

LAND VALUES AND TRANSIT INVESTMENT

Case Studies and Analysis for the Broadway Corridor

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EXECUTIVE SUMMARY

Report Overview

In anticipation of the Millennium Line Broadway Extension and a new Broadway land use plan, this report explores case studies on the effects of transit investment on land values and the ways in which local governments around the world capture uplift as a result of transit investment. For the City of Vancouver, speculation in advance of the Broadway land use plan is a key concern. The report therefore reviews the Vancouver context in terms of the speculation and land value capture policies currently in place. Next, a land value analysis is conducted for the Broadway corridor using different combinations of data sets and methodologies to reveal trends along the corridor and in proximity to proposed transit stations over time. The report ends with a discussion of the analysis findings and the case studies as they relate to the Broadway context. Recommendations are then given based on the findings and the lessons learned from the case studies.

Case Studies

Land Value Effects of Transit Investment

VANCOUVER | Canada Line Summary:

- A 2012 study conducted a multiple sales analysis to look at price appreciation trends of homes sold before, during, and after construction of Canada Line.
- Prices generally followed a trend of high increases upon confirmation of the line, a sharp decrease during construction and then an increase upon completion.
- Homes close to stations surrounded by low-density, single-family development (e.g. King Edward and Marine Drive Stations) saw the highest levels of transit premiums.

SYDNEY | Epping to Chatswood Rail Line Summary:

- A 2016 study used a hedonic price model to look at the land value impacts of Sydney's main transit projects across different land uses, catchment areas, and time periods.
- Five years after the opening of the line, the average land value premium within 400m of a station was 54.6% (i.e. properties within 400m of a station were valued on average 54.6% more than those outside 400m of a station).
- The study found that value created by transit investment occurs in three phases: (1) the monetisation of improved accessibility, (2) the value created by rezoning land parcels to their highest and best use, and (3) the value created by increasing the allowable density.

SAN DIEGO | Coaster Commuter & LRT Summary:

- A 2003 study used a hedonic price model to find the degree to which San Diego's Coaster Commuter and LRT lines resulted in transit premiums for properties within close proximity to stations.
- Commercial properties experienced the greatest benefit from proximity to LRT and Coaster stations.
- Proximity to transit stations had a negative effect on single-family land values and a generally positive effect on multi-family land values.
- Multi-family land experienced different effects depending on tenure type. Condominiums experienced higher premiums for proximity to Coaster Commuter stations, whereas apartments experienced higher premiums for proximity to LRT stations.

Land Value Capture Policies

PORTLAND | Tax Increment Financing, Local Improvement Districts

Summary:

- Portland implemented the Tax Increment Financing method by defining Urban Renewal Areas within the Streetcar catchment and setting a baseline for tax revenue within these areas. As a result of capital investment, property tax revenues increased above the baseline and this additional revenue was used to fund the transit project and invested in affordable housing. This mechanism has generated \$21.5 million (USD) in funding.
- Local Improvement Districts were also formed to finance the Streetcar project. The Districts consist of a group of property owners in a defined area who contribute to the cost of the project with the understanding that the project will have a positive impact their property values. This mechanism has generated \$34.9 million (USD) in funding.

ATLANTA | Tax Allocation Districts

Summary:

- Atlanta's formation of a Tax Allocation District is similar to the Tax Increment Financing method. Additional tax revenues above a set baseline are used to fund redevelopment activities which are investments into parks, trails, and improved streetscapes.
- The Tax Allocation District boundary is defined strategically in order to encourage development within walking distance to rail corridor.

HONG KONG | Rail-Property Development

Summary:

- Hong Kong uses a joint development approach, known as rail-property development, that integrates mass transit with high density development and allows the owner-operator of the system to recoup the cost of transit investment
- A Master plan is created that identifies development sites along a new rail-line. The transit provider then pays for the

development rights of these sites for a price that does not include the value generated by the new rail-line. The transit provider can then sell the development rights for a profit or enter into a co-ownership agreement with a developer.

BOGOTÁ | Betterment Levies

Summary:

- Bogotá uses the betterment levy model to fund a large diversity of infrastructure projects including road works, cycle paths, and public spaces.
- Betterment levies are calculated based on the cost of the project but factor in the density, land use, and capacity of residents to pay within the zone that they levy is applied.
- Citizens are allowed to participate in the monitoring, research and administration of the levy encouraging greater public support for the program.

Analysis Overview

Commercial Corridors Analysis

The Commercial Corridors analysis looks at value trends between 2008 and 2017 along Broadway in comparison to four other commercial corridors in the City of Vancouver: Main St. West 4th Ave., E Hastings St., and Fraser St.

Summary of Findings:

- Broadway retail properties represented the highest proportion of sales above \$1500 per sqft. Of the 12 sales above \$1500 per sqft, 7 of them were within one block of a proposed station intersection.
- The average amounts paid above assessment for retail properties on Broadway begins to increase in comparison to other corridors in 2014.
- There is no significant evidence that buyers were willing to pay significantly higher premiums for properties that would be in the Phase 1 catchment area compared to those in the Phase 2 area of the Millennium Line Extension project.

Proposed Station Radius Analysis

The Proposed Station Radius Analysis focuses on sales between 2008 and 2018 within a 400m and 400-800m buffer of the 6 proposed station intersections: Great Northern Way, Main St, Cambie St., Oak St, Granville St., and Arbutus St. The aim of the analysis is to determine if premiums are paid for properties that are considered highly walkable to a future station.

Summary of Findings:

- Apartment land within the 400m buffer and apartment land within a 400m to 800m buffer of a proposed station generally trended together. In comparison to the city average for apartment land sales, both buffers trended higher than the city average for apartment land after 2014.
- Residential land within the 400m buffer and residential land within a 400m to 800m buffer also generally trended higher than the city average after 2014. The upward trend for these buffers continues between 2016 and 2017, when the city-wide trend remained flat.
- Commercial zoned properties within both buffers are valued consistently higher than industrial zoned properties.

Regression Analysis

A regression analysis was conducted to test the effect of proximity to the Millennium Line Extension proposed stations and the 2014 Mayor's Council Vision on the sale price of Vancouver homes between 2008 and 2018.

Summary of Findings:

- Properties located within a five minute walking distance (400m) of a station were sold for \$40,402 more than those outside a five minute walking distance.
- Properties sold in 2014 or later were on average \$240,000 more than those sold in the previous years.
- There was no extra premium for properties that were both within 400m of a proposed station and sold in 2014 or later.

Recommendations

The case studies and analyses conducted in this report offer valuable lessons and have informed the following recommendations for land value capture in the Millennium Line Broadway Extension planning process:

1. Explore land value capture mechanisms that allow for long-term value capture as opposed to a one-time transaction.
2. Implement land value capture policies early on.
3. Consider the added value of transit accessibility—not solely the added value of density—when crafting land value capture policy.

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INTRODUCTION

Figure 1: Millennium Line Broadway Extension Proposed Stations



Source: Translink. <https://www.translink.ca/Plans-and-Projects/Rapid-Transit-Projects/Broadway-SkyTrain-Extension.aspx>

CASE STUDIES

Land Value Effects of Transit Investment

The majority of studies looking at the land market effects of transit investment find that the development of new public transit infrastructure has a positive effect on land values near the new stations.¹ Studies also show that the effects differ across land uses and in general, commercial values tend to increase more than residential.² A meta-analysis conducted using 57 observations concluded that commercial properties within a quarter mile (402 metres) of the station are 16.4% higher than those outside the quarter mile zone, while the premium for residential was 4.2%.³ The Improved accessibility provided by transit is not the only factor that contributes to increased property values. Transit investment is often planned in coordination with land use planning and zoning for higher-densities around station corridors and nodes, which creates greater development opportunity and therefore greater value.

The following case studies are local and international examples of transit investment projects that have been the subject of research studies on the land market effects of transit investment. The case studies highlight general trends in the relationship between transit, land use, and land value and provide lessons for planning transit oriented development.



Image: Vivaliva.com

THE Canada
PROJECT Line

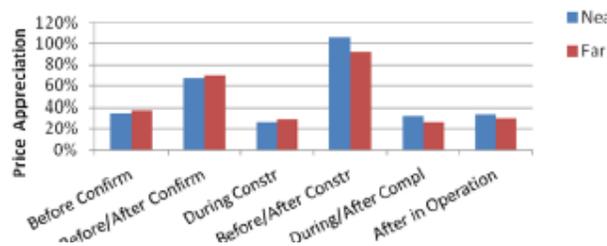
The completion of the Canada Line in 2009 linked Downtown Vancouver with the City of Richmond and the Vancouver International Airport. The line runs primarily below grade, with a large portion spanning the length of Cambie St. In order to take advantage of the new transit line and integrate land use and a sustainable transportation strategy, the Cambie Corridor Interim Rezoning Policy was implemented in 2010, followed by the Phase 2 Cambie Corridor Plan in 2011 to direct redevelopment along the corridor. The Plan has since guided the evolution of Cambie St. from a primarily single-family area to a mid-rise, mixed-use transit corridor, with further development to continue under the completed 2018 Phase 3 Cambie Corridor Plan.

The academic research on land value trends and speculation along the Cambie Corridor is limited. One study conducted in 2012 at the University of British Columbia used a multiple sales analysis to determine the effects of home prices around the Canada Line stations.⁴ The study looked at price appreciation trends before, during, and after construction and found that prices followed a trend of high increases upon confirmation of the line, a sharp decrease during construction (often below pre-confirmation rates) and then an increase upon completion. The study also found that homes close to stations surrounded by low-density, single-family development, such as King Edward and Marine Drive, with higher potential for increased density, saw the highest

levels of transit premiums—homes within 0.5km of these stations experienced a 49.56% and 45.09% price appreciation respectively. On the other hand, homes within the Broadway City Hall station catchment, which is surrounded by a greater mix of uses, did not see a significant price appreciation.

Focusing on price appreciation at specific points along the development timeline (Figure 2), home owners who bought before construction (between 2000 and 2005) and sold after construction (2009-2012) saw the greatest price appreciation of their homes.

Figure 2: Overall Price Appreciation of Homes Sold within 500m and 1km of a Canada Line Station



Source: Schiff et al, (2012). Price Appreciation Around Transit Stations.

