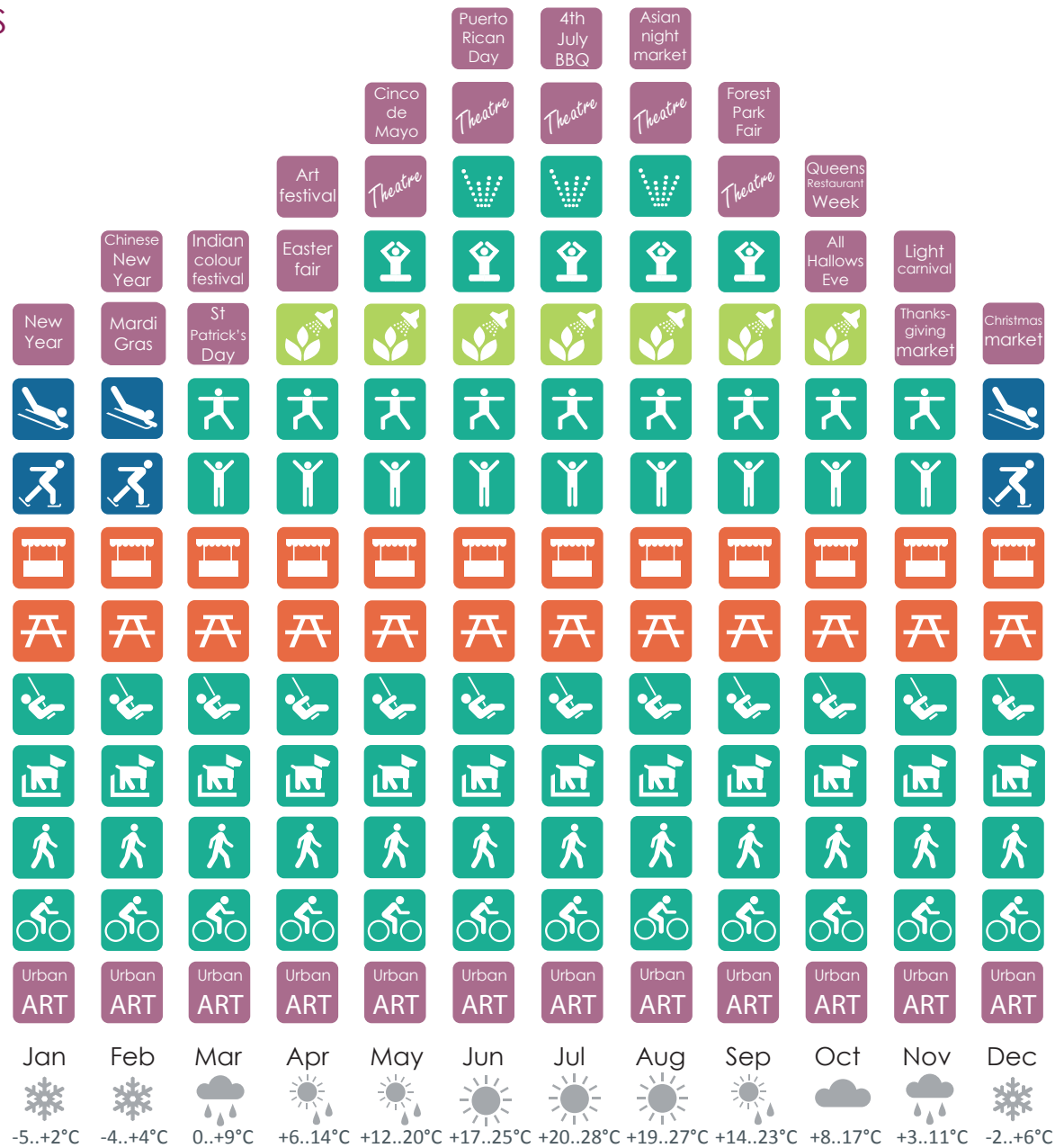
Continuing with family winter activities are sledging and ice-skating. Sledging is possible where ever Queensway meets a suitable hill. Ice-skating can be done on top of Queensway in narrow but long rinks. I also thought about adding cross-country skiing, but came to the conclusion that skiing is more suitable for Forest Park. This is because to be safe, skiing requires long and quite wide uninterrupted tracks that have to be maintained with machinery. You can't have people walking on tracks or close to them. Also, planting wouldn't survive the winter under ski tracks.

## Warmer seasons

The number of activities grows when the weather gets warmer. Group training and tai chi can take place anywhere in the park as soon as it gets a bit warmer. Yoga is possible when it's warm enough to sit on the ground. Group training activities are especially important for women. Urban farming takes place in the park during the growing season from April to October. Also an open air theatre can operate when it's warmer. During the warm summer months children as well as adults can enjoy water sprays.



# MONTHLY ACTIVITIES



Source for weather information:  
The Weather Channel, 2014

# 19 PLAN DIAGRAMS

The activation master plan is divided into three levels. The first level is a cycling network and access plan which illustrates cycling connections in the neighbourhood leading to subway stations and the waterfront. The plan includes 16 public access points to Queensway. All points are fully accessible.

The second level of the master plan is built structure and services. This illustrates how to connect surrounding buildings, functions and underused spaces to Queensway. The plan shows where services and functions, such as daycare, youth and senior centres, housing and retail spaces can be placed, both in the Queensway viaduct and in buildings close by.

The third level of the master plan is park activities. The activity plan highlights the placement of activities on top of Queensway so that there is a variety of activities at every stretch. The activities have a connection to the existing functions and urban fabric. The new activities are complemented by existing activities in Forest Park. Also included in the proposal is a new adjoining park area.

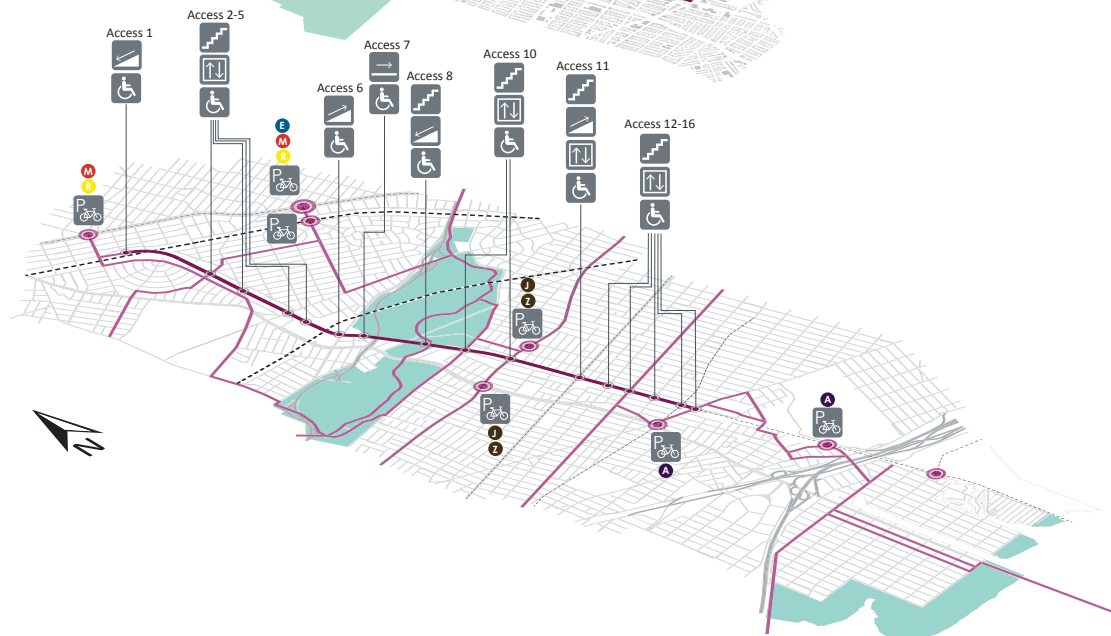
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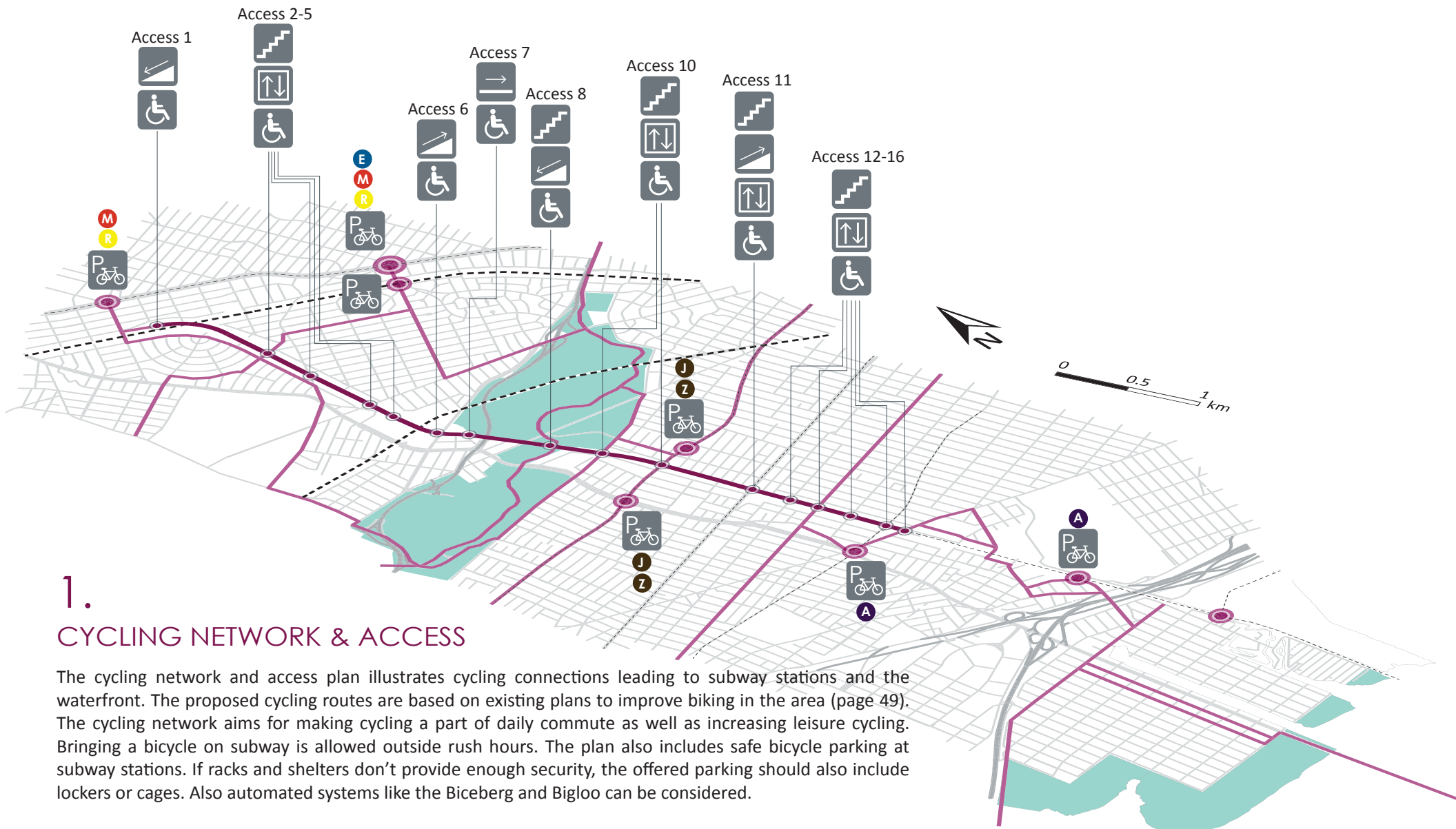
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1.







