Regional DCC for Transit Infrastructure:

Structure, Rates, and Revenue Forecasts

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1.0 Introduction

1.1 Purpose

As part of the funding strategy for future investments in the regional transportation system, TransLink is introducing a new regional Development Cost Charge (DCC). This new DCC will be levied on new urban development in the region, similar to how municipalities use DCCs to pay for certain types of local infrastructure and how the Greater Vancouver Sewerage and Drainage District (GVS&DD) uses a DCC to pay for regional sewer infrastructure. This report summarizes the proposed structure of the new DCC, the proposed initial DCC rates for different types of development, the estimated DCC revenues for the initial period from 2020 to 2027 for the Phase Two Investment Plan, and the supporting technical analysis.

1.2 Status of the DCC

The Provincial legislation to enable the new DCC was passed in May 2018. TransLink is now drafting two bylaws (a DCC Rate bylaw and an Affordable Housing DCC Waiver bylaw). Following further stakeholder consultation, TransLink intends to finalize the bylaws in the fall of 2018. As required by legislation, TransLink will seek approval of the DCC Rate bylaw by the Inspector of Municipalities. If approved, TransLink will then adopt the bylaws and DCC collections will commence in January 2020.

1.3 Why a New Development Cost Charge?

Metro Vancouver requires significant capital investment in transportation infrastructure. In 2010, the Mayors' Council and the Province of British Columbia signed a Livable Cities Memorandum of Understanding to work together to develop a sustainable funding strategy and transportation system for Metro Vancouver. TransLink, the agency responsible for creating and operating the regional transportation network, has in the past relied on a combination of funds provided by the Provincial and Federal Governments to cover a large share of major new capital projects plus funds generated within the region via property taxes, fuel taxes, and transit fares. These funding sources were either not keeping pace with the need for investment or were already at the maximum allowable level (under current legislation at that time). Starting in 2010 the Mayors' Council and TransLink began considering other possible sources of revenue that would help spread the cost across a wider base, rather than just increasing the financial load on those already paying. One of the ideas explored was a means of obtaining revenue from new urban development.

Urban development can be equated with growth - in population and employment - and it is a widely accepted principle that urban growth should help pay for the infrastructure that it needs. Also, urban development benefits from investment in transportation infrastructure. Improved accessibility can create new opportunities for private sector development and can result in increased land value, so it is reasonable to consider mechanisms that channel some of the benefits into recovering part of the investment in infrastructure.

In British Columbia, there are two mechanisms commonly used by local governments to obtain contributions from urban development for community infrastructure and amenities. Development Cost Charges (DCCs) are levied on almost all new development projects, whether or not rezoning is involved. Community Amenity Contributions (CACs) are obtained when rezoning changes allowable land use and/or density. Either (or both) of these mechanisms could be used to obtain contributions for regional transportation infrastructure, but there are three reasons why DCCs are a better funding source for TransLink. First, a significant share of new regional development happens on sites that do not involve rezoning. From the perspective of fairness, all new development should contribute, not just development involving rezoning, because all growth creates new demand for transportation infrastructure. Second, CACs are often negotiated by local governments, whereas DCCs are levied in accordance with a fixed rate schedule. The fixed rate schedule means the DCC is predictable, for developers and for local government. Third, TransLink has no direct role in the rezoning process so is not able to directly influence land use, density, the allocation of CACs, and consequently the revenue that would be available for regional transportation infrastructure.

Because DCCs are a widely used and understood in BC and are a means of generating revenue from urban development (which benefits from regional transportation infrastructure), the Mayors' Council included a DCC as a proposed funding source in both the Phase One Investment Plan (2017-2026) and the Phase Two Investment Plan (2018-2027).

1.4 Chronology

The idea of a regional development charge for transportation has been under consideration for several years. Key events and milestones in the development of the new TransLink DCC are as follows:

September 2010 - The Mayors' Council and the Province of British Columbia signed a Livable Cities Memorandum of Understanding to work together to develop a sustainable funding strategy and transportation system for Metro Vancouver.

2011 and 2012 - Work by a Joint Technical Committee[1] evaluated 20 potential funding sources to support regional transportation improvements in Metro Vancouver, including a DCC.

April 2012 - Two background reports commissioned by TransLink on land value capture explored development cost recovery mechanisms to understand their pros and cons and experience from elsewhere[2].

2013 - The Mayors' Council shortlisted five potential funding sources, one of which was land value capture (including development cost recovery), for more detailed examination.

October 2014 - TransLink released a summary report prepared with assistance from ARUP and Coriolis Consulting Corp. about potential mechanisms to fund regional transportation ("*Land Value Capture: Discussion of Potential Mechanisms to Fund Regional Transportation in Metro Vancouver*").

2015 and Spring 2016 - TransLink commissioned preliminary analysis to produce estimates of how much revenue could be generated from a DCC without negative impacts on the pace of development, the viability of new development, or housing affordability. The preliminary analysis indicated that a relatively small charge could generate on the order of $20 million per year, a significant amount over the 20 to 30 year planning horizon for new capital investment in transportation. A Discussion Paper[3] was released in April 2016 to begin consultation with stakeholders, including local government agencies and the development industry.

May 2016 - The Mayors' Council included a proposed Development Cost Charge for Regional Transportation Infrastructure as part of a regional funding proposal for the Phase One Investment Plan. Additional consultation on the concept of the proposed DCC occurred throughout 2016.

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1 The Joint Technical Committee consisted of senior executives from TransLink, BC's Ministry of Transportation and Infrastructure, and the cities of Vancouver and Surrey.

2 The two background reports are: 1) Arup, *"Value Capture Mechanisms: Global Context – A Working Paper Prepared for the Regional Transportation Strategy for Metro Vancouver."* Prepared for TransLink in April 2012 and 2) Coriolis Consulting Corp., *"Financing Infrastructure in Metro Vancouver: Legal Foundations, Principles and Practices: Local Context – A Working Paper Prepared for the Regional Transportation Strategy for Metro Vancouver."* Prepared for TransLink in April 2012.

3 Coriolis Consulting Corp., *"A Possible Regional Development Cost Charge for Regional Transportation/Transit Infrastructure in Metro Vancouver: Discussion Paper."* Prepared for the Mayors' Council on Regional Transportation and TransLink in April 2016.

Nov 2016 - TransLink and the Mayors' Council approved the Phase One Investment Plan (2017-2026) that included the proposed creation of a new DCC for regional transportation infrastructure, with a target of raising about $20 million per year (uninflated$). The Phase One Investment Plan indicated that the DCC is subject to the Province passing the necessary legislation and that the DCC is intended to come into effect in 2020.

Spring 2017 - TransLink initiated a process to develop and consult on the design of the structure of the proposed new DCC, determine what rates that should be charged, and estimate the probable revenue stream over about 10 years.

Fall 2017 - TransLink produced a preliminary draft framework outlining the proposed structure and rates for the DCC and had further consultation with stakeholders including two workshops (one with local government representatives[4] and one with representatives of the development industry[5]).

November 2017 - Taking into account feedback so far, TransLink produced a refined preliminary draft DCC framework which was reviewed with regional advisory committees and development industry associations.

December 2017 - The preliminary draft framework outlining the proposed structure and rates for the new DCC was approved by the Mayors' Council on Regional Transportation and by the TransLink Board of Directors. A Technical Report with supporting analysis was released.[6] The Technical Report included DCC revenues forecast of about $23.5 million per year on average (uninflated$), based on the draft proposed rates at that time.

March 2018 - The Mayors' Council directed that additional revenue be generated from the DCC to contribute to the capital costs of projects in the Phase Two Investment Plan (2018-2027), resulting in a new revenue target of $29 million per year (uninflated$) for the DCC.

April 2018 - TransLink met with UDI, NAIOP, and GVHBA, and held two workshops with stakeholders (one with local government representatives and one with representatives of the development industry), to consult on alternative rate structures that could be used to generate the additional revenue. In addition, TransLink consulted with the public on the Phase Two Investment Plan (which includes the DCC as a proposed funding source).

May 2018 - The Province passed legislation to amend the *South Coast British Columbia Transportation Act* to allow funds to be collected for regional transportation investments and to give TransLink the ability to raise funds in this way.

June 2018 - Final draft DCC framework and rates was produced. The Mayors' Council and TransLink Board approved the Phase Two Investment Plan. The Province passed a regulation regarding inflationary adjustments to the DCC.

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4 This workshop included staff from almost all municipalities in the region (representing over 95% of future development activity), Metro Vancouver, and Ministry of Municipal Affairs and Housing.

5 The developer workshop included about 30 developers and representatives from the Urban Development Institute, Urban Land Institute, NAIOP and Greater Vancouver Home Builders' Association.