The Cambie Corridor Phase 2 Plan, passed by Council in 2011, set the guidelines for densification and gave more certainty to developers about which sections of the Corridor were more likely to get an application for increased density approved in a rezoning.

This certainty increased the amount developers were willing to pay for single family lots. For example, in 2011, 2 years after the opening of the Line and 6 months after the Phase 2 Cambie Corridor Plan was passed by Council, 10 single-family homes near 41st Ave were reported to have sold for nearly three times their assessed value at \$3.4 million each.⁵ The Phase 2 Plan allowed for future development of up to 6 stories on the site, increasing the development potential which was reflected in the price. Densification along the corridor has often occurred through these land assemblies, whereby adjacent land owners agree to sell together in order to obtain a higher price for their properties than they would have individually.



Image: langorourke.com

**THE Epping to Chatswood
PROJECT Rail Link**

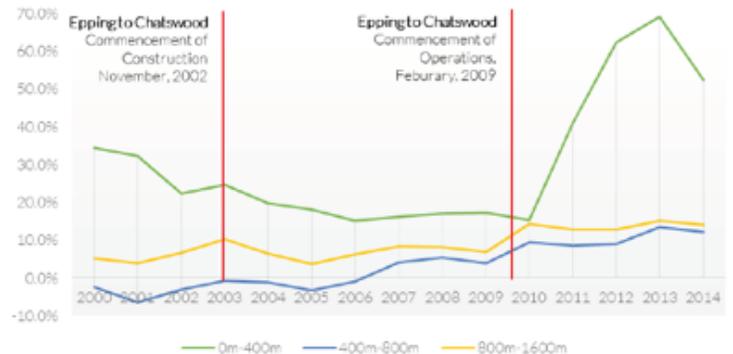
A 2016 study conducted by LUTI Consulting used the hedonic price modeling method to assess the land value impacts of the Sydney's main transit projects across different land uses, catchments areas, and time periods.⁶ The hedonic price model breaks down properties into their primary attributes and estimates the value contributed by each attribute. The study looked at the transit network as a whole, as well at specific transit modes and network sections, such as the Epping to Chatswood extension, in order to find the localized effects of transit investment. The Epping to Chatswood Rail Link is a below-grade, 12km long, heavy rail line that began operation in 2009. The five stations along the line are surrounded by a diverse mix of uses including commercial, high density residential and mixed-use.

In 2014, five years after the opening of the Rail Link, the average land value premium within 400m of a station was 54.6% (i.e. properties within 400m were on average 54.6% more than those beyond 400m). The premium was significantly lower for properties between 400m-800m of a station at 7.3%. Looking at value trends across time, the study shows that there was a dip in land value increases for properties close to the station during the construction. After the line opened in 2009, property values near the station did not show a significant increase until 2011.

Looking at the New Macquarie Park Stations in isolation (Figure 3), the increase in property

values after the opening of the line is evident with a spike occurring in 2010. The one-year lag in the data can be attributed to the government assessment periods which are delayed one-year behind the actual market value. The significance of spatial factors is also evident in Figure 3. The catchment areas further from the

Figure 3: Hedonic Price Model Results for Different Land Uses around New Macquarie Park Station



Source: LUTI Consulting. "Transit and Urban Renewal Value Creation." 2016.

stations do not show a dramatic reaction to the opening of the line as witnessed in the 400m catchment.

The study also analysed Sydney's heavy rail system as a whole and found that the value created by transit investment occurs in three consecutive phases: (1) the monetisation of improved accessibility, (2) the value created by rezoning land parcels to their highest and best use, and (3) the value created by increasing the allowable density. For the first phase, the study found that the greatest uplift in terms of

the added benefit of accessibility was logically within the closest catchment area of 0-400m. In terms of land use, the Sydney Central Business District experienced the greatest proportional benefit—27.2% above residential land (which was used as the control), followed by mixed-use—11.8% higher than residential. Industrial land experienced the lowest value uplift—11% below residential. Rezoning land catchments to their highest and best use will therefore generate more value. Finally, the research shows that increasing the FSR within catchment areas to take advantage of the demand for transit-accessible housing will also generate greater land value. Specifically, the case study showed that every 1:1 increase in FSR equated to a marginal 23.9% increase in land value. In summary, the study is meant to demonstrate that the planning of transportation, land use, development can be quantified in order to estimate the value capture potential of transit projects.



THE PROJECT Coaster Commuter Rail
Line and San Diego
Trolley

A 2003 study aimed to find the degree to which San Diego's Commuter and LRT lines resulted in transit premiums within close proximity to stations.⁷ The study used the hedonic price modelling method to control for factors such as lot size and structure age and to isolate the market effects of proximity to transit. The variables were disaggregated into four land use types, providing a clear demonstration of the varying land-market effects across land uses.

In terms of residential, the land-market effects varied across structure and tenure type. It was hypothesized that the variation in effects could be attributed to the idea that different structure and tenure types attract different demographic groups and these groups have distinct needs for transportation. For example, multi-family uses (apartments and condominiums) saw significant transit premiums for proximity to stations, whereas single family areas did not. On average, apartments within a 0.5 mile (8 km) distance of East Line LRT stations were worth \$100,000 USD more than those beyond walking distance. Proximity to commuter rail, however, did not have a significant land-market effect for apartments as it did for condominiums. The average premium for condo units within walking distance to the Coaster commuter rail station was approximately \$85,000 USD, whereas apartments within walking distance generally sold for lower prices. The rationale is that condominium-owners are generally of the professional class and therefore place a greater

value on housing that provides a high degree of accessibility to downtown jobs.

Commercial properties experienced the greatest benefit from proximity to LRT and commuter rail stations. The highest price premiums were paid for properties within walking distance of the downtown Coaster commuter rail stations and along the Mission Valley. The Coaster commuter rail provides direct access from the upper-income neighbourhoods to downtown and the study showed commercial buyers were willing to pay a 91.1% premium for this benefit. The Mission Valley Line was experiencing overall growth along with a TOD planning scheme for the line and property premiums were therefore also relatively high at 71.9%.

Overall the study showed a strong correlation between transit proximity and land values. It should be noted, however, that the study did not include a temporal component and therefore the before-and-after transit investment values cannot be compared.

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Land Value Capture Case Studies

As seen in the previous case studies, transit investments often have a positive effect on property values within the catchment area. Property owners therefore become the beneficiaries of an investment without having had to contribute. The rationale underlying land value capture is that this scenario is unfair and that implementing mechanisms to capture this windfall is justifiable and in the public benefit. Land value capture policies allow local governments and transportation agencies to harness the value created by transit investment. This captured value can be used to fund transit projects, provide public amenities, or used to subsidize affordable housing. In addition, investors will incorporate the financial implications of the land value capture policy into their purchase price. This will help to limit speculation in advance of a major infrastructure project. Four common types of land value capture mechanisms were identified in the literature (Table 1). This section provides four case studies which demonstrate the use of these mechanisms and similar variations in other cities around the world.

Table 1: Types of Land Value Capture

Tax Increment Financing	Tax increment financing starts by defining a district that is expected to receive land value windfall from transit investment and setting a baseline for tax revenue. Any additional tax revenue that exceeds the baseline amount is captured and reinvested in to pre-determined areas of investment within the district.
Betterment Levies	Betterment levies are an additional tax applied by local governments to specific geographic areas that benefit from infrastructure investment. These geographic areas are often called Special Assessment Districts or Local Improvement Districts. The revenue is used to cover the cost of the investment.
Land Value Tax	A land value tax replaces property tax and is applied only to the land as opposed to the entire property. The tax is meant to capture uplift caused by public infrastructure investments.
Joint Development	Joint development is a partnership between a private entity and a transit agency to develop public land. The involvement of the agency and profit share is negotiated on a case by case basis.



Image: Flickr/drburton

PORTLAND

THE PROJECT **Portland Streetcar**

VALUE CAPTURE **Tax Increment Financing**
Local Improvement Districts

PARTICIPANTS **City of Portland**
TriMet

The Portland Streetcar is North America's first modern streetcar line and runs on a 16 mile (25.7 km) network connecting major activity hubs in the City of Portland including Portland State University, the downtown core, Legacy Good Samaritan Hospital, and the South Waterfront. Planning for the project began in 1990 with service starting in 2001, followed by subsequent expansions to the network. The project was funded by all three levels of government, with the majority of funds coming from the local level through value capture mechanisms and parking bonds.

Since the early stages of the project, planning has been closely coordinated with housing development. In the past 20 years, one third of affordable housing units and 49% of all housing units built in Portland have been located within a quarter mile (0.4 km) of the Streetcar Line.¹ The provision of affordable housing has been made viable in part by increases in land value in the area and the implementation of effective value capture mechanisms. Tax Increment Financing (TIF) and the formation of Local Improvement Districts (LID) have been used to both fund and maximize the benefits of transit infrastructure for the community.

The City of Portland has used Tax Increment Financing to fund both the Streetcar project and the development of affordable housing within

the Streetcar catchment area. TIF is a funding mechanism in which a local authority issues debt to finance capital projects in a defined area—in the Portland case, these are called Urban Renewal Areas. As a result of capital investment in the area, property tax revenues increase above the predefined baseline and this extra revenue is used to pay off the debt. This mechanism therefore requires careful estimation of tax revenue growth before the capital project is implemented. After the debt is paid off, all the tax revenues from the Urban Renewal District become a part of regular tax collections.²

Out of the total \$251.4 million USD in initial project funding for the Streetcar, \$21.5 million USD was sourced from TIF.³ In addition to helping fund transit investment, TIF has been used as a funding source for affordable, transit-oriented housing. Urban renewal areas were established in order to promote redevelopment in targeted areas, most notably the River District, which encompasses Portland's well-known Pearl District, a formerly industrial part of the city that has evolved into a mixed-use neighbourhood. One of the goals of The 1998 River District Plan was to ensure that the area's renewal would include a diverse inventory of housing by using TIF (among other strategies) as a financing method.⁴ Since then, the City

Commission has dedicated 30% of TIF spending to affordable housing.⁵ Without the Plan's funding strategy, it is likely that new residential development in the Pearl District would not be affordable for most Portland residents.⁶

Local Improvement District

Local Improvement Districts have been key in the funding strategy for the Portland Streetcar. 13.9% of the initial project funding came from LIDs or approximately \$34.9 million USD.⁷ These districts are formed by property owners who want to share the cost of infrastructure improvements that will have a positive effect on their property value. For each project, the City develops an assessment methodology in consultation with property owners, which is usually based on square footage, property value or the measure of linear frontage on the street. LID is therefore a more lucrative funding mechanism for high density areas and generally not a viable option for corridors that are mainly single family zoning.⁸



THE PROJECT Atlanta BeltLine

VALUE CAPTURE Tax Allocation District

PARTICIPANTS City of Atlanta
Atlanta BetLine Inc
Atlanta Beltline Partnership

The Atlanta BeltLine is a comprehensive transportation and economic development project in Atlanta, Georgia. The \$2.8 billion USD project consists of a 22-mile (35.4 km) streetcar loop that encircles the city in addition to parks, trails and affordable housing development. Funding for the project has come from all three levels of government, with over half the project being funded through the implementation of a Tax Allocation District (TAD).