# 1. CYCLING NETWORK & ACCESS

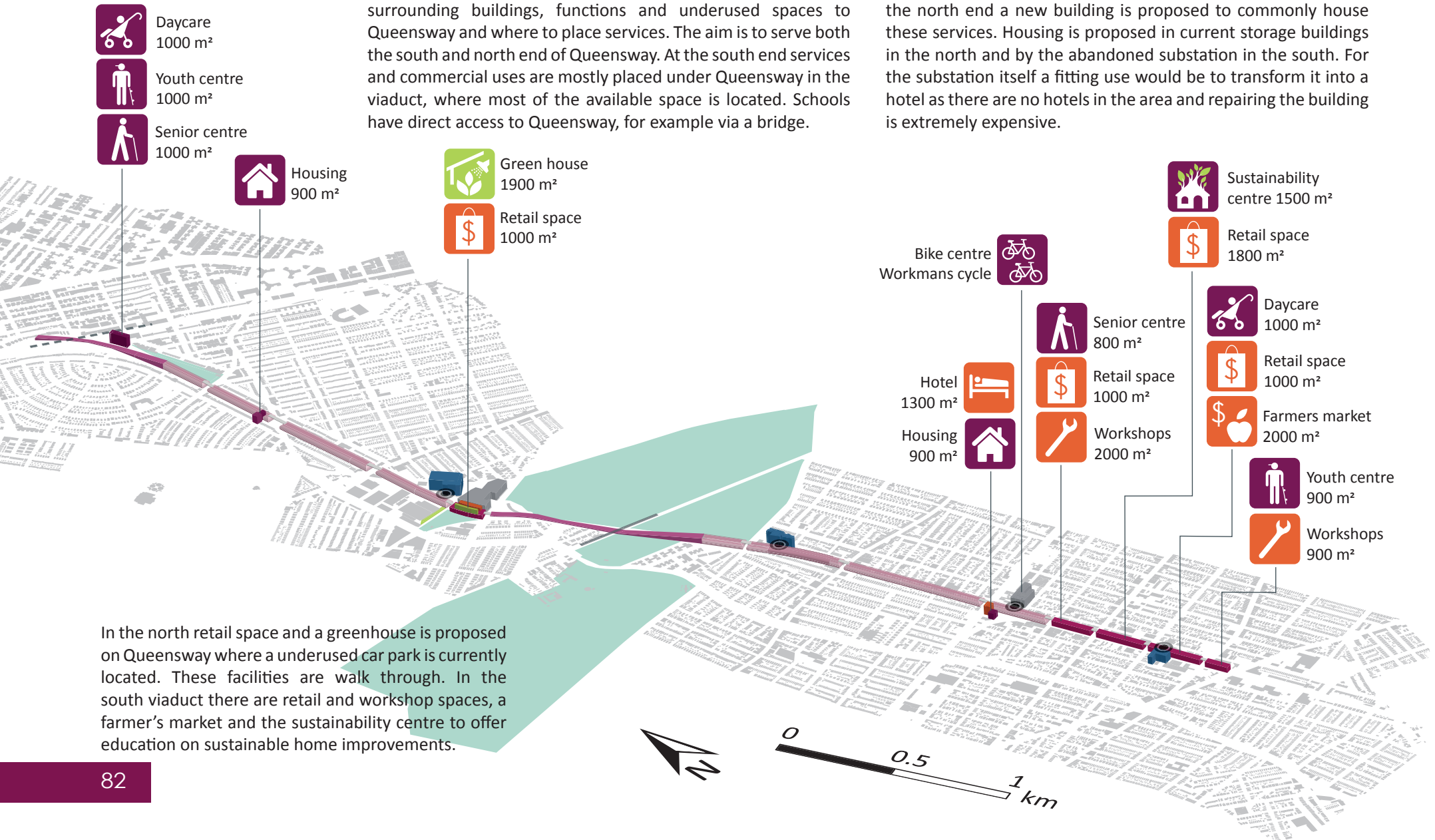
The cycling network and access plan illustrates cycling connections leading to subway stations and the waterfront. The proposed cycling routes are based on existing plans to improve biking in the area (page 49). The cycling network aims for making cycling a part of daily commute as well as increasing leisure cycling. Bringing a bicycle on subway is allowed outside rush hours. The plan also includes safe bicycle parking at subway stations. If racks and shelters don't provide enough security, the offered parking should also include lockers or cages. Also automated systems like the Biceberg and Bigloo can be considered.

The access plan includes public 16 access points for Queensway. The points are placed at street corners and other places where access is appropriate and needed. All points are accessible for wheelchairs and bicycles with either a lift or ramp. Stairs, however, are the main modes of entry. Stairs should be placed and designed to encourage stair use according to active design principles.

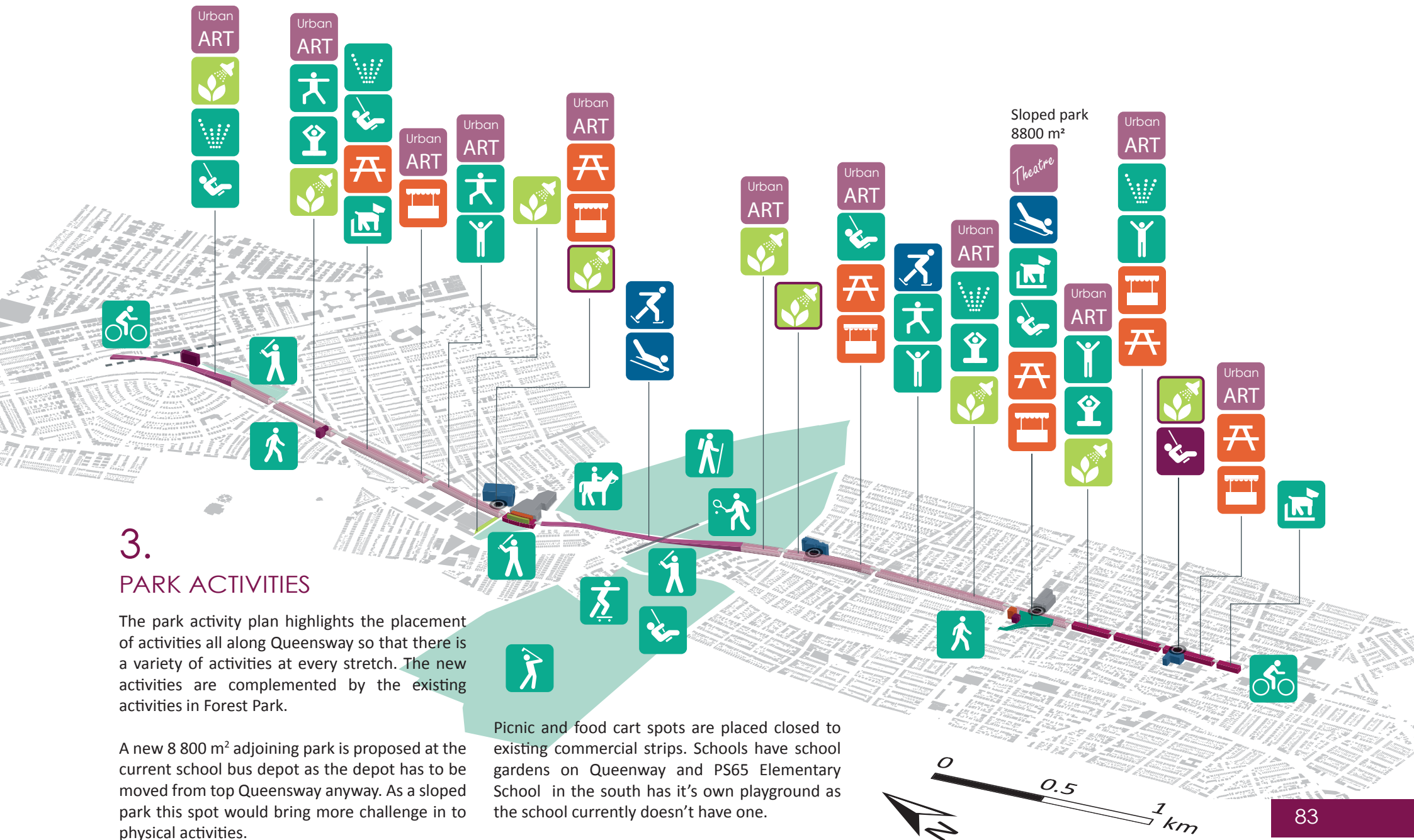
## 2. BUILT STRUCTURE & SERVICES

The built structures and services plan illustrates how to connect surrounding buildings, functions and underused spaces to Queensway and where to place services. The aim is to serve both the south and north end of Queensway. At the south end services and commercial uses are mostly placed under Queensway in the viaduct, where most of the available space is located. Schools have direct access to Queensway, for example via a bridge.

Daycare, youth and senior centres are located in both ends. In the north end a new building is proposed to commonly house these services. Housing is proposed in current storage buildings in the north and by the abandoned substation in the south. For the substation itself a fitting use would be to transform it into a hotel as there are no hotels in the area and repairing the building is extremely expensive.



In the north retail space and a greenhouse is proposed on Queensway where a underused car park is currently located. These facilities are walk through. In the south viaduct there are retail and workshop spaces, a farmer's market and the sustainability centre to offer education on sustainable home improvements.



### 3. PARK ACTIVITIES

The park activity plan highlights the placement of activities all along Queensway so that there is a variety of activities at every stretch. The new activities are complemented by the existing activities in Forest Park.

A new 8 800 m<sup>2</sup> adjoining park is proposed at the current school bus depot as the depot has to be moved from top Queensway anyway. As a sloped park this spot would bring more challenge in to physical activities.

Picnic and food cart spots are placed close to existing commercial strips. Schools have school gardens on Queenway and PS65 Elementary School in the south has it's own playground as the school currently doesn't have one.