6 Coriolis Consulting Corp., *"A Regional DCC for Transit Infrastructure: Proposed Structure and Rates."* Prepared for TransLink in December 2017.

1.5 Role of The Consultant

Coriolis Consulting Corp. was retained by TransLink to:

- Conduct preliminary exploratory work and potential revenue estimates prior to the decision in 2016 to include a new DCC as a possible funding source in the Phase One Investment Plan.
- Assist TransLink in designing the DCC in detail, including helping with developing the proposed structure and rates, estimating revenue, and discussing the proposed DCC framework and rates with stakeholders in local government and the development industry.

1.6 Scope of this Report

This report outlines the final draft proposed structure and rates that will form the basis of the draft DCC bylaws and provides the supporting technical analysis.

This report includes:

- An overview of the existing DCC landscape in BC before the introduction of the legislation that enables the new TransLink DCC.
- A summary of the objectives that TransLink and the Mayors' Council articulated for the design of the new DCC.
- A review of the enabling legislation and the proposed DCC framework and rates that will form the basis of the two draft bylaws to implement the DCC.
- Commentary on the effect of DCCs on urban land markets and housing prices.
- An explanation of why the DCC has been constructed in the proposed form.
- The urban development financial analysis that was an input to the proposed DCC rates.
- A forecast of DCC revenues from 2020 (when collections commence) to 2027 (completion of the Phase Two Investment Plan), based on a forecast of urban growth over the next 10 years.

The proposed structure of the new DCC evolved during 2016 to 2018 based on extensive interaction with stakeholders in local government and the development industry, careful consideration of the pros and cons of different ways the DCC might be designed, revised revenue targets articulated by the Mayors' Council, and refined analysis. This report does not fully document the evolution of the DCC. That information is available in other materials from TransLink.

This report is an independent analysis and opinions expressed are those of the consultant and not necessarily of TransLink.

1.7 Disclaimer

This document may contain estimates and forecasts of future growth and urban development prospects, estimates of the financial performance of possible future urban development projects, opinions regarding the likelihood of approval of development projects, and recommendations regarding development strategy or municipal policy. All such estimates, forecasts, opinions, and recommendations are based in part on forecasts and assumptions regarding population change, economic growth, policy, market conditions, development costs and other variables. The assumptions, estimates, forecasts, opinions, and recommendations are based on interpreting past trends, gauging current conditions, and making judgments about the future. As with all judgments concerning future trends and events, however, there is uncertainty and risk that conditions change or unanticipated circumstances occur such that actual events turn out differently than as anticipated in this document, which is intended to be used as a reasonable indicator of potential outcomes rather than as a precise prediction of future events.

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In no event shall Coriolis Consulting Corp. be liable to the TransLink or any third party for any indirect, incidental, special, or consequential damages whatsoever, including lost revenues or profits.

2.0 DCCs in BC

2.1 Situation in BC Prior to Bill 33

BC legislation allows local governments to impose a charge on new urban development to assist in paying the capital cost of new community infrastructure. These charges are called Development Cost Charges (DCCs) and are authorized by Section 559 of the *Local Government Act* in all communities except the City of Vancouver, where they are called Development Cost Levies (DCLs) and are authorized by Section 523D of the *Vancouver Charter*. DCCs have been used widely in BC since the 1970s.

There is similar legislation in other Provinces such as Ontario, where these levies are called Development Charges, and Alberta, where they are called Off-Site Levies. Ontario allows Development Charges to be used to collect revenue for transit infrastructure.

Local government DCCs in BC are used to fund community infrastructure including roads, water, sewer, drainage, and park land acquisition.

DCCs can only be used to fund new capital projects, either directly or by paying back money borrowed to fund new projects. DCCs cannot be applied to "old" debt that was incurred for projects prior to the introduction of the DCC and cannot be applied to operating costs.

In Metro Vancouver, all of the local governments (except Belcarra and Lions Bay) charge DCCs on most or all new development projects. In addition, the Greater Vancouver Sewerage and Drainage District (GVS&DD) charges a regional DCC to fund regional-scale sewer capital projects.

DCCs are applied to urban development whether or not any rezoning is involved. DCC rates are established by bylaw and are not negotiable. The rates can vary by type of development, by density, and by location provided there are sound reasons for the variation.

The usual steps in BC for determining DCC rates are as follows:

- The local government identifies the capital projects that are needed to extend or expand community infrastructure.
- Capital costs are estimated for each project.
- The local government must decide what portion of future capital works should be paid by taxpayers in general (usually via property tax) and what portion should be paid by new development. This allocation depends on the location and purpose of each capital project.
- The portion allocated to growth can be reduced by what is called an "assist" factor, but in practice this assist factor is usually small.
- The local government then estimates how much new development will be served by the new infrastructure. Dividing the total cost allocated to growth by the amount of growth produces the amount that is proposed to be charged to new development, on a per unit or per square foot basis.
- There is public and stakeholder consultation about the proposed capital projects and DCC rates and there is typically some analysis to examine whether the new rates can be absorbed by new development without any significant negative impacts.
- The DCC rates are included in a bylaw.

2.2 Pros and Cons of Adding Transit as DCC Eligible Infrastructure

The main advantages of using a DCC for regional transit infrastructure include:

- DCCs are transparent, easy to understand, and easy to administer.
- A DCC obtains revenue from new urban development, which is consistent with the idea that growth should help pay for the cost of growth.
- Provided DCC rates are set carefully, the cost of a DCC tends to be borne by developers or land owners of development property, rather than transit users or taxpayers at large.
- Administration costs are small, as there is already a system in place to collect municipal and other local government DCCs.

There are some disadvantages of a DCC as a funding mechanism for transit infrastructure, including:

- Revenues can only be applied to capital costs, not operating costs.
- They are a one-time payment, not a recurring revenue stream such as property taxes, and revenues will fluctuate depending on the pace of new development.
- They are not linked in any way to transportation use patterns, so they do not influence transportation choices.

These disadvantages can be offset by other components of a comprehensive funding strategy.

2.3 Principles and Good Practices for DCCs

The Province of BC has published guidelines[7] for DCCs. Four decades of experience across the Province have also contributed to defining the state of the art for using DCCs. Good practices include:

- Those who benefit from new capital investment should contribute to infrastructure costs.
- Costs should be fairly distributed among existing users and new development, and across different kinds of development.
- DCCs should be transparent and understandable in terms of how rates are determined and how the money is used.
- DCCs should provide certainty to the land market and the development industry. This means predictable rates with advance notice of any significant changes.
- There should be ample opportunity for full discussion among all stakeholders.
- There should be consideration of possible negative impact on the pace of development or housing affordability before the adoption of new (or increased) DCCs.
- DCC programs should be monitored to ensure they are not causing negative impacts and are contributing to the orderly construction of new infrastructure.
- DCC systems should be easy and inexpensive to administer.

[7] BC Ministry of Community Services, *"Development Cost Charges Best Practices Guide."* First published in 1997; second edition published in 2000.

3.0 Objectives for the New TransLink DCC

The proposed TransLink DCC structure has been designed to achieve these objectives:

1. **The system must be easy to understand and simple to administer**. Local governments, the development industry, and the public must all be able to understand and work with the system without complicated procedures and expensive administration.
2. **The system must be fair**. This is an easy objective to articulate as a principle, but challenging to define in practice because it is subjective. "Fairness" in this context is taken to mean that the cost burden of the new DCC is distributed across the region and across different forms of development in a way that seems broadly commensurate with the distribution of the direct and indirect benefits of transportation infrastructure.
3. **The DCC should not have any significant impact on the pace of new development, the geographic distribution of development, or the affordability of housing and job space**. This objective leads to some very specific parameters for the new DCC. First, the DCC rates must be set so that they are financially workable throughout the region, meaning they have to work in the parts of the region with the lowest housing prices and land values. This automatically means the rates have to be small relative to construction costs and market values. Second, the DCC cannot create any sharp boundaries between areas with different rates, such that development would shift to sites just over the edge.
4. **The DCC should be designed to deliver approximately $29 million per year on average during 2020 to 2027 (uninflated$)**. The Mayors' Council initially set a target of approximately $20 million per year on average (uninflated$) for revenue to be raised by the DCC to help fund transit capital expansion projects in the Phase One Investment Plan. In March 2018, the Mayors' Council directed that additional revenue be generated from the DCC to contribute to the capital costs of transit expansion projects in the Phase Two Investment Plan, resulting in a new revenue target of $29 million per year (uninflated$) for the DCC.
5. **The DCC structure should include provisions for monitoring the revenues, monitoring the response of the market place, and adjusting the rates as appropriate over time**.

