

Interfaces: A Site Study in Queensborough

FINAL REPORT

MARCH 20, 2018

This report is submitted to the City of New Westminster



In Partnership with the University of British Columbia's
School of Community and Regional Planning



OHM Planning is a student planning team from the School of Community and Regional Planning at UBC. We are working with the City of New Westminster to develop recommendations for addressing the industrial/residential interfaces.

Executive Summary

New Westminster is committed to preserving industrial land for economic development, while maintaining good relationships with neighbouring land uses. In the neighbourhood of Queensborough, this is becoming more difficult as residential development is getting closer to active industrial lands, which leads to issues with externalities at the interfaces.

Externalities, in this case, are any byproducts from the normal usage of land that escapes its borders and affects its neighbours. They can take many forms, including traffic, noise, vibrations, light, odor, and dust. The focus of this report is on mitigating these externalities at the interfaces between residential and industrial uses.

We identified four approaches to address the issues, specifically looking at the eastern section of Queensborough:

1. Access and Connectivity

Major findings included having complete and connected transportation network for all modes of transportation, not just for vehicles and trains but pedestrian and cyclists as well. Improving transit at a neighbourhood scale was also recommended to alleviate the increased demand from housing development. This design is centered on the proposed Quayside to Queensborough bridge being built. Offering a more complete transportation network, encompassing various modes, will help reduce the number of private vehicles that contribute to concerns with traffic congestion, emissions, and parking.

2. Physical Impacts

Landscape improvements (trees, shrubs, sound walls, native plants) help with mitigating many of the externalities produced in the area. Sound walls, in the form of porous green walls or porous lattice structures, are both designs for mitigating noise produced by trains crossing through the area. Using landscape buffers to provide distance between pedestrian and cyclists from trains and large vehicles will help address reduce noise, odour, and dust concerns while increasing safety and visual aesthetics.

3. Resilience

Resilience speaks to flexibility and robustness - ensuring plans will adapt to future growth and changes in land use. Zoning and setback requirements were identified as ways to preserve industrial land and ease the inevitable transition as the industrial landscape evolves. Transitional zoning (e.g. live/work studios) and setback requirements between industry and residential land will create buffers between land uses. As well, re-routing truck traffic off main streets, designating truck new routes, and expanding transit services, are approaches to resilience.

4. Building Community

The approach aims to build connections between industry and residents, new and old, through industrial-themed public art, playgrounds, urban design, and industrial safety programs. By integrating much of the long-standing industrial nature into the neighbourhood, with transparency and awareness about externalities, we will build relationships and improve community acceptance of industrial activities in their neighbourhood.

Queensborough offers a lot potential and challenges. As the neighbourhood develops, there are opportunities to address existing interface issues and plan ahead for future resilience. This will require robust and flexible planning. We see our design proposals and recommendations as one piece in this puzzle, providing some foundation and direction for future research and planning.



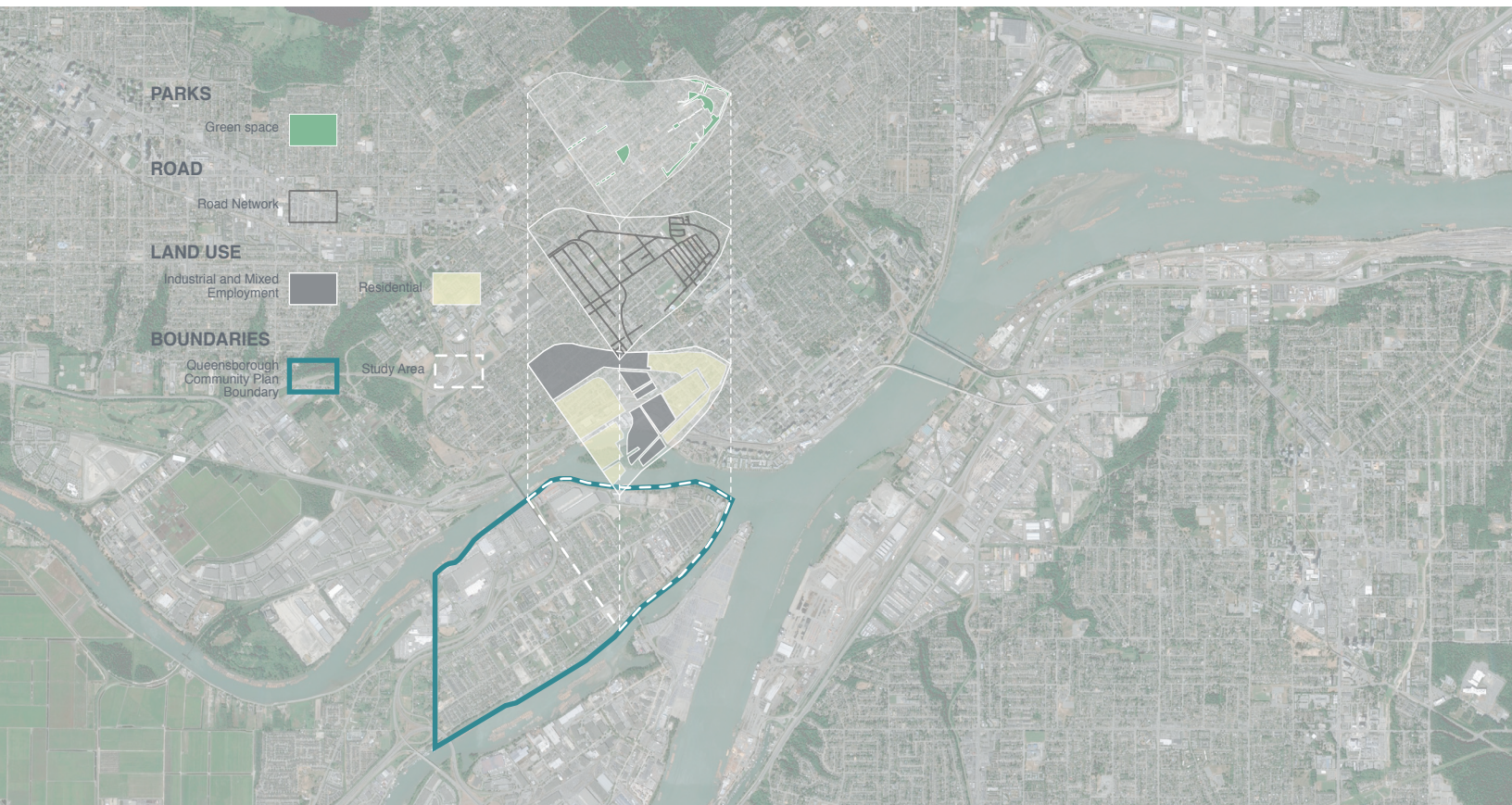
Table of Contents



Executive Summary	3	Recommendations	52
Introduction	7	1. Consistent Messaging	53
Community Context	9	2. Playground	56
History	9	3. Public art	56
Study Area	16	4. Landscaping	56
Interfaces	16	5. Sound Barriers	56
Externalities	17	6. Reduced Railway Crossings	56
Planning Process	19	7. Bike Lanes & Greenway Extension	57
Stakeholder Engagement	20	8. Industrial Setback Requirements	57
Addressing The Interfaces	24	9. Re-route Salter Street	57
Approach 1: Access & Connectivity	25	10. Transit Improvements	57
Approach 2: Physical Impacts	26	Conclusion	58
Approach 3: Resilience	27	Acknowledgments	59
Approach 4: Building Community	28	References	60
Designs	29	Sources	60
Intervention Map	30	Images	61
1. Boyd Street	31	Appendices	63
2. Duncan Street	34	Appendix A: Timeline	63
3. Ewen Avenue	37		
4. Salter Street	40		
5. Playground	42		
6. Public Art	44		
7. Transit	46		
Examples	49		

Definitions

- The City** The City of New Westminster, our client and project partner.
- CPTED** Crime Prevention Through Environmental Design, an approach to deterring crime through altering the physical design of the built environment.
- Interface** For this study, interface is defined as the “interactions between areas of different land uses. This includes the boundaries where they abut as well as the surrounding areas that experience impacts”.
- QCP** Queensborough Community Plan
- SCARP** The School of Community and Regional Planning at the University of British Columbia. This project is undertaken in partial fulfillment of the Masters of Community and Regional Planning curriculum.
- The Triangle** The triangular parcel of land bounded by Duncan Street, Ewen Avenue, and Boyd Street. This area is designated for Queensborough Comprehensive Development and is key to this study because of its location between residential and industrial areas, and its imminent redevelopment.



Introduction

Externalities, in this case, are any byproducts from the normal usage of land that escapes its borders (thus becoming *external* to the site that created it) and affects its neighbours.

Queensborough contains a mix of commercial, industrial, and residential land uses. The close proximity of these different land uses, especially industrial and residential, can lead to issues with externalities.

While neighbouring sites within the same zoning can create externalities that affect each other, the focus of this report is on interfaces where differing land uses meet, especially the interface between residential and industrial. This includes the immediate boundaries as well as the surrounding areas that experience impacts.

Externalities can take many forms, including traffic, noise, vibrations, light, odor, and dust. This purpose of this report is to study these issues and provide recommendations for mitigating their effects.

Goals

One of the City's goals, as described in the Queensborough Community Plan, is to preserve industrial uses for economic development, while maintaining good relationships with neighbouring land uses.

This project aims to further that goal by developing a deeper understanding of the interactions between industrial and residential uses in Queensborough from multiple views: engagement, policy, and design.

Building on this understanding, and referencing examples from Metro Vancouver and other regions, we have developed a set of strategies and recommendations to mitigate current and future issues at the industrial-residential interfaces.



Objectives

To achieve project goals, we have identified three primary objectives:

Increase Engagement

To engage with stakeholders to examine what issues currently exist between industry and residents, what future issues may develop, and identify key actionable items.

Develop Policy

To develop policies that include implementation strategies and actions.

Recommend Design

To provide visual representations of specific interfaces and proposed interventions. This is in the form of plans, cross-sections, and photo examples.

Our Approach

Okazaki and McBurnie (OHM Planning) are Masters students in the School of Community and Regional Planning (SCARP) at UBC, working with the City of New Westminster (City) to develop recommendations for improving the industrial-residential interface in the Queensborough Neighbourhood.

We see our role to provide recommendations and feasible site-specific designs, address important issues, mitigate externalities, and balance the interests of both residents and industry. All recommendations aim to align with the Queensborough Community Plan, and advance the long-range planning vision of the neighbourhood.

The recommendations will focus on three temporal scales:

1. Short-term (strategies that are quick-wins for implementation)
2. Medium-term (strategies that requires time and/or resources)
3. Long-term (strategies that require greater resources and supportive environment to evolve before implementation).



Community Context



Queensborough's location within the region
(Credit: 1)

As industrial activities increased, so did the externalities associated with operations: truck traffic, noise, vibration, light, emissions, and congestion - issues which continue to be present in Queensborough today.

Queensborough is one of ten neighbourhoods which form the City of New Westminster. It comprises 300 hectares, located on the easternmost tip of Lulu Island, bounded by Boundary Road on the west and water on the other sides (Annacis Channel to the south and the Fraser River to the north and east). It is located in the Fraser River floodplain, below freshet level, and protected by perimeter dykes.

HISTORY

In the 1890's and the early Twentieth Century, development in Queensborough was primarily agriculture, fishing, and industry. The shores of the Fraser River attracted water dependent activities such as timber processing, shipping, and manufacturing. These labour intensive industries drew workers to settle within the neighbourhood and surrounding area.

In the 1950's, the lumber industry was the dominant employer, providing 6,000 out of the 8,500 industrial jobs in the city. Today, the area is seeing a transition from heavy to light industrial. The earlier mills and canneries have transitioned to shipping operations and warehouses, though the southern part of Queensborough contains remnant activities of fisheries and ship repairs.

Queensborough's residential development has been shaped by its proximity to industry - both for access to local employment and relatively affordable land values. The latter remains true, but the former is becoming decreasingly relevant. The driving force behind the strong community ties to industry is in decline as more residents commute. The effects of the soaring housing market in the Metro Vancouver region can be seen here, in the form of increasing housing development under the Regional Growth Strategy. The neighbourhood is becoming more dense, shifting from detached homes to townhomes and four-to-six-storey condos. Residential development is also getting closer to active industrial lands, especially in the eastern end of the neighbourhood.

This residential growth, combined with the continued presence of industry, has led to an increased focus on the issues at the interfaces between residential and industrial areas.



(Credit: 2)

QUEENSBOROUGH TODAY: 2006 - 2016

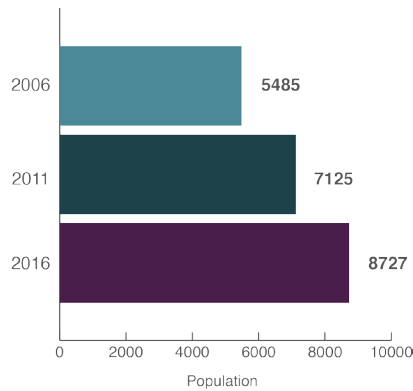
By using available data from previous Census periods, this information provides a better sense of what the community profile has been in the past and assist forecasting in the future.

Population

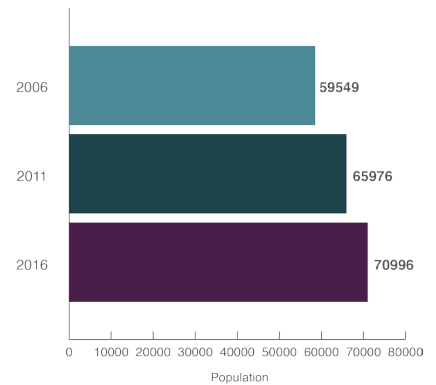
There has been continual growth in Queensborough. The neighbourhood saw an increase of approximately 3 200 residents (59%) between 2006 and 2016. The City had an overall growth of approximately 12 500 residents (21%) during the same period.

Table 1:
Population Change of Queensborough, 2006-2016
(Source: Stats Canada 2006, 2011, 2016)

	Population Percent Change (2006-16)
Queensborough	59.1%
New Westminster	21.3%

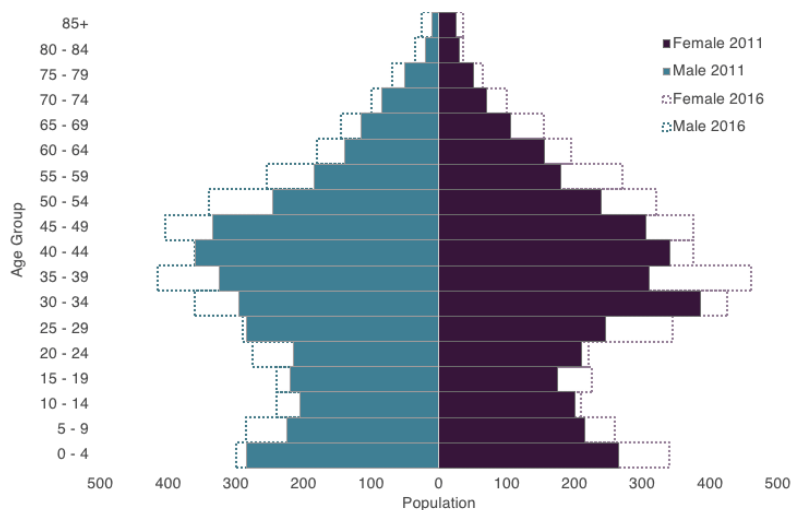


Population of Queensborough, 2006-2016
(Source: Stats Canada 2006, 2011, 2016)



Population of New Westminster, 2006-2016
(Source: Stats Canada 2006, 2011, 2016)

Generally, the age range shows that there are more females in Queensborough. Particularly, the 30 - 49 age range shows the highest female population. As well, there are more children than seniors growing, which may indicate the relationship with high number of females.