Tax Allocation District

In order to attract development along the BeltLine, The City of Atlanta implemented a Tax Allocation District that used additional tax revenues to invest in public amenities along the line. The TAD is similar to TIF in that a tax revenue baseline is set and any addition revenues are used to fund 'redevelopment activities'.⁹ In the Atlanta case, these redevelopment activities are investments into public amenities such as parks, trails, and improved streetscapes. The goal is to make the area attractive to developers and promote urban renewal in the area. However, in areas in which the introduction of new public amenities may not be enough to spur development, the funds are used to directly subsidize private developers. Council also mandated that 5,600 affordable units of workforce housing be developed within the

TAD, which is encouraged through various incentives to developers.¹⁰

The formation of the TAD boundary is an important exercise as it determines from where the tax revenue can be captured and at the same time, where it can be allocated. The boundary was defined to include properties that meet the following three criteria:

1. are generally within walking distance of the rail right-of-way
2. form a pedestrian or transit link to key destinations near the rail corridor; and
3. are likely to redevelop or will warrant physical upgrades to support expected growth in the area.¹¹

The planning of the boundary was therefore strategic in ensuring that any development spurred by the TAD was transit-oriented and walkable.

The BeltLine also demonstrates how the public can be involved in land value capture decisions. The Tax Allocation District Advisory Committee (TADAC) was established to provide public input into the allocation of funds generated by the TAD. The Committee is made up of technical experts and community leaders and advises on how TAD funds are used and ensures

that the funds are equitably distributed.¹² The Committee also functions as a monitoring body for the effective implementation of the Beltline Redevelopment Plan.¹³



THE PROJECT Mass Transit Railway

VALUE CAPTURE Rail-Property Development

PARTICIPANTS Hong Kong S.A.R.
Mass Transit Railway Corp.

Hong Kong is one of the few cities in the world that has a transit system that actually generates a profit.¹⁴ This is due to a successful joint development approach that integrates mass transit with high density development and allows the owner-operator of the system to recoup the cost of transit investment.¹⁵ The approach is called the rail-property development model and has been implemented by the Mass Transit Railway Corporation (MTRC), one of Hong Kong's primary transit service providers. The Mass Transit Railway (MTR) expands a 220 km network with 159 stations and has a 48.5% share of the public transport market.¹⁶ In 2017, it generated \$55.4 billion HKD (CAD \$91.6 billion) in total revenue, making \$10.5 billion HKD in profit (CAD \$1.7 billion).

Rail-Property Development

Hong Kong's rail-property development approach starts with the creation of a master plan that identifies development sites along a new rail line. The MTRC then pays for the development rights to build on these sites for a period of 50 years. The amount paid does not include the uplift in value generated by rail line and MTRC is therefore able to sell the rights to a developer at a profit. The MTRC can also enter into a co-ownership agreement with the developer and earn a share of the profits when

it comes time to sell or lease. The profit is often substantial enough to cover the entire cost of transit investment.¹⁷ Although the company does not fund the development, they oversee the design and construction of the project, maintaining a key role throughout the entire development process.

The Hong Kong joint development model promotes a high level of integration between transit investment and new urban development. The MTRC is essentially able to create a market of transit users by intensifying activity around the stations through development. The success of the approach, however, is highly dependent on a strong real estate market and any downturn could make the approach unfeasible.



Image: semana.com

THE PROJECT Public Infrastructure

VALUE CAPTURE Betterment Levies

PARTICIPANTS City of Bogotá
Instituto de Desarrollo Urbano

Colombia has been implementing betterment levies, known as *contribucion de valorizacion*, to finance infrastructure projects since 1921. Recently, the levy has contributed \$1 billion (USD) in funding to current public works in the city.¹⁸ The Colombian government stipulates that the levy must be calculated based on three considerations: the cost of the project, the amount of property uplift generated by the investment, and the capacity of affected property owners to pay. The Bogotá model, however, takes into consideration factors beyond an increase in property value to determine the local benefit—for example, increase in accessibility and welfare.¹⁹ Instead of conducting parcel-specific impacts, the benefits are calculated based on broad city benefit zones. In order to decrease the average amount paid per household, an effort is made to make the zones encompass the highest amount of properties possible.²⁰ The levies are applied to these zones with consideration of different factors such as density, land use, and payment capacity of residents.

One of the criticisms of the betterment method is that because it is based on funding from the locality, infrastructure projects are more likely to happen in wealthier areas because of their greater capacity to pay. Another issue is that some infrastructure projects may in fact have a negative impact on a neighbourhood, such

as a highway overpass, which makes it difficult to justify a benefit. Despite these criticisms, Colombia's betterment levy model contains a citizen participation component that sets it out from other land value capture case studies. The Citizen Overseer Acts of 2003 empowers citizens to monitor, research, and participate in public administration activities, and therefore promotes greater public support of betterment levies.²¹

The infrastructure projects funded by the betterment levies in Bogotá are diverse. In 2017, the local government proposed four large scale projects to be funded by a betterment levy that included 35km of cycle paths, a pedestrian bridge, road works, and public spaces. The proposed levy would be applied to 4.5 million residents and generate \$635 million (USD) in financing.²²

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VANCOUVER CONTEXT

The Broadway Corridor Plan

In June 2018, City of Vancouver Council approved the Terms of Reference for the Broadway Plan.¹ The Plan will cover the area of Broadway between Vine St. and Clark St. and leverage the upcoming Millennium Line Broadway Extension project to deliver on the City's housing, employment, and sustainability goals. The Terms of Reference highlights 6 goals for the Broadway Plan which are summarized below:

1. Expand affordable housing opportunities.
2. Increase the amount of job space within Central Broadway.
3. Enhance commercial shopping streets and local business opportunities.
4. Improve the transportation network, connectivity, public realm, and gathering opportunities.
5. Secure additional public benefits and amenity to support new growth and improve livability.
6. Achieve ambitious sustainable mode share targets and reduce GHG emissions.

The plan will focus on possible land use changes to C-3A, C-2, IC, RM and FM zones, as well as VGH and City Hall Campus CD-1 zones, and portions of Mt. Pleasant Industrial I-1 and False Creek Flats IC and 1-3 zones. The anticipation of possible land use changes to these areas along with increases in permitted density is already reflected in the marketing strategies for properties along the corridor (see example in Figure 4). Real estate brochures are highlighting proximity to a station and the opportunity for increased density with the creation of a new plan. The media has also begun to report on speculative transactions along Broadway, bringing public attention to a possible trend of speculation along the corridor.^{2, 3, 4}

What is Vancouver doing to capture uplift and limit land speculation?

CACs and DCEs

Collecting Community Amenity Contributions (CAC) from developers in order to recapture land uplift is standard practice in the City of Vancouver. CACs are either negotiated with a target of capturing 80% of the land lift, or fixed rates are set for a specific area. Area specific CACs offer more predictability and are determined at the end of the planning process when population and job growth and amenity needs and costs can be projected. Anticipation of a new land use plan, however, can prompt the purchase of properties in the target area before the planning process has begun. Therefore, land purchasers cannot calculate the expected contribution rate into the purchase cost. This is problematic because it can affect the financial ability of the land owner to pay community amenity contributions when it comes time to negotiate the rezoning. To address this issue, Vancouver Council adopted the Development Contribution Expectations (DCE) in June 2018 which, unlike the CAC policy, sets contribution rates before the planning process has even begun. The DCE rates set for Broadway are outlined in Table 2. Potential land purchasers are therefore able to calculate the DCE into the purchase price of a property within the Broadway Corridor target area. The policy therefore serves as both a land value capture mechanism and a measure to reduce speculation.

Table 2: Development Contribution Expectation per Sqft. of Additional Density

C-2	C-3A East of Main St.	C-3A West of Main St.
\$330	\$330	\$425

Source: City of Vancouver Council Report, June 20, 2018, Appendix C

Figure 4: Real estate brochure using proximity to proposed station and possibility of increased density as selling points