# PART IV

In-depth Design

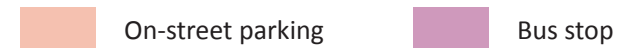
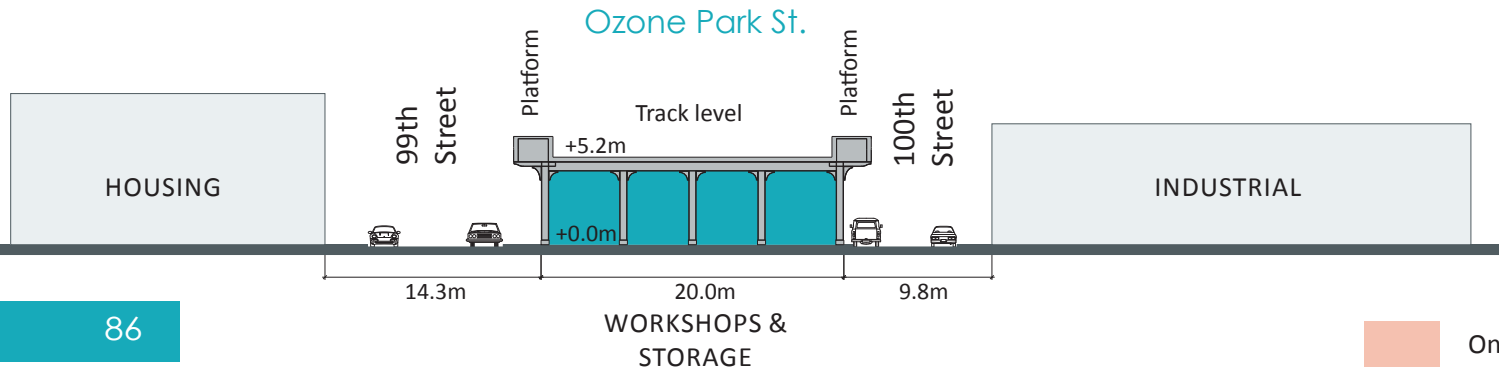
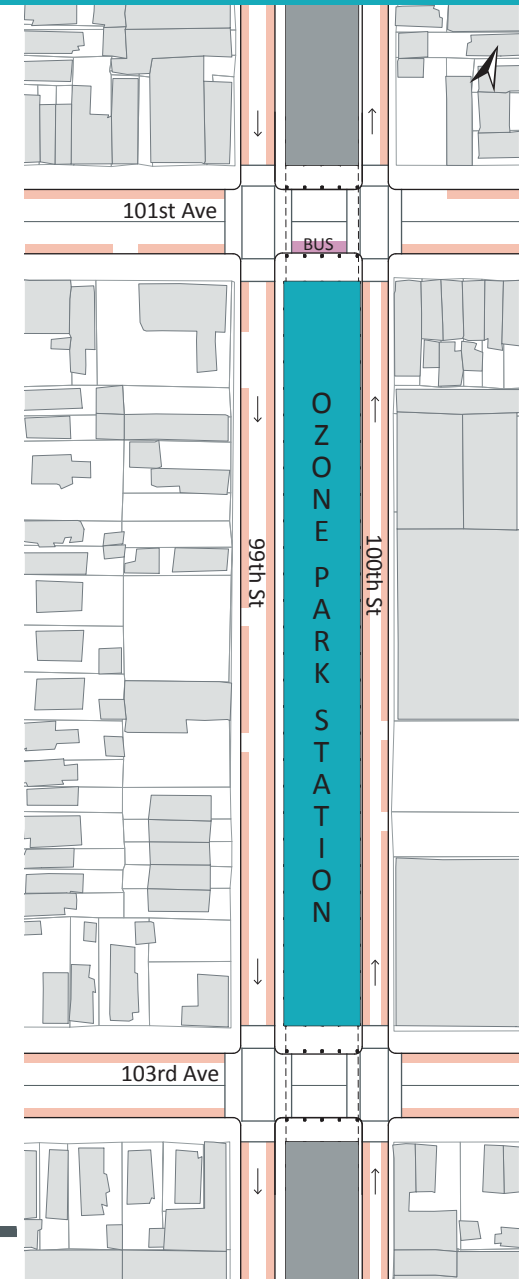
# 20 OZONE PARK STATION TODAY

## LOCATION

The former Ozone Park Station is located at the south end of Queensway between 99th and 100th Street and 101st and 103 Avenue. 101st Avenue on the north side is the busiest street in terms of traffic. 99th and 100th Streets are one-way streets with 99th Street being much wider than 100th Street. All of the streets have a lot of on-street parking on both sides. The parking spaces are mainly used by people coming to work. This is based on observations that the streets become quite empty on Sundays.

## USE TODAY

The right of way of Queensway is owned by the City of New York (Beadle, 2014). The city rents out space under the railway viaduct to local businesses. Today the space is mostly used as various storage and workshop space. The workshops are car and iron workshops. There is also one landscaping company and one fencing company. Storing includes construction materials and gas tanks. The space offered is very basic and inexpensive without many conveniences. There is electricity, but walls are mainly makeshift solutions that don't even cover all openings. Therefore it's quite cold inside.

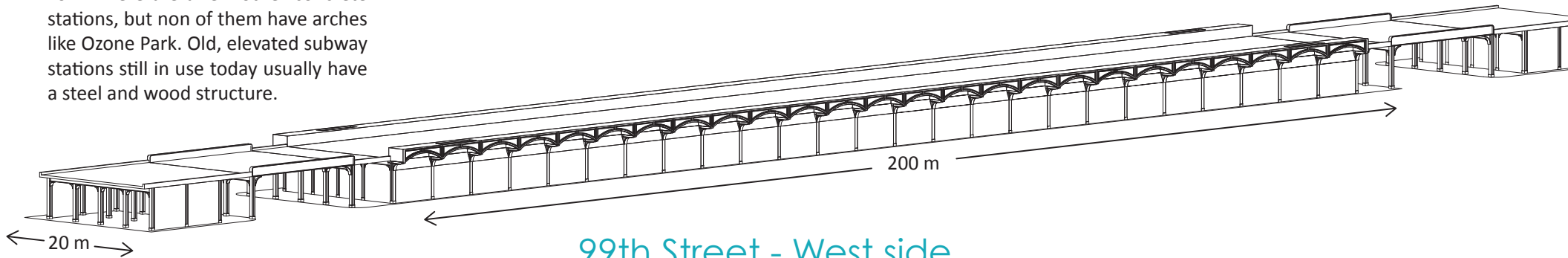


## UNIQUE STATION

This Ozone Park Station is the second station of the same name. The original Ozone Park Station was built further south in 1884 as a non-elevated station that was most likely a wooden structure. The new Ozone Park Station was built as an elevated concrete viaduct in 1930-1931. (Seyfried et al.)

As a concrete structure with distinctive arches on both sides Ozone Park seems to be quite unique. I haven't been able to find a similar station in New York. There are a few other concrete stations, but non of them have arches like Ozone Park. Old, elevated subway stations still in use today usually have a steel and wood structure.

### 100th Street - East side



### 99th Street - West side



## CHARACTER & DAMAGES

99th Street



In the underpass column reinforcement bars have become exposed and are corroded. This is due to chloride damage from road salt.

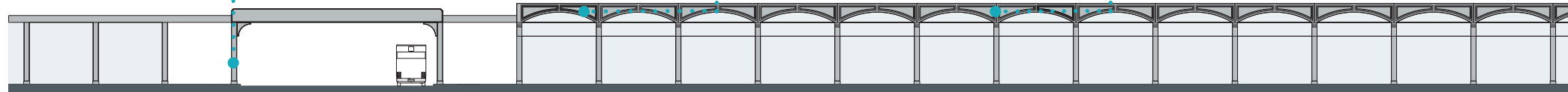


Each 200 m long side has 28 segmental arches that line the overhang which is the railway platform.



The parts of the facade that have been painted are in much better condition because the paint has protected the concrete.

101st Avenue



100th Street



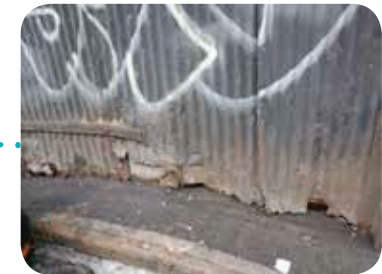
The ceiling beneath is in a quite good shape.



The parts closest to street corners have the most damage. Efflorescence in the concrete is a another result of road salt.

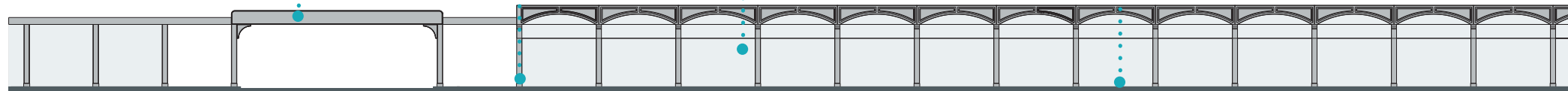


The facades are not original to the structure. They have been added later on piece by piece.



The facades have crumbled at the bottom due to water damage.

103rd Avenue







The arches are ornamental pre-cast concrete with steel reinforcements. The arches are supported by cantilevered beams.



The original concrete columns and beams can be seen indoors. All weather protected spaces are in a good condition.



Corrugated iron is used as a facade material in many places. It has become rusted.



The profiles and joints of the original columns and cantilevered beams are visible at the corners.

103rd Avenue

Park level +5.2m

Ground level +0.0m

99th Street



The style of the arches is quite simple with references to tradition such as the central vertical element as a representation of a keystone.



The reinforcements in the arches have become exposed at a few spots where the concrete has fallen off. This has resulted into corrosion.



The arches create a rhythm along the facade and give a sense of tradition and familiarity to the building.

101st Avenue



Most of the concrete deterioration is due to a freeze/thaw cycle where moisture in the pores freezes and expands causing cracking and scaling.

Park level +5.2m

Ground level +0.0m

100th Street

# 21 RETAINING HISTORIC FEATURES

## USING THE ROADMAP FOR SUSTAINABLE ADAPTIVE REUSE

The concept of sustainable adaptive reuse and a roadmap to transform Queensway reuse was presented in chapter 02. The roadmap led to the identification of historic materials and features at Ozone Park Station. The result was a translation into design measures.

### Roadmap to transform Queensway into new sustainable use:

1. Identify historic materials and features and preserve them.
2. Repair historic materials and features rather than replace them. Try to be gentle with the repair methods.
3. If deteriorated historic materials and features need to be replaced for structural integrity try to match the old material and appearance.
4. Design and construct alterations and additions so that they can be clearly differentiated from the historic building and so that the character-defining features are not radically changed, obscured, damaged, or destroyed.
5. Design and construct alterations and additions so that they can be removed in the future.
6. Consider energy efficiency, accessibility and health and safety codes in design and construction.

Source: The Secretary of the Interior's Standards for the Treatment of Historic Properties, 2001



### How the roadmap translates into design measures at Ozone Park Station:

1. Historic materials are concrete, steel and wood at the station platforms (sadly wood structures have disappeared decades ago). Historical features are columns, beams and segmental arches. These are preserved in the design.
2. Concrete is repaired when possible. Other features such as steel and wood are used in the design.
3. If concrete has to be replaced it should be matched with the old material and appearance.
4. The building will have a glass facade that is clearly differentiated from the original structure.
5. Walls are placed at a distance behind columns and beams so that the walls can be removed without touching the structure.
6. Sustainability, energy efficiency, accessibility and health and safety issues are considered in the design.