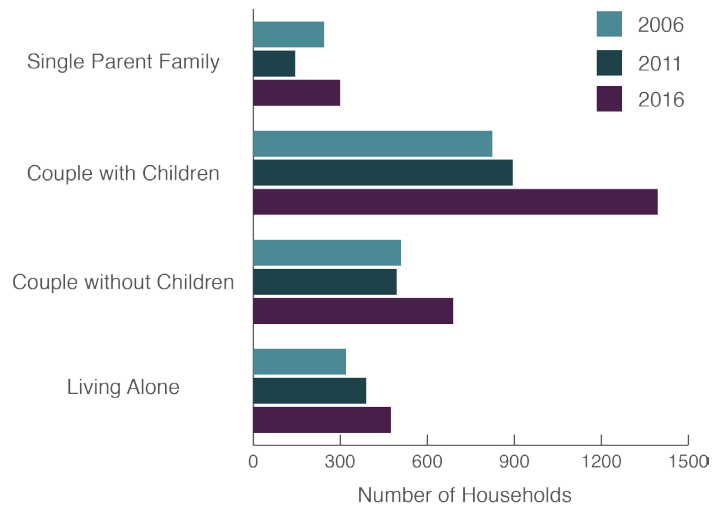
Population Pyramid of Queensborough, 2011 and 2016
(Source: Stats Canada 2011 and 2016)

Household

Since 2006, there has been an increase of 46% (900) of all household types, particularly for couples with children saw a 69% (500) increase and residents living alone with 48% (155). With population growth, many adults residents have young children, then couples without children, residents living alone, and then single parent families. Overall, the total number of households have been increasing between Census periods at an average of approximately 3 people per household.

Table 2:
Housing Development and Tenure, 2006-2016
(Source: Stats Canada 2006, 2011 and 2016)

Households	Percent Change (2006-2016)
Total Family and Household Types	46.1%
Single Parent Family	22.4%
Couple without Children	35.3%
Couple with Children	69.1%
Living Alone	48.4%



Type and Number of Households, 2006-2016 (Source: Stats Canada 2006, 2011 and 2016)

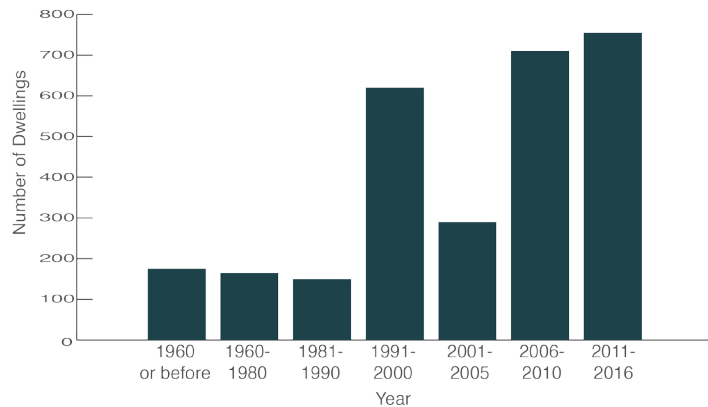


Building

The period of housing development has seen three areas of higher construction: (1) 1991 to 2000 period (620) and (2) 2006 to 210 period (710) and 2011 to 2016 period (755). Within the past decade, there has been 1,465 private dwellings constructed in Queensborough.

Table 3:
Housing Types, 2006-2016
(Source: Stats Canada 2006, 2011 and 2016)

	Percent Change (2006-2016)
Total Occupied Dwellings	62.3%
Apartments	95.2%
Townhouse/Duplex	387.8%
Single-Detached	41.4%



Total Occupied Dwelling by Period of Construction, 2006-2016 (Source: Stats Canada 2006, 2011 and 2016)

Since 2006, there has been a 62% (1200) increase in total occupied dwellings. Within housing types, townhouses and duplexes had an increase of 388% (950), apartments with 95% (392), and single-detached with 41% (200). The housing typologies that are being developed and occupied in Queensborough have been mostly multi-unit dwellings.



Affordability

There has been a shift in affordability in housing for both renters and owners. The City defines affordable housing as home ownership and rental housing for low to moderate income households costing less than 30% of their gross income. Since 2006, there has been an 97% (147) increase in the number of renters spending 30% or more of their income on housing. Comparatively, there has surprisingly been a 1% (-3) decrease for owners that are spending more than 30% of on housing between the same period. This suggests that the a larger number of renters are challenged with affordable housing versus owners.

Table 4:
Housing Tenure and Affordability, 2006-2016
(Source: Stats Canada 2006, 2011 and 2016)

	Percent Change (2006-2016)
Rented	75.6%
Owned	57.8%
Tenant household spending 30% or more of income on housing	96.7%
Owner household spending 30% or more of income on housing	-0.6%



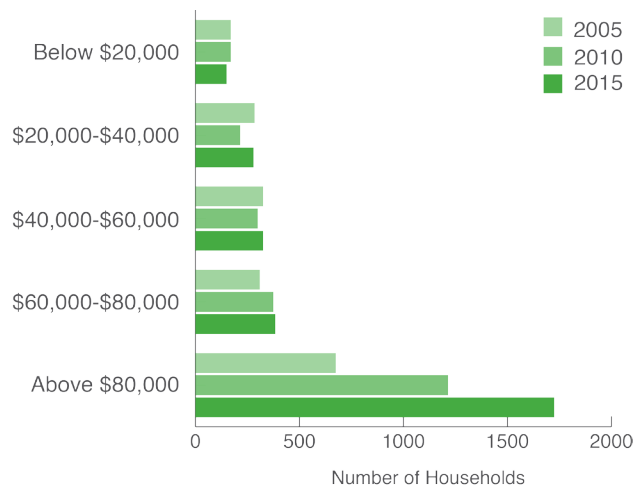
Number of Residents and Housing Affordability, 2006-2016
(Source: Stats Canada 2006, 2011 and 2016)

Income

The average and median household income in Queensborough was \$70,730/\$66,914 in 2005, \$89,204/\$84,181 in 2010, and \$108,888/\$104,755 in 2015. As the number of households increase with newer development, the residents moving to Queensborough have had higher income. The majority of households earn more than \$80,000 per year (as of 2015) in comparison to previous years. Interestingly, the totals within each of the other household income brackets have remained relatively constant.

Table 5:
Household Income, 2005-2015
(Source: Stats Canada 2006, 2011 and 2016)

	Percent Change (2006-2016)
Median Household Income	56.6%
Average Household Income	53.9%



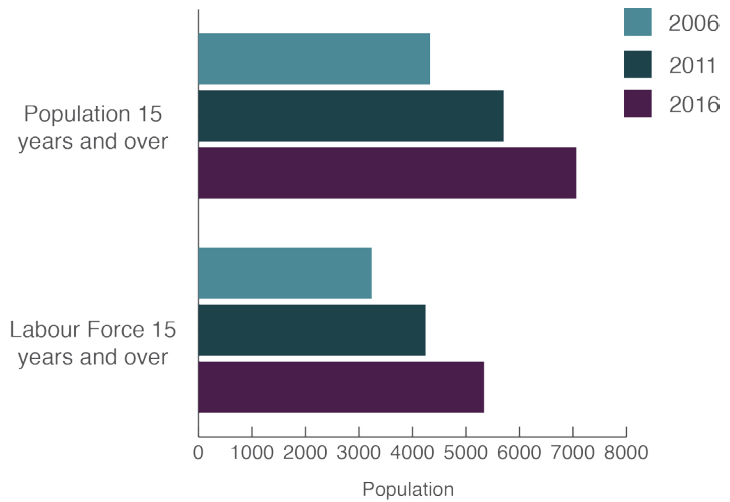
Household Income and Number of Households, 2005-2015
(Source: Stats Canada 2006, 2011 and 2016)

Table 6:
Participation and Unemployment Rate, 2006-2016
(Source: Stats Canada 2006, 2011 and 2016)

	2006	2011	2016
Participation Rate	75.0%	74.4%	75.6%
Unemployment Rate	8.0%	7.5%	6.5%

Employment

From 2006-2016, Queensborough's labour force has increased proportionally to its population increase. The labour force participation rate has remained consistent at approximately 75%, but the unemployment rate has declined by a fifth due to fewer people looking for work.

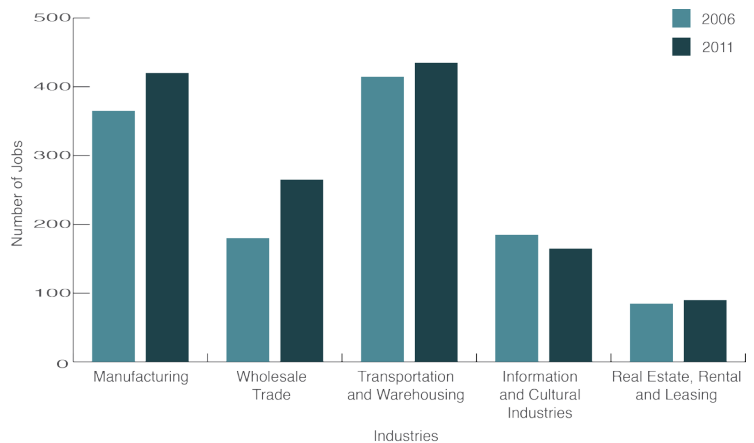


Population and Labour Force 15 Years and Over (Source: Stats Canada 2006, 2011 and 2016)

Table 9:
Industrial Employment, 2011-2016
(Source: Stats Canada 2011 and 2016)

	Percent Change (2006-2016)
All Industries	23.7%
Manufacturing	15.1%
Wholesale Trade	47.2%
Transportation and Warehousing	4.8%
Information and Cultural Industries	-10.8%
Real Estate, Rental and Leasing	5.9%

In 2016, some light industrial work grew in Queensborough, including wholesale trade (47.2%) and manufacturing (15.1%). There are other areas that observed a decrease, such as information and cultural industries (-10.8%). The shift in industrial work and industry may identify opportunities for the interfaces and what type of work will support the neighbourhood employment.



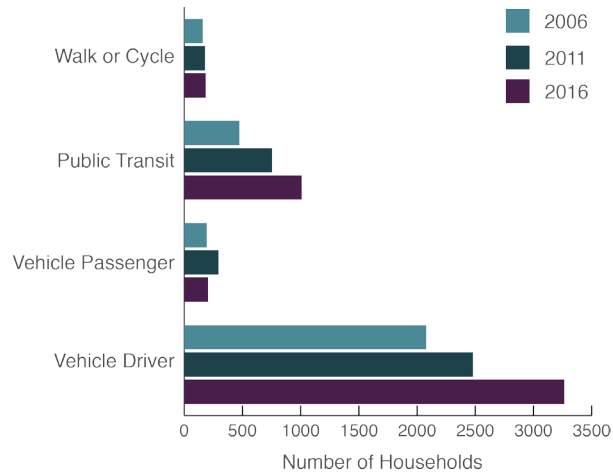
Types of Industrial Employment, 2011-2016 (Source: Stats Canada 2011 and 2016)

Transportation

The number of people driving to work and public transit use has both increased throughout the census periods. The residents living in Queensborough prefer either driving their own vehicles and/or taking public transit as their preferred modes of transportation to work. As development and population continues to grow, considering options for expanding different modes of transportation may become important for reducing congestion and traffic. This will continue to affect industry workers who operates large vehicles. Interestingly, vehicle passengers has decreased 30.5% since 2011 when it was one of the more popular modes of travel between 2006 and 2011. Walking or cycling to work showed smaller increases throughout the Census periods.

Table 10:
Mode of Travel to Work, 2005-2016
(Source: Stats Canada 2006, 2011 and 2016)

	Percent Change (2006-2016)
Walk or Cycle	15.6%
Public Transit	12.6%
Vehicle Passenger	5.1%
Vehicle Driver	57.0%

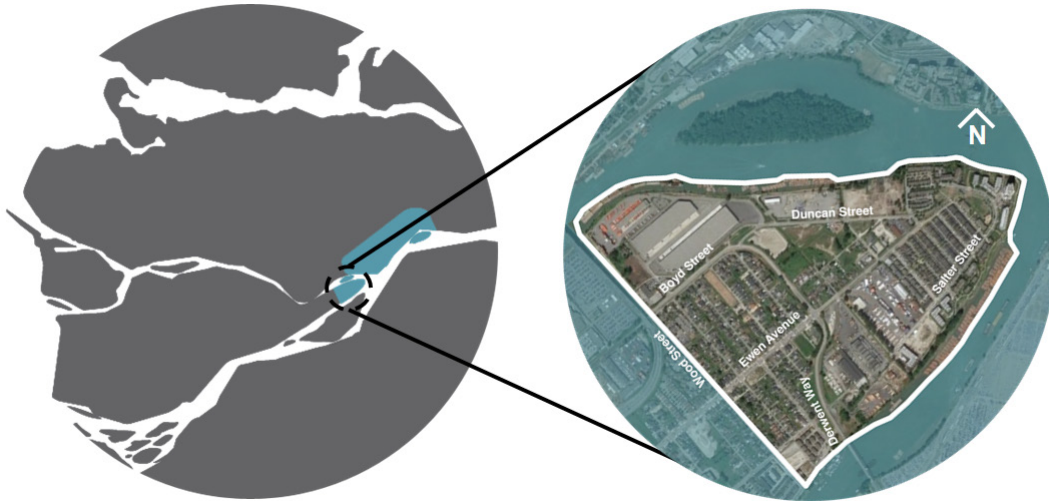


Mode of Travel to Work, 2006-2016 (Source: Stats Canada 2006, 2011 and 2016)



Study Area

Our study area is focused on the eastern part of Queensborough, which is a mix of residence and industry. The boundaries are Wood Street to the west and the Fraser River on all other sides. On the north and south, the boundaries extend into the water to encompass the industrial uses in the inter-tidal zones. These boundaries were identified with the guidance of the City, in order to focus on the most significant industrial/residential interfaces in Queensborough.



Left: New Westminster within Metro Vancouver (Credit: 1)
Right: Zoomed in on the Queensborough neighbourhood

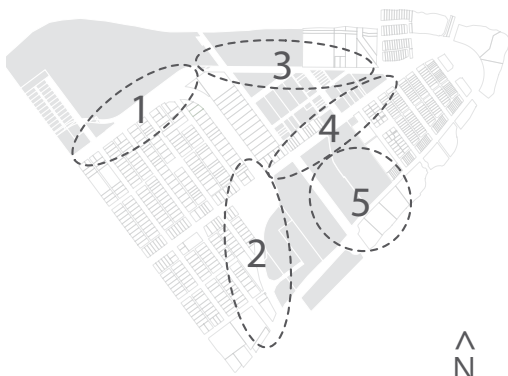
INTERFACES

Interfaces aren't just where industrial meets residential; they're also at environmentally sensitive areas, parks and greenways.

Our areas of interest for the industrial-residential interfaces are along five roadways:

1. **Boyd Street** - A north-south divide between industrial and residential
2. **Derwent Way** - A east-west divide between residential and mixed employment
3. **Duncan Street** - A diagonal divide between heavy industry and land designated for comprehensive development
4. **Ewen Avenue, east of Derwent Way** - A north-south divide bounding commercial, residential, and comprehensive development
5. **Stanley Street Greenway & Salter Street** - A rectangular perimeter surrounding the industrial lands occupied by Griff Building Supplies and Cedar Island Remanufacturing. This parcel borders comprehensive development on the east and south, a greenway on the east and mixed employment on the north.

These interface areas were identified in our site visits and further refined with City staff. **Areas 3, 4, and 5 were identified as priorities** due to the close proximity between industrial and recent (or imminent in the case of the 'triangle') redevelopment.



Location of the interfaces

Externalities

Where industrial operations meet other land uses, there is potential for externalities produced by industrial activity to adversely affect its neighbours. Conversely, residents in close proximity to industrial lands can impact industrial work through seeking restrictions on operations (regulatory or voluntary) and redevelopment pressure.

Impacts can take many forms, including aesthetic, physical, safety concerns, traffic related, or environmental. The following list was identified with the help of City staff.

Visuals

Industrial sites and buildings can cause a perceived decrease in the quality of the community and property value. Soft and hard landscaping have been used to intervene and separate adjacent land uses. Soft landscaping includes vegetation such as trees and shrubs, while hard landscaping includes fences and walls that provide screening. Finding a balance of soft and hard landscape options is of interest for the Queensborough neighbourhood.