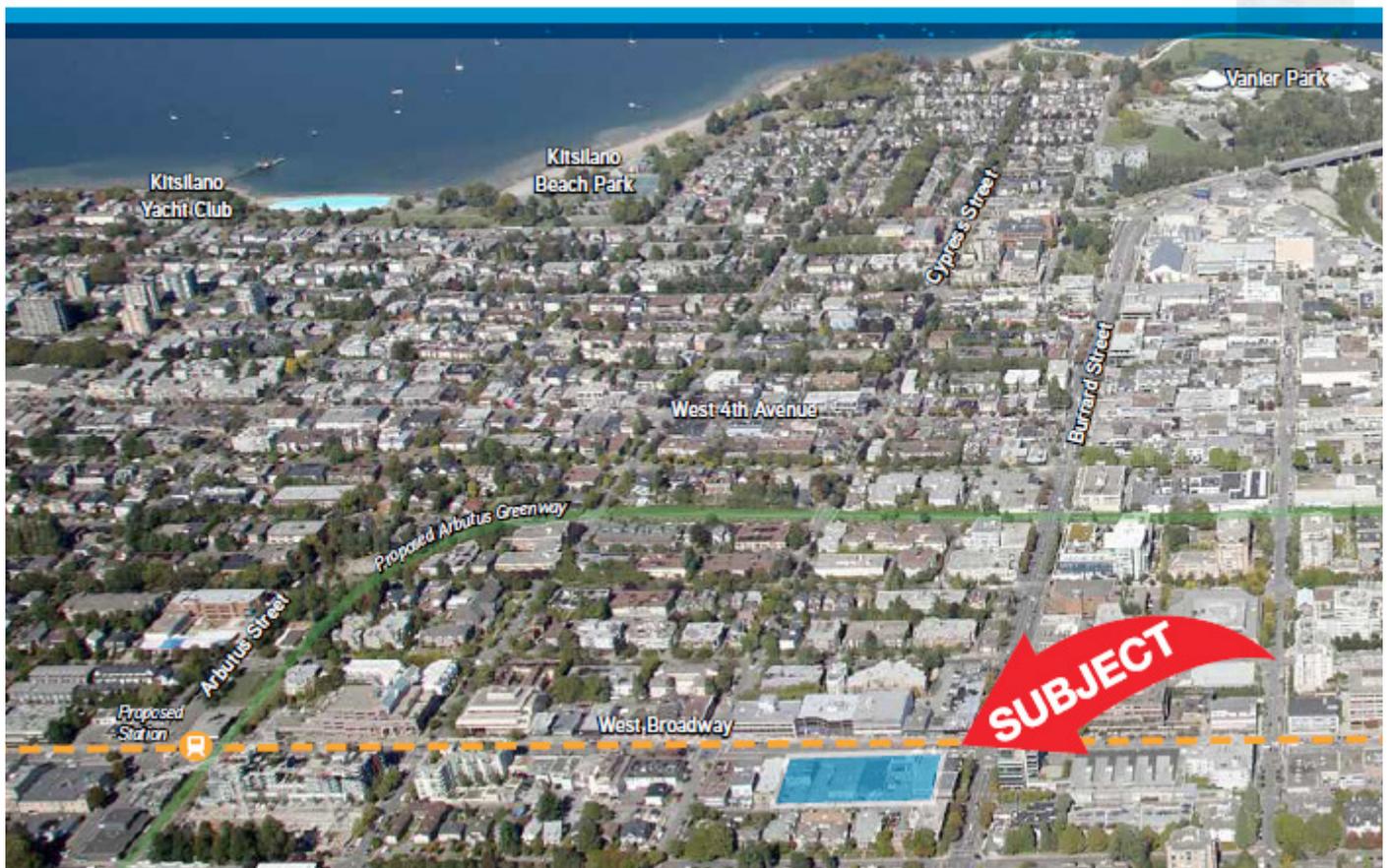


Location Highlights:

- ▶ Exceedingly rare Westside Vancouver location along the central Broadway Corridor, one of the most coveted markets in Canada
- ▶ Located within Kitsilano, one of Vancouver's most desirable lifestyle communities
- ▶ Potential Broadway line transit station anticipated to be located within three blocks (5 minutes' walking distance) of the Property
- ▶ Centrally located in close proximity to Downtown Vancouver, offering the utmost blend of convenience and lifestyle amenities
- ▶ Nearby amenities include numerous restaurants and cafes, shops and boutiques, beaches, parks, highly-ranked schools, and Granville Island

Development Potential:

- ▶ 37,500 SF site with residential, commercial or mixed-use redevelopment potential
- ▶ Current zoning provides for a density of 3.30 FSR (including 10% heritage density transfer) - immediate development potential for up to 123,750 SF of residential area in one of Vancouver's most desirable markets
- ▶ Possible increased density through rezoning upon finalization of Broadway rapid transit plan
- ▶ Potential for stunning views overlooking Downtown, False Creek, English Bay and the North Shore Mountains
- ▶ Desirable site configuration with 300 feet of frontage on West Broadway



Sources

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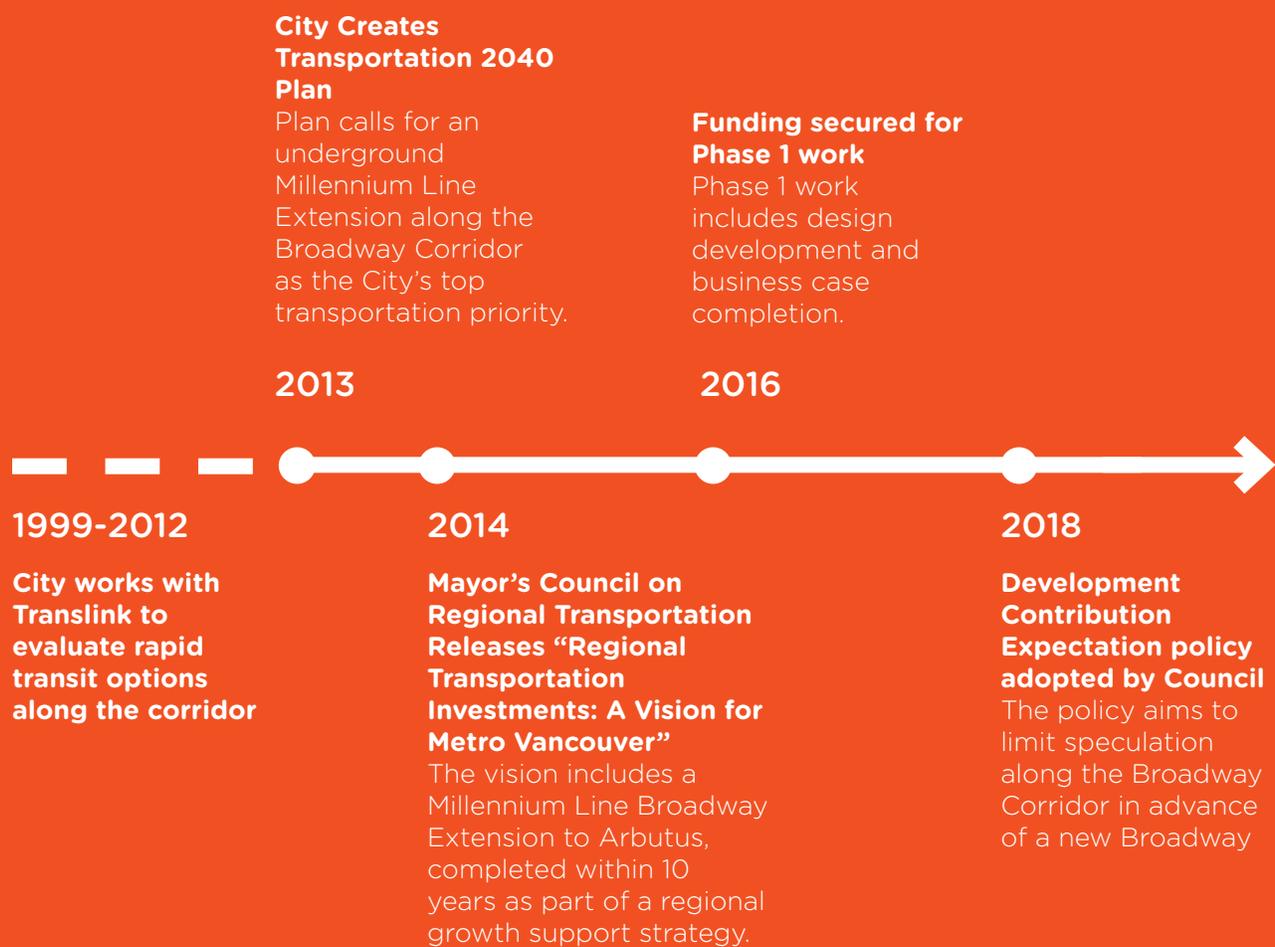
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ANALYSIS

Timeline

A timeline of Millennium Line Broadway Extension planning process is provided below. The timeline will help to determine any correlation between key planning events and announcements and land value trends along the Corridor and around stations.