## MATERIALS & FEATURES

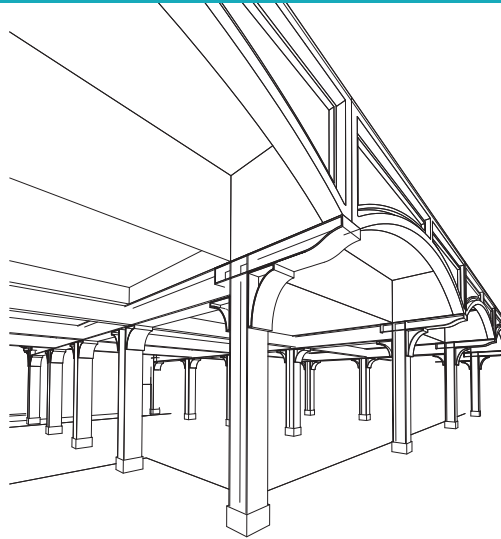
The historic materials and features of Ozone Park Station are concrete columns, beams and segmented arches, steel reinforcements in the concrete structures and steel railway tracks. Also wood, most likely basic timber, was used historically at the railway platforms. Wooden structures, such as canopies to shelter waiting people, don't exist anymore, but they can be seen in historical photographs (see page 33).

The current facades and makeshift walls at Ozone Park Station are not original to the structure. They have been added later when space has been rented out. The walls are not properly built and have to be removed if the space is to be used as a proper building. The current facades have a lot of corrugated iron sheets on them. This is a reference to the today's use of the station. Therefore corrugated iron should be incorporated into the new design.

## NEW FACADE & WALLS

When designing the building transformation, the plan is to lift out the grid system of columns, beams and arches. New walls are placed behind columns at a distance so that the structure stands out. This way the walls can also be removed in the future without causing damage.

In order to differentiate new construction from the original structure, I have decided to give the building a glass curtain facade on all sides. The new facade is drawn inwards from the outer columns to create a rhythm that is both different and complimentary to the rhythm of the 28 segmented arches on each side.

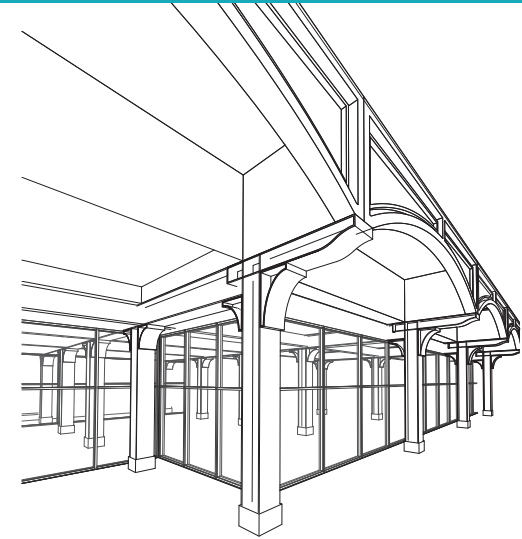


*Historic structure of columns, beams and segmented arches.*

The glass curtain wall will have timber frames and other new walls will also be constructed mainly in timber. Timber is used as a material to complement concrete and pay homage to the timber used in the platform structures. Also, when new structures have timber in them, they can be easily told apart from the original concrete.

## CONCRETE REPAIRS

The damage to concrete seen on the outside of the building is due to a freeze/thaw cycle and exposure to road salt. In a freeze/thaw cycle moisture in the pores freezes and expands causing cracking and scaling (Banville, 2008). Chloride in road salt causes corrosion in the steel reinforcements of the concrete (Banville, 2008). Structural integrity seems to be sufficient at the moment because the space is being used. After all it was built to support the weight of trains.

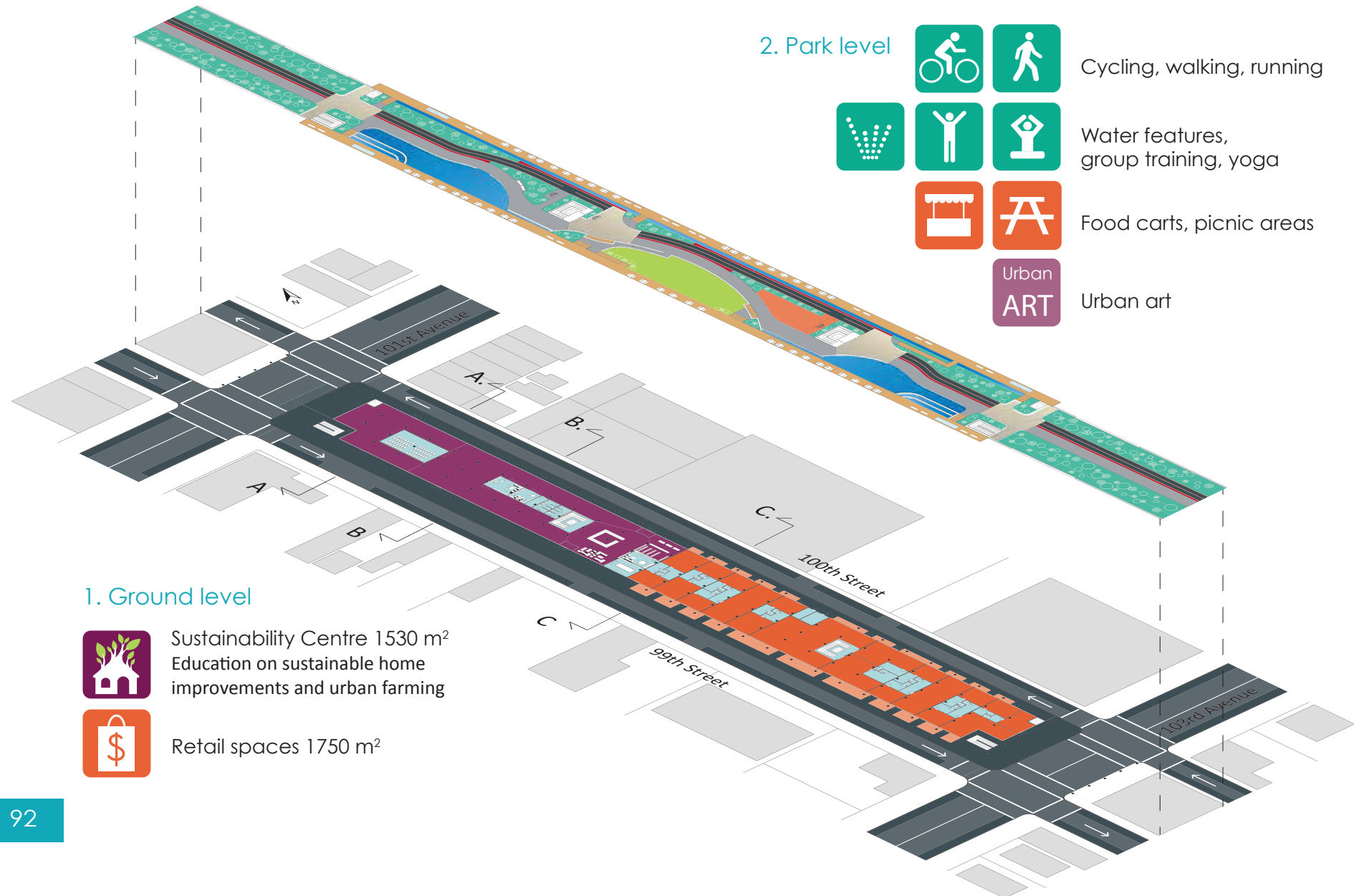


*Placing the new facade behind the columns.*

The first step of concrete repair is to remove the all damaged concrete to a sufficient depth. This can be done mechanically or by hydroblasting. All scale, rust, corrosion, and bonded concrete must be removed from the rebars by wire brushing, high pressure water or sand blasting. If corrosion has reduced the steel to less than 75 % of its original diameter, the affected bars need to be removed and replaced. (U.S. Department of the Interior, 1997) Also corrosion inhibitors or passive cathodic protection can be applied to the reinforcements. Before starting patching, a saturated, surface dry (SSD) bond surface must be applied. (Feldmann, 2008) The patching material used can be mortar or different kind of concrete mixes. Portland cement mortar or concrete is most likely closest to the original material. Proper curing is essential for the final result. Also, at the end, a protective surface coating needs to be applied to prevent future water and salt damage. The coating should not change the colour of the surface.

# 22 DESIGN PROPOSAL

## PLAN LEVELS

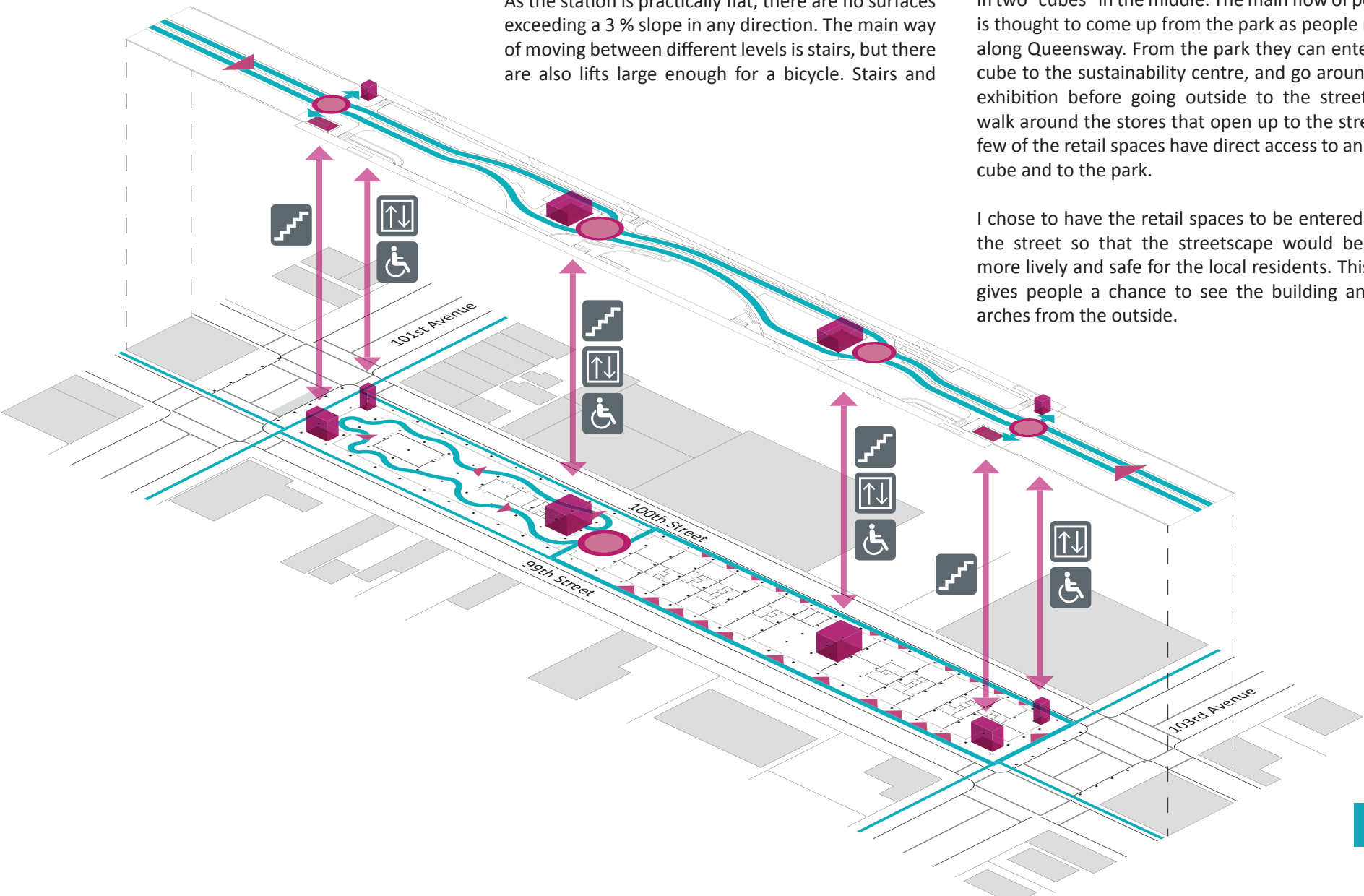


## ACCESS PLAN

The station is designed to be universally accessible. As the station is practically flat, there are no surfaces exceeding a 3 % slope in any direction. The main way of moving between different levels is stairs, but there are also lifts large enough for a bicycle. Stairs and

lifts are located at the both ends of the building and in two “cubes” in the middle. The main flow of people is thought to come up from the park as people move along Queensway. From the park they can enter the cube to the sustainability centre, and go around the exhibition before going outside to the street and walk around the stores that open up to the street. A few of the retail spaces have direct access to another cube and to the park.