Light Intrusion

The City highlighted issues with light penetration and intrusion from industrial operations, such as truck driving and flood lighting. Light is directed toward residential homes from unshielded light standards or truck headlights. Depending on the type of lighting, there may be methods to provide equal or better visibility with less leakage, through shielding, dimming, directional lighting, and landscaping. This is touched on in the City's LED street lighting pilot program.

Safety

The close proximity of people and operating industry raised concerns about safety. A railroad runs alongside Ewen Avenue, the main east-west corridor in the study area. There are multiple road and driveway crossings on this route. In the past, the City has noted issues with parked cars encroaching on the right-of-way and people walking along the tracks.

Traffic

Industrial districts can produce an influx of heavy truck traffic into a community. Queensborough faces problems associated with truck traffic, including increased air pollution in the form of vehicle exhaust, safety issues for pedestrian crossings, and reduced street parking for residential neighbourhoods.



Street Parking

Industrial districts can create challenges in meeting parking standards. This can be the result of insufficient parking regulations, limited enforcement, and in some cases, industrial business expansions that don't include parking expansion. Queensborough residents face parking stresses in areas that trucks frequently access. In addition, this study area has limited access to public transit that encourages more residents to drive. Residents have expressed concerns about limited street parking due to industrial operators occupying parking spots near residential areas.

Vibration

Heavy machinery and equipment create vibrations. High intensity vibrations can disrupt neighbouring structures, including homes and other building facilities. Queensborough faces minor cases of vibration with trains, some heavy machinery, and construction that may cause low intensity vibrations.

Noise

Municipalities adopt noise bylaws and programs that limit the amount of noise produced by businesses, residents, and equipment. The City has a noise bylaw that limits to the amount of noise, measured in decibels, as well as a whistle cessation program that is currently underway in partnership with the Southern Railway of British Columbia. Aside from trains, heavy vehicles transporting goods and services are a major source of noise, but difficult to control because they are not monitored and regulated frequently. Queensborough's heavy truck activities and trains are some of the contributors to noise within the study area.

Dust

Earthworks Summit has applied to establish a waste soil transfer facility adjacent to Derwent Way. The proposal indicates impacts will include increased traffic, low levels of fugitive dust (dumping and shoveling of soils), noise and emissions from diesel-powered vehicles, equipment exhaust, and potential Volatile Organic Compounds. The Queensborough Residents Association has expressed concerns with the proposal.

Odour

Odour released from industrial districts can be in many forms, originating from the materials on industrial sites to gas combustion from operating vehicles and trains. This combined with wind on particular days can travel into various neighbourhood across Queensborough. As well, the proposed Derwent Way Soil Transfer and Barge facility has brought forward new concerns with the odour and environmental implications (air quality) traveling into the adjacent residential neighbourhood.



Planning Process

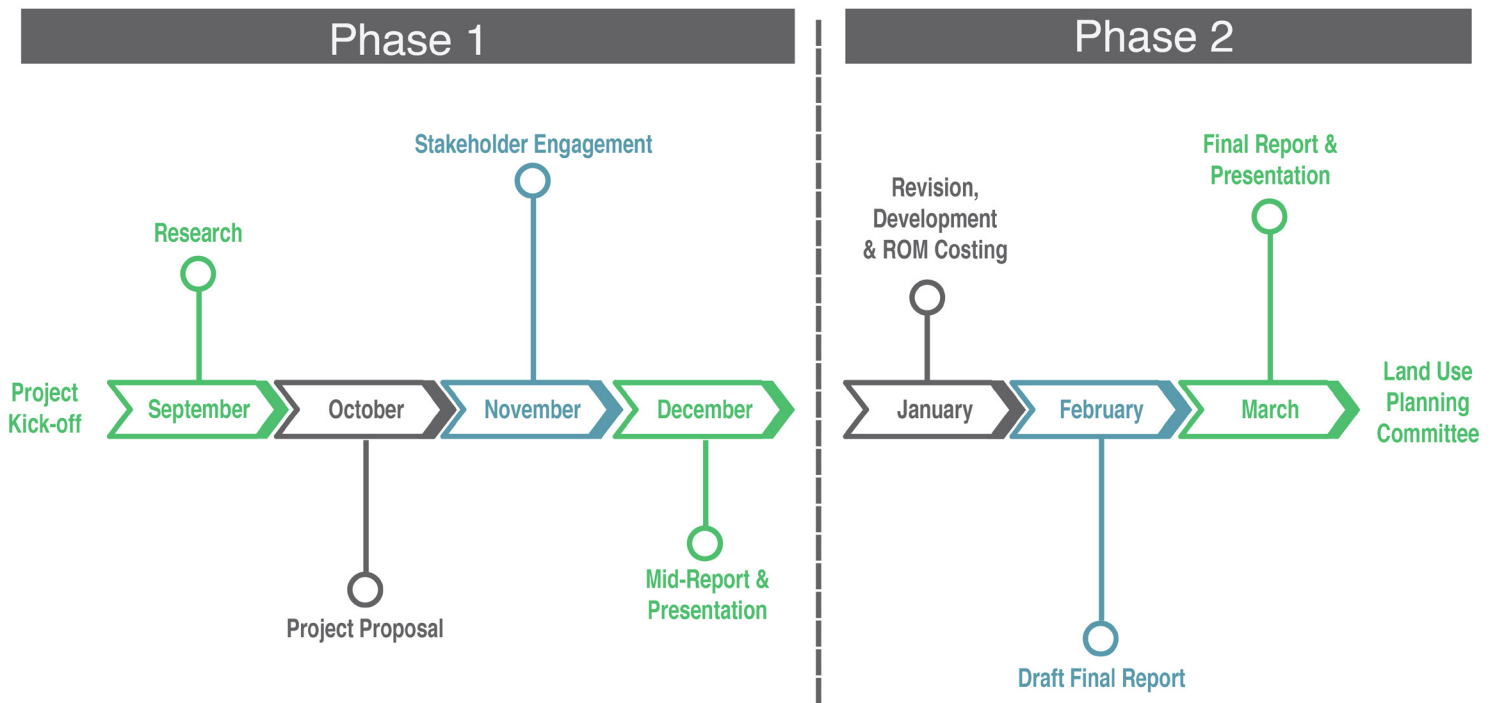
The project took place over two phases, as illustrated in the graphic below.

Phase 1 involved background research, data collection and analysis, case studies, site visits, and a stakeholder engagement. From this research we developed a Options Report which outlined four potential approaches to pursue. We discussed this with the City and decided to pursue all four approaches to some degree.

Phase 2 entailed exploring strategies within the four approaches at a generalist level of detail. This involved researching rough order of magnitude costing, producing design drawings, and creating policy suggestions. The phase culminates in the preparation of this report, and two presentations: one to the City and SCARP to satisfy the studio's academic requirements, and one to the City of New Westminster Land Use Planning Committee to present our research.

This section highlights the results from two key steps in the process:

- Stakeholder Engagement
- Options Report



Project Timeline: 7 months from kick-off through completion

STAKEHOLDER ENGAGEMENT

On November 21, 2017, OHM and the City held a focus group with local stakeholders representing perspectives from industry, development, and the community.

The goal of the meeting was to gain some insight into the types of interface issues experienced by each group. We were specifically looking to identify interface issues, understand the different perspectives on them, explore ideas on how to approach them, and develop priorities for which issues to address.

Members

The stakeholder meeting comprised representatives from:

- Aragon Development
- Beedie Development Group
- Platform Properties
- Port of Vancouver
- Queensborough Community Centre
- Southern Railway of British Columbia
- City of New Westminster
- OHM Planning



(Credit: 3)

Discussion

We asked the participants a series of questions in regards to the history, perceptions, challenges and ideas of the study area. The discussion primarily focused on identifying externalities and prioritizing interface areas.

The focus group members identified Duncan Street, Ewen Avenue, and Stanley Street Greenway as priority interfaces. They also ranked the individual externalities as higher and lower priorities (at right).

With this guidance, we identified common themes and key actions which informed our recommended approaches to the project.

High Priorities	Light Intrusion Noise Safety Street Parking Traffic Visuals
Low Priorities	Dust Odour Vibrations

**Identified priorities for externalities
(in no particular order)**

What We Heard

Below are the key take-aways from the focus group, split into two groups:

1. Neighbourhood-wide issues
2. Site-specific issues

NEIGHBOURHOOD-WIDE ISSUES

History



- **Waterfront property** and **land availability** are draws for both industry and residents.
- Waterfront property shifting from industry to residential.
- **Shift in the type of businesses** in the last few decades - sawmills and heavy industry declining and big box retail entering the area.

Perceptions



- Queensborough advertised as '20/20/20' - 20 minutes from Vancouver, Fraser Valley, and the US.
- Increasing height of storage **containers creates visual issues**.
- Impacts may be more about transportation than the industry itself. **Industrial transportation routes is a big issues for residents**.
- Participants agree interface issues between residential and industrial exist and are worth addressing. The solution isn't immediate removal and separation of industrial.
- Land supply is limited. **Setbacks can mitigate issues, but this requires land**. Density (and height) will continue to increase for both residential and industrial development.

Challenges



- Parking space for trucks is a challenge for industry. **Trucks idling on public streets affect residents**.
- Solutions addressing today's interfaces may not be relevant in the long term.
- **Safety** is a priority for community and industry. Resident interactions with rail and large vehicles creates a hazard (especially pedestrians or parking near railway). **Education** is a potential solution.
- **Security. Light and visibility** of industrial operations (CPTED) deter break-ins but may negatively impact residents.
- **Transition** from heavy to light industrial and **changes in business logistics** (e-commerce, home-delivery services) may present entirely new issues.
- **Future-proofing** the make up of future businesses is difficult to predict. Industry is sensitive to land values and operating costs.

Ideas



- Design interventions addressing **traffic and truck parking** (e.g. widening roads to allow parking, narrowing certain lanes to prevent it, designating truck and local traffic routes).
- **Coordinating truck pick-ups** to reduce wait time (parking and idling). Policy is hard to enforce - works best with voluntary compliance. Past meetings with stakeholders have provided only temporary improvement.
- **Improving the visual aesthetics** of shipping containers. Two examples were mentioned that incorporate containers in a visually pleasing way: Main & Terminal modular housing and the Downtown Container Park in Las Vegas.
- **Improving the aesthetic design of industrial buildings.** This can be done through design guidelines, which would apply to new developments. This would lessen the visual impact and reduce the desire to hide or mask industrial buildings. An example of this is the Glenlyon development in Burnaby.
- **Softening the transition to industrial.** Consideration of the visual impacts of vertical elements (stacked containers, multi-storey buildings), continuous landscaping, fencing and hedges, and light-softening.
- Consider design solutions that are **flexible to future conditions.** Density, transition from heavy to light industry, and new technologies are issues the neighbourhood will likely face in the long term.
- **Education, public awareness, and celebration** of Queensborough's industrial history and current value as an employer help improve residents' perception of the issues.
- **Design interventions around the railway** to dissuade parking and pedestrians on the tracks. This could be fencing, or more subtle barriers like juniper bushes.

SITE-SPECIFIC FEEDBACK

Duncan Street



- **Street design** can play a large part in separating housing and industry, deterring truck idling, and deterring pedestrian use of the railroad tracks.
- Street widening (to use the street as a buffer) may require extra density as compensation for land use.
- Drainage is an issue here, and space for plowed snow (not on the railroad).
- **Duncan is an alternative to Ewen, the main east-west road** in that area. Access to highway.

Stanley Street Greenway



- While not the main priority, the expanded interface is a worth looking at in two frames of reference - short-term and long-term solutions.
- The Greenway connects to a perimeter trail along the southern and eastern waterfronts, with access to the Q-to-Q ferry. The ferry may become a key transit feature in the near future. Stakeholders identified **public access to waterfront** as a key priority.

Boyd Street



- Considered a lower priority due to the wide street dividing residential and industrial (largely warehousing).
- The focus in this area is **improved pedestrian and cyclist infrastructure**.

Derwent Way

- Also considered lower priority, for a similar reason, and was not discussed in detail.
- The main issue with Derwent is the proposed contaminated soil transfer facility.

ADDRESSING THE INTERFACES

Four different approaches to addressing the interfaces issues were developed in the research phase of this project and proposed to the City in an Options Report. This purpose of this report was twofold:

- To present to the City of New Westminster the four approaches we developed for this project, provide a detailed overview of each, and elicit feedback and direction on the approaches.
- To provide both the City and SCARP with an update on the project's progress.

Approaches

1. Access & Connectivity
2. Physical Impacts
3. Resilience
4. Building Community

Breadth vs. Depth

With limited time and resources, our team proposed two options for exploring the four suggested approaches:

Breadth: to pursue multiple approaches at a generalist level of detail

Depth: to pursue one approach at a specialist level of detail

In discussion with the City, we identified breadth as the preferred option for this project. In Phase 2, we explored ideas for each of the four approaches, with a focus on design and policy concepts, order of magnitude costing, and location (where in the neighbourhood each concept would best fit).



APPROACH 1: ACCESS & CONNECTIVITY

How do we address transportation, circulation, and safety issues?

Method: Design

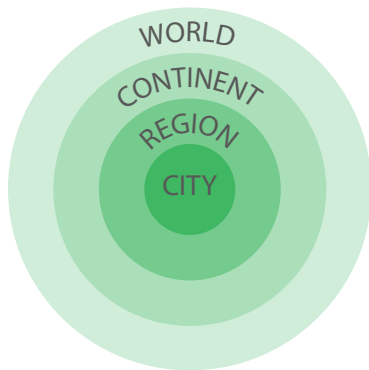
As population and development continue to grow in Queensborough, it is important to understand the current and future transportation needs. This approach will explore design interventions to improve traffic, circulation, and safety associated with the railroad, truck traffic, residential vehicles, public transit, and active transportation (walking and cycling).

Design interventions will be based on research into existing and future conditions of the area's transportation networks. We will expand the discussion beyond residents and industry, to acknowledge all transportation stakeholders in the area, including TransLink, Port of Vancouver, and Southern Railway of British Columbia.

Through site studies, data analysis, and consulting case studies, we aim to build an understanding of:

- How urban design and the built environment affects traffic flow
- The transportation needs of industry and residents, both now and into the future
- The safety concerns for residents and industry

Data will be collected through the City's open data catalogue and participant observation. Interventions to consider include exploring alternative truck routes, reducing speed limits, and installing traffic calming measures to make short cuts undesirable.



BENEFITS

- Addresses high priority externalities of noise, street parking, safety, traffic, and visuals
- Establish better circulation for different modes of transportation (truck, cars, public transit, cyclists, pedestrians)
- Industry may continue to operate business-as-usual

CHALLENGES

- High capital costs
- Limited land for road and infrastructure development within the study area

Potential strategies include:

- Addressing truck idling (creating designated truck parking, narrowing roads, or coordinated pick-ups)
- Separating bike lanes
- Expanding the greenway corridors
- Redesigning pedestrian routes, along Boyd Street near Queensborough Landing shopping centre
- Multi-use road design along Duncan street, where redevelopment of the Triangle presents an opportunity for coordinating upgrades with scheduled road works
- Multi-use roads along Ewen Avenue, where trucks and rail run adjacent to the greenway

APPROACH 2: PHYSICAL IMPACTS

How do we address physical interventions of residents living next to industry?

Method: Design

How do we soften the transitions between different land uses and create a more integrated neighbourhood? The City's land use designations in the QCP signal increased residential development, while continuing to preserve industrial lands in the neighbourhood. This will pose a challenge for industry and their continued needs to operate within the area. Products of externalities, such as visual aesthetics and noise, will need further interventions to bridge the distance between industry and residents sharing the interface.

This approach explores the role of buffering between adjacent land uses, improving visual aesthetics, and containing noise. Vegetation has been demonstrated to positively affect the urban aesthetics and environment by reducing air pollution (particles, dust, and emissions) and noise. Landscape and buffer regulations are used in many municipalities to ensure residents are shielded from unattractive storage yards and parking areas. Another option, rather than hiding poor aesthetics, is to improve and showcase these forms that are visually appealing and suitable to both industry and residents.