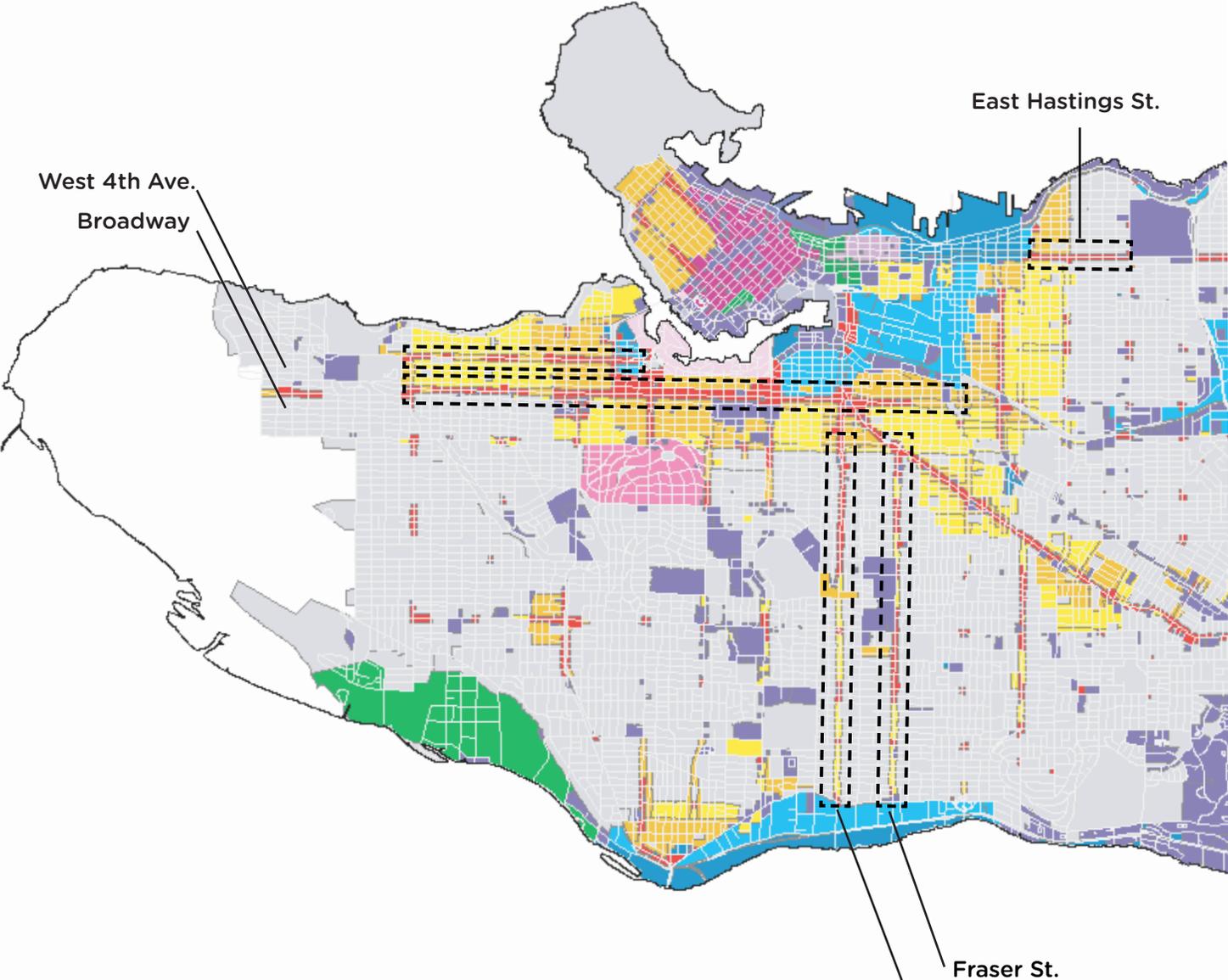
Commercial Corridors Analysis

The Commercial Corridors analysis looks at Broadway in comparison to four other commercial corridors (Figure 5) in the City of Vancouver: Main St., West 4th Ave., E Hastings St., and Fraser St. These four corridors serve as controls in order to determine if Broadway has experienced a unique trend pattern in sales compared to the other corridors.

Methodology

The primary data source for this analysis is RealNet, an online service that provides transaction data for commercial, industrial, apartment land, and residential land sales in Vancouver. For this study, the sale price, total floor area, and assessment value at time of sale were recorded for 388 retail properties sold along the chosen corridors between 2008 and 2017 (Broadway: 99, Fraser St.: 96, Main St.: 76, East Hastings: 55, West 4th Ave: 62). Retail properties were focused on because there was less variation between the corridors in terms of number of sales than office sales. The analysis was divided into two approaches using different combinations of data. The first uses sale price and floor area to determine the average price paid per sqft for properties along each corridor. The second approach uses sale price and property assessment value at the time of sale to determine the average percentage amount paid above or below the assessment value.

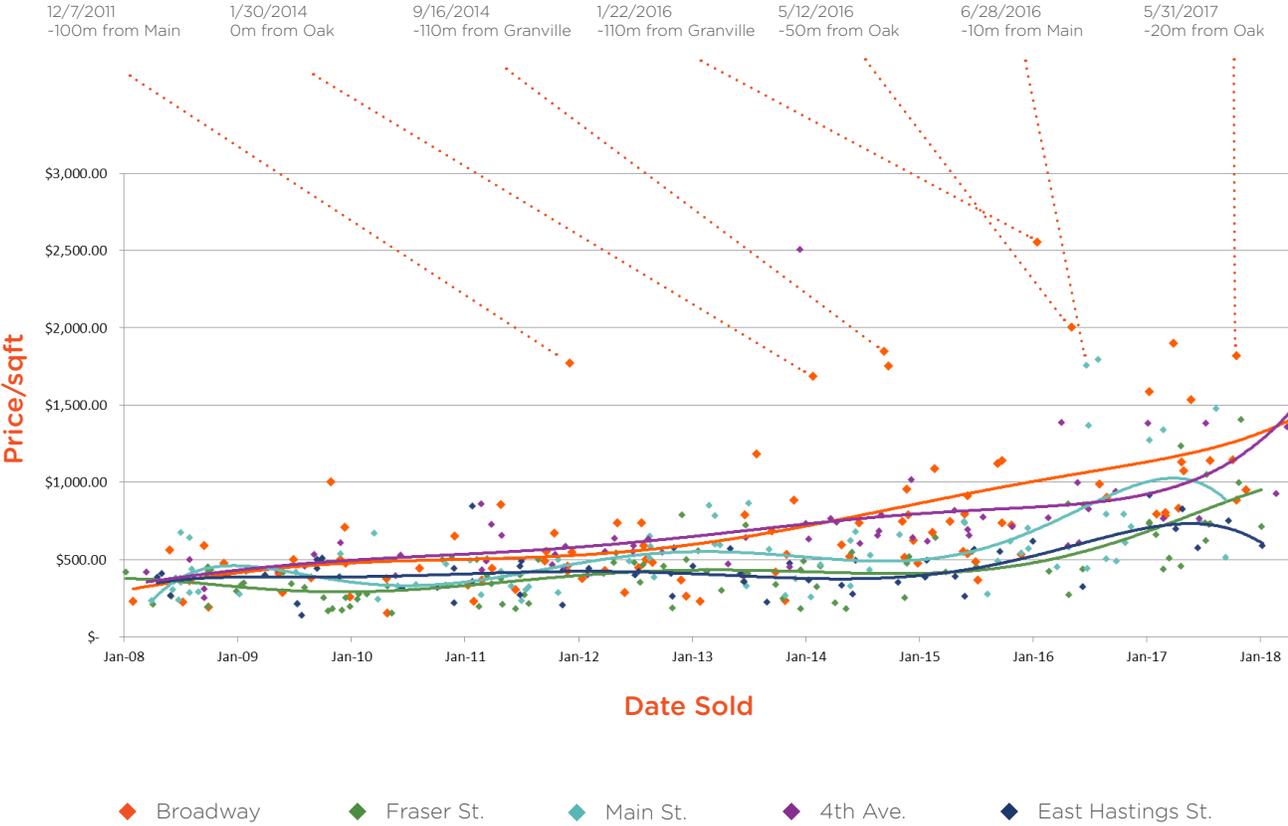
Figure 5: Vancouver Zoning Map with Commercial Corridors Analysed in Report



- Commercial Districts
- Single-Family Dwelling Districts
- Two-Family Dwelling Districts
- Multi-Family Dwelling Districts
- Comprehensive Development Districts
- Light Industrial Districts

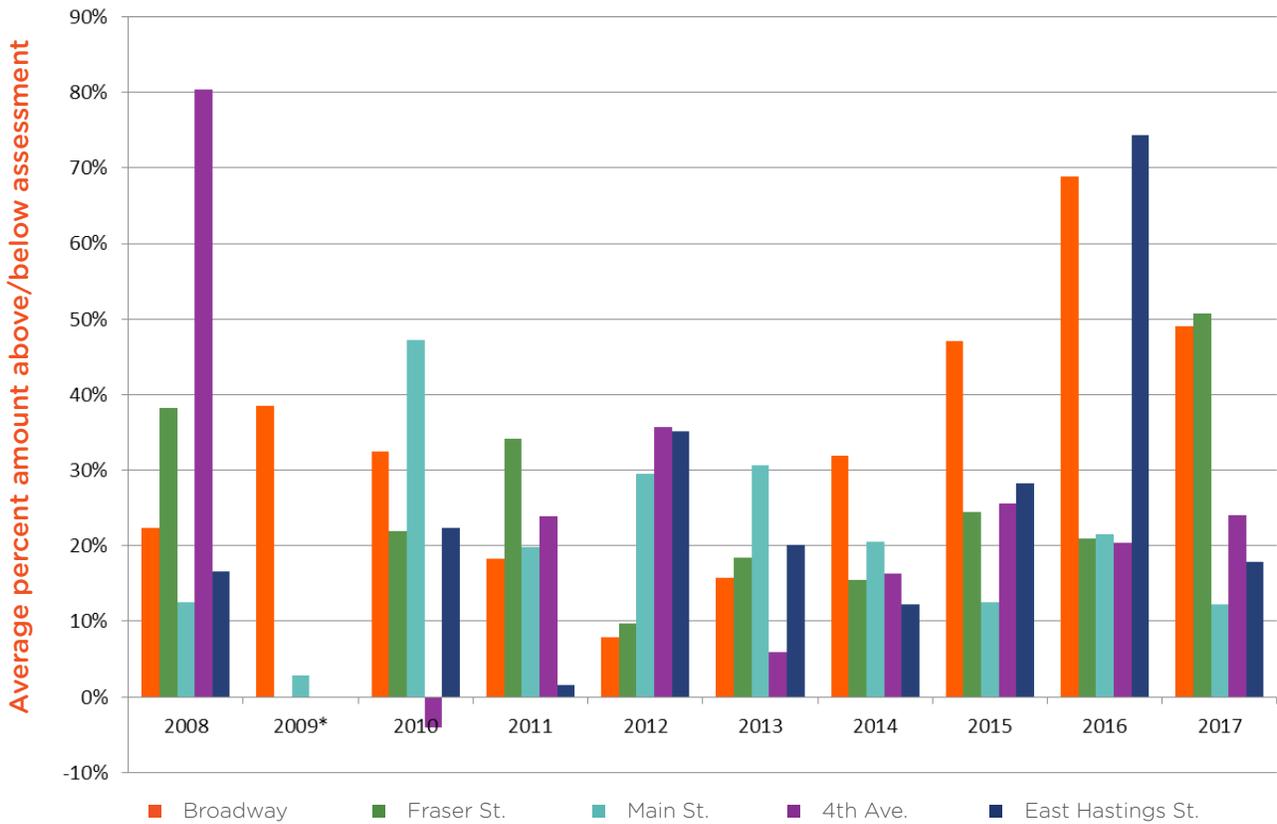
Figure 6 is a scatter plot with each point representing a sale along one of the corridors. A 6th order polynomial trend line was used to reveal the fluctuations in the sales trend. The corridors appear to be trending together for the most part, with 2008 and 2012 being the years with the highest degree of convergence in price. Broadway properties represented the highest proportion of sales above \$1500 per sqft (9 out of 12). Of the 12 sales above \$1500 per sqft, 7 of them were within one block of a proposed station intersection.

Figure 6: Price Paid per Sqft. for Retail Properties along Commercial Corridors



The following graphs show the average amount paid above or below the assessed value of properties sold along the corridors between 2008 and 2017 (there was a significant gap in RealNet's 2009 assessment data). Figure 7 shows the average amounts paid above assessment on Broadway begins to increase in comparison to other corridors in 2014. 2016 shows significant premiums were paid for properties on Broadway and Hastings compared to the other three corridors. It should be noted that the 2016 sales data for Hastings only consists of two properties.