I chose to have the retail spaces to be entered from the street so that the streetscape would become more lively and safe for the local residents. This also gives people a chance to see the building and it’s arches from the outside.

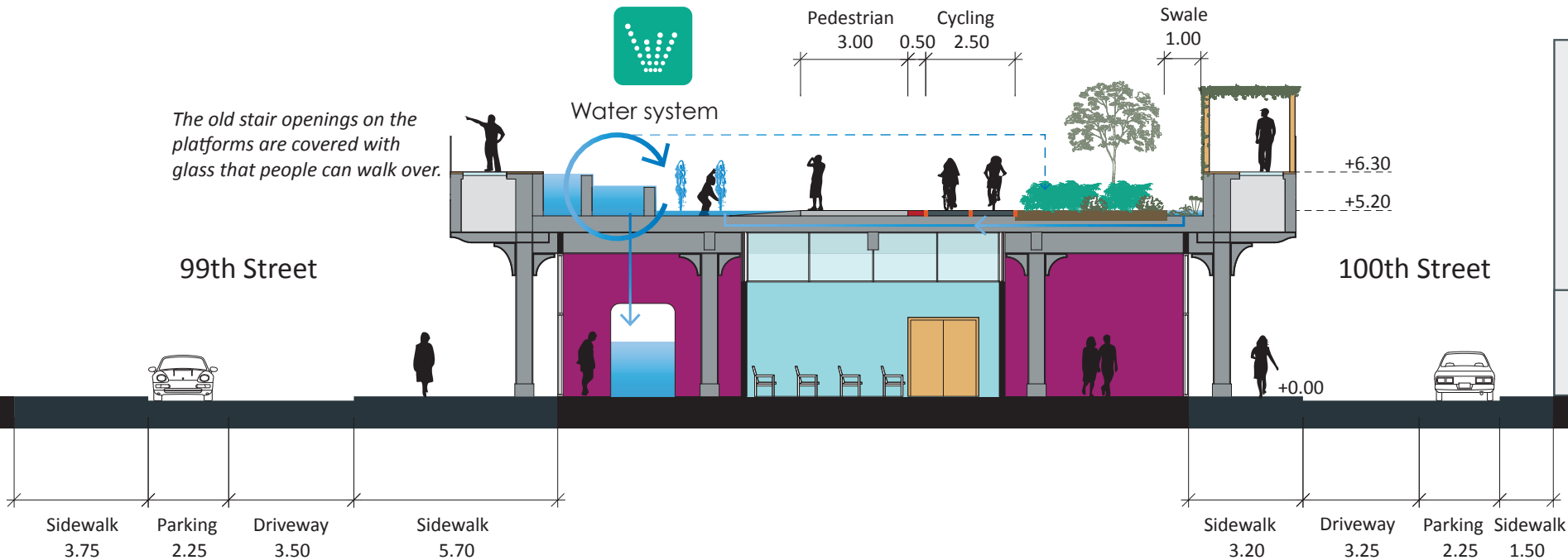


## SUSTAINABLE SOLUTIONS - WATER, FACADES, HEATING

The design of the park and the space below is incorporated with sustainable design solutions and showcasing them to the public. Rainwater management plays an important role. The park has water features in the form of swales, water basins, small waterfalls and water sprays. Rainwater is harvested through the swales on both sides and led to the basins. Visitors can walk into the shallow basins to cool down and touch and play with the water. A water circulation system keeps the water levels at correct heights and freshens the water along with water purifying plants.

All plantings in the park are watered from the harvesting system. Some of the collected water is stored in the basins and some will go down into a tank in the sustainability centre exhibition space. As a part of the exhibition visitors can learn how much water they collect in one year. Also, the exhibition can include water purification machinery, for example compact reverse osmosis technology, and offer visitors a taste of purified rainwater on site.

### Section A-A. 1:175



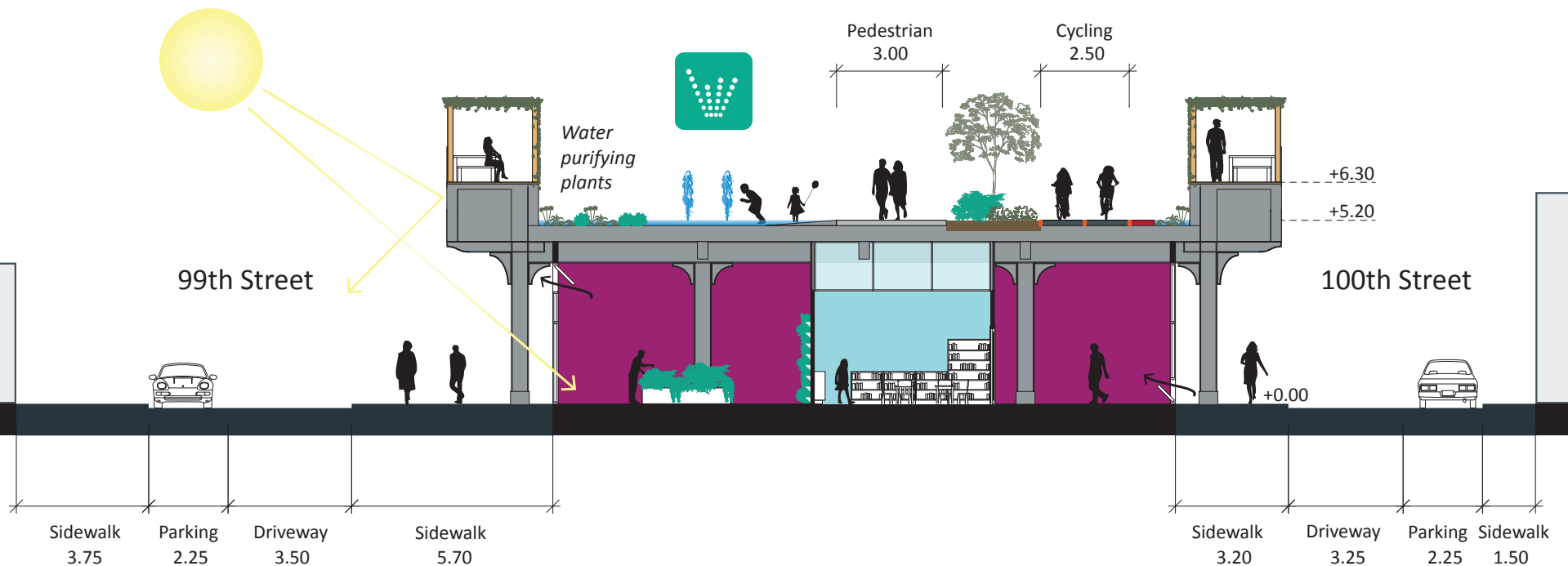
## Energy efficient glass facade

The building at ground level is designed with a glass curtain facade on all sides. The energy efficient glass maximises daylight and minimises heat loss. There are several manufactures for energy efficient curtain walls. For example, the applied curtain system can be *Qbiss Air* or triple glazed *Kawneer 1600 Ultrathermal* (see [qbiss.eu](http://qbiss.eu) or [kawneer.com](http://kawneer.com) for more information).

Placing the new glass facade further into the structure will create a natural canopy to provide shading from the sun in the summer. When the sun is lower in the winter the glass facade will let more light in.

It is important for the curtain facade to have openable windows for natural ventilation. Inlets for colder air are placed low and outlets for warm air high. People should be able to see natural ventilation system and feel it's effectiveness with the breeze of air.

## Section B-B. 1:175



## Style of facades

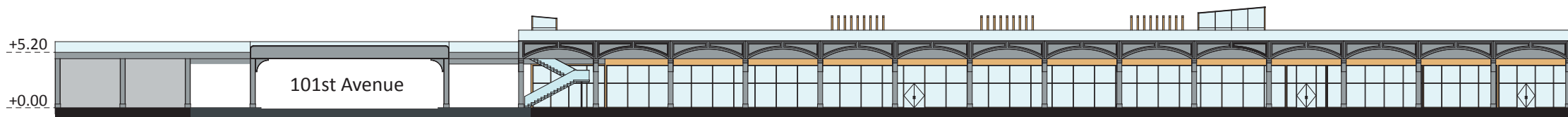
The transparency of the facade is important for the perception and openness of the building. It maximises daylight and enables people outside and inside to share experiences. It will also feel safer outside in the street when you can see more people around you.

The curtain wall is designed to form a grid, but it's not fully matched with the rhythm and the grid of the arches and columns. This way you can tell apart the original structure. The curtain wall grid is also a bit uneven due the lengths of the rooms and placement of partition walls behind the glass. This variation is intentional to the design in order to create a facade that doesn't feel too

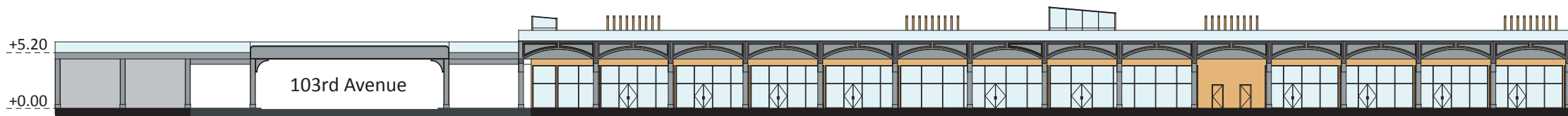
monotonous when walking 200 metres along the building wall. With a bit uneven grid you can tell apart the spaces behind it and notice the entrances. The entrances to the sustainability centre are highlighted with much narrower glasses on each side.

On the east side a short part of the facade is solid instead of glass. This is where the garbage and mechanical rooms are located. A break in the glass grid is not only a visual pause, but also sign for people to watch out and for the garbage truck to stop at the correct spot.