Designs will be based on exploring different landscape ideas (e.g. tree breaks, sound attenuation walls, architectural guidelines), identifying visual opportunities that work with existing operations (e.g. shipping containers, manufacturing, lumber yards), and determining what scales and massing are appropriate for the overall aesthetics for both industry and residents.

Potential strategies include:

- Creating setback guidelines for industry
- Designing visual and landscaping guidelines for transitioning between industrial and residential uses.
- Buffering between Duncan Street's Heavy Industrial and Medium Residential zones.
- Improving industrial aesthetics, especially along Salter Street with the close proximity between residents and stacked shipping containers
- Improving the connectivity of the greenways
- Physical interventions to address noise and emissions concerns related to the proposed Derwent Way Soil Transfer Facility



A Living Wall (Credit: 9)

BENEFITS

- Addresses externalities of noise, visual, light intrusion, and air pollution
- Potential to improve public and private realms
- Enhance aesthetics of interface areas and the greater study area

CHALLENGES

- Capital costs may be significant, depending on extent of buffering interventions
- Potential to isolate industry with physical barriers and create security (CPTED) issues
- Barriers may affect industrial operations

APPROACH 3: RESILIENCE (FUTURE FLEXIBILITY)

How do we plan for Queensborough's transitioning industry and technology?

Method: Policy

One of the topics identified as a priority in our stakeholder engagement is planning for the future (or future-proofing, as it was discussed there). The idea is to consider both the current state of the neighbourhood and what the future may look like. To address the uncertainty surrounding planning for the future, a flexible and iterative approach is recommended. Policies need to be flexible enough to remain relevant when the current state inevitably changes. There also need to be methods for reviewing policies in two ways: 1) at regular intervals to ensure they are still relevant and serving the purpose they were designed for, and 2) ad-hoc, and quickly, in response to the rare case of a significant disruptive shift.

One way to make policies flexible is to ensure they address core ideas, rather than the current manifestation of an idea. This is akin to 'treating the cause rather than symptoms'. In the case of stacked shipping containers, this may mean writing policies to apply to all vertical structures, not just buildings. In the case of drones, this may mean restricting commercial traffic routes to corridors, rather than specific surface roads.

Resilience also includes elements of research and prediction. To best address shifts in technology or industry, it is necessary to recognize them as soon as possible. This entails staying on top of trends, both in the neighbourhood and in similar places around the world. One strategy to do this is the concentric circle method: focus foremost on trends at the local level, then the metro region, continent, and world. Another strategy is to identify categorical leaders (eg. Singapore for density, Silicon valley for new technology, Vancouver for regional trends) and monitor their progress.

Potential strategies include:

- Create policies that are flexible or responsive to changing conditions
- In future plans, consider the potential impacts of:
 1. Transitioning industry in Queensborough (heavy to light industrial)
 2. Changing business models (e-commerce, telecommuting, the gig economy)
 3. New technologies (drones, autonomous vehicles)
- Update design guidelines to address growth (density, intensity, and vertical)
- Create transitional zoning between industrial and residential zones



Package delivery by drone (Credit: 10)

BENEFITS

- Mitigate potential issues or prevent current issues from escalating
- Aligns with the goal to preserve industrial uses, while maintaining good relationships with neighbouring land uses
- Can take advantage of redevelopment cycles, reducing costs and increasing feasibility

CHALLENGES

- Uncertainty
- Can be difficult and time consuming to keep on top of trends
- Not immediately impactful
- May not address current issues in the neighbourhood

APPROACH 4: BUILDING COMMUNITY

How do we build community support for industry?

Method: Engagement

In the Queensborough Historical Context Statement (2011), residents identified industrial lands as important for a number of reasons. They provide well-paying, local employment; keep the residential property values relatively low, which enables home ownership; and provide a connection to the past. Residents also mentioned Queensborough's small-town feeling and strong sense of community. Industrial lands, with typically low rise built form and low density, contribute to this feeling. With the shift on industrial lands being redeveloped, there has been a shift in the demographics and values of the community. Where historically, residents have felt a connection to and benefited from local employment, this may not be the case anymore. How do we build a sense of awareness and connection to local industry for current and future residents?

Industrial externalities, such as noise, lighting, and vibrations will still be felt by neighbouring residents, but the goal of this approach is to involve the community to help mitigate these effects.

This approach involves developing strategies for various forms of place-making, education, accessible information, community involvement, and arts & culture. Identifying different avenues of communication and engagement adds to decision makers' understanding of the neighbourhood and encourages community building rather than industrial segregation.



Container classroom (Credit: 11)

BENEFITS

- Gives community members a voice in the discussion around local industries
- Creative outlets for residents to shape their neighbourhood
- Potential for identifying quick-wins

CHALLENGES

- Does not directly reduce externalities
- There are ongoing operating costs (money, time, and effort) for holding meetings or maintaining advisory groups
- Requires buy-in from residents and local industry

Potential strategies include:

- Piloting a railway safety education program
- Designing industrial public realm strategies
- Encouraging community art installations
- Creating a community advisory panel to provide input into development proposals
- Exploring murals along buildings to celebrate the industrial history (shipping containers, lumber yards)
- Opportunities for public art installation of industrial significance in public spaces along residential areas

Designs

Our designs illustrate proposals for addressing the specific interface issues at each location, using one or more of the four approaches outlined above.

Strategies For Addressing Externalities

The drawings illustrate ways to mitigate and adapt to the externalities produced at each selected location. The icons below are used to identify which externalities are addressed within each site-specific design. The list of externalities were determined with help from the City and site analysis from the previous sections.

Externalities



Visual



Air Pollution



Odour



Noise



Light
Intrusion



Street
Parking



Safety



Vibration



Traffic



Dust

The Rough Order of Magnitude (ROM) is an estimate of cost and time provided in the early stages of the project. We include capital and operating costs as a reference to time and using a general scale of cost from low to high.

ROM



Capital Cost

\$

\$\$

\$\$\$



Operating Cost

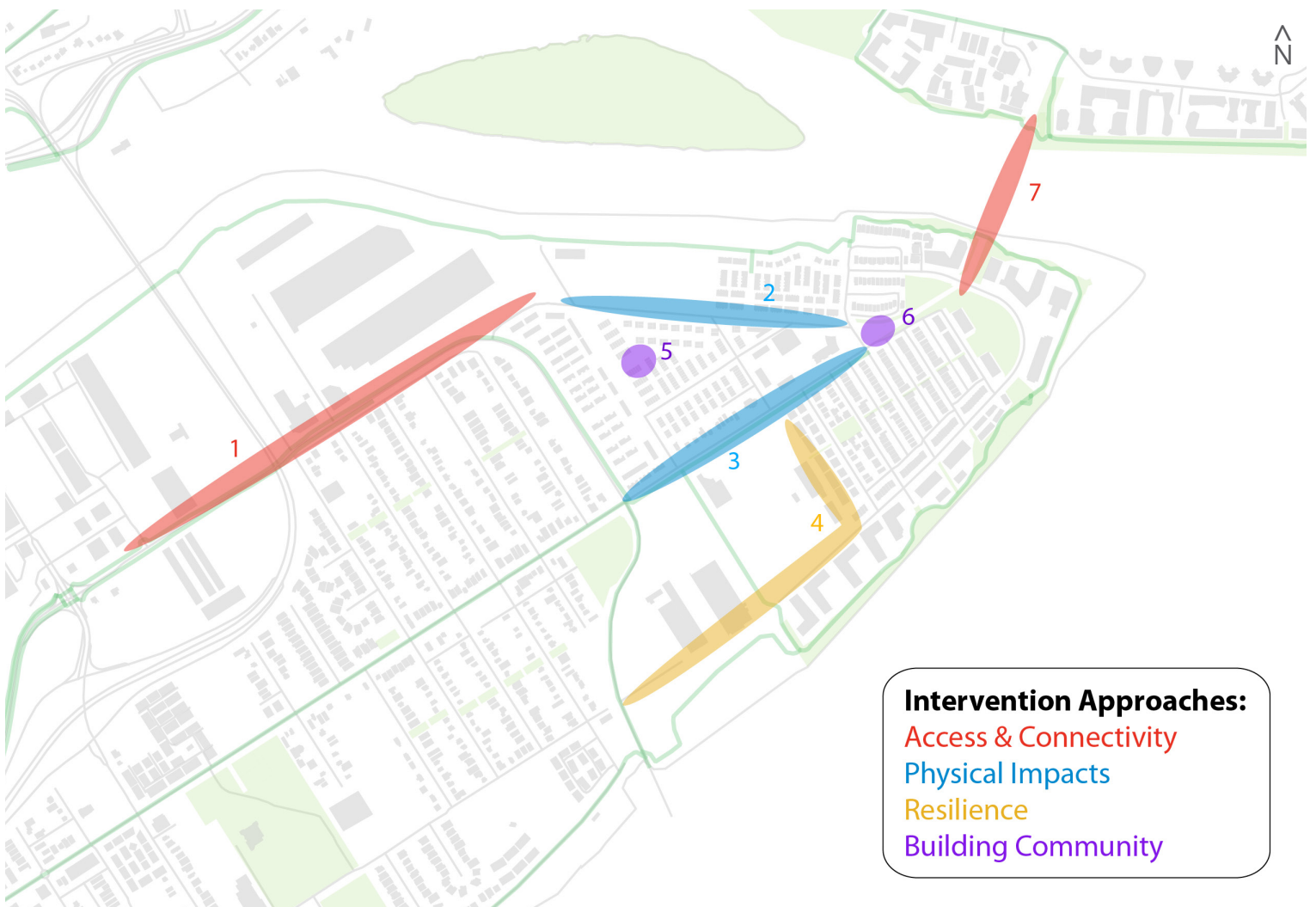
Low

High

INTERVENTION MAP

This map identifies the locations of our design recommendations and highlights the main approach of each. The recommendations are discussed in detail in the following section.

1. Boyd Street: Increasing Connectivity
2. Duncan Street: Development Opportunity
3. Ewen Avenue: Extending Main Street
4. Salter Street: Buffering Between Land Uses
5. Playground: Industrial-Themed Play
6. Public Art: Connection to Industry
7. Transit: Connection to Downtown



Approach:

- Access & Connectivity
- Physical Impacts
- Building Community

Externalities:



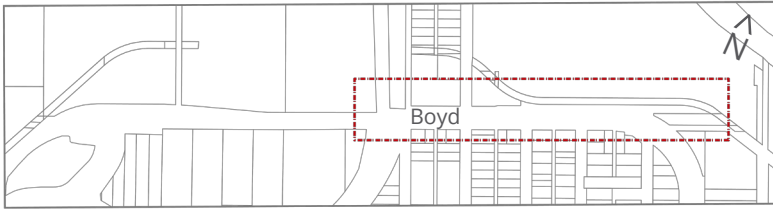
ROM:



1. BOYD STREET: Increasing Connectivity

Boyd Street serves as a highway connector from Queensborough Bridge and Annacis Island, where there are opportunities to increase connections with the underutilized right-of-way spaces. Currently, trains and vehicles are the main users on this street. While the connections of these users are complete, the connections for other modes of transportation are further explored. The goal of our Boyd Street design is to create safer extensions for all modes of transportation.

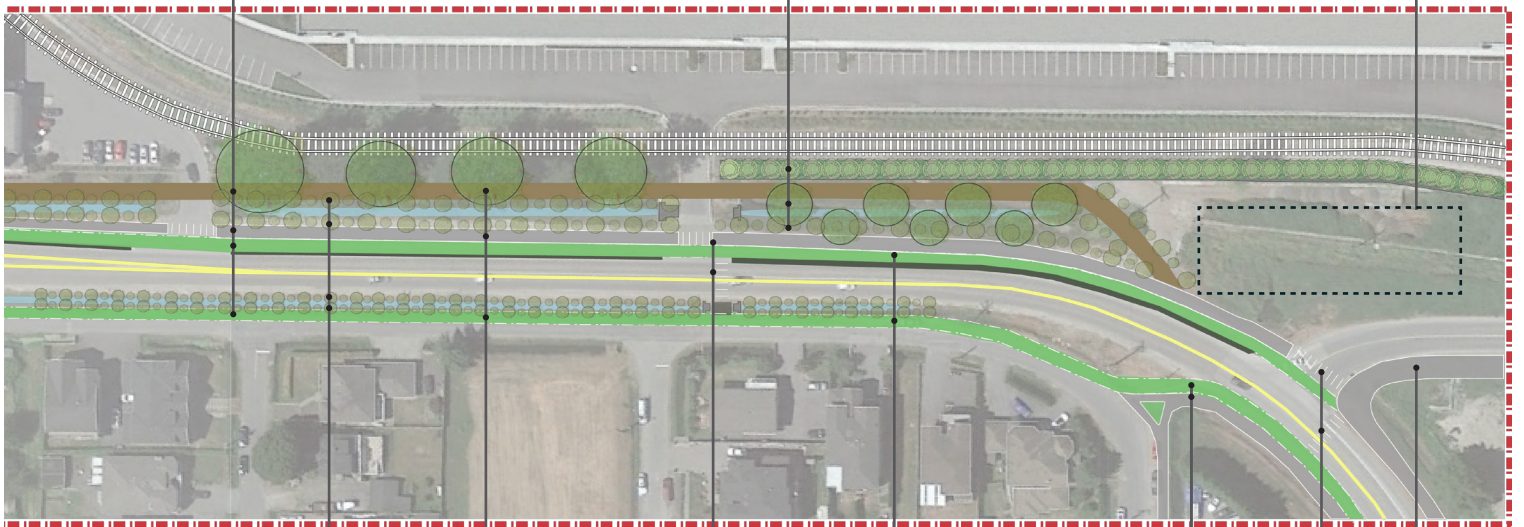
1. Extend east-west connections for designated pedestrian walkways and cycling routes on Boyd Street. The connections include along Boyd Street, Duncan Street, and Derwent Way. Residents living in the eastern neighbourhood are able to utilize complete and safe connections to Queensborough Landing shopping centre and other neighbourhoods. An added design element is to create a separate walkway from cyclists if a multi-modal street becomes unsafe for pedestrians walking right adjacent to fast-moving vehicles along Boyd.
2. Develop formal crosswalks across Boyd Street to allow safe connections for pedestrians. This would reduce the high-risk dangers of random crossings that currently take place.
3. Add landscape as a form of buffering, drain management and visual aesthetics. Suggestions for a vegetated green wall adjacent to the train, landscape buffers (trees and shrubs) to act as sound barriers to the area and native species to plant by the drain for better water management of the flood-prone area. These are ways to address noise, air pollution, traffic, dust, and odour along a busy road.
4. Utilize City-owned properties as an area of placemaking. To the future developments coming into the neighbourhood, creating a space that residents can enjoy and engage at different levels allow better relationships with the existing operations of industry for this area. Some examples may include incorporating industrial art, industrial food and culture spaces, and if permitted, a industrial-themed playground area. Including industrial design elements can help shape and celebrate Queensborough's industry rather than hiding it.