Figure 7: Average Percent Amount Paid Above/Below Assessment Value for Retail Properties



* BC Assessment data for 2009 sales was very limited and therefore the results should not be considered significant for this year.

Figures 8 through 12 show the average prices paid above/below assessment for each of the five corridors individually. Broadway appears to have a more consistent trend over time than the other corridors which appear to have a more sporadic trend pattern.

Figure 8: Broadway

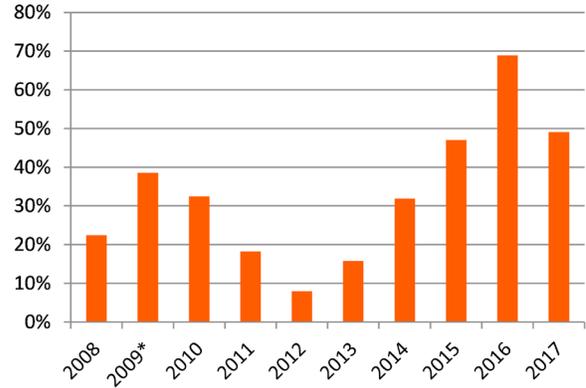


Figure 9: Fraser St.

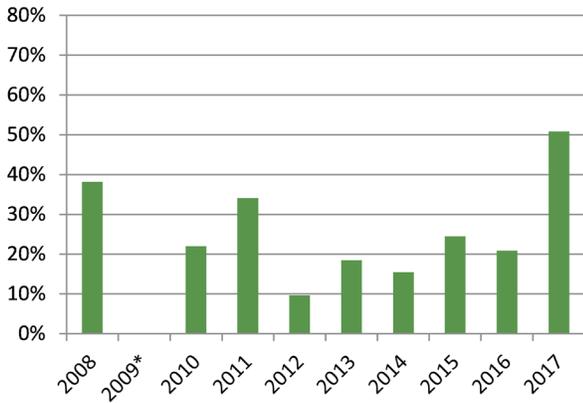


Figure 10: Main St.

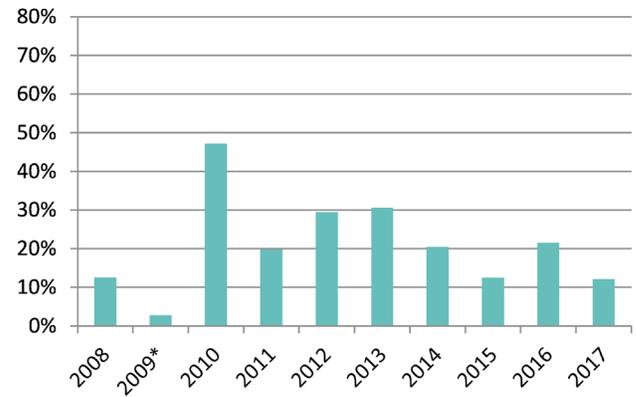


Figure 11: 4th Ave.

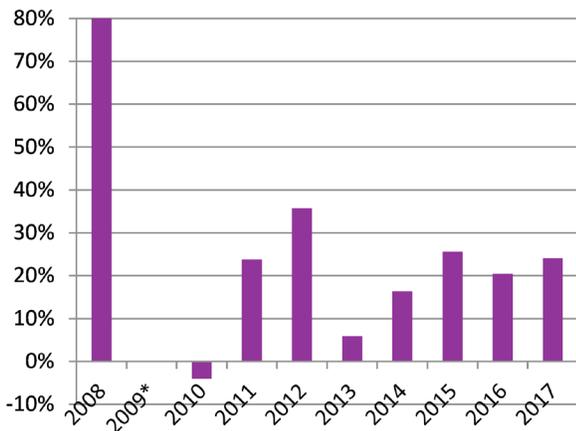
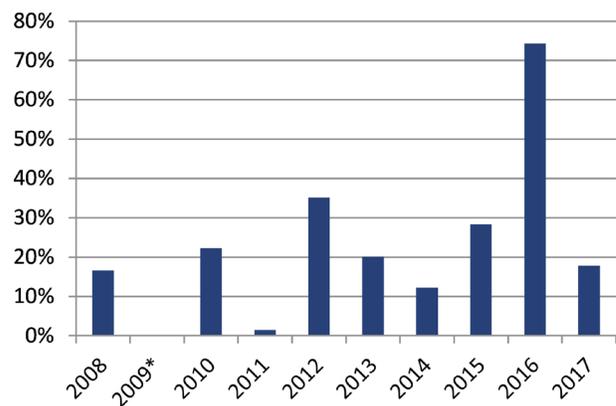


Figure 12: Hastings St.



* BC Assessment data for 2009 sales was very limited and therefore the results should not be considered significant for this year.

Figure 13 focuses on the average percent amount paid above assessment for retail between the years 2015 and 2017. This time period was chosen in order to isolate the years following the 2014 Mayor’s Council Vision which set the Millennium Line Broadway Extension as a priority. Within these years, retail properties along Broadway were selling for 52% above their assessment price on average—significantly higher than sales along the other four corridors. Figure

14 takes the average percentage paid above/ below assessment for retail properties along Broadway and compares it with the average for all five corridors combined. Broadway properties were selling below average for many of the years leading up to 2014, when the trend changed and Broadway properties started to sell significantly above average. The dashed line is placed in the absence of 2009 data.

Figure 13: Average Percent Amount Paid Above Assessment Value for Retail - 2015-2017 Combined

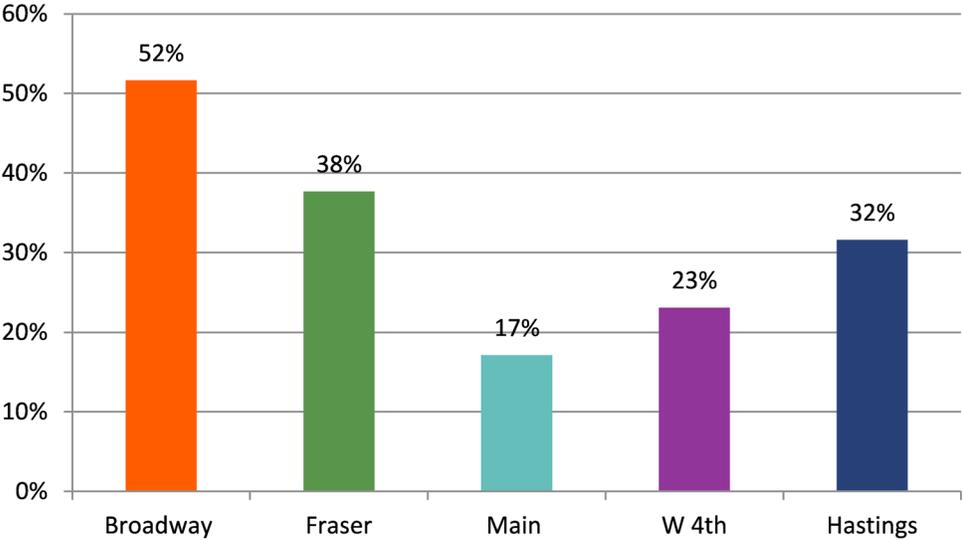
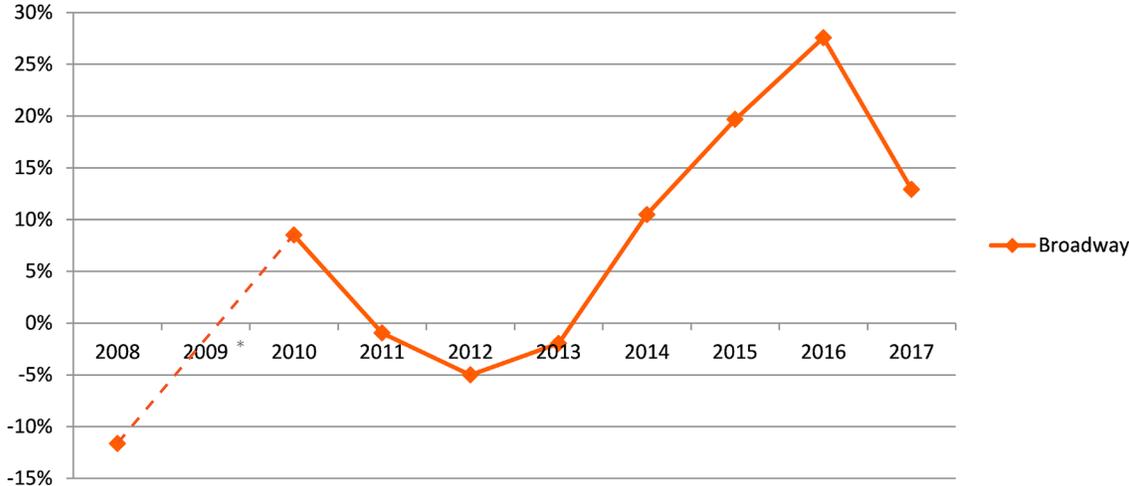


Figure 14: Average Percent Amount Paid Above/Below Assessment for Retail on Broadway Compared to Average of all Corridors



* BC Assessment data for 2009 sales was very limited and therefore the results should not be considered significant for this year.

The 2014 Mayor’s Council Vision divided the Millennium Line Broadway Extension into two phases. The first phase of the extension is part of the more immediate 10-year vision and will span from VCC-Clark to Arbutus. The second phase is part of a 30-year vision that will extend the line from Arbutus to UBC. Figure 15 compares sales between these two sections of Broadway in order to determine if there were different appreciation trends between the more immediate transit extension area and the 30-year extension area.

Focusing on the years after the publication of the 2014 Vision, premiums consistently rose along both sections of Broadway. The Vine-Clark section (Phase 1) experienced slightly higher premiums between 2014 and 2016 but overall the sections trended together. This analysis does not provide evidence, therefore, that buyers were willing to pay significantly higher premiums for properties that would be in the Phase 1 catchment area compared to those in the Phase 2 area.