## Elevation west 99th Street 1:500



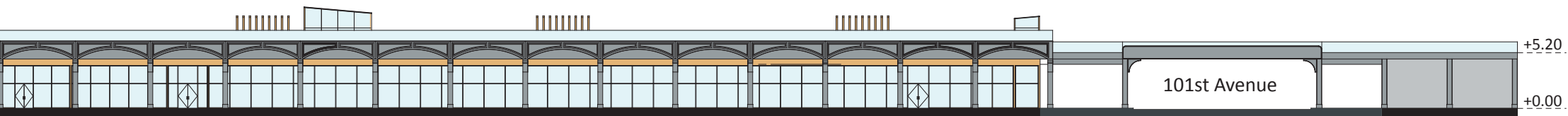
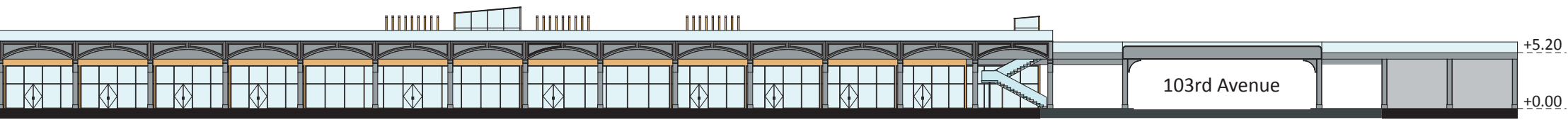
## Elevation east 100th Street 1:500





The curtain wall is designed with timber mullions and frames. Also other new walls that are solid and visible have a timber finish. The timber used compliments the original concrete and creates a feeling of warmth and home. This is important for the sustainability centre as it's concept is about improving your home. Using steel or aluminium would make the building look cold and remind of an office building. Also, timber is a historic material of the station that deserves a comeback after having disappeared decades ago. Most importantly, with new timber structures old concrete structures can easily be told apart. It wouldn't be right to build new concrete walls and try to match everything.

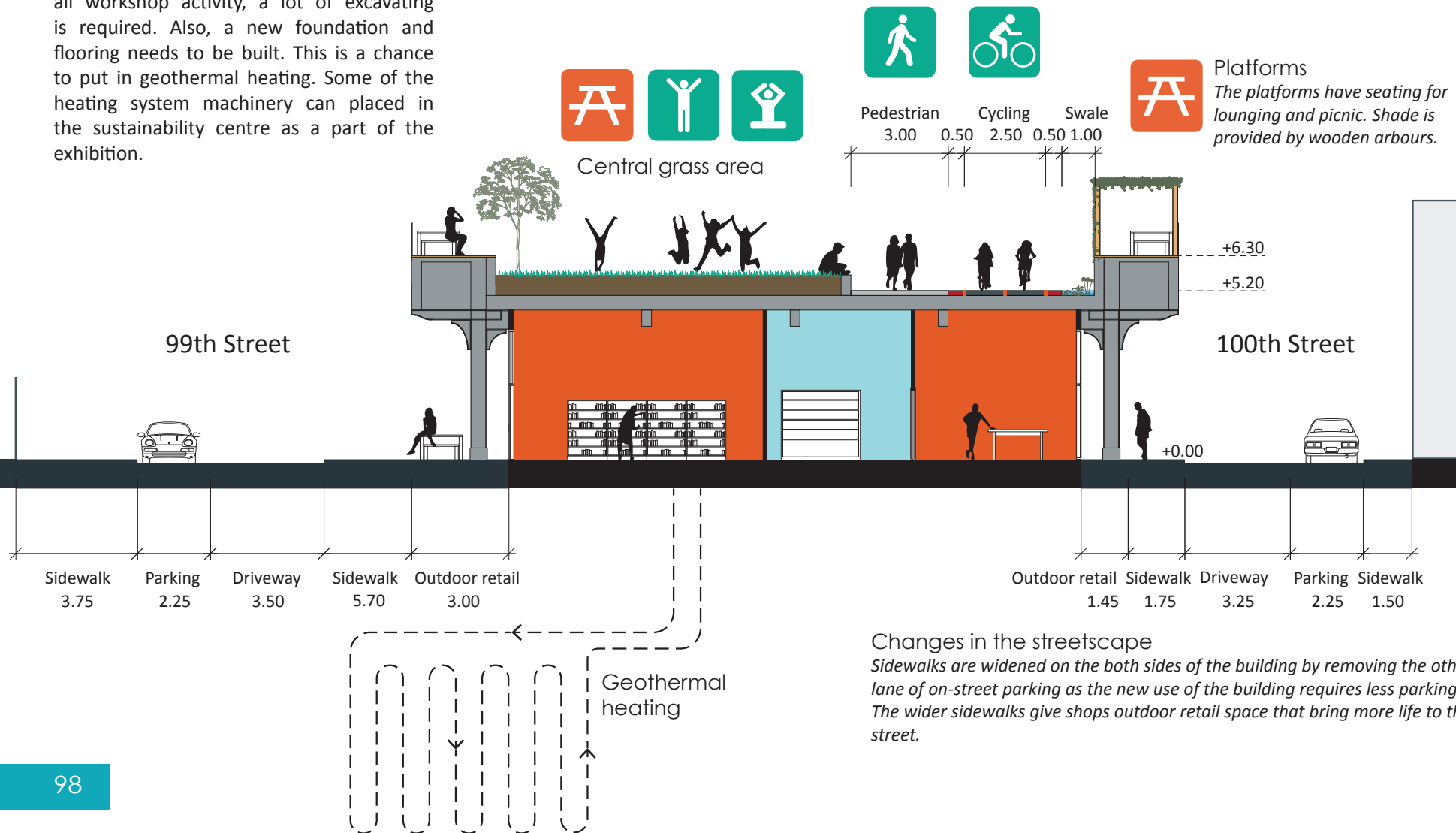
The repaired concrete structures should be kept looking bare with their original rawness both indoor and outdoor. A protective coating needs to be applied to the concrete outdoors, but it should not have colour in it.



## Geothermal heating

For heating, the goal is to fit the building with geothermal energy and underfloor heating. Because the ground under and around the building is most likely contaminated from all workshop activity, a lot of excavating is required. Also, a new foundation and flooring needs to be built. This is a chance to put in geothermal heating. Some of the heating system machinery can be placed in the sustainability centre as a part of the exhibition.

### Section C-C. 1:175



### Changes in the streetscape

Sidewalks are widened on the both sides of the building by removing the other lane of on-street parking as the new use of the building requires less parking. The wider sidewalks give shops outdoor retail space that bring more life to the street.

## BRINGING PEDESTRIAN LIFE TO STREETS

Today much of the space on 99th and 100th streets is used for parking. Most of the people parking on these streets are people coming to work and especially people working in the current workshops. In the future, most of the people coming to this area will hopefully use the park and come by foot or by bike. Therefore the streets should also be more suitable for pedestrian life.

The design includes widening the current narrow sidewalks by removing on-street parking on the Queensway side. With wider sidewalks the retail spaces can open towards the street and also have outdoor retail space. The outdoor space could be used for selling merchandise or as a sidewalk cafe. This would bring life into the street, make it feel safer for the users and enhance the transparency of the facade and sharing of experiences.

## PARK DESIGN

The full plan for the Queensway park at Ozone Park Station can be seen on the next page. Besides walking, running and biking the main functions of the park are water features, group training, lounging and a market place for food carts.

In order not to make walking through the park too straightforward and boring, the paths are curved. The curves are also a reminder of the station arches. Cycling is separated from the pedestrian paths and there are also separate bike lanes for south and north bound traffic. Separation is needed for cycling as the user numbers are expected to be high. Bike lanes are marked using the old rails from the railway tracks.

Because the park is constructed on top of a building, the park ground is essentially the building roof. To get a proper waterproof roof, the ground will have to be rebuilt, and the existing railway tracks and gravel under them have to be removed during the construction. I felt that putting the railway tracks back in the whole park would have restricted the use of space too much. Therefore I decided to use the steel rails to mark the bike lanes. With rail as edges and a concrete pavement striped to mimic sleepers, the lanes give an illusion of cycling down a railway track (see image on page 102).

Pedestrian paths are designed to have the same striped and sleeper mimicking concrete pavement as the bike lanes, but in much a lighter grey colour. Concrete was chosen as the pavement material for its waterproof nature, easy upkeep and winter conditions. It's also a reminder of the original deck on the station. Separation areas between walking and cycling are red for contrast. A proper contrast colour helps visually impaired to navigate in the park. At the entrance areas, where stairs and lifts are located, the space is shared for pedestrians and bikers. These areas have crossing traffic and function as meeting points. Bikers need to know to slow down at these points and therefore the pavement texture and colour changes.

The centre of the park is a raised grass area. It can be used for lounging, picnic, playing and group training such as yoga. A market area for food carts is located close by. The raised former passenger platforms on both sides of the park offer seating areas with tables. Here visitors can sit down to enjoy a picnic or just lounge and read a book or look at people passing by. The platforms also have arbours to provide shade. The material used on the platforms is wood to pay homage to the original wooden structures of the platforms. Unlike other paths, the platforms don't have to be cleared from snow and ice during winter, so using wood isn't a problem. The platforms are mainly accessed by stairs but there is also a ramp for each side. The wall space under the platforms is used for urban art paintings.

Water basins are located in both ends of the parks. Walking paths curve around the shallow basins to welcome visitors to walk in the water. Green areas with trees and plantings are spread around the park. Gravel from old rail structure can be used as a feature in the planting areas. Touching the plants is allowed.

# PARK PLAN 1:450

101st Avenue

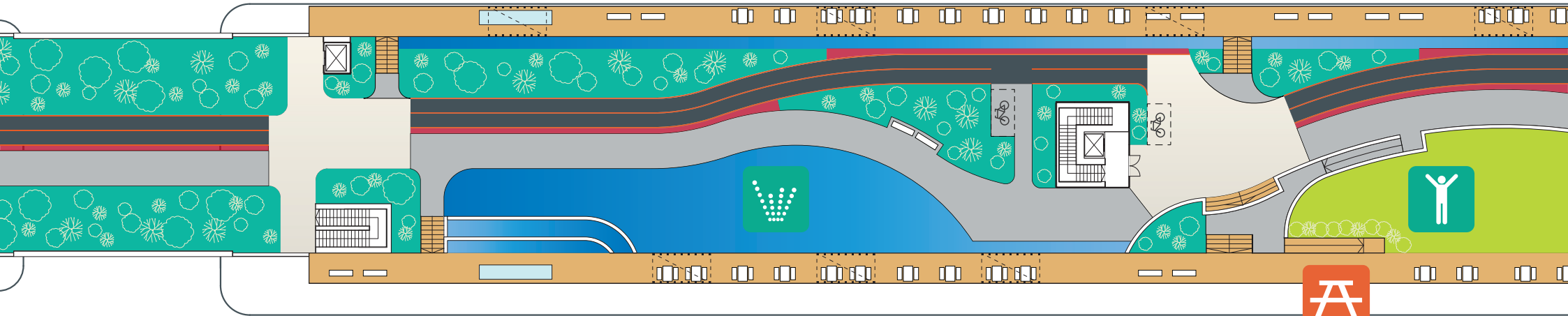


A.