West connection to bridge, shopping centre, and other neighbourhoods

Landscape buffers of green wall, trees and shrubs between the train and fast-moving vehicles

Opportunity for activating City-owned space



Plan View Boyd Street

Continual perennial plants for drain

Continuous designated bike lanes both ways

Continuous combined pathway access on Duncan

Crosswalk for access across Boyd

Bike and pedestrian pathway access onto Derwent Way

Designated and shared walking paths

Crosswalks for access across Derwent and Duncan

Opportunities include:



Connected modes of transportation



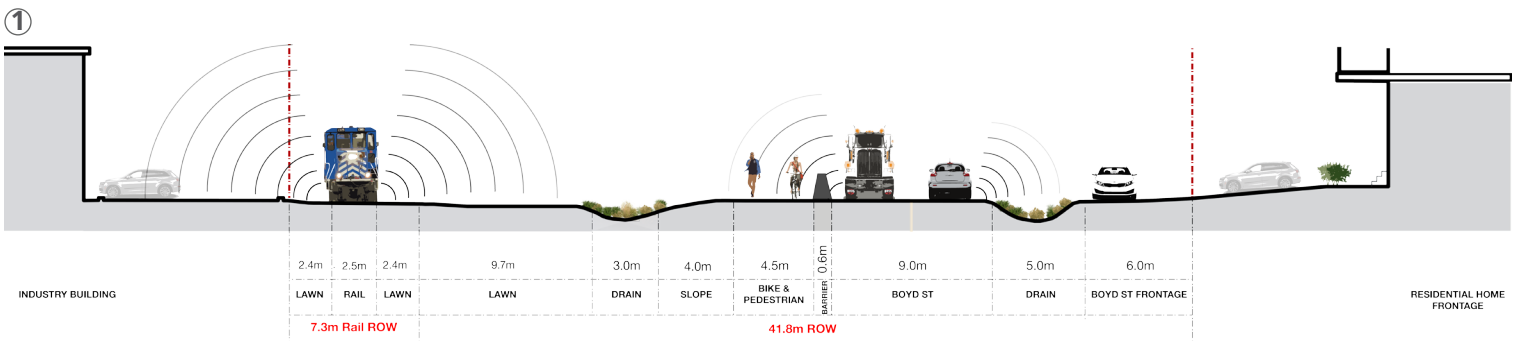
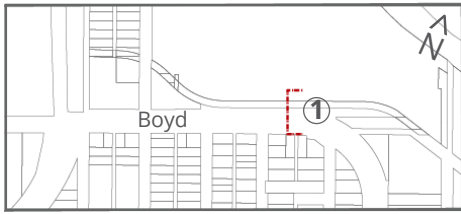
Industrial Public Art



Food & Culture space

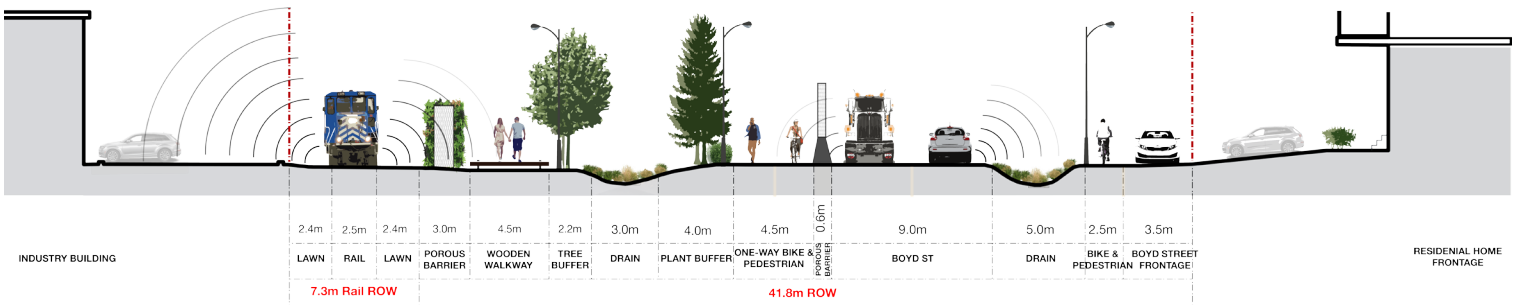


Playground Area



Boyd Street (Current)

1:100



Boyd Street (Proposed)

1:100

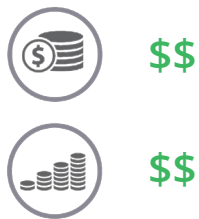
Approach:

- Access & Connectivity
- Physical Impacts

Externalities:



ROM:



2. DUNCAN STREET: Development Opportunity

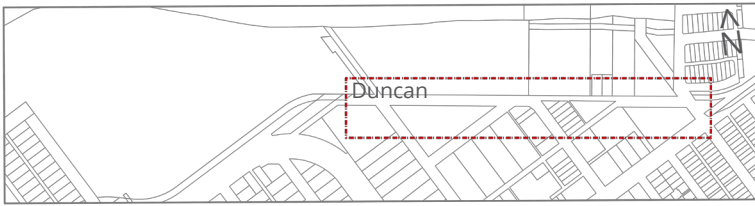
As the alternative route to Ewen Avenue's east-west traffic access, Duncan Street has narrower roads with big opportunities. Duncan's designs looked at how the road can be shared and be efficient to all users, with new development proposed by Platform Properties, Elegant Development Inc. and Kasho Consulting.

1. Develop a combined pathway for pedestrians and cyclists. This would allow safe connections to adjacent streets and better traffic movements of residents having the opportunity to walk or bike to their destinations. By providing a walkable and bike-friendly neighbourhood with better transit service, this may offset the challenge of parking and traffic congestions with less cars on the road.
2. Add landscape as a form of buffering, drain management and visual aesthetics. Landscape buffers include trees and shrubs to act as sound barriers and native species to plant by the drain for better water management of the street. These address noise, air pollution, traffic, dust, and odour along the alternate road to Ewen.
3. Solid walls are typical solutions to urban noise problems. However, if poorly designed, the sound can reflect and amplify noise. A porous green wall design may not be suitable for this street due to the constrained space. However, another solution is to build a sonic crystal acoustic wall, which is a porous lattice structure that is regularly spaced to create separation within the wall to dissipate noise. Natural wood has a irregular and porous characteristics, which provides sustainable noise reduction with little modification. While still an emerging technology, sonic crystal walls have been successfully demonstrated along the ring road in the Dutch city of Eindhoven (for details, please see the article by Peiró-Torresa under References).

In Queensborough, an optimal height is 40" (1.0 m) tall in order to block grinding, clanking, and whirring noises from the wheels and portion of the train and vehicles, allowing views across the street.

The combined pathway and building frontage is separated by the drain as part of the new development to address externalities with proximity to distance of the road and landscape buffering.

4. Establish a truck parking regulation in the form of restricted parking in residential zoned areas. In areas such as Vancouver and Surrey, these municipalities have set bylaws to indicate parking restrictions for indicated vehicle types (trucks) and time of day. With this enforcement, truck coordination can be further addressed with traffic congestion and parking within the area.

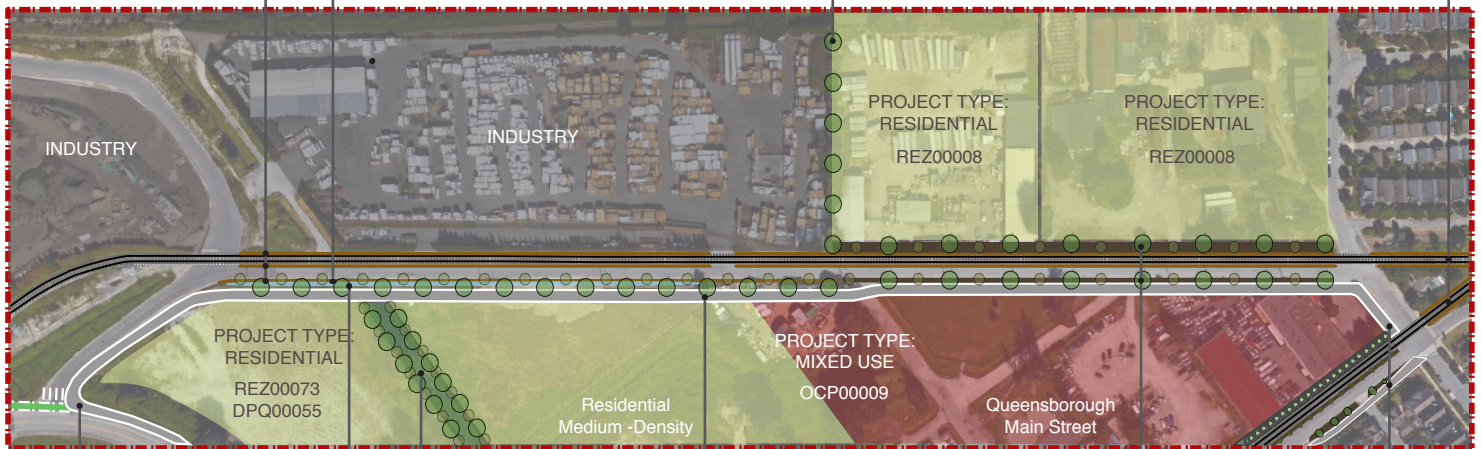


Wooden sound barriers adjacent to road and train tracks

Landscape buffer between existing industry and new development

Potential opportunity to enhance transit stop

Continuous barriers for surrounding neighbourhoods



Plan View Duncan Street

Continual perennial plants for drain

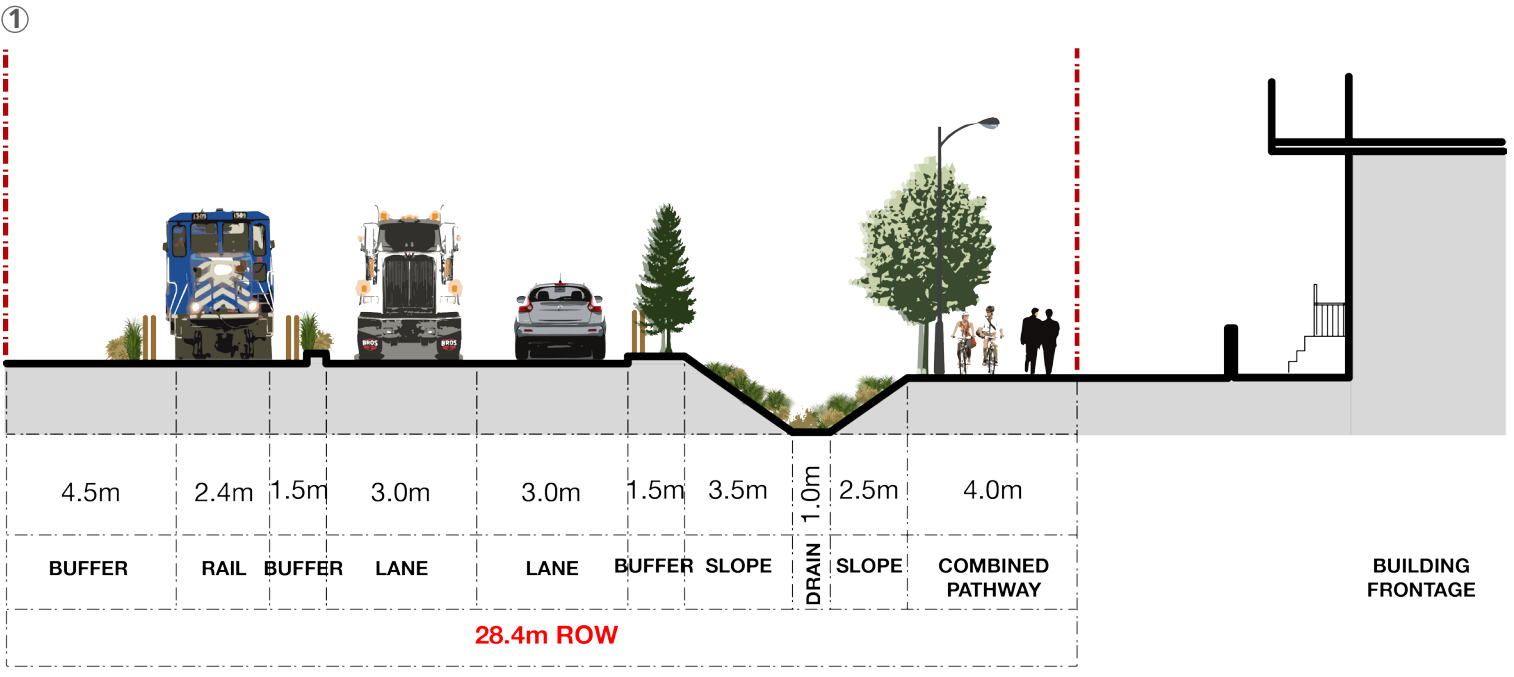
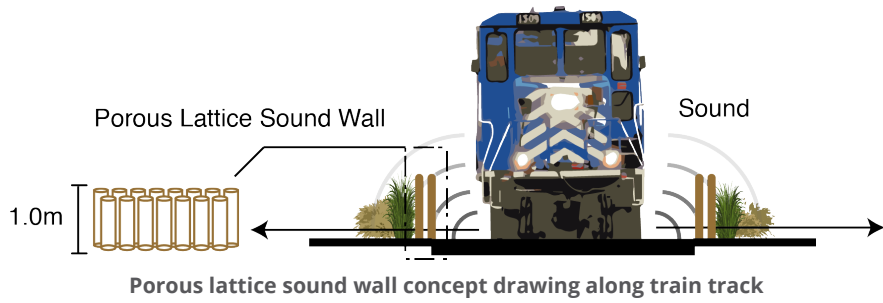
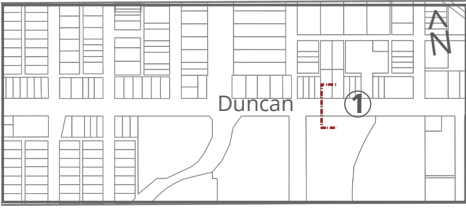
Combined cycling and walking path

Landscape buffer on both side of train and vehicles

Continued pathway access onto Boyd and Derwent Way

Access to Stanley Greenway extension

Combined bike and pedestrian pathway access onto Ewen Avenue



Duncan Street (Proposed)

1:100

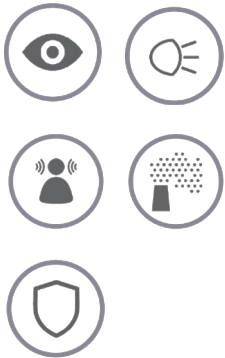
3. EWEN AVENUE: Extending Main Street

Ewen Avenue is the main east-west spine through Queensborough. However, the east and west ends of the street have very different features. In 2017, the portion west of Derwent Way underwent streetscape beautification and traffic calming upgrades. The goal of our Ewen Avenue designs is to extend these upgrades into Port Royal, and capture the feel of a mixed use and multi-modal street. This aligns with the City's goal of creating a Main Street atmosphere.

Approach:

- Access & Connectivity
- Physical Impacts

Externalities:



ROM:



There are four aspects to our design:

1. Widen the existing greenway that runs alongside Ewen Ave, to include a bike lane that is separated from both vehicle traffic and pedestrians. Within the existing street right-of-way, there is room to create separate bicycle and pedestrian paths without taking space from the road.
2. Erect a sound barrier between the railway and the houses to the north. This project envisions the barrier as a 2m, porous, vegetated wall, which will reduce the sound transferred to the adjacent houses by absorbing a portion of it instead of reflecting it back at the homes across the street.

Vegetated walls also have more favourable visuals than solid wood or concrete barriers.

The height of the wall is negotiable. Other than train whistles at crossings, which the City is in the process of addressing through whistle cessation, the main source of noise for railways comes from the tracks. This means the wall need not be very high to get the majority of the sound reduction benefits.

3. To reduce the safety hazards and the need for whistles/crossing lights, we propose to remove the driveways that currently cross the railway to Ewen Ave, and re-orient them to new laneway to the north. This is already planned, in the QCP, and is intended to coincide with future redevelopment of the properties.
4. People walking along the railroad tracks or crossing outside of designated crossings present a safety hazard. We propose landscaping elements to discourage this. Planting thick, knee-high vegetation (such as juniper bushes) between Ewen Avenue and the tracks will impede and discourage pedestrian movement along the tracks.