Figure 15: Average Percent Amount Paid Above/Below Assessment Value for Retail Properties East vs West Broadway



* Data for 2008, 2009, and 2012 was very limited and therefore the results for these years should not be considered significant.

Proposed Station Radius Analysis

The Proposed Station Radius Analysis focuses on sales within a 400m and 400-800m buffer of the 6 proposed station intersections: Great Northern Way, Main St, Cambie St., Oak St, Granville St., and Arbutus St. The aim of the analysis is to determine if premiums are paid for properties that are considered highly walkable to a future station.

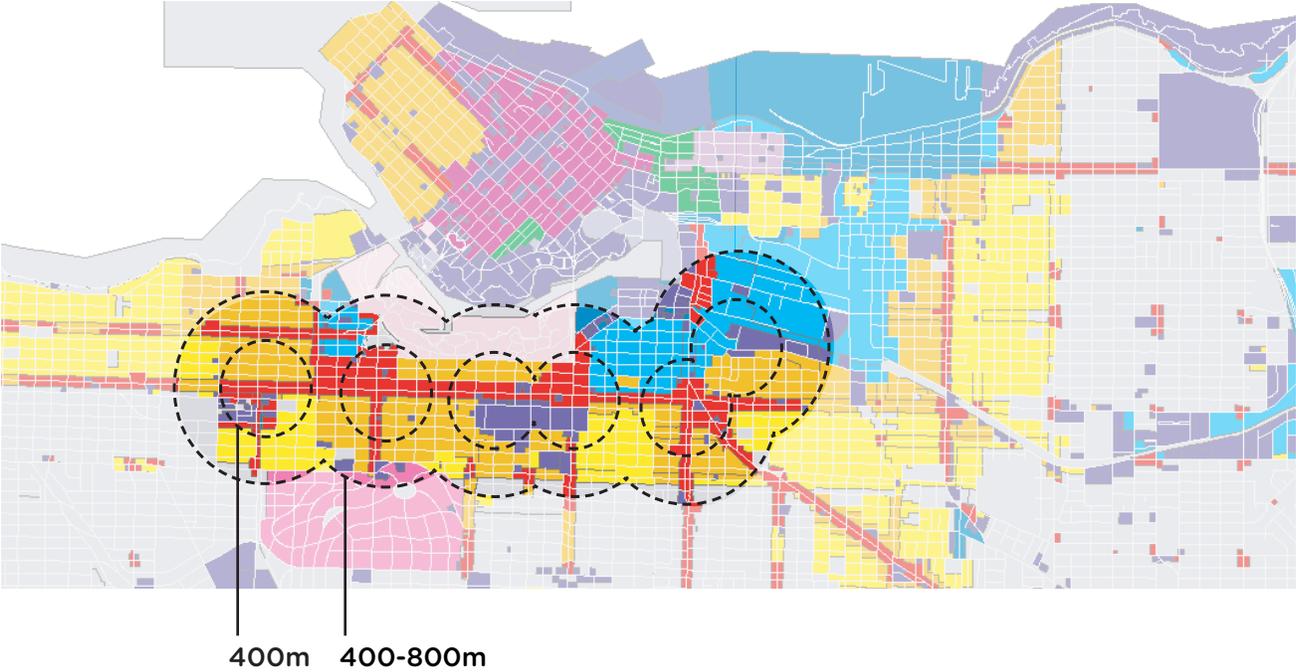
Methodology

The primary data source for this analysis is RealNet, an online service that provides transaction data for commercial, industrial, apartment land and residential land sales in Vancouver. For this study, the sale price, total floor area, total land area, and current zoning were recorded for properties sold between 2008 and 2017, within a 400m radius and 400m-800m radius of a station. 241 sales were recorded for the 400m buffer and 322 sales for the 400-800m buffer, amounting to 563 total data points.

Some of the limitations in this analysis are due to the way RealNet records sales data. For example, the land area is not recorded for apartment sales. Instead only the number of units are recorded. This makes it difficult to cross compare apartment sales with other land uses. Another limitation is that RealNet does not organize the sales data according to zoning. If a residential building is zoned for a commercial use that allows for residential, like C-3A, the sale is categorized as residential and the floor area, opposed to the land area

is given. Another C-3A property may be categorized under ICI land and therefore only the land area is given. These discrepancies made comparisons difficult and reduced the number of sales that could be compared

Figure 16: 400m and 400-800m Buffers Around Proposed Station Intersections



- Commercial Districts
- Single-Family Dwelling Districts
- Two-Family Dwelling Districts
- Multi-Family Dwelling Districts
- Comprehensive Development Districts
- Light Industrial Districts

Figure 17 shows the yearly average price paid per unit for apartment land. Apartment land is simply defined as land improved by a purposed built rental apartment. The majority of apartment properties in this analysis were zoned RM-3 or RM-4. Properties within the 400 and 800m buffer of a proposed station generally trended together. In comparison to the city average for apartment land sales, both buffers trended higher after 2014.

In Figure 18, a similar analysis was conducted for residential land. In this case the yearly average price is measured in terms of sqft. Again, the 400m and 800m trend together, experiencing a significant upward trend after 2014. The trend continues between 2016 and 2017, when the city-wide trend remained flat.

Figure 17: Yearly Average of Price Paid per Unit for Apartment Land

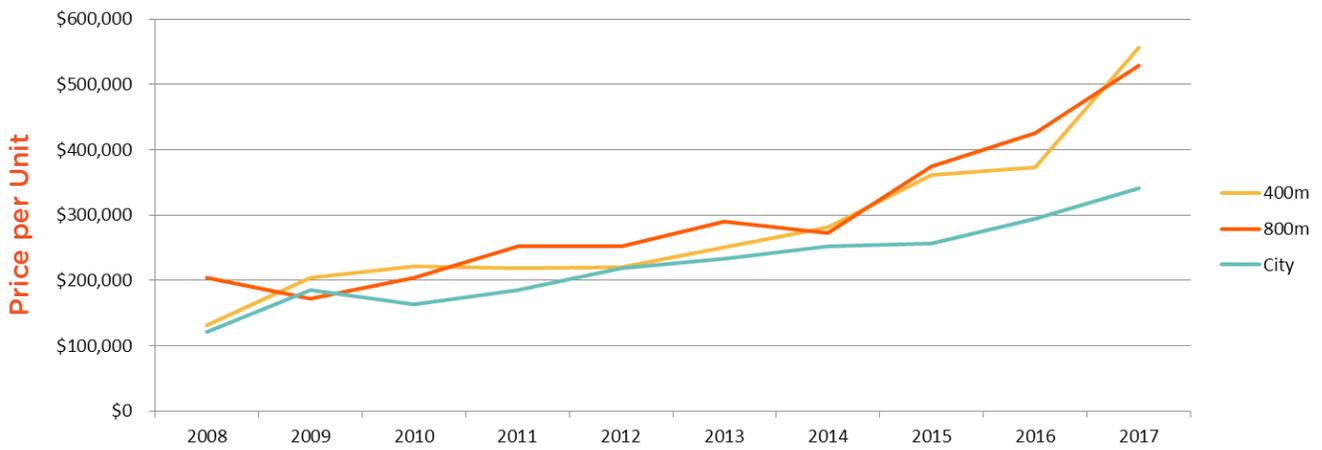


Figure 18: Yearly Average of Price Paid per Sqft. for Residential Land

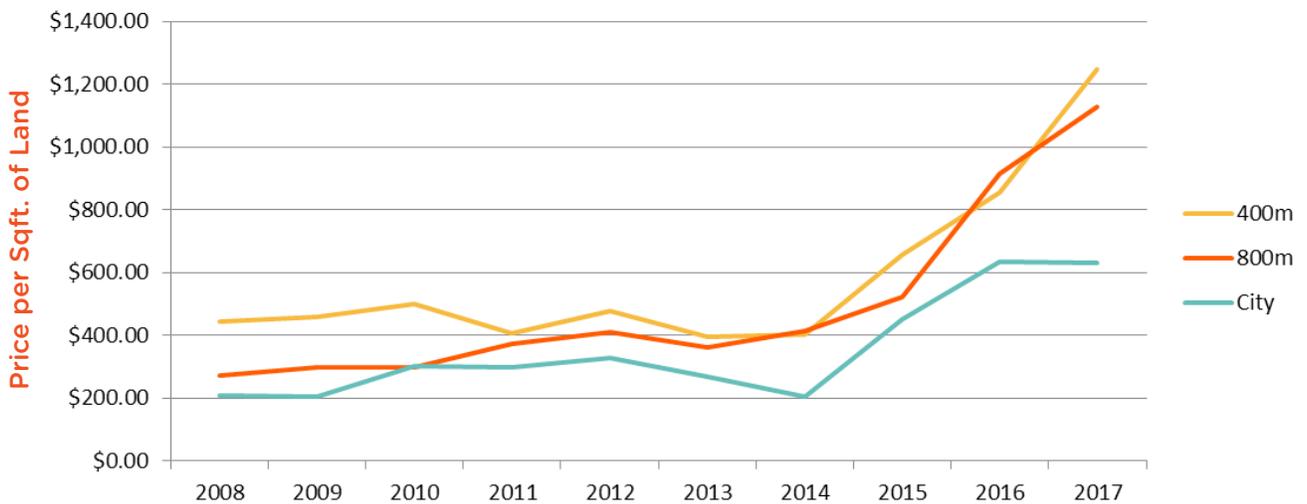
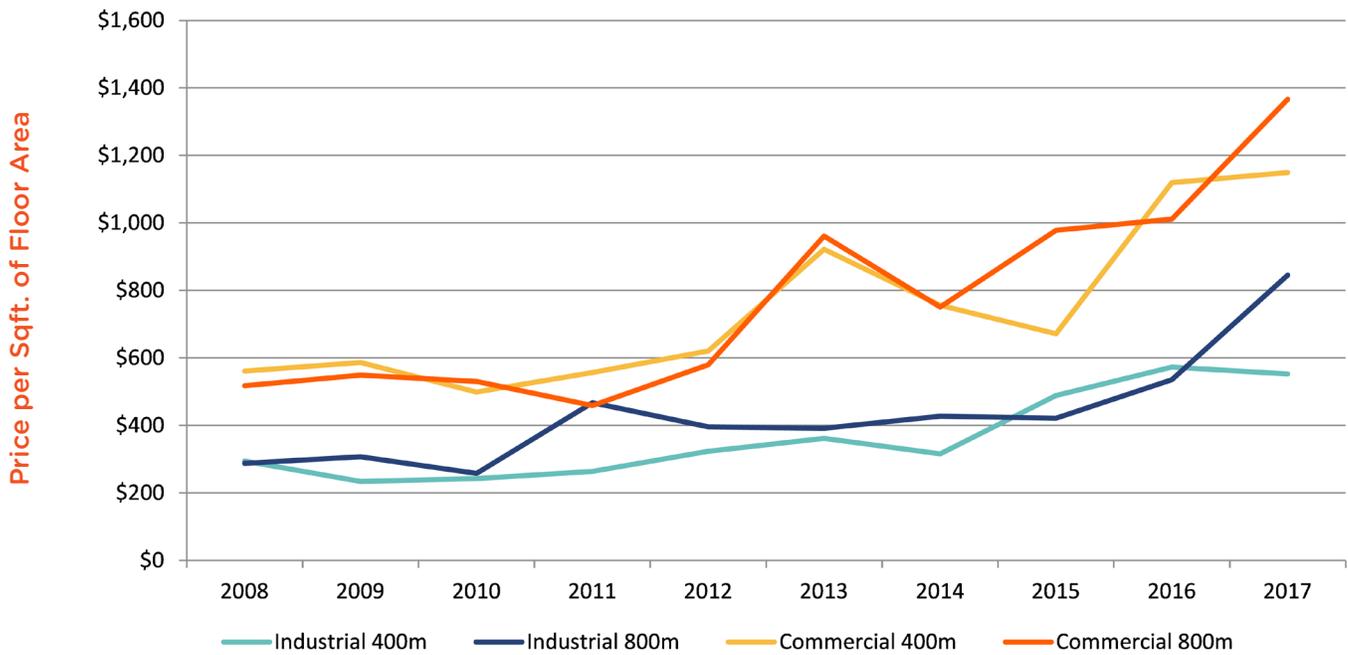