B.

C.

100th Street



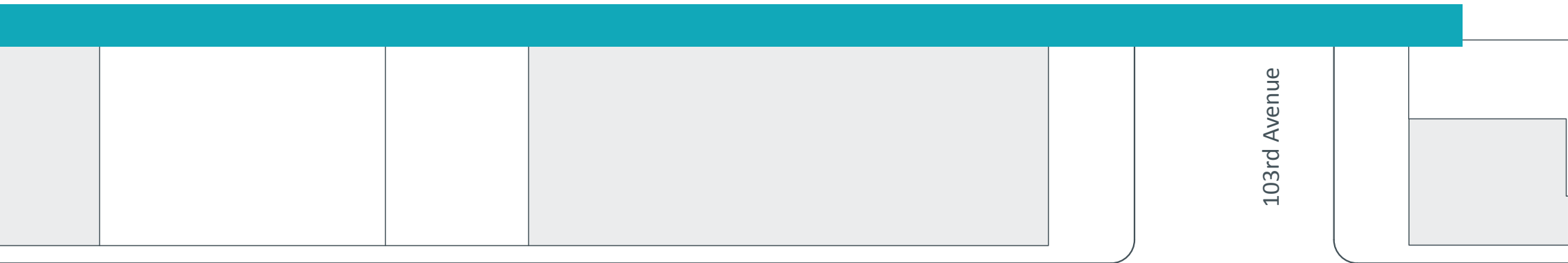
99th Street

A

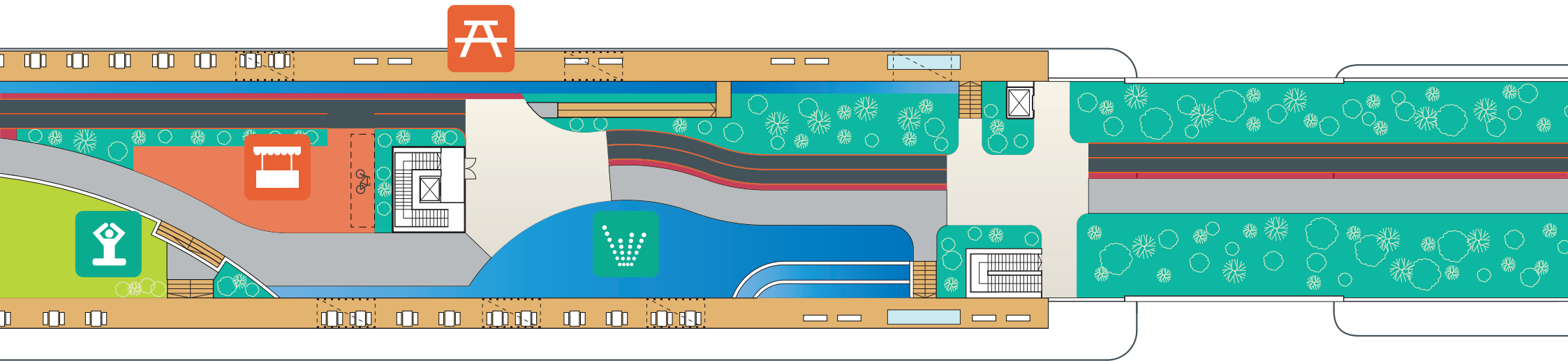
B







C

- Pedestrian
- Cycling
- Shared area, meeting point
- Separation area
- Track rail

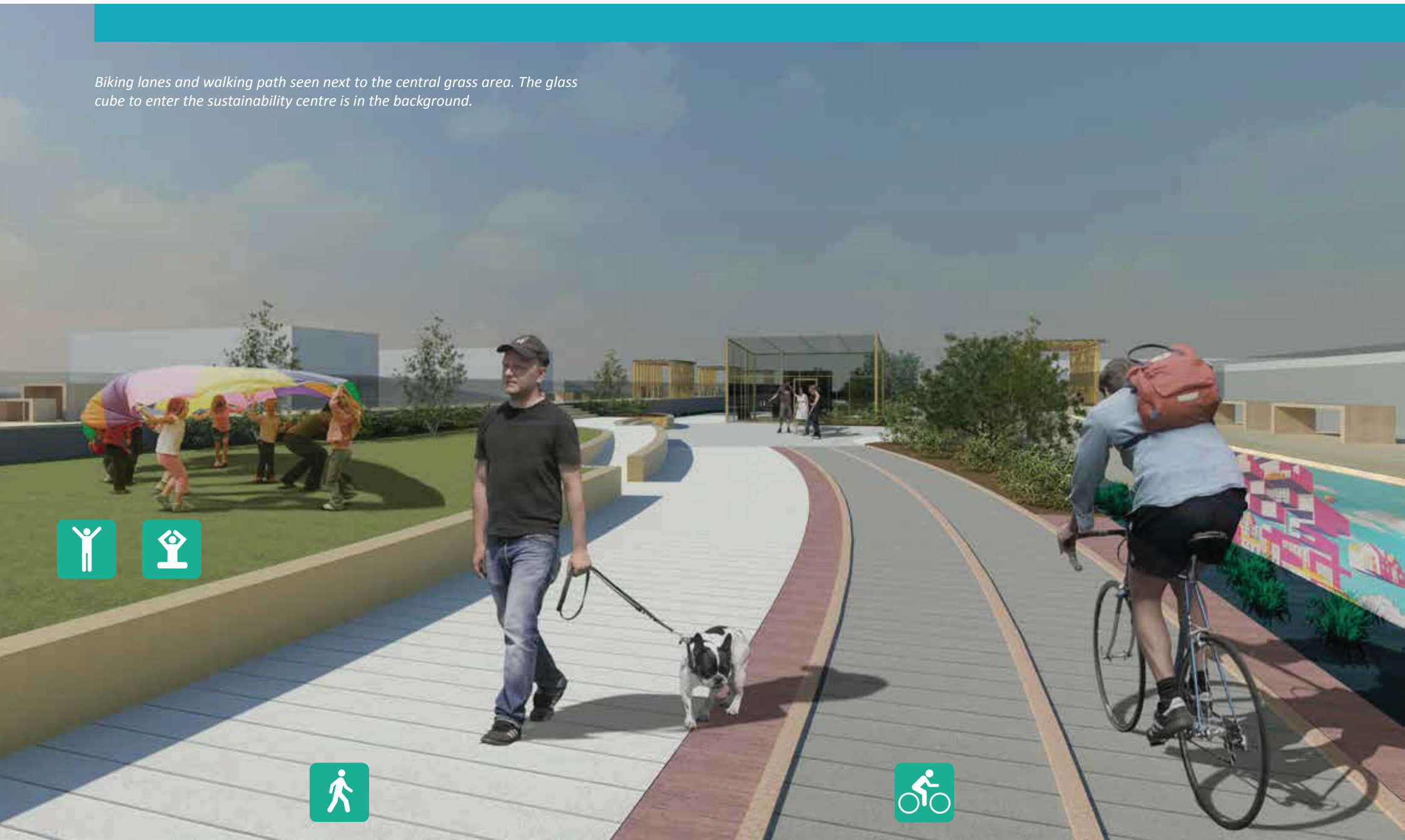


103rd Avenue



-  Market area
-  Planting area
-  Grass area
-  Wood
-  Water
-  Bicycle parking

*Biking lanes and walking path seen next to the central grass area. The glass cube to enter the sustainability centre is in the background.*



*The shallow water basin at the north end of the park. The elevated platform has seating areas and a wooden arbour for shade. Urban art painted in the platform wall is highlighted by the water. The glass cube to enter the sustainability centre is in the background.*



Urban  
ART





*"Glass cube" entrance to the sustainability centre.*

## SUSTAINABILITY CENTRE & RETAIL SPACE

The main way to access the ground level building below the park is through two central "glass cubes" with stairs and an elevator. One of the cubes is entrance to the sustainability centre and the other one is for retail spaces. The glass cubes have the same timber framing as the building facade. The use of timber continues indoors to create a warm feeling. The stairs are designed to be airy and appear a bit like their floating so that people would be inspired to use the stairs instead of the lift. For after dark, the cube has special lighting.

The floor plan for the ground level can be seen on the next page. The sustainability centre is placed at the north end of the building because 101st Avenue has more traffic and also a bus stop. This will hopefully interest more people in the exhibition behind the glass facade and to walk down 99th or 100th street to come inside.

Retail spaces are important for Queensway to involve local businesses and also to have functions that bring income. At Ozone Park Station the design includes 20 retail spaces with variation to accommodate a large assortment of businesses. Space sizes range mainly between 34 m<sup>2</sup> and 119 m<sup>2</sup>. Each of these retail spaces has a back room and a toilet. Some of the spaces have an entrance on two sides and some on only one side. This is because some businesses prefer people passing through where as others only want one entrance that's easier to control. There is one extra large 270 m<sup>2</sup> space that hasn't been designed with a set back room system. It is intended to be raw space with free layout that could for example function as a larger restaurant.

In the indoor spaces new walls are placed behind the columns and beams to lift them out. The concrete surfaces are left raw and exposed looking like concrete so that users of the building can see the original structure. The floor material is timber. New walls are also timber or they are covered with corrugated iron sheets taken from the workshop facades of today. The internal walls also have windows higher up close to the ceiling to let in natural light in smaller rooms.





*Sustainability centre reception and lounge area.*

# GROUND LEVEL FLOOR PLAN 1:450

101st Avenue



A.

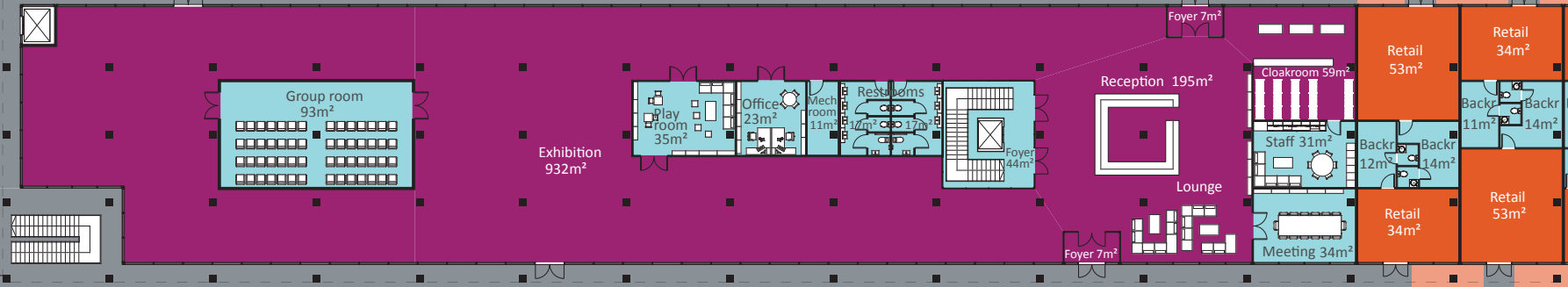
B.

C.



100th Street

BUS STOP



99th Street

A.