Continuous pathway to Ewen Avenue's upgrades

Access to Stanley greenway extension

Landscape buffer beside road and track for pedestrian safety

Continuous barriers for surrounding neighbourhoods



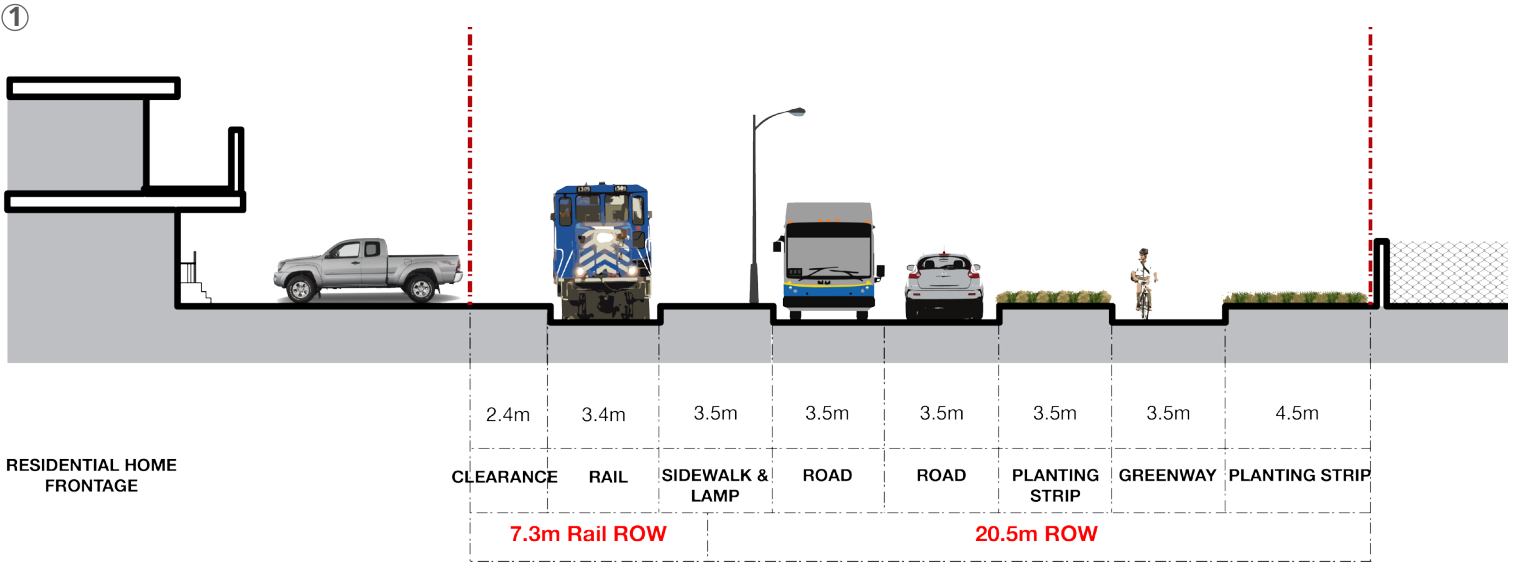
Ewen Street Plan View

Expanded pedestrian and cycling pathway

Combined bike and pedestrian pathway access onto Ewen Avenue and eastern neighbourhood

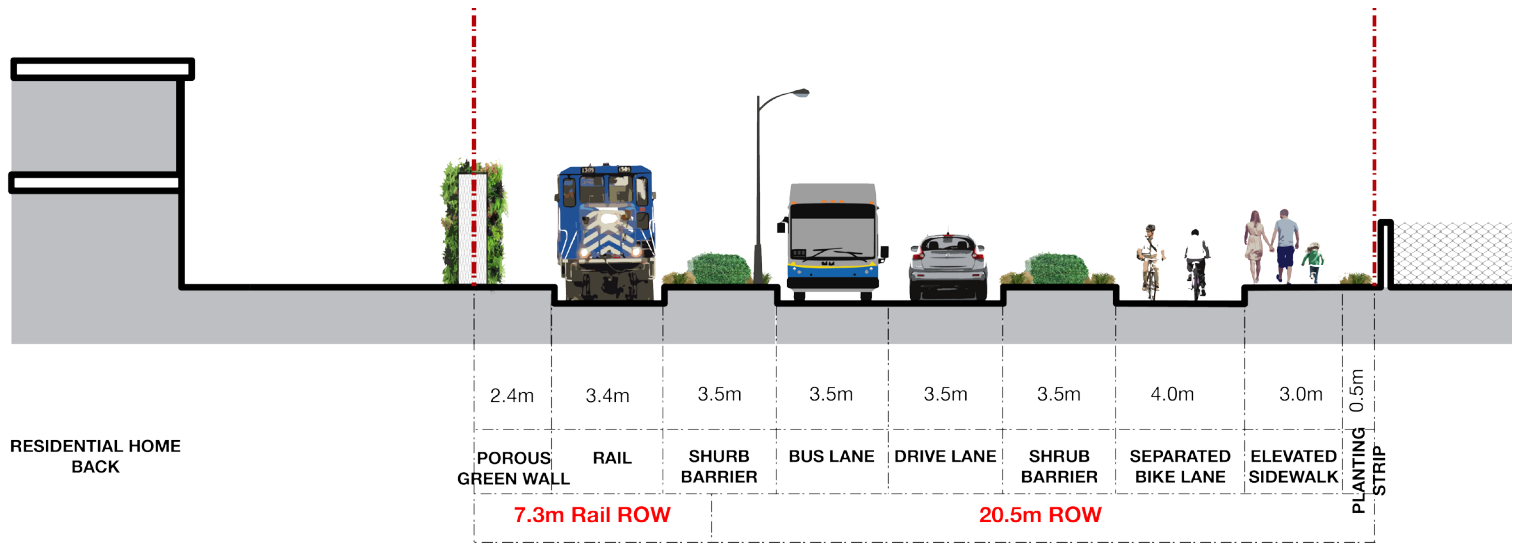
Vegetated sound wall in replacement of driveways and building frontage faced away

Landscape buffer between existing industry and residents



Ewen Street (Current)

1:100

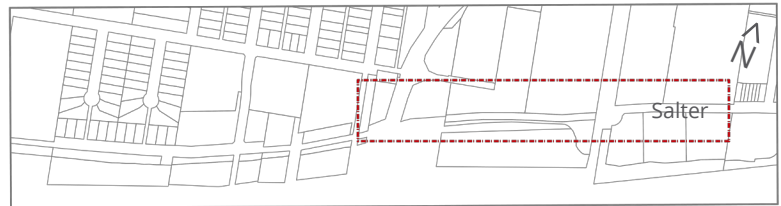


Ewen Street (Proposed)

1:100

4. SALTER STREET: Buffering Between Land Uses

Salter Street is one of the areas where the industrial to residential transition is the starkest. It divides industrial lands from medium density residential, both of which are built right up to the streetscape.



Approach:

- Access & Connectivity
- Physical Impacts
- Resilience

Externalities:



ROM:



A pair of industrial parcels on the north side of Salter St (outlined in blue below) are surrounded by residential on three sides and greenway on the fourth. This industrial land is currently used for storing shipping containers, which are stacked five-high along the property edge.

Our design here focuses on buffering between the different land uses. There are four proposals:

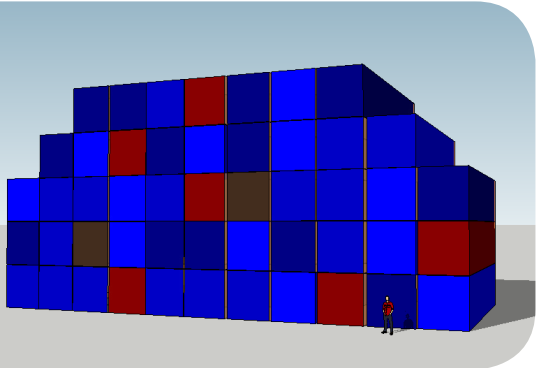
1. One of the issues raised in the focus group is that the industrial uses pre-date residential. That is, residents were aware of the existing industrial operations when they moved into the neighbourhood.

Another approach to transitional zoning is allowing a stark transition and acknowledging and accepting a greater than usual disturbance at the interfaces. This could be implemented through comprehensive development zoning that limits the type of housing allowed at this site (eg. live-work or artist lofts), or through a covenant on the neighbouring properties outlining a local relaxation of city noise and disturbance bylaws.

A side effect is this may reduce the value of affected properties, trading increased disturbances for increased affordability. As mentioned in the History section, this trade-off is consistent with the history of Queensborough.

2. Another policy-based option is transitional zoning between differing land uses instead of the current stark transition. Transitional zoning acts as a buffer between industrial and residential districts.

The Queensborough Comprehensive Development zoning is an example of transitional zoning. The proposal here is to expand the use of this existing zoning beyond its current single location, to address all stark transitions between industrial and residential districts.

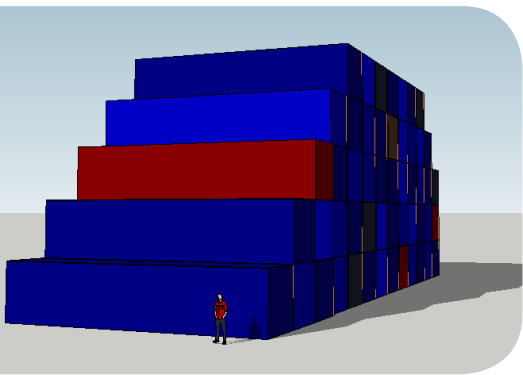


Flush-stacked containers, the current orientation along Salter Street.

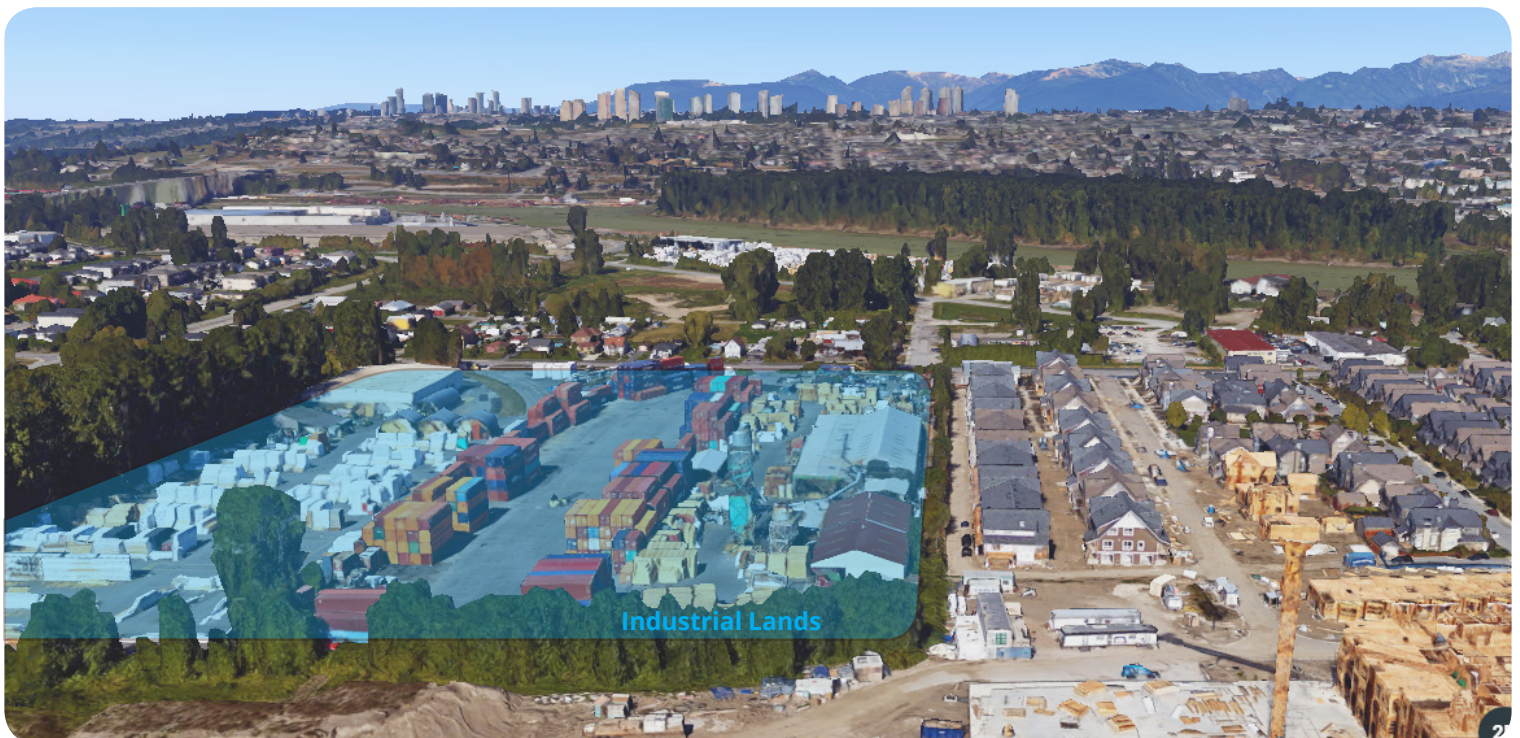
3. Setbacks between industrial and residential. One of the main issues is visual - the blocked views and perceived eyesore from the stacked shipping containers. We propose a policy outlining a gradual vertical setback at interfaces with non-industrial land uses. The setback would set a reduced height limit at the property edge, with the height limit increasing toward the centre. This would break up the visual impression of a wall at the edge of the property.
4. The last proposal is to restrict industrial traffic from Ewen Avenue, instead routing it on to Salter Street, via the Derwent Way intersection.

This proposal anticipates the redevelopment of the industrial land east of Stanley Street into light industrial or office space, following the Queensborough Comprehensive Development designation for those parcels in the QCP. This would eliminate most of the current truck traffic to these properties, leaving only the properties west of Stanley St with regular truck access.

This would require the extension of, and improvements to, Salter Street. It would also require negotiation with the businesses occupying the land which is zoned as Salter Street right of way, but not currently used as such.



Stepped back containers



Salter Street Interfaces (Credit:: Google Earth)

Approach:

- Building Community

Externalities:



ROM:



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5. PLAYGROUND: Industrial-Themed Play

The Queensborough neighbourhood has two playgrounds: one in Port royal park and one in Red Boat Park. With the development of the triangle, there will be a need for another playground, serving the north part of the neighbourhood.

There is an opportunity for this playground to embrace the industrial aspects of the neighbourhood using themed play structures. This would celebrate the history of Queensborough and help strengthen the declining community connection to industry and shed positive light on something not often seen this way. Below are three examples.

Geopark (Norway)

The Norwegian community of Stavanger is home to Geopark, an industrial-themed playground. Geopark celebrates the city's connection to the oil and gas industry. The layout of the park is based on the topography of the Troll oil field and play structures are built from recycled and reshaped objects from petroleum installations.



Geopark Park in Stavanger, by Helen & Holt
(Credit: 16, above and below)



Lisgar Park (Toronto, ON)

Lisgar Park is an industrial-themed playground build on the former site of a warehouse. The layout of wooden light posts in the park mark the location of supports in the former warehouse. The playground also features a apparatus designed to resemble gears and pipes.



Lisgar Park in Toronto, designed by Earthscape (Credit: 17)

Albert Street Crossing (Waterloo, ON)

This playground drew inspiration from the near-by railway. According to Earthscape, the designers behind it (as well as Lisgar park), the playground “tells the story of an old train that has fallen off the broken rail tracks.” It also features a water tower and log pile.



Albert Street Crossing Playground in Waterloo, designed by Earthscape (Credit: 18)

Approach:

- Building Community

Externalities:



ROM:



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6. PUBLIC ART: Connection to Industry

Public art can be an effective approach to both beautifying industrial structures and strengthening community ties to industry. As beautification, it is an alternative to block the sight-lines to industrial buildings (typically done with vegetation). As a community builder, art can celebrate historic, locally significant, or visually interesting aspects of industry.

The first photo below is an example of beautification. The artists OSGEMEOS were commissioned to paint a mural across six concrete silos on Granville Island, Vancouver. This transformed the stark visual of a large mass of bare-concrete into a bright, playful focal point for the neighbourhood. The mural was selected to fit the atmosphere of the tourist-oriented neighbourhood.

This approach may be appropriate, on a smaller scale, for industrial buildings fronting onto Ewen Street, Stanley Street Greenway, or Duncan Street. It can also be applied to sound walls. This approach is likely not appropriate for shipping containers, due to their temporary nature.

The two photos on the next page are examples of community building art. They both celebrate an aspect of their local industrial history.



OSGEMEOS' Giants at Granville Island, Vancouver (Credit: 19)



“Dispersion” is an interactive sculpture in Suwon, South Korea.