Figure 19 compares the trends for commercial zoned properties (C-3A, C-2, C-2C) and industrial zoned properties (I-1, I-2, I-3, IC-2, IC-3, M-2) within 400m and 400-800m buffers of proposed stations. Commercial zoned properties are consistently higher in value compared to industrial. It is important to note that the commercial zoning bylaws allow for conditional multi-family residential development, whereas industrial zones do not.

Figure 19: Yearly Average of Price Paid per Sqft. for Commercial Zoned and Industrial Zoned Properties



Regression Analysis

Regression analyses are useful for testing the effect of one or more variables on another. In this case, a regression analysis was conducted to test the effect of proximity to the Millennium Line Extension proposed stations and the 2014 Mayor's Council Vision on the sale price of Vancouver homes. The analysis is meant to supplement the previous analyses by controlling for other factors that may have an effect on sale prices.

Methodology

MLS transaction data from 2008 - June 2018 were used for the analyses, totaling 15,965 observations city-wide. Sales price was used as the dependent variable and 5 independent variables, (1 continuous, and 4 dummies) were used to control for various factors that could affect the sale price. The continuous variable was the total floor area (sqft.) of the property. The dummy variables were the following: within 400m of a station, built within the last 3 years, if the home is detached or not, and if the home was sold in 2014 or later. The 2014 variable is used to show the effect of the 2014 Mayor's Vision on sale prices. In addition, the 2014 dummy variable and the 400m dummy variable were combined to show the effect of this specific interaction. The intent is to isolate the effect of homes sold both within a 400m of a proposed station and after the 2014 Mayor's Council Vision was published.

The regression model shown in Figure 20 can explain 68% of the variation in sales prices among 15,965 properties sold city-wide between 2008 and June 2018. The effect of being located within 400m of a station is significant at the 0.05 level, as well as the 2014 effect and the interaction between these two variables. In general, the 7,095 properties located within a five minute walking distance (400m) of a station were sold for \$40,402 more than those outside a five minute walking distance. In addition, the 7,082 properties sold in 2014 or later were on average \$240,000 more than those sold in the previous years. The combined effect of these two variables is negative, meaning that there was no extra premium

paid for the 3,086 properties that were both within a five minute walking distance *and* sold in 2014 or later (although it is important to note that these properties were still sold above the average price). This contradicts the hypothesis that the 2014 Mayor’s Council announcement would have caused an extra boost to the sale prices of homes within walkable proximity to a station. The lack of an extra boost could be due to the fact that the data represents individual home sales as opposed to just land sales. Land has redevelopment potential and therefore would be more positively impacted by the prospect of transit investment and increases in permitted density.

Figure 20: Regression Analysis of City-Wide MLS Sales (2008-2018)

SUMMARY OUTPUT								
<i>Regression Statistics</i>								
Multiple R	0.82437995							
R Square	0.67960229							
Adjusted R Square	0.67948183							
Standard Error	241312.699							
Observations	15965							
ANOVA								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	6	1.9711E+15	3.2851E+14	5641.47477	0			
Residual	15958	9.2926E+14	5.8232E+10					
Total	15964	2.9003E+15						
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	-99923.818	5383.91958	-18.559679	4.3023E-76	-110476.91	-89370.73	-110476.91	-89370.73
Floor_Area_Grand_Total	642.731627	3.67860841	174.721404	0	635.521141	649.942114	635.521141	649.942114
Within 400m of Station	40402.0118	5198.74244	7.7714971	8.2268E-15	30211.891	50592.1327	30211.891	50592.1327
New build (Within 3yrs)	-10185.853	5113.10258	-1.992108	0.04637622	-20208.11	-163.59554	-20208.11	-163.59554
Sold in 2014 or later	240317.157	5156.50279	46.604679	0	230209.831	250424.484	230209.831	250424.484
Detached	-302.95662	10714.1973	-0.0282762	0.97744223	-21303.99	20698.0771	-21303.99	20698.0771
Within 400m x Sold in 2014 or later	-61572.733	7743.66251	-7.951371	1.9673E-15	-76751.184	-46394.283	-76751.184	-46394.283

DISCUSSION & RECOMMENDATIONS

Discussion

The previous analyses have indicated that prices are rising along the corridor, often at a higher rate than other commercial corridors in the city. With construction of the line not planned to start until 2019 at the earliest, increasing property values are an indication of growing demand for transit accessible housing. It is also an indication that there is an expectation of possible land use changes and increases in permitted density along the corridor. This market reaction is years in advance of the actual accessibility benefit that the line will bring when in operation. This means that policies to address speculation and capture value should also be in place in advance of the opening of the line. The Development Contribution Expectation policy is one way the city will be able to limit speculation and ensure that developers are calculating CACs into their purchase price.

While the analysis section has revealed historical trends, the case studies used in this report can provide insight into possible future scenarios for the Broadway Corridor. Located in the same city, and intersecting with the future Line, the Cambie Corridor is an obvious comparison. Despite their proximity, however, the corridors are quite different in nature, especially considering their existing land uses prior to the transit project. The Cambie corridor has transitioned from a primarily single-family area to a higher density, mixed-used neighbourhood. It was the single-family homes therefore that experienced the greatest appreciation in price with the opening of the Canada Line due to the greater margin between existing and potential density. In this aspect, the Cambie Corridor experience is not necessarily applicable to the Broadway context. Broadway is an established commercial corridor with significantly higher densities than Cambie initially had. There are no single family zoned lands within the scope of the Broadway Planning Program Terms of Reference. It is unlikely that Broadway will experience the same magnitude of uplift related to increased density allowances.

The DCE is a logical approach to capturing density-related uplift, however it does not address the uplift caused purely by the benefits of transit. Even if no additional

density is considered within the Broadway Corridor, multi-family properties in this area can still experience increases in value due to people willing to pay a premium to live in close proximity to a station. This was exemplified in the San Diego case study where condominium and apartment parcels in close proximity to stations experienced significantly positive effects, whereas the single-family parcels experienced negative effects.

Comparing the San Diego case to the Cambie Corridor case reveals a difference between transit projects that are accompanied with a comprehensive land use plan and those that are not. Although San Diego had incentives to encourage transit oriented development, the project was not integrated with a new land use plan specific to the transit corridor. This has interesting implications for the areas around Broadway that are not covered by the Broadway Plan. Although these areas may experience uplift due to the new Line, there are no measures in place to capture this value.

Recommendations

Looking forward, the case studies and analyses conducted in this report offer valuable lessons and have informed the following recommendations for the Millennium Line Broadway Extension planning process:

1. Explore land value capture mechanisms that allow for long-term value capture as opposed to a one-time transaction.

Land value capture mechanisms that are one-time transactions may be simpler to carry out, however they are not able to adjust to the actual value added by transit over longer periods of time. This is particularly relevant for transactions that occur before the operation of a new transit project. Since there is no immediate value added, the value captured may not reflect the actual benefit accrued to the property over time due to transit. Tax Increment Financing is an example of a land value capture measure that can adjust to increases in value at a consistent pace overtime.

2. Implement land value capture policies early on.

As we saw in the Epping to Chatswood Rail Link case study and in the analysis for Broadway, property values can begin to increase years in advance of operation. For this reason, it is important that LVC policies are put in place early on in the planning process.

3. Consider the added value of transit accessibility—not solely the added value of density—when crafting land value capture policy.

The DCE and CAC policies are created to capture uplift from additional density and do not consider the windfall gains specifically caused by increased transit accessibility. If the City wants to effectively recapture uplift caused by transit investment, a different land value capture mechanism will need to be developed that does not rely on a increased density allowance, but instead is based on the monetary benefits specific to transit investment.

Conclusion

The Millennium Line Broadway Extension project, integrated with a new Broadway land use plan, is a key opportunity to facilitate transit-oriented growth in this city. Learning from the experience of the Canada Line and the research conducted on other transit projects around the world, it is known that there is a strong correlation between transit investment and land values. With this knowledge, the City can choose to capture some of this value using the land value capture mechanisms already in place, or by crafting a new approach inspired by the practices of other cities, but that is adapted to fit the Broadway context. The analysis in the report provides a foundation for further research into the implications of the new Extension and the feasibility of land value capture along the Broadway Corridor.