B.

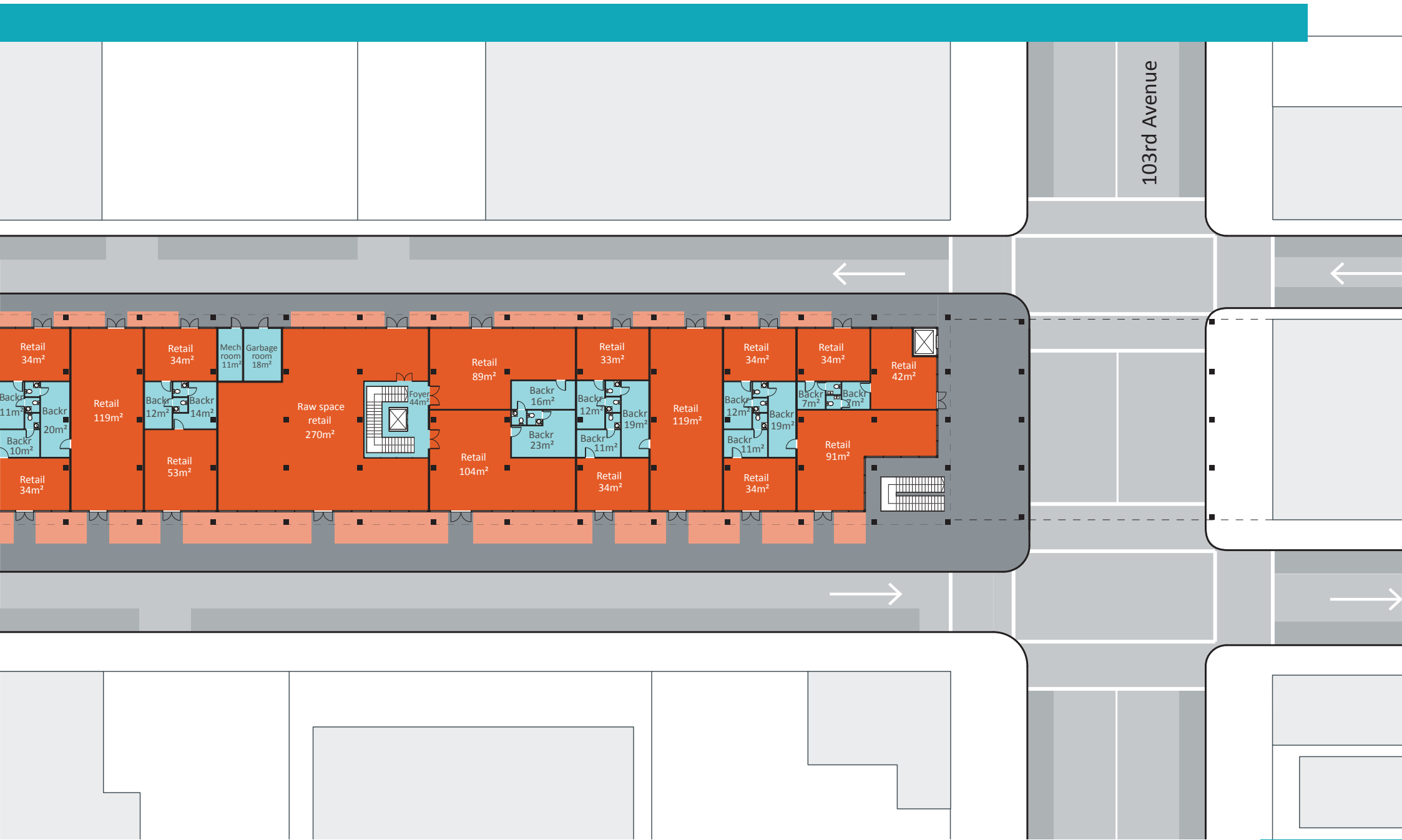
C.



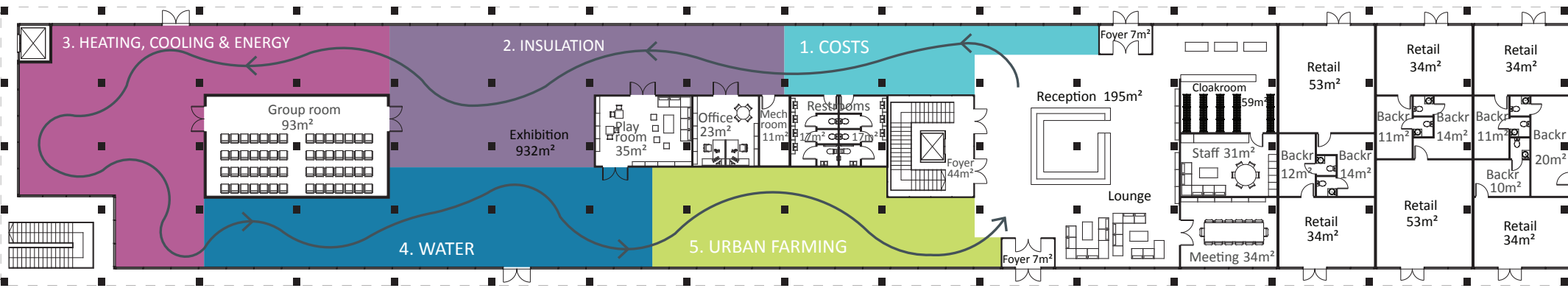
Sustainability Centre 1530 m<sup>2</sup>



Retail spaces 1750 m<sup>2</sup>



103rd Avenue



## EXHIBITION

The sustainability centre starts with a reception area with an adjoining lounge and cloakroom to check in coats. The lounge is also has a small library with books about sustainability to read and buy. Additionally, there is a meeting room for groups and a staff room with a kitchen.

The exhibition space circulates around the building in different themes. The exhibition starts next to the reception by asking visitors how much the upkeep of their homes costs and shows breakdowns of how much they can save by making sustainable improvements. This first part of the exhibition also talks about the environment, energy use and emissions in New York. The following exhibition themes are insulation; heating, cooling & energy; water and urban farming. All the themes showcase both less invasive, quicker fixes as well as long term solutions (see page 27). The idea is to have machines and other material available for visitors to touch and try out along with informative signs, posters and flyers. As previously mentioned, the actual machinery and water tanks of the building itself can be a part of the exhibition. In the urban farming section you learn not only about growing food and composting, but also about making green walls and green roofs.

A large group room, a playroom for children, an office for the staff and restrooms are located at the middle of the exhibition space. The group room can host presentations and workshops as well be used for showing films. In the playroom children can play games or sit down for crafts or reading.



*Exhibition space. The back wall is covered with corrugated iron.*

View on 99th Street, west side.



# 23 REFLECTIONS

## Way of working and learning outcome

First of all, I'm happy with my master's thesis and how it turned out. I was able to work consistently and stay on course throughout the thesis. Time was very limited and acted as the main constraint as this thesis was completed in one study term of five months. For me this is a short time to complete a thesis, because in my home country Finland thesis work is not constrained to terms and you can graduate any month. In Finland you usually spend at least six or seven months working on your thesis so this time constraint was new for me. It felt a bit unfortunate not to have a little more time, but on the other hand I understand that having a set time frame is important to control the workflow.

This is my second master's thesis which I think shows in my work. Structuring the thesis and setting up a programme was easy for me. I chose to do a design based thesis with a booklet rich in visual information. After all, I had already done a full research thesis in civil engineering, so this was my chance to experiment and implement my skills in architecture and design.

During this thesis I learned a lot about visualisation. This is also what was looking for in the thesis an engineering being architectural. The goal was to produce a graspable design proposal and I think I managed to do that. I combined previous knowledge in softwares to produce more illustrative images and maps. What especially improved were my skills using Revit and Photoshop. This was the most extensive Revit model of a building I have done so far. Also the resulted renders are the best one I have done far. I'm happy with the renders but with more time I would have incorporated existing images into them to give the reader a better view of surrounding site and context.

I didn't learn so much about writing, but I think that is because I have done a lot of academic writing before and have also written many planning reports professionally. Having several years of working experience as a consultant was the key element to keep working consistently. I treated this thesis as an office project so I could finish on time. I was also quick at making decisions.

## Thoughts on the design parts

In the master plan the main aim was concentrate on how to activate Queensway and where to place functions. I think this aim was achieved well as an overview plan. I chose to concentrate on design and not to contemplate on a strategic planning process. Originally, I planned to do a more detailed master plan with sections and closer studies about entry points to Queensway, especially where Queensway starts and ends. Time, however, didn't allow for that so I chose to concentrate on activation and functions. Studying entry points and drawing sections would be suitable future work.

I chose Ozone Park Station as the site for my in-depth project because of the 3D model and photos supplied by the ENYA competition. Designing other parts of Queensway on an in-depth level was impossible because adequate map material is not available for public use. So I knew early on that Ozone Park Station will be the main site of my thesis. The site analysis of surrounding communities and the master plan were the tools to find appropriate use for Ozone Park Station.

My take on Ozone Park Station was quite practical. I saw the upper level as a park and the ground level as a building. On the ground level I pondered quite long what to do. I thought Ozone Park Station should be a proper building because it's one of the few places of Queensway that naturally supports building functions that can benefit the community. As the station is a very distinctive part of railway history in New York, it would be appropriate to have a framing structure for the station and to fill it bustling daily life. Also locals are used to having the station as a building even though it originally wasn't one.

Then I thought how to make the building. It was clear that the current facades and walls had to go because they were makeshift solutions. Should the new building then have been one long structure or have passages going through it? How would it be accessed? I looked into the lots on the opposite sides of the streets and found that in this particular block there wasn't a possibility to combine facilities or extend functions to the lots. The homes on one side needed to maintain their privacy. The industry on the other side was already effectively using it's space.

There was no need to create direct access between the two sides. I also wanted to respect the locals and not to extend my design into private lots. So I chose to concentrate on the station itself and look into street activation for pedestrian life.

At the park level I also did a lot of thinking. What kind of park should it be? I especially struggled what to do with the railway tracks. Should they all be left there and conserved? In this case it was more of a question how the tracks should be put back because they would have to be removed when constructing the roof.

Queensway has almost all of its' tracks remaining filling the top level, and keeping them all for the full length of 5.5 kilometres would only make one long, straight and repetitious railway park. Therefore I see Queensway as having sections that are clearly differentiated from each other bringing surprise and excitement to the users. Tracks can be conserved as actual tracks in some parts, and be incorporated in to the design and functions in other parts. I chose the latter option for Ozone Park Station because I see the station as an activity hub. Therefore the resulted park design is also versatile.

Now looking back, I realise that I should have clarified all these decisions more in the design part itself.

### Future response

Queensway is currently under planning in New York and the community is involved in the planning process. I didn't have a chance or time take part in that planning process so my work is a student's design view on Queensway. During my process I did study the outcomes of the community workshops, read online forums about what locals thought about Queensway and had discussions with members of Friends of the Queensway. This had an input in my work, but the resulted thesis is still an outsider's proposal on how Queensway could be activated. The thesis will be sent to Friends of the Queens in New York and it remains to be seen what kind of response it generates.



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