Designed by Yong Ju Lee Architecture, it replicates a narrow-gauge cargo and commuter train that served the community for 60 years before being retired in 1995.
(Credit: 20)

“Perseverance” A steel train sculpture installed in St Thomas, Ontario.

According to the artist, Scott McKay, the sculpture “draws on the city’s past industrial and railroad industry,” and suggests movement “towards a brighter future and opportunity for the city.”
(Credit: 21)



WOW Westminster, a shipping container art piece installed at Pier Park. According to the artist, José Resende, it is a reflection on both the city’s status as a transportation hub, as well as the “transformation of [its] waterfront into a recreational arts and cultural playground.” *(Credit: 22)*

Approach:

- Access & Connectivity
- Resilience

Externalities:



ROM:



\$\$\$



No
Change

7. TRANSIT: Connection to Downtown

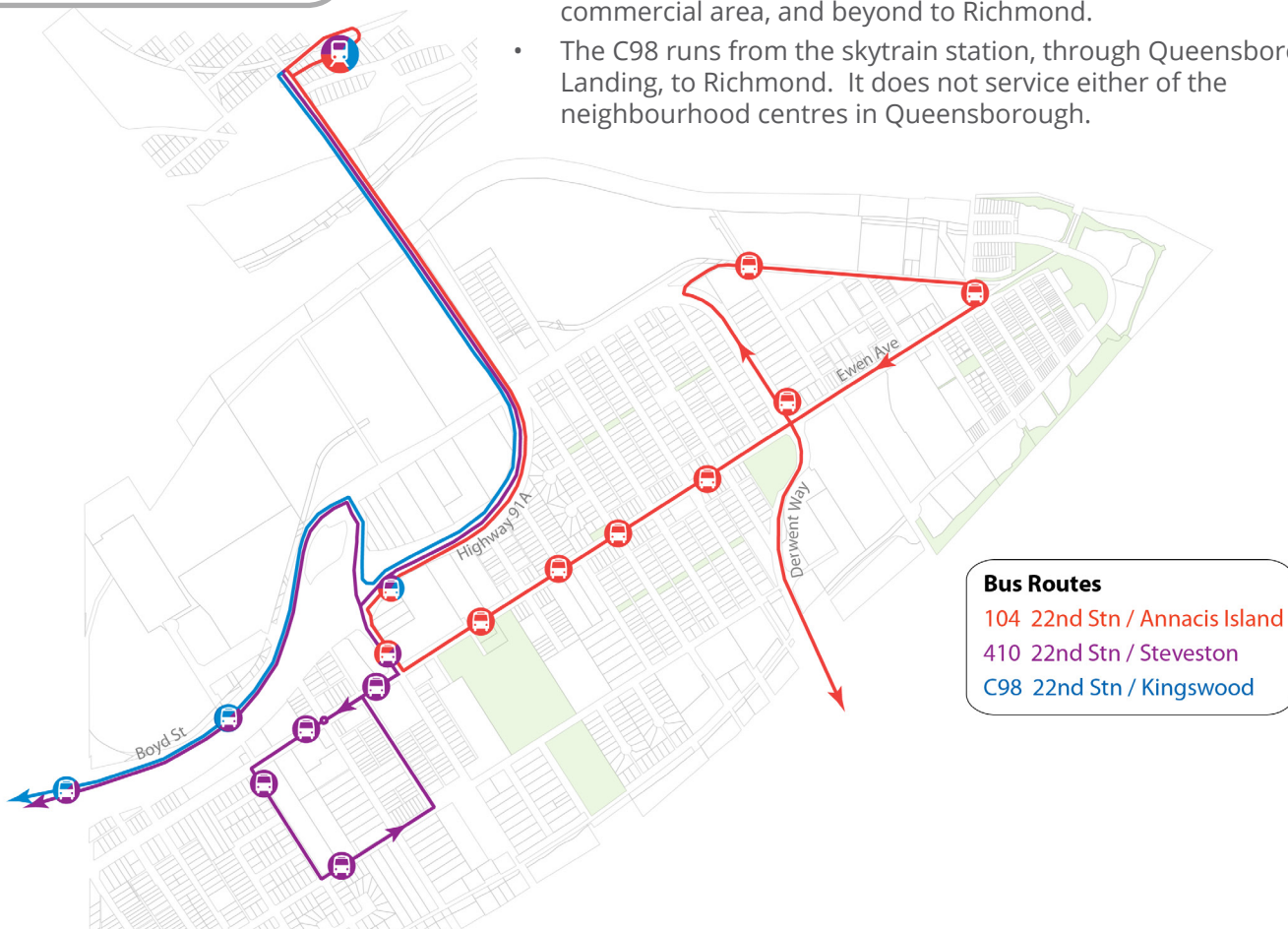
The Queensborough neighbourhood is currently poorly served by transit. The current focus is on connectivity to areas outside Queensborough, rather than within.

This is a connectivity and resilience issue. Traffic was identified as a current concern in our focus group, as anyone who has driven over Queensborough bridge during rush hour can attest. This affects both residents and industrial operations. With population continuing to grow, traffic will only worsen without upgrades to the active transportation and transit systems.

There are three routes running through the neighbourhood, all originating at the 22nd Street skytrain station. Each route serves a different section of Queensborough, and connects to the skytrain at one terminus and Richmond or Delta at the other. Thus, the focus is on connectivity to areas outside Queensborough, rather than within.

The map below shows the current routing of the routes: 104, 140, and C98.

- The 104 runs along Ewen Street, loops around Port Royal neighbourhood, and on to Annacis Island.
- The 410 connects the western portion of Queensborough - the Howes Street neighbourhood centre - to the Queensborough Landing commercial area, and beyond to Richmond.
- The C98 runs from the skytrain station, through Queensborough Landing, to Richmond. It does not service either of the neighbourhood centres in Queensborough.



Current Bus Routes Through Queensborough



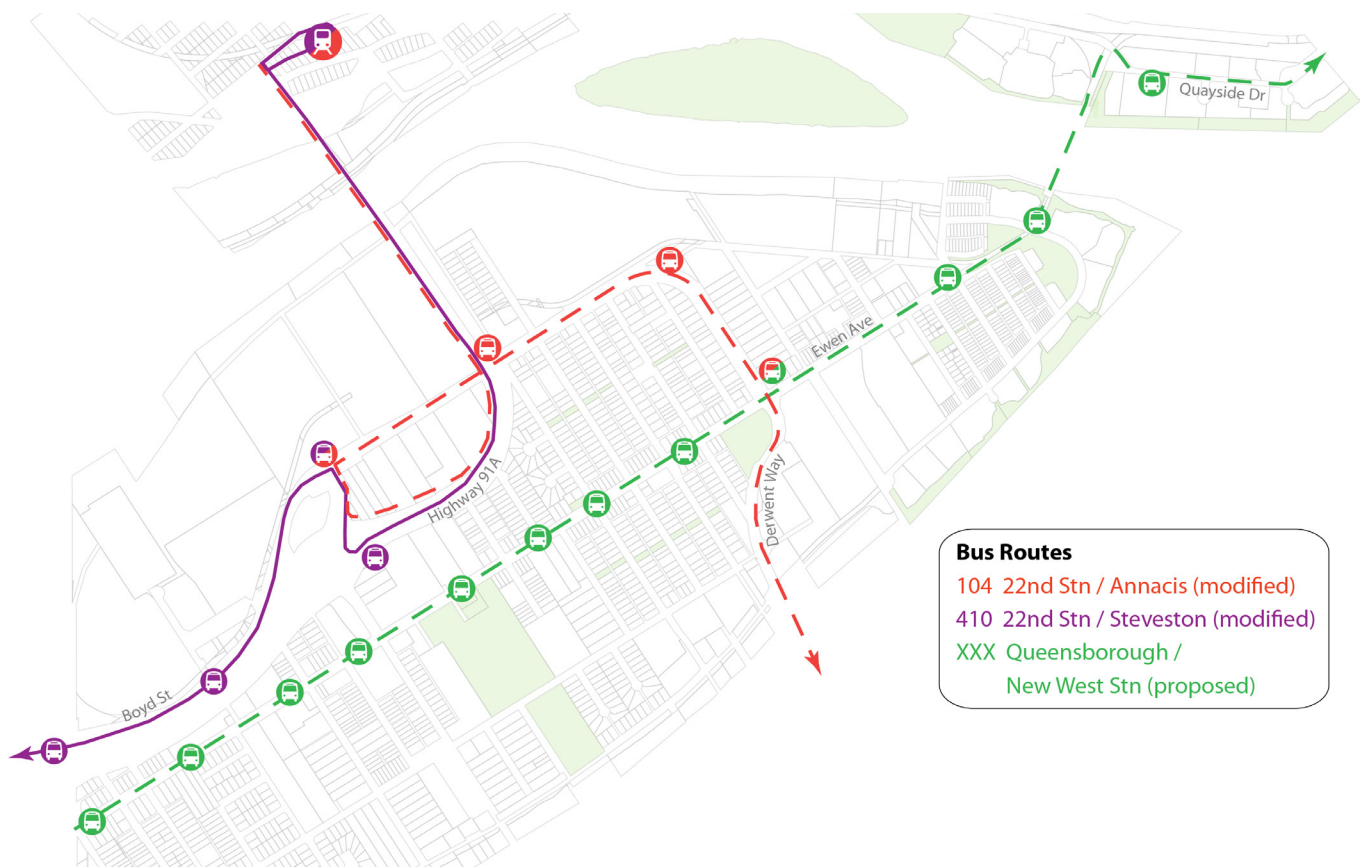
The Tilikum Crossing in Portland, OR. In the case of Queensborough, the bridge would need to open or be high enough to accommodate marine traffic. (Credit: 23)

This design is based on the proposed Quayside to Queensborough (Q2Q) Bridge being built. To prevent an undesirable increase in vehicle traffic through Port Royal, this project envisions the bridge as limited to transit, active transportation, and emergency vehicles. The image to the left is the Tilikum Crossing in Portland, Oregon, which is an example of this in action.

The flat terrain in Queensborough is an ideal bicycle transit. One of the biggest problems is connectivity to the rest of the city. Currently, to get from Port Royal to downtown New West, its a 6.5km trip, largely along the highway. Both the distance and atmosphere (traffic, noise, emissions) can be intimidating to casual riders. A Q2Q bridge would shave 5km off this route, including all the sections adjacent to the highway.

The map below shows a proposed rerouting of bus routes through Queensborough, with two goals in mind: 1) Connecting the two neighbourhood centres (Howes St & Port Royal) and 2) Connecting Queensborough to downtown New Westminster.

- The biggest change is the addition of a new route running along Ewen Ave, over the Q2Q bridge and terminating at the New Westminster skytrain station. This would address both goals above.
- The 104 maintains its termini, but is realigned to the new route with Queensborough Landing.
- The C98 and 410 are combined. The previous Howes St loop is made removed but the connection to the 104 is maintained.



Proposed New Bus Routing Through Queensborough

Crash Map: Identifying the High Risk Areas

In order to determine which areas to focus on for traffic improvements, we took a look at crash statistics from ICBC, covering nine intersections within the study area. This data includes any accident involving an automobile (vehicle/vehicle, vehicle/bike, and vehicle/pedestrian).

The graphic below, illustrates the location, severity, and frequency of accidents between 2012 and 2016.

- The location of the circle indicates the location of the intersection
- The diameter of the circle is proportional to the number of accidents (from a minimum of one to a maximum of eight)
- The colours correlate to the severity: yellow represents an accident resulting in only property damage and red represents an accident resulting in an injury.

The results show Boyd Street (from Wood Street to Ewen Avenue) lays claim to the majority of accidents, accounting for 21 of the 28 total. This is likely because this route, as a truck route and major artery between Annacis Island and the highway, handles the most traffic in the area. This would be a good location for a traffic study.

One way to address this is the proposal to reroute traffic off Ewen Avenue, to Salter St. Rerouting would reduce both the number of trucks through the intersection and the instances of large trucks turning.



Examples

The following are examples of design interventions from other locations that could be applied in Queensborough.

Metrolinx Noise Wall (Toronto, Ontario)

Approach: Physical Impacts

When Metrolinx expanded its commuter rail corridor through West Toronto, it considered alternatives for noise barriers along sections passing through mature neighbourhoods and present-day brownfield redevelopment sites.

Design alternatives include adding a porous living wall (vegetation) that masks the tracks but also allows views through the wall. This improves the aesthetics and provides something of a barrier (physical and psychological) to the noise and vibration created by the adjacent rail.

These design can be incorporated into Boyd Street and Ewen Avenue, to mitigate some of the direct noise to residents and improve the visual aesthetics of the street.



Existing (Credit: 9)



Proposed (Credit: 9)

Downtown Container Park (Las Vegas, Nevada)

Approaches: Resilience, Building Community

Container Park is an outdoor shipping container shopping mall and entertainment venue. The modular construction project used modified shipping containers to offer three storey retail shops, including fashion, barbershops, restaurants, bars, and an observation tower. Approximately 40 shipping container businesses operate at Container Park, creating a collaborative space and unique atmosphere.

Multi-storey shipping container designs may be an avenue for incorporating future industrial space, providing local economic development opportunities, and creating a local community hub for Main Street.



(Credit: 24)



(Credit: 25)

Prologis Multistory Warehouse (Seattle, Washington)

Approach: Resilience

Prologis is developing a three-story fulfillment centre in South Seattle. The project, Georgetown Crossroads, is highly visible at the north end of the First Avenue South Bridge that offers ramps for truck access to second-floor loading docks. As well, a freight elevator will link the third floor to ground floor loading docks.

With limited warehouse space in urban areas closer to end consumers and the transition of industrial work (heavy to light), Queensborough's industrial lands and operations can consider the option of growing vertically.



Village Underground Lisboa (Lisbon, Portugal)

Approach: Resilience, Building Community

Village Underground Lisboa is the City of Lisbon's newest creative workspace and cultural venue. The space consists of an open air complex with Tetris-like stacking of 16 shipping containers transformed into office spaces and positioned in a massive open courtyard in the Lisbon Carris Museum.

This is an example of improving the aesthetics of industrial materials, exploring creative industrial spaces, and building a sense of community in the Main Street area.



(Credit: 8)

"Now is a crucial time to establish a community of creative people working together and supporting each other in various business areas... Village Underground Lisboa is a place to be the glue for connecting the right people to the global community through art, music and culture."

Daniel Kisluk, User



(Credit: 26)

Sound Barrier Wall (Mississauga, Ontario)

Approach: Physical Impacts

Neighbouring residents who live on the other side of the wall receive less direct noise from passing trains. This can be explored as a starting point for looking into different vertical designs of sound barriers along the Southern Railway of British Columbia. There are opportunities to consider more inviting and integrated sound barrier walls rather than designing for complete segregation and isolation between residential and industrial land uses.

Designated Truck Parking & Coordinated Pick-up (Miami, Florida)

Approaches: Access & Mobility, Resilience

With increased freight volumes during peak hours of operations, creating separated truck parking may solve the ongoing congestion and lack of parking availability for both industry and residents in the study area. Currently, residential parking spots are been occupied by trucks awaiting their opportunity for pickup or delivery.

Technology can play a role in managing freight volumes, including:

- Mobile applications for smartphones - Truck stop chains have developed mobile driver apps, featuring real-time parking information that are transmitted from installed parking sensors. The American Transportation Research Institute (ATRI) reports 55% of drivers in their study used websites and smartphone applications to find parking along their routes.
- Online reservations - Truck parking could have reservations or permitting to help regulate the types of vehicles parked and the duration.
- In-Pavement Vehicle Detection Technology - The Florida Department of Transportation (FDOT) installed truck parking availability systems along roads that monitor truck spaces at rest areas and weigh stations through in-ground sensors and then report it on roadside signs.



(Credit: 7)

Recommendations

The recommendations are organized into three groups, based on their feasibility:

Quick Wins Items that are less complex and discrete, or more complex, but already included in the City's future plans

Moderate Items that are mostly straightforward, but interconnected and require a holistic, rather than site-specific, approach.

Complex Items that are either non-standard, costly, or require the cooperation of other government departments or landowners.