4.0 Legislation and Framework for the TransLink DCC

In December 2017, the Mayors' Council and TransLink's Board of Directors approved a draft DCC framework and rates. In 2017, the Mayors' Council made a request to the Provincial government to introduce the necessary legislation to enable the new DCC. In May 2018, the Provincial legislation to enable the new TransLink DCC was passed. The DCC is enabled via amendments to the *South Coast British Columbia Transportation Authority Act* ("Bill 33") (see Appendix A). The legislation is very similar to the provisions of the *Local Government Act* that allow municipalities to collect DCCs and to the legislation that allows the GVS&DD to collect the regional sewer DCC. As with other DCCs, TransLink must pass a bylaw to implement the DCC.

The final draft proposed DCC framework is attached (see Appendix B). The framework takes into consideration:

- The enabling legislation (see Appendix A).
- Key policy choices that had to be made during the design of the DCC (see Section 7.0).
- Consultation with stakeholders at several points in the process
- Financial analysis regarding the ability of new development to absorb a new charge (see Section 8.3).
- The revised revenue target.
- The need for ease of administration.

The following sections outline key components of the proposed framework and elaborate on the implications of the legislation for each component.

4.1 Agency Responsible for the DCC

The TransLink Board, in consultation with the Mayors' Council and stakeholders, will be responsible for establishing DCC rates. TransLink will receive the revenue and allocate the funds to "eligible projects" (as defined in Bill 33). "Collection entities" (defined in the legislation as municipalities, Metro Vancouver Regional District, and UBC) within the transportation service region will collect the DCC as part of their development approval processes and remit the funds semi-annually to TransLink similar to the GVS&DD DCC process. Collection entities may, through an agreement with TransLink, not collect the DCC and instead remit an equivalent amount to TransLink, similar to the GVS&DD DCC structure.

4.2 Use of Funds

The legislation defines an eligible project as "a project to provide, construct, alter or expand assets, facilities and other real or personal property required for the regional transportation system", with some exceptions.

By making "regional transportation" projects eligible, the potential list of capital works to which DCC revenues could be applied is quite broad. This could include, for example, new rapid transit lines, projects for capacity increases to existing rapid transit lines, new rail expansion vehicles, and new or expanded transit exchanges and bus depots. New or expanded regional bridges are also an eligible use of funds, as these are required for the regional transportation system. The legislation does not allow the funds to be used for acquiring motor vehicles[8] (which would include buses), bicycles, or parking facilities.

Funds can be used for capital costs (as defined in Bill 33), including interest costs, but cannot be applied to pay capital costs incurred before 2018. Funds cannot be applied to transit operating expenses.

In stakeholder consultation TransLink has consistently articulated the commitment to use the funds for new transit capital investments identified in TransLink's Investment Plans. The funds will initially be used for transit expansion capital projects identified in the 2017-2026 Phase One Investment Plan and in the 2018-2027 Phase Two Investment Plan. A list of transit expansion eligible projects expected to be funded by the DCC will be specified in these Investments Plans and in future Investment Plans.

4.3 DCC Contribution to the Regional Share of Expansion Capital

The legislation does not deal with the role of the DCC within the broader TransLink funding strategy or the total projected DCC revenue other than that Investment Plans must, for each applicable year, set out the total amount that TransLink anticipates it will receive from DCCs in that year.

The DCC is intended to be a supporting funding source by which new growth contributes to the regional share of capital expansion investments in TransLink 10-Year Investment Plans. The proposed DCC rates are intended to generate an average of about $29 million per year (uninflated$), with collections starting in 2020 and rates growing with an annual inflation index. Other funding sources such as fares, property tax, and fuel tax will also contribute to paying for new growth-related capital investments, recognizing that the existing population also benefits from new transportation infrastructure.

4.4 Area of Collection

The legislation enables TransLink to collect the DCC within the entire transportation service region (Metro Vancouver). The DCC will be collected throughout the service region, except for any lands located outside the jurisdiction of the new legislation (e.g. First Nation Reserves excluding taxing treaty first nations).

4.5 Types of Development for Which the DCC Can be Applied

The legislation allows the DCC to be levied on every person who obtains a subdivision approval or building permit within the transportation service region, meaning that the levy can apply to all types of development other than those that qualify for exemptions or waivers. The legislation provides for several situations in which the DCC will not apply:

- Statutory exemptions (e.g. places of public worship).
- Waivers or reductions for "eligible developments" which, at TransLink's discretion, can include defined types of not-for-profit rental housing, for-profit affordable rental housing, subdivision of small lots that is designed to result in low greenhouse gas emissions, and/or development that is designed to result in a low environmental impact.

8 The *South Coast British Columbia Transportation Act* defines "motor vehicles" as vehicles propelled other than by muscular power but not including airplanes, the cars of electric and steam railways, or other vehicles running only on rails or tracks.

- Development that does not impose additional capital cost burdens on the authority (e.g. in the case of a single family house being demolished and replaced with a new single family house).
- Development where the value of the work authorized by a building permit is less than $50,000 or other amount established by bylaw.
- Residential projects with fewer than 4 units, unless this provision is altered by bylaw.
- Residential units of 29 square metres or less, unless this provision is altered by bylaw.

The DCC will apply to new residential, commercial, industrial, and institutional development. The statutory exemptions will apply. It is proposed that there would be exemptions for agricultural uses and waivers for certain types of affordable rental housing units. The legislation gives TransLink the option of exempting residential projects with fewer than four new self-contained residential units. TransLink proposes to apply the DCC to projects with fewer than four new self-contained units, consistent with the GVS&DD DCC (i.e. no exemption for duplexes, triplexes, and small townhouse projects). Also consistent with the GVS&DD, TransLink proposes not to apply the DCC to laneway houses and secondary suites, although this exemption may be reviewed in the future. TransLink intends to generally align housing definitions and waivers with the GVS&DD DCC to the extent appropriate for the TransLink DCC, for ease of implementation by collection entities which collect the TransLink and GVS&DD DCCs on behalf of the regional agencies.

4.6 Basis of the Charge

The legislation does not prescribe the basis of the charge, so it allows flexibility to charge by floor area or (for housing) by unit. For residential uses, TransLink intends to charge per unit (consistent with the GVS&DD and many local governments in the transportation service region), although TransLink has the option of switching to a charge based on floor area in the future. For all non-residential uses, the DCC will be charged based on gross floor area.

4.7 Effective Date

The legislation does not prescribe a commencement date for collections. It does set out the requirements to implement the DCC, including adoption of a bylaw and approval of the bylaw by the Inspector of Municipalities.

The target for commencing DCC collections is January 15, 2020. The effective date of the DCC bylaws is proposed to be January 15, 2019, with the rates set to $0 (nil) in 2019 so that the DCC is not collected on building permits or subdivision approvals until January 15, 2020.

4.8 Rate Structure

As with other legislation regarding DCCs, the TransLink legislation allows for varying the rates by zone or different areas, by use, by different capital costs as they relate to different classes of development, or by different sizes or different numbers of lots or units in a development. This gives TransLink the option of setting uniform rates across the entire service region for each type of development or varying the rates by geographic sub-areas, provided that charges are similar for all developments that impose similar capital cost burdens.

In the initial DCC Rate bylaw, TransLink intends to adopt uniform charges across the whole region for each type of residential unit and for each type of non-residential space.

4.9 Inflation Adjustment

The legislation does not provide for an automatic adjustment for inflation, but in June 2018 the Province passed a regulation (*Ministerial Order No. M 231*, see Appendix C) that allows TransLink to make annual inflationary adjustments to the DCC rates commensurate with the change in the Vancouver CPI for up to 4 years without requiring approval from the Inspector of Municipalities. TransLink intends to adjust the DCC rates annually for inflation with prior notice of the amount of the annual adjustments. As described in more detail in Section 7.7 of this report, TransLink could make annual inflationary adjustments based on the Vancouver CPI for up to 4 years without needing approval by the Inspector of Municipalities as permitted by the regulation or could use a different inflationary index and seek Inspector approval each year.

4.10 Periodic Review and Rate Changes

The legislation does not define a period for review of the DCC but requires that rate changes be made by bylaw and approved by the Inspector of Municipalities. However, the *South Coast BC Transportation Authority Act* indicates that an Investment Plan must be updated at least every three years.

TransLink intends to review the DCC rates at least every 3 years as part of its requirement to prepare a 10-Year Investment Plan at least every 3 years.

4.11 Transparency and Accountability

The legislation requires that any rate changes be via bylaw amendment, so there is an inherent requirement for considering amendments in public. Also, the Inspector of Municipalities must approve the DCC Rate bylaw before adoption by the TransLink Board.

The legislation requires that TransLink report annually on:

- The amount of DCC revenue received.
- Expenditures of DCC moneys.
- Balance held in the DCC reserve fund.
- Waivers or exemptions granted.

The legislation requires that the following factors be considered when setting DCC rates:

- Future land use patterns and development.
- Phasing of works and services.
- How development designed to result in low environmental impact may affect the capital costs of an eligible project.
- Whether the charges are excessive in relation to the capital cost of prevailing standards of service in the transportation service region.
- Whether the charges will, in the transportation service region, deter development, discourage the construction of reasonably priced housing or the provision of reasonably priced serviced land, or discourage development designed to result in low environmental impact.

The legislation requires that TransLink provide information about the considerations, information, and calculations used to determine the schedule of DCC charges and make this available to the public.

The legislation requires that TransLink's Investment Plans set out the amount of DCC revenue expected annually, the eligible projects to be funded, and the expected expenditures on such projects.

In addition, TransLink's existing legislation pertaining to the development and adoption of 10-Year Investment Plans, which serve as the financial and strategic plans for TransLink, requires TransLink to consult every time an Investment Plan is developed. There must be an adopted consultation plan for the development of 10-Year Investment Plans and TransLink is required to consult with municipalities, the public, the Mayors' Council, the Greater Vancouver Regional District (the legal entity for Metro Vancouver), the Provincial government, and others who are affected by the Plan, so there will be transparency regarding proposed capital investment projects and the intended application of DCC revenues to these projects.

4.12 DCC Rates

The final draft DCC rates are as follows[9]:

Type of Development	Rates effective January 15, 2019	Rates effective January 15, 2020	Rates effective January 1, 2021**
Single Family Dwelling	$0 per Dwelling Unit	$2,100 per Dwelling Unit	$2,975 per Dwelling Unit
Duplex	$0 per Dwelling Unit	$1,900 per Dwelling Unit	$2,470 per Dwelling Unit
Townhouse Dwelling Unit	$0 per Dwelling Unit	$1,900 per Dwelling Unit	$2,470 per Dwelling Unit
Apartment Dwelling Unit	$0 per Dwelling Unit	$1,200 per Dwelling Unit	$1,545 per Dwelling Unit
Retail/Service	$0 per sq. ft. of Floor Area*	$1.25 per sq. ft. of Floor Area*	$1.25 per sq. ft. of Floor Area*
Institutional	$0 per sq. ft. of Floor Area*	$0.50 per sq. ft. of Floor Area*	$0.50 per sq. ft. of Floor Area*
Office	$0 per sq. ft. of Floor Area*	$1.00 per sq. ft. of Floor Area*	$1.00 per sq. ft. of Floor Area*
Industrial	$0 per sq. ft. of Floor Area*	$0.30 per sq. ft. of Floor Area*	$0.30 per sq. ft. of Floor Area*

* Calculated as the rate multiplied by the number of square feet of Gross Floor Area.

** Rates subject to annual inflationary increases starting January 1, 2022.

9 Pending final consultation with stakeholders and final consideration by the TransLink Board and the Mayors' Council in advance of the bylaw being adopted in 2018.

5.0 Differences Between Typical DCCs and the TransLink DCC

Bill 33 enables the new TransLink DCC to be structured similar to existing local government DCCs which will assist with ease of implementation and clarity. There are, however, two key differences between typical local government DCC practice and how the new TransLink DCC will work.

First, the nature of transportation benefits is different in some important ways than most other kinds of community infrastructure. Most new local infrastructure tends to benefit users and uses in the vicinity of the works in a direct way. A new water line or a new sewer, for example, tend to provide capacity for adjacent or nearby lands. Transportation is different because people tend to use it “regionally” instead of locally. As an example, consider a person who lives in one of the eastern municipalities, such as Langley, who works or studies at UBC and commutes via transit. Now consider an improvement in the rapid transit network that extends rapid transit in Vancouver toward UBC. The capital investment is in Vancouver, but the Langley resident benefits in terms of improved access to UBC. With regional transportation investments there can be a significant difference between the physical location of the investments and the geographic distribution of benefits.

Second, the nature of TransLink’s overall funding structure means that its calculation of DCC rates is somewhat different than typical practice. As noted in Section 2.1, typical municipal practice for infrastructure is to add up the cost of the capital program, allocate a share to growth, and then spread this growth share over the expected amount of development. If the cost per unit is too high, based on an initial test, then the capital program can be reduced or the municipality can shift a larger share of the cost onto taxpayers. In TransLink’s case, the total need for capital investment to meet regional transportation demand is high. The Phase One and Phase Two Investment Plans include about $7.7 billion in total capacity expansion capital expenditures of which about $6.8 billion is related to *transit* capacity expansion capital projects.[10] The region’s share of the $6.8 billion is about 22% or $1.5 billion of which $1.4 billion is spending on DCC-eligible transit capacity expansion capacity projects. If this regional share is assumed to be attributed to growth[11] and fully funded by a DCC, then the costs per unit that would have to be collected from development would be excessive (i.e. on the order of $13,000 per residential unit if only residential pays[12] or $7 per square foot on all residential, office, retail, institutional, and industrial development[13] which would not be financially viable).

So, rather than shifting too much of the cost to development, TransLink has attempted to set a reasonable dollar amount that can be obtained from development (without causing negative impacts), as one component

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10 These figures are in year-of-expenditures dollars.

11 This calculation is illustrative only. New investment benefits existing residents and employees, as well as growth, so new development should not pay the whole cost. It is useful to demonstrate, though, that there is a practical limit on how much development can be expected to contribute.

12 Calculated by dividing the $1.4 billion region’s share of DCC-eligible transit capital expansion projects by 8 years of DCC revenue collection during the Phase One and Phase Two Investment Plans (i.e. years 2020 to 2027), and by about 13,400 net new residential units per year excluding exempt units (see Exhibit 10 in Section 9.1).

13 Calculated by dividing the $1.4 billion region’s share of DCC-eligible transit capital expansion projects by 8 years of DCC revenue collection during the Phase One and Phase Two Investment Plans (i.e. years 2020 to 2027), and by about 23.8 million square feet of new residential and employment space per year. The calculation assumes about 1,600 net new single family houses pay the DCC each year with an average house size of 3,700 square feet, plus 3,000 net new duplex/townhouse units with an average unit size of 1,500 square feet, plus 8,800 net new apartment units with an average unit size of about 850 square feet gross, for a total of about 17.9 million square feet of net new residential development that pays the DCC each year (see Exhibit 10 in Section 9.1), and that employment floorspace growth averages about 5.9 million square feet per year (see Exhibit 17 in Section 9.5).

of its overall funding plan. The target of $29 million per year in DCC revenues represents approximately 3% of the total capital costs of the combined Phase One and Phase Two Investment Plans or 10% of the total regional share of capital funding in the combined plans. The two main consequences of this approach are that the DCC revenues will be a capital contribution towards funding *a portion* of the costs of a large number of expansion projects rather being the sole funding source, and that the proposed DCC rates are calibrated to ensure that the new charge will not affect the pace, viability, or distribution of development or the affordability of housing.

6.0 The Effect of Development Charges on Urban Land Markets, Housing Prices, and the Pace of New Development

Because of the widespread and intense concern about housing affordability in Metro Vancouver, TransLink communicated early on that the new DCC would be designed to not have an adverse impact on the housing market. TransLink was also concerned about potential impacts on the viability of developing new employment space.

This concern about negative impacts on urban development was a fundamental part of the design of the proposed structure and the analysis behind the proposed DCC rates. TransLink recognized that the new DCC is being developed at a time when other agencies are also increasing infrastructure charges: the Greater Vancouver Sewerage and Drainage District (GVS&DD) recently increased its levy on new development to pay for regional sewer infrastructure and many municipalities throughout Metro Vancouver have recently raised their DCCs to pay for local road, water, sewer, drainage, and park networks. As well, many municipalities expect Community Amenity Contributions (CACs) from new development to pay for daycare, affordable housing, recreation facilities, and other public benefits.

Imposing these costs on new urban development stems from the idea that new residential and employment spaces need and benefit from expanded services and amenities, so generally should help pay for them. Also, the fact that urban development benefits from improved regional transportation service in various ways (including making more locations available for high density development, reducing the need for parking, and attracting buyers who want increased accessibility) strengthens the argument for making development contribute to regional transportation infrastructure. At the same time, though, there are worries that increasing the cost of new construction, especially for housing, will push up prices.

6.1 Will a New DCC Affect Housing Prices?

The short answer is “not if the DCC is set low enough that it does not affect the viability and pace of new residential development”.

The answer may surprise those who assume that any new cost, even a small one, is just added to new house prices. The refrain that “new costs are just passed on to buyers and renters of new units, making housing less affordable”, is often repeated. But is it true? If an agency like TransLink starts collecting a DCC to help pay for regional transit, does this new charge necessarily lead directly to increased prices for new units?

Certainly, local and regional levies add to the construction cost of new residential and employment space. For uses that are created by governments and non-profits, such as housing for low income households, public schools, university buildings, and hospitals, increases in development charges add directly to the cost that must be borne by users and taxpayers. However, most forms of urban development - condominiums, market rental units, office space, retail stores, industrial work places - are created for profit and offered at a market price that is higher than the cost of construction. To consider whether a new DCC affects affordability, it is necessary to look at the factors that drive prices in the housing market and then see which of the participants in the market bears the new cost.

To start, it is worth looking at some demonstrations of why market price and construction cost are not as tightly linked as is often suggested:

- In Metro Vancouver over the last few years, condominium prices have been rising at over 10% per year. While construction costs and some local government charges have been rising, increases in market price have far outpaced increases in the cost of building new units.[14]
- If new housing prices were determined just by adding up the costs and then adding a profit, why aren't prices across the region more uniform for similar types and sizes of units? New units in Vancouver sell for two or more times the price of same-sized units in Surrey; while some construction costs are higher in Vancouver, they are not double (or more) the costs in Surrey. Something other than construction cost is driving the price differences across the region. Areas experiencing the greatest market demand have the highest prices and these prices are far in excess of construction cost.
- Suppose two adjacent, virtually identical new condo projects on adjacent sites come to market at the same time. One seeks a price that is 10% higher than the one next door, which offers units at the prevailing area price. The explanation offered by the sales rep is that the higher priced project cost more to build because of an expensive soil remediation requirement. Would condo buyers pay the extra 10% because of this higher cost? Or would they go next door and buy the unit that is selling at the prevailing market price? When people buy a unit (or a new stove, for that matter) they generally don't know what it cost to construct. What they know is the market price and they know what they are willing and able to pay. They won't (or can't) pay more just because the seller claims to have absorbed a higher cost.
- Suppose a developer completes a new condo project. The total of all costs (construction, marketing, land, municipal charges) plus a typical allowance for profit all come to $700 a square foot. But new units in the neighbourhood are selling for $800 a square foot. Does the new developer offer the new project at $700 a foot or at the prevailing market price?

These points ought to create some skepticism about the premise that any new costs, such as DCCs, are simply directly passed on to new home buyers or renters in the form of higher prices on new units.

So, if the charge is not simply added to price, what happens when a new government charge is imposed for infrastructure or amenities?

The answer is different for levies such as DCCs, that are imposed on all projects, and for CACs, that in BC are only applicable to projects involving rezoning.

6.2 Community Amenity Contributions and Housing Prices

Community Amenity Contributions (CACs) are collected by many BC municipalities when property is rezoned to change the allowable uses and/or allowable density for new development. This type of rezoning has two key consequences:

- By increasing the capacity for new housing or employment growth, rezonings lead to increased loads on a wide range of community amenities and infrastructure, such as daycare, recreation facilities, or emergency services.

[14] For example, the average annual change in the Greater Vancouver Apartment Housing Price Index (HPI) published by the Canadian Real Estate Association (CREA) for the period from December 2012 to December 2017 was 12.3% per year and the average annual change in the Apartment Building Construction Cost Index for the Vancouver Census Metropolitan Area published by Statistics Canada for the period from January 2012 to January 2017 was 2.3% per year.

- By changing the allowable use and by increasing the allowable density, rezonings almost always result in higher land value because of the increased development opportunity.

Without a mechanism such as CACs, the impacts of growth are absorbed by the community and the municipality, while all the benefits of increased land value are enjoyed by the property owner. A CAC is a means for converting some of the increased land value into public benefits that help the community deal with the impacts of growth. A well-designed CAC system results in the land value gains from rezoning being allocated among land owners (so they have an incentive to sell their land into the development market), developers (so they have an incentive to develop the additional density), and the community (in the form of amenities that help address the impacts of change). Because CACs are always associated with an increase in density, CACs do not have a negative impact on housing price. Local governments obtain CACs in exchange for allowing new density (i.e. new capacity for development), meaning CACs help encourage expansion of housing supply. Generally, the cost of CACs associated with obtaining new density is less than the market value of this density (i.e. land values), so the all-in cost of new units can be lower than the cost of new units that are built on already-zoned land. New units sell for market value, though, and sales data indicates that units in projects that paid a CAC are priced the same as comparable units in projects that did not pay a CAC (because they did not involve rezoning).

6.3 Development Cost Charges and Housing Prices

DCCs are very different from CACs. These infrastructure costs are levied on all projects, not just those involving rezoning, so they are a cost that is not offset by an increase in land value due to additional development density.

To explain the impact of DCCs in the urban market, it is important to understand a unique feature of land as a form of capital. Labour, money, and materials can all move around based on where they will obtain the optimum value or return. Land can’t move, so its value is based on what it can be used for in its local market context.

In an urbanized region such as Metro Vancouver, almost all properties that have redevelopment potential based on zoning or community plan policies have at least two candidates for what an appraiser would call the highest and best use, or the use that supports the highest land value in an open, competitive marketplace:

- One candidate is the amount that a user (e.g. a home owner, a business owner) or an investor would pay for the property to keep it in its present use. This use might be a single detached home, an older low density rental apartment building, an older retail space, or a strip mall. This existing use supports a value based on what users or investors are willing to pay, to keep and use the property as is (to live in, to run a business in, or to collect the rent from).
- The second candidate is the amount a developer is willing and able to pay to acquire the property, demolish the existing use, and profitably build something new, typically at a higher density. The amount a developer can pay depends on the market value of the completed new use and the cost of creating this new use.

When the value supported by the existing use exceeds the value a developer can pay, the property generally remains as is. This is the case for many properties that appear as though they “ought” to be development sites, because some older low density commercial properties or older single detached homes in places zoned for higher density are simply more valuable in their current use than a developer can afford to pay for them. On the other hand, when the land value supported by redevelopment of a site exceeds the value of the existing use, then redevelopment usually occurs. As an aside, this is why it is possible and important to calculate the minimum allowable new density that is necessary to encourage redevelopment in areas selected for densification: a developer needs sufficient new density to support enough land value to compete a site away from those who want to own the property for its current use.

What determines how much a developer can afford to pay for a site? For residential development, it works like this:

1. How much will the new units sell or rent for in the open market? This market price determines the total amount of money that will be available to pay for construction costs, profit, and land.
2. What is the cost to construct the new project? Developers pay all the hard costs (e.g. concrete, lumber, labour, appliances) and soft costs (e.g. municipal fees, insurance, marketing, professionals) of creating a development and bringing it to market.
3. What is the profit margin achievable in the local market? Development takes time, ties up capital, and involves risk, so developers of new condos or rental units need to achieve a level of profit that makes the business worthwhile. Developer profit margins are set by the competitive marketplace: there is a basement rate of profit set by the fact that developers are not willing to do projects below some minimum threshold of profitability (and lenders are not likely to lend money for projects that are too “thin”) and a ceiling rate set by competition from other developers (a developer who tries to extract too much profit will have to try to achieve higher unit prices than other similar projects, try to obtain labour or materials at less than market price, or try to buy development sites for less than market value, none of which are sustainable business strategies).
4. Starting with the market value (the revenue from developing the project), deducting the construction cost and deducting the target profit leaves the amount that can be paid for land. This “residual” land value is the maximum a developer can pay for a site and still have a viable, profitable project. This amount must be higher than the value of the site supported by the existing use, or the developer will not be able to buy it for redevelopment.

Based on the above explanation, understanding what drives the market price of new housing is at the heart of understanding the impact of a new cost in the urban marketplace. Classic microeconomics tell us that price is set by the interaction of supply and demand. The demand for residential units in Metro Vancouver is a function of population growth, employment growth, household incomes, mortgage rates, intergenerational wealth transfer, investors (local and non-local), second home owners…all of which affect demand for owned and rented housing in this very attractive region. This total demand for units is higher than the demand generated by population growth alone.

The supply of residential units in the region consists of existing inventory (which is fixed) and new inventory, which requires new development. The pace of new development is affected by the availability of land, infrastructure (particularly transportation), municipal approvals processes, and the capacity of the regional industry to build new product. Land availability in this region is one constraint on new housing supply. Mountains, ocean, and the US border limit the total supply of land, the Agricultural Land Reserve and open spaces account for a large area, and low density single detached neighbourhoods account for another large swath, leaving a relatively small total area available for high density urban use. Another constraint is the rate at which new projects are approved.

Strong demand and constrained new supply have combined to push housing prices upward at a pace that far exceeds the rate of inflation in construction costs or increases in local government fees. *The difference between growth in market price of units and increased construction cost becomes growth in land values.* New construction costs in a rising market, therefore, tend to take some of the money that would otherwise have become added to land values.

So, what does all this mean for DCCs?

Adding a new DCC, such as the one proposed by TransLink, will not directly increase the market price of new housing. Prices in a region with strong demand and constrained supply are not determined just by adding up the costs.

What a new DCC does do is reduce the amount developers would otherwise be able to pay for land. Developers cannot arbitrarily increase the market price of new units just because a cost went up[15]. They are price-takers for construction costs (i.e. they cannot try to drop their price for concrete to counter an increased DCC). And they have a target for profit that needs to be met to justify the risk of taking on a project. So, the new DCC has only one place to go: it puts downward pressure on development site values (which does not necessarily result in an absolute decline; it has tended in this region to show up as a slower rate of growth in land values than would otherwise have occurred).

Back to the idea that every parcel of land has at least two candidates for setting its market value: for a parcel of land to be a development site, developers must be able to pay more for land than the value set by existing uses. If a new (or increased) DCC lowers developers' bid price for land, but this price is still sufficiently higher than the value set by the existing use, there is no impact on the housing market. Land owners still have an incentive to sell into the market, developers can outbid users or investors who want the existing use, and new units still flow to the market at the pace they would have. But if the DCC (or any new cost) drives developers' bid price below the value set by existing use, developers will not be able to obtain development sites. Sites that should have been development sites remain in their existing use. If this reduction in the availability of development sites is large and widespread, it has serious consequences for the housing market because it results in a reduced flow of new units in a market with a continuing surge in demand. The result is market-wide increases in all housing prices, which is of far greater concern regarding housing affordability than the simplistic fear that the DCC gets added to the price of new units.

There are three housing market risks if DCCs (or any new cost imposed by government) are too high:

- For market strata housing, if DCCs put too much downward pressure on what developers can pay for land, the flow of land to the redevelopment market will slow (because more properties will be kept in their current use), the pace of new unit creation will slow, and strata prices will rise faster than they otherwise would have.
- New market rental housing in Metro Vancouver already has financial difficulty competing for development sites because rental supports a lower land value than strata development. To make rental more financially viable, the land cost must be lowered by expanding development capacity (through density bonusing, for example, or by allowing higher density only if rental is included) and costs imposed by government must be managed very carefully, particularly in submarkets where new rental is just barely viable. Fortunately, the cost of a new DCC for transit can be offset by cost savings such as reduced parking requirements.
- For non-market rental projects, which are usually built or incented by non-profits and governments who are trying to deliver new units at the lowest possible cost, any new costs just add to the challenge. This is why TransLink, like the GVD&DD, should waive the DCC on affordable rental housing projects.

Avoiding these negative impacts requires caution in setting the amount of any new cost imposed by local or regional agencies and also requires giving ample notice of new or increased costs so the land market has time to adjust.

[15] The Province of BC published a guide for local government in 2014 that stated, "Developers know they cannot simply raise their asking prices when faced with additional costs; that the selling price is set by the market." Community Amenity Contributions: Balancing Community Planning, Public Benefits, and Housing Affordability, Ministry of Community, Sport, and Cultural Development, March 2014, page 15.

6.4 DCCs on Leasehold vs Freehold Land

Most urban development in Metro Vancouver occurs on freehold land. Some residential and some commercial development occurs on leasehold property, usually land owned by a municipality, a senior government, or a university and leased to a developer. The question has come up as to whether there are any material differences in the application or the impacts of the DCC on developments on leased land.

As explained in Section 6.3, the main impact of a DCC on development economics is to put downward pressure on land values. The land value effect of DCCs applies regardless of tenure:

- A developer aiming to sell strata title units on a freehold site would try to reduce the offered purchase price for a site based on the amount of a DCC. A DCC does not lead directly to an increase in sales price for the units, as these prices are set by supply and demand in the marketplace.
- A developer aiming to sell leasehold strata units on a leased site would reduce the offered prepaid lease price for the land based on the amount of a DCC. A DCC does not lead directly to an increase in the sales price of the leasehold strata unit, as these prices are set by supply and demand in the marketplace. Leasehold strata units may trade at a discount relative to comparable strata units on freehold land, but this is due to the form of tenure not due to a DCC (or any other project cost).
- A developer aiming to rent or lease space to an end user (e.g. retail space or rental housing) would also seek to reduce the offered price for land, either for a leasehold site or a freehold site. A DCC does not lead directly to an increase in commercial or residential rents, as these prices are set by supply and demand in the marketplace.

So, the impact of the new TransLink DCC on leasehold land is the same as for freehold land: the market value of leasehold parcels will be slightly lower than it otherwise would have been.

6.5 Getting It Right

DCCs are a two-edged sword. Set appropriately, they are a way to have new development contribute to infrastructure by capturing some revenue that otherwise would have gone to increases in land value. Set too high, or applied without sufficient attention to development economics, they can lead to a reduction in the availability of development lands and impair the viability of new strata and rental projects, with consequences for affordability.

Because of the risks associated with setting DCC rates too high, the proposed structure and DCC rates have been carefully calibrated to avoid these potential negative impacts. The aim from the outset was to achieve a balance between these objectives:

- Generate significant revenue for transportation infrastructure that will come from urban development, a new source that is different from property tax, fuel tax, or transit fares.
- Channel some of the benefits for new development that flow from better transportation into investment in new infrastructure.
- Set the rates at a modest level, with ample notice to all stakeholders, that will not have a significant negative impact on the Metro Vancouver housing markets or employment space.

7.0 Policy Decisions that Shaped the DCC Framework

In designing the new DCC, decisions about the following topics were necessary:

1. Use of the DCC revenue.
2. Geographic area in which the DCC will be levied.
3. Kinds of urban development that will pay the DCC.
4. Setting uniform rates for each type of development versus having different rates in different areas.
5. Basis of the charge (per unit or by floor area).
6. Time of collection.
7. Inflationary adjustments.
8. Transparency and accountability.
9. Ongoing monitoring and adjustments.

The process of resolving these policy choices included extensive consultation with stakeholders. In addition, policy choices were reviewed with a Regional Transportation DCC Local Government Working Group[16] that met between May and November 2017 and again in April and June 2018 and direction was sought from the Joint Finance Committee in June 2018 (a committee of members of the Mayors' Council and TransLink Board).

7.1 Use of the DCC Revenue

TransLink is responsible for regional investments in rapid transit, bus transit, regional bridges, TransLink owned cycling facilities, and cost sharing with municipalities for some regional roads, cycling, and pedestrian works. The Phase One and Phase Two Investment Plans include all of these kinds of projects.

The legislation allows TransLink to apply the DCC revenues to eligible projects "to provide, construct, alter or expand assets, facilities and other real or personal property required for the regional transportation system", with some exceptions. Eligible projects could include, for example:

- New rapid transit lines.
- Projects for capacity increases to existing rapid transit lines.
- New rail expansion vehicles.
- New or expanded transit exchanges and bus depots.
- New or expanded regional bridges.

The legislation does not allow the funds to be used for acquiring motor vehicles[17] (which would include buses), bicycles, or parking facilities.

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16 The Working Group consisted of representatives from Metro Vancouver, TransLink, and 10 municipalities from around the region and comprised planning, engineering and finance staff.

17 The *South Coast British Columbia Transportation Act* defines "motor vehicles" as vehicles propelled other than by muscular power but not including airplanes, the cars of electric and steam railways, or other vehicles running only on rails or tracks.

Funds can be used for capital costs (as defined in Bill 33), including interest costs, but cannot be applied to pay capital costs incurred before 2018 as per the legislation. Funds cannot be applied to transit operating expenses.

During stakeholder consultation that occurred before the legislation was drafted, there was broad support from local governments and from the development industry for channeling DCC revenues to transit investments. The main reasons for directing the DCC to transit infrastructure are:

- A very large share of the future DCC revenues will come from apartment and townhouse development because this is the type of floorspace that is growing the fastest in Metro Vancouver. This multifamily residential development benefits from transit investment, because transit helps create new development opportunities, adds value, can reduce development costs (by reducing parking requirements), and is used by people who live in higher density locations. If a large share of the revenue will come from multifamily development, it should be used for transit rather than major roads or bridges.
- There are already mechanisms in place for municipalities to levy fees on development for roads. Local government DCCs include a portion to pay for arterial construction and expansion, but they cannot be allocated to transit infrastructure.
- Allocating the revenue to new “green” transportation infrastructure was regarded as making it more likely to garner broad support for the DCC than if it is allocated to the regional road network.
- There was some concern expressed that applying the DCC to relatively local-oriented projects such as cycling or pedestrian works creates a risk that developers could be double-charged if they are expected to pay the DCC and also required by local governments to pay for adjacent street works (which can include pedestrian and cycling components).
- There was also concern that allocating the DCC revenues to a very broad array of projects would make it harder to monitor how the revenue was applied and create the risk that the DCC revenues were simply flowing into an undifferentiated pool of revenues.

For these reasons, in our view DCC revenues should initially be used for transit expansion capital projects identified in the 2017-2026 Phase One Investment Plan and in the 2018-2027 Phase Two Investment Plan. The legislation requires that TransLink specify in the Investment Plans which transit expansion capital projects are expected to be partly funded by the DCC.

7.2 Geographic Area in Which the DCC will be Levied

The legislation allows TransLink to collect the DCC within the boundaries of the transportation service region (Metro Vancouver), except for any lands located outside the jurisdiction of the new legislation.

There are really only two broad options for where to levy the DCC: throughout the entire transportation service region or only in a portion of the region.

The reasons in support of applying the DCC across the entire transportation service region include:

- TransLink plans to make transit investments across the entire region. While the nature of the investments varies from area to area, the total investment program includes new and expanded bus depots, B-Line infrastructure expansion, regional bus priority infrastructure expansion, SeaBus fleet expansion, SkyTrain station upgrades, upgrades to existing SkyTrain lines, and new transit lines such that all areas will see some improvements.
- The geographic distribution of the benefits from new transit investment is different from the geographic distribution of capital expenditures. DCCs are generally regarded as being a means whereby the

benefiters from capital investment contribute revenue. Transit investments yield benefits that are much more widely distributed than the literal location of the expenditure of funds. There are also broadly distributed benefits from transit in the form of reduced road congestion and improved regional air quality.

- Even if the new DCC cannot be applied to buses, the DCC revenues free up funds from other sources to pay for buses in places that are not planned for new rapid transit investments.

There was almost universal support among stakeholders for applying the DCC in the entire transportation service region. Therefore, in our view the DCC should be applied throughout the entire transportation service region except for any lands located outside the jurisdiction of the new legislation (e.g. First Nation Reserves excluding taxing treaty first nations).

7.3 The Kinds of Urban Development that Will Pay the DCC

7.3.1 Land Uses

The legislation allows the DCC to be levied on every person who obtains a subdivision approval or building permit within the transportation service region, meaning that the levy can apply to all types of development other than those that qualify for exemptions or waivers.

All forms of urban development benefit to some extent from (and use) new urban infrastructure. Each major category of land use was considered.

All forms of residential use directly or indirectly benefit from transit. While high density multifamily residential development is an obvious beneficiary of investments in rapid transit, low density areas benefit from improved bus service, reduced road congestion, and improved accessibility to major regional transit-served destinations such as YVR, SFU, UBC, downtown Vancouver, regional city centres, and the VGH precinct.

All employment uses (retail, office, and industrial development) benefit from transit investment that improves access for employees and customers, including high density areas adjacent to rapid transit and low density areas that benefit from reduced road congestion.

Institutional developments (e.g. schools, universities, hospitals) benefit from transit that improves accessibility for employees and users. Because institutional uses generally use already-owned public lands (which is not usually thought of as having a market price), the imposition of a new DCC will result in higher construction costs that cannot be offset by trying to reduce the bid price for land. This could be an argument for exempting institutional use, but local governments and the GVS&DD apply their DCCs to institutional projects.

Agricultural uses are proposed to be exempt, on the grounds that most agriculture does not make significant demands on transit infrastructure.

So, as a general principle, in our view the new regional DCC for transit should be applied to all new urban development projects (residential, retail, office, industrial, and institutional) other than exemptions and waivers described in the following sections.

7.3.2 Required Exemptions

The legislation includes statutory exemptions (i.e. places of worship) and requires that the DCC is not payable if the development does not impose additional capital cost burdens on the authority (e.g. projects that involve demolishing a residential unit or units and replacing them with the same number of residential units do not generate a new capital cost burden).

7.3.3 Small Residential Projects

The legislation indicates that the DCC is not payable on residential projects with fewer than 4 units or on residential units of 29 square metres or less, unless TransLink's bylaw states that the DCC is payable on such projects.

There are two different groups of projects that have to be considered when considering whether to charge the DCC on projects with 3 or fewer units:

1. Small projects that would not pay the DCC because no DCC is payable if the development does not impose additional capital cost burdens. These include:
    - A new single-family dwelling on a vacant lot where the DCC has previously been paid at subdivision.
    - A new single-family dwelling replacing a demolished single-family dwelling.
    - A new duplex, triplex, or small row or townhouse project of 3 units replacing the same number of demolished units.
2. Small projects or accessory dwelling units that could be eligible to pay the DCC because they add net new units that impose additional capital cost burdens. These include:
    - A new duplex, triplex, or small row or townhouse project of 3 units that adds net new unit(s).
    - A new single-family dwelling replacing a demolished unit but also adding a secondary suite and/or laneway house.
    - A new secondary suite and/or laneway house added to an existing single-family house.

The first category listed above is automatically excluded from the DCC as noted in Section 7.3.2. The second category above is at TransLink's discretion, so TransLink has three options:

- Exempt all projects with 3 or fewer units (including duplex, triplex, small row and townhouse projects, laneway houses, and secondary suites). This would match many municipalities[18], but not the GVS&DD.
- Charge the DCC on duplex, triplex, and small row and townhouse projects but exempt secondary suites and laneway houses. This would match the GVS&DD, but would differ from many municipalities.
- Charge the DCC on all net new units.

In deciding whether to charge the DCC on the second category of small projects, the following factors should be considered:

1. **Permitting**. All of the uses listed in category 2 above require a building permit so it would be possible to collect the DCC at permit application. However, some secondary suites are created without permitting and an unintended side effect of charging the DCC on secondary suites could be to increase the risk that more secondary suites in existing houses are created without a permit.
2. **Occupancy**. It is possible that secondary suites and laneway houses are occupied by family members that, if not for the accessory unit, would otherwise live in the principal dwelling (i.e. the single-family

[18] For example, the DCC Bylaws for Anmore, Burnaby, Delta, Langley City, Langley Township, Maple Ridge, City of North Vancouver, District of North Vancouver, Port Coquitlam, and West Vancouver either state that the DCC is not payable on projects with fewer than 4 units or are silent on the applicability of the DCC to projects with fewer than 4 units meaning that the provisions of the legislation apply (i.e. projects with fewer than 4 units are exempt). The DCC Bylaws of Coquitlam, New Westminster, Pitt Meadows, Port Moody, Richmond, Surrey, and Vancouver state that the DCC applies to projects with fewer than 4 units.

house). In theory, therefore, some secondary suites and laneway houses may not create an additional capital cost burden for TransLink if the same number of people live on the property even if there is an accessory dwelling. There is no data on extended family versus unrelated tenancy.

3. **Consistency**. Many municipalities in Metro Vancouver do not charge municipal DCCs on duplex, triplex, 3 unit row or townhouse projects, secondary suites, or laneway houses. The GVS&DD charges the regional sewer DCC on duplex, triplex, and small row and townhouse projects but exempts laneway houses and secondary suites. On the whole, being consistent with the GVS&DD makes it easier for collection entities to administer the TransLink DCC.
4. **Fairness**. All households enjoy the benefits associated with the regional transit system, so in principle it is fair and equitable to charge the DCC on all net new units regardless of physical form or tenure.
5. **Financial implications of exempting secondary suites and laneway houses**. The development forecast underlying the DCC revenue forecast includes about 1,500 new secondary suites and laneway houses per year (see Section 9.1 for more detail). The magnitude of the DCC revenues from exempting secondary suites and laneway houses can be estimated by assuming these units would pay the proposed apartment DCC rate of $1,200 per unit in 2020 and $1,545 per unit in 2021 to 2027 (uninflated$), which works out to an average annual revenue of about $2.2 million.[19] Taking into consideration that the proposed rates are set to meet an overall average revenue target of $29 million per year (uninflated$), the revenues that would be generated by charging secondary suites and laneway houses (as the revenue forecasts assume that these units are exempt) would give TransLink room to reduce the proposed residential rates on apartment units and other residential unit types by about 9%.[20]
6. **Financial implications of exempting small projects**. The development forecast underlying the DCC revenue forecast includes about 400 net new duplex units per year and 2,600 net new row/townhouse units per year (see Section 9.1 for more detail). Assuming that almost all row/townhouse projects are 4 units or more and that there are relatively few net new triplex units suggests that small projects of 3 or fewer units will average about 400 net new units per year. The magnitude of the DCC revenues from exempting residential units in projects of 3 or fewer units can be estimated by assuming these units would pay the proposed duplex DCC rate of $1,900 per unit in 2020 and $2,470 per unit in 2021 to 2027 (uninflated$), which works out to an average annual revenue of about $960,000.[21] Taking into consideration that the proposed rates are set to meet an overall average revenue target of $29 million per year (uninflated$), the revenues that would "lost" by exempting duplex, triplex, and 3 unit row/townhouse projects (as the revenue forecasts assume that these units will pay) would necessitate increasing the proposed residential rates by about 4%.[22]

Based on an overall desire to be consistent with the GVS&DD for ease of administration for collection entities and to avoid possible disincentives to single-family homeowners willing to add secondary suites or laneway houses to existing houses, in our view in the initial DCC Rate bylaw TransLink should charge the DCC on duplex, triplex, and all row and townhouse projects but exempt secondary suites and laneway houses. This direction was confirmed by the Joint Finance Committee in June 2018.

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19 Calculated as 1,500 units x 1 year x $1,200 per unit plus 1,500 units x 7 years x $1,545 per unit, divided by 8 years.

20 This would reduce the 2021 single family DCC rate from $2,975 per unit to $2,710; the 2021 duplex and row/townhouse DCC rate from $2,470 per unit to $2,250; and the 2021 apartment DCC rate from $1,545 per unit to $1,405.

21 Calculated as 400 units x 1 year x $1,900 per unit plus 400 units x 7 years x $2,470 per unit, divided by 8 years.

22 This would increase the 2021 single family DCC rate from $2,975 per unit to $3,100; the 2021 duplex, triplex, townhouse DCC rate from $2,470 per unit to $2,570; and the 2021 apartment DCC rate from $1,545 per unit to $1,610.

In the longer term, though, in our view all agencies (i.e. TransLink, the GVS&DD, and municipalities that do not already do so) should consider charging all net new units because they create infrastructure demand. The one possible exception could be exempting new suites or laneway houses added to an existing house, so as not to add a disincentive for homeowners wanting to add unit(s).

7.3.4 Affordable Rental Housing

Similar to other DCC legislation in BC, the legislation passed by the Province regarding the TransLink DCC indicates that the DCC can be waived or reduced at TransLink's discretion for "eligible developments", which can include:

- Not-for-profit rental housing.
- For-profit affordable rental housing.
- A subdivision of small lots that is designed to result in low greenhouse gas emissions.
- A development that is designed to result in a low environmental impact.

TransLink is aware that new rental housing, even at market rents, faces financial challenges across the region due to high land values (which are driven by strata title market values) and high construction costs, especially for high density projects that require concrete construction, so it proposes to waive the DCC on affordable rental housing projects.

Across Metro Vancouver, local governments vary in the application of DCCs to rental and affordable housing projects. The GVS&DD regional sewer levy is governed by two bylaws: a main bylaw that was recently updated[23] and a new affordable housing waiver bylaw that was recently adopted.[24]

For consistency and ease of implementation, in our view TransLink should align its definition of affordable housing that will qualify for the waiver with the GVS&DD definition (with the possible exception noted in Section 7.3.5 to follow). The GVS&DD affordable housing waiver applies to:

- Not-for-profit rental housing that is owned, leased, or otherwise held by:
    - BC Housing.
    - CMHC.
    - Non-for-profit societies.
    - Non-profit municipal housing corporations.
    - Registered charities.
- All dwelling units in a development if at least 30% of the units are to be occupied by households with incomes below HILS (housing income limits) as published by BC Housing or an equivalent or, if less than

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[23] *Greater Vancouver Sewerage and Drainage District (GVS&DD) Development Cost Charge (DCC) Bylaw 254, 2010*, which was last updated by *Greater Vancouver Sewerage and Drainage District Development Cost Charge Amending Bylaw No. 305, 2017*, adopted February 23, 2018 and effective May 1, 2018.

[24] Metro Vancouver has had a DCC waiver for affordable housing projects since 2010, but as part of updating its DCC rates and bylaw over the past year, it decided to remove its affordable housing waiver language from its main bylaw and produce a separate bylaw to help better define projects that qualify for the waiver and make it easier to implement and update. On May 25, 2018, the GVS&DD Board adopted the *Greater Vancouver Sewerage and Drainage District Development Cost Charge Waiver for Affordable Housing Bylaw No. 314, 2018* which is effective as of June 1, 2018.

30% of the units meet the criteria, only to the units that meet the income limits. Dwelling units are defined as “one or more rooms comprising a self-contained unit that is used or intended to be used for living and sleeping purposes and for which are provided cooking facilities or the facilities for installation of cooking facilities, and one or more bathroom sharing a sink or wash-basin, a water closet, and a shower or bath”.

7.3.5 Student Housing

There is not a statutory exemption for student housing in DCC legislation, and local governments in Metro Vancouver (including the GVS&DD) have not previously adopted bylaws that would waive DCCs for student housing. However, the DCC legislation exempts projects in which each dwelling unit is under 29 square metres (312.153 square feet), so in practice a portion of new student housing would be exempt if unit size is calculated based on net bedroom area not including the large common areas usually found in student residences.

There is increasing interest on the part of post-secondary educational institutions in building more on-campus housing, in part as a response to market conditions for rental housing and in part because the Province has signaled that it plans to provide funding and policy in support of the creation of student housing. Educational institutions have expressed concern about DCCs increasing the cost of new student housing, which is generally built without any profit and without including any land value. Added costs increase the rent rate required to break even. Accordingly, post-secondary educational institutions have expressed a desire to have an explicit exemption from TransLink and GVS&DD DCCs.

Given this context, both GVS&DD and TransLink are exploring the possibility and implications of waiving or reducing DCCs on student housing.

There are several arguments in favour of not charging the transportation DCC on new student housing:

- While public post-secondary educational institutions are not registered charities or registered not-for-profit societies, they are operated as non-profit-making entities.
- Student housing projects tend to be rented at the lowest feasible rent (to recover capital and operating costs) and generally only work financially because the land is put in for free. A DCC adds to construction cost in this context (i.e. does not come out of land value), so it puts upward pressure on break-even rent.
- Student housing projects also must typically recover all project costs through rents based on 8-months of rental tenure to align with the academic calendar year, as opposed to 12-month rents. They are not occupied full-time, even if units are partly used during summer months to accommodate conference attendees or visitors.
- The Province’s aim in facilitating new student housing projects is to take some pressure off the rental housing market in order to increase affordability, so it is good policy to maximize the amount of new on-campus housing by finding ways to minimize cost.
- On-campus student housing presumably helps reduce transportation demand, so has less impact on transit infrastructure than if the units had to be provided in non-campus locations.
- Student housing has not been factored into the development forecast underlying the forecast of total TransLink DCC revenues, so not charging the DCC on student housing will not impact the DCC revenue forecast.

On the other hand, there are two arguments in favour of charging DCCs on new student housing:

- New units put some load on infrastructure.

- Student housing units are not rented based on income thresholds and are not bound to maintain rents at a deemed affordable rent.

On balance, in our view there is a compelling rationale for exempting student housing, that is owned and operated by public post-secondary institutions from DCCs.

Metro Vancouver is engaging in consultation with the post-secondary institutions regarding DCCs during the second half of 2018. TransLink intends to await the outcome of the Metro Vancouver consultation process before making its final decision regarding the content of the TransLink DCC affordable housing waiver bylaw.

7.4 Uniform Rates Across the Whole Region versus Different Rates In Different Areas

This is the most challenging policy choice that had to be addressed in the design of the new DCC.

There are two general options for rate-setting for any given use:

- Each type of use pays the same rate everywhere in the region. In this approach there would be separate rates for single detached dwellings, townhouses, apartments, retail, office, industrial, and institutional use and these rates would be the same everywhere in the Metro Vancouver service area. This approach is generally referred to as “uniform” rates.
- The rates for each use vary across the region, in accordance with defined boundaries based on a rationale for why the rates should vary. This approach is generally referred to as “tiered” rates.

The main arguments in favour of uniform rates are:

- The Phase One and Phase Two Investment Plans include transit expansion benefits that are broadly distributed across the region.
- The whole region benefits from new investments in transit, even if the capital expenditures are not uniformly distributed. The benefits of a new transit investment (e.g. a new rapid transit line) extend much more widely than the location where the investment is made, and a uniform rate structure reflects this broad distribution of benefits.
- New development benefits not only directly from improved transit but also