While the complex items require a large amount of cooperation with external stakeholders, all of these recommendations will require buy-in and consultation with local stakeholders.

Quick Wins

1. Consistent Messaging
2. Playground
3. Public Art
4. Landscaping
5. Sound Barriers
6. Reduced Railway Crossings

Moderate

7. Bike Lanes & Greenway Extension
8. Industrial Setback Requirements

Complex

9. Re-route Salter Street
10. Transit Improvement and Bridge Development

QUICK WINS

1. Consistent Messaging

This first recommendation examines communication between the city and residents about the vision for the future of Queensborough. In reviewing the multiple reports and plans on Queensborough, we've found some instances which could be perceived as conflicting messages. The conflict is the gap between what the documents state and what the trends and designs illustrate. **Conflicting messages can lead to unmet expectations, which create unhappiness. Maintaining a consistent message can help mitigate this.** There is an opportunity to see relatively quick and long-lasting benefits by ensuring a consistent, aligned message across all documents.

The Stated Message:



Industrial

As stated in the Official Community Plan, the City recognizes the importance of industrial lands to the neighbourhood and to the greater region. They provide local, well-paying jobs, pay higher property taxes, and provide essential services for a densifying city. The city is committed to preserving industrial lands, both through the QCP and the Metro Vancouver Regional Growth Strategy.

Read in isolation, these plans paint a clear picture of Queensborough's future that includes industrial lands. Though they acknowledge the form of industry in the region is shifting, from the traditional lumber and canneries to warehousing, office space, and technology, industry persists. However, taking into account historical trends and potentially conflicting interests, the picture is less clear.

Residential

The conflict at the interfaces between industry and residential has increased in recent years, due primarily to increasing residential development. Residents, naturally, will advocate for their interests and exert pressure on the city to mitigate the impacts of living next to industry. The most effective way to mitigate impacts is to remove industry from the neighbourhood. If residents believe a future without industry is possible, they are more likely to push to achieve that. There are two factors that can influence the degree of unhappiness with the status quo and the volume of advocacy against it:

1. How flexible residents perceive the situation (the apparent odds of success)
2. Historical trends (a precedent of success)

A subtle example of inconsistent messaging is the phrasing used when talking about redevelopment.

In Port Royal, housing developments are being built on land that was previously industrial. Though much of this land had no permanent structures on it and may have been underutilized by current standards, we must be careful not to imply that nothing was there previously. If we consider industrial lands as *nothing*, we're indicating they are not worth preserving.

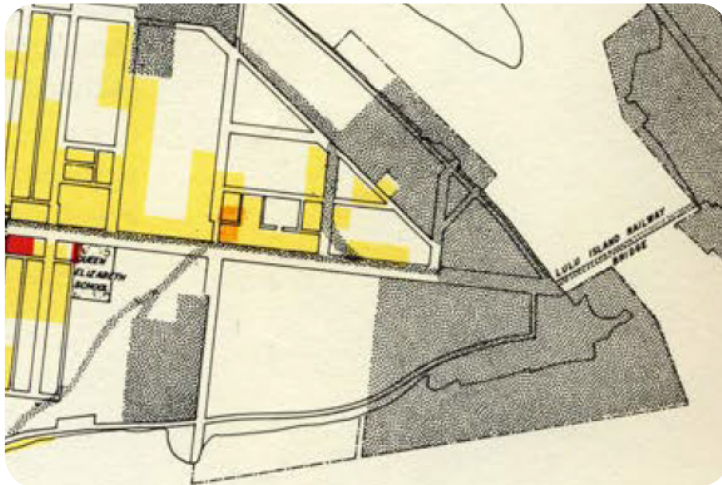
The Illustrated Message:

Historical Trends

Over the last few decades, the trend in Queensborough has been a shift from industrial land uses to residential and commercial. This is especially apparent in the Port Royal neighbourhood, where townhouses and medium-density housing have been built on previously industrial land.

Much of the remaining industrial land, originally zoned M-1 (Light Industrial) and M-2 (Heavy Industrial), has been changed in the land use plan to Mixed Employment or Queensborough Comprehensive Development (QCD) – designations that restrict uses to those more compatible with the adjacent residential.

The recently released QCP is another example of this trend. In the 2014 version, a majority of the triangle of land between Duncan, Boyd, and Ewen is designated QCD. In the 2017 update, this has been changed to residential and commercial.



Historical trends in Queensborough: City zoning maps in 1960 (left) and 2017 (right)

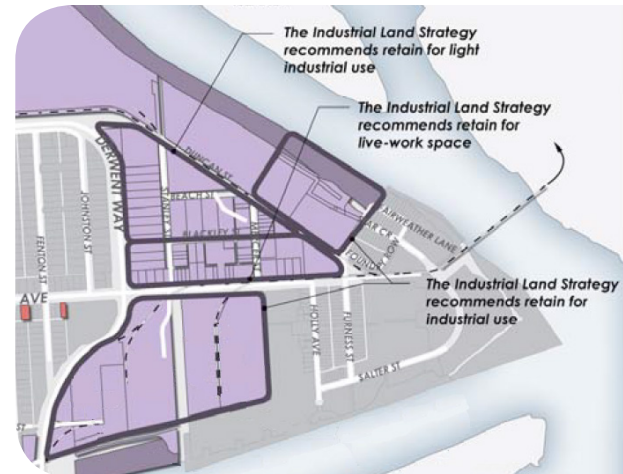


Historical trends in Queensborough: Land designation maps in 2014 version of the QCP (left) and 2017 version (right)

Industrial Land Strategy

The City's 2008 Industrial Land Strategy recommended the retention of many industrial land parcels in Queensborough. These included the Triangle, which has since been designated for residential and commercial use, and land north of Duncan street which is being developed for townhomes.

The strategy also recommended retaining the industrial parcels directly south of Ewen Ave, on either side of the Stanley St Greenway, which have since been designated as *Queensborough Comprehensive Development* and *Mixed Employment*. While these designations are compatible with industrial use, they are more restrictive and can be seen as a shift in priorities in the neighbourhood.



Recommendations from the Industrial Land Strategy

Protection

Industrial lands identified in the Metro Vancouver Regional Growth Strategy (RGS) are afforded a measure of long-term protection, in that they require acceptance of the region in order to be changed. Most of the industrial land in eastern Queensborough is not afforded this protection. It is zoned industrial at the municipal level, but zoned General Urban in the RGS.

The map at right, from the RGS, shows **Industrial** and **General Urban** zoning.

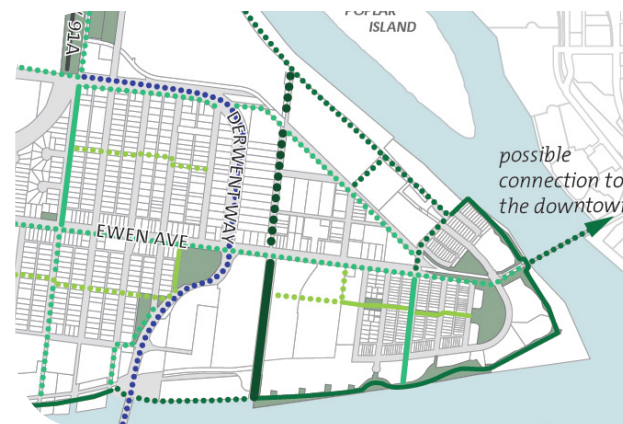


Zoning in the Regional Growth Strategy: Purple is "Industrial" and Gold is "General Urban"

Perimeter Trail

The QCP acknowledges that waterfront industrial land is scarce in Metro Vancouver and the City will "encourage heavy industrial businesses to make use of their strategic riverfront location". However, the proposed perimeter trail seems to contradict this. A waterfront greenway would cut off or impede access to the water for the adjacent industrial lands. This is acknowledged in the Parks, Trails and Greenway Streets Map, which states "Parts of the Perimeter Trail (currently not built) may be rerouted in the medium-term to avoid industrial operations." The specific inclusion of 'medium-term' implies this alignment is open to adjustment in the long-term.

While this appears to be a conflict in uses, it may be possible to accommodate both water-based industry and a perimeter greenway. If this is the intent, it would be helpful to be very clear about this.



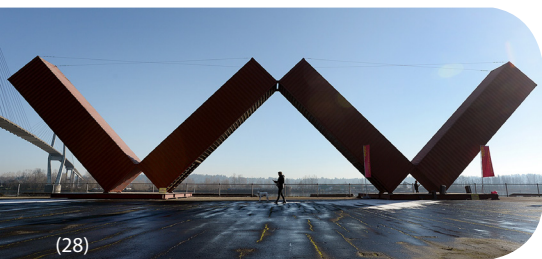
Greenway map from the QCP: Solid lines are existing, dotted lines are planned.



(27)

2. Playground

With growing number of couples with children in the area, amenities, such as a playground or play area for children in proximity to new residential development will become an important component of space. The underutilized spaces are potential areas of interest to incorporate a industrial-themed space for families that's safely accessible and within a reasonable walking distance.



(28)

3. Public art

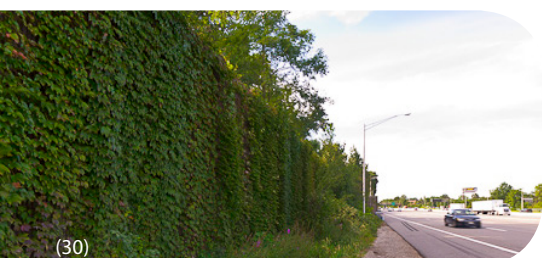
The importance of bringing history and a sense of community in this neighbourhood is celebrating industrial art. These art installations, including, shipping containers and trains, are ways to relate industry to the residents, old and new, to the neighbourhood. Similarly to the "WOW" public art, connecting Queensborough to the rest of New Westminster may be done through public art.



(29)

4. Landscaping

Natural landscapes benefits industry to alleviate externalities produced and community to provide more urban forestry and green spaces as health benefits. Working with both members, landscaping as a buffer and enjoyable experience is a widely-used approach that can be implemented for this neighbourhood.



(30)

5. Sound Barriers

Various forms of sound barriers are recommended as a way to address noise from train and vehicle movements. Sound barriers benefits industry to continue with their operations and address community concerns about noise in the area. These walls also serve to protect and guide residents to designated railway crossings, limiting ad-hoc crossings and potential danger.



6. Reduced Railway Crossings

Minimizing crossing railways is one way to address safety for the neighbourhood. In addition, designing selected areas with proper safety crossing is another solution for allowing residents to still travel across tracks. With the help of the Southern Railway and the City's whistle cessation program, deciding the type of safety design guidelines that fits the neighbourhood is of importance.

MODERATE RECOMMENDATIONS

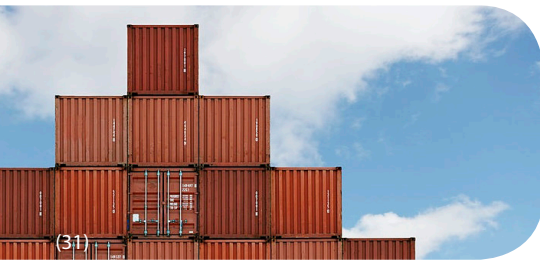
7. Bike Lanes & Greenway Extension

The completion of connected bike lanes and pedestrian greenways is one way to improve traffic impacts in the neighbourhood area. As population continues to grow in this neighbourhood, offering accessible and alternative modes of transportation routes can serve as an opportunity for residents who rely heavily on vehicles. In addition, allowing more walkable and family-friendly space encourages better social connection to the community and improve the well-being of residents.



8. Industrial Setback Requirements

In working towards a resilient industry, setback requirements are important to address future height restrictions in the examples of multi-storey business parks and view cones for residents. Flexible setback requirements brings a new way of designing industry with the transitioning economy and changing demands and needs of these businesses. However, this requires looking into existing industrial guidelines and recommending policy to update the guideline.



COMPLEX RECOMMENDATIONS

9. Re-route Salter Street

To restrict industrial traffic on Ewen Avenue, and support the “Main Street” feel of the streetscape, we propose routing truck traffic on to Salter St, via the Derwent Way intersection.

This is based on the redevelopment of the QCD land east of Stanley Street into light industrial or office space, leaving only the properties west of Stanley St with regular truck access. It would require the extension of Salter St and negotiation with the businesses currently occupying the Salter St right of way.



10. Transit Improvements

This design is based on the proposed Quayside to Queensborough (Q2Q) Bridge being built. This project envisions the bridge as limited to transit, active transportation, and emergency vehicles, similar to the existing Tilikum Crossing in Portland, OR.

The key to realigning the existing bus routes is adding a new route along Ewen Avenue and across the Q2Q bridge, connecting Queensborough’s two neighbourhood centres to each other, and to downtown New Westminster.



Conclusion

Queensborough is a complex neighbourhood that is unique within New Westminster due to its flat topography, separation from the mainland, and mix of industry and residential. It is also a fast-changing neighbourhood, especially regarding the physical and community relationships between industry and residents. Although previous research has been done on industrial-residential interfaces, Queensborough has specific challenges, magnified by the rapid development and limited availability of land in Metro Vancouver. These factors complicate the city's goals of preserving industrial uses for economic development, while maintaining good relationships with neighbouring land uses.

In Phase 1 of the project, our site analysis and community profile research identified what changes were happening within the neighbourhood and what issues these changes created regarding industrial-residential interfaces. The stakeholder focus group helped define the perceived challenges, prioritize which externalities to focus on, and identify specific streets of interest. With this in mind, we developed four different approaches to the study area.

In Phase 2 of the project, we explored site-specific designs for the four approaches. We developed strategies to address the main externalities in each location. We produced drawings and examples from the world to illustrate recommendations at both the street and neighbourhood scale. The goal of our interventions is to improve the industrial-residential relationships, by mitigating existing externalities and adapting to future land uses in the neighbourhood as it continues to transition.

Queensborough offers a lot potential and challenges. As the neighbourhood develops, there are opportunities to address existing interface issues and plan ahead for future resilience. This will require robust and flexible planning. We see our design proposals and recommendations as one piece in this puzzle, providing some foundation and direction for future research and planning.



Acknowledgments

We would like to thank Mark Allison and Carolyn Armanini from the City of New Westminster for their time, patience, and commitment to this project. With your continual support, the project moved forward in an exciting direction that we hope will enhance and support the Queensborough community.

Thank you also to members of the stakeholder engagement, including Aragon Development, Beedie Development Group, Platform Properties, Port of Vancouver, Queensborough Community Centre, and Southern Railway of British Columbia. Your input and comments have helped inform and shape much of the project report.

As well, we would like to thank Maged Senbel, Clare Mochrie, and Erick Villagomez from UBC's School of Community and Regional Planning (SCARP) for their efforts and support running this year's PLAN 526 Studio course. Your knowledge, expertise, and guidance have brought rich learning opportunity for the students and we appreciate your help.



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Appendices

APPENDIX A: TIMELINE

The table below summarizes the project timeline, emphasizing work stage and deliverables.

	Month	Description of Work	Deliverables	
Phase	1	Research Project & Report Review, Preliminary Case Studies, Site Visits, Stakeholder Mapping	Proposal Submission October 24	
		Stakeholder Engagement (Focus Group)	Engagement Summary November 30	
		Data & Analysis Case Studies, Data collection, Preliminary Analysis		
		Mid-Term Review Preliminary Findings, Feedback and Discussion with Partners		
	December	Mid-Term Report Develop Approaches and Strategies	Partner Presentation December 5 Interim Report December 11	
	January	Revision, Development, ROM Costing Revising Report, Further Research, Development of Strategies, and ROM costing		
	2	February	Refinement Selection of Proposed Strategies, Measurement, and Final Analysis	Draft Final Report February 13
		March	Final Product Proposed Plan, Strategy, and Implementation	Final Report March 20
				Partner Presentation March 30 Land Use Planning Committee Presentation April 9

Next Steps

The City has arranged for the findings from this project to be presented to the Land Use Planning Committee (LUPC) on April 9th. Within two weeks of receiving and incorporating their feedback, the final version of this report will be submitted to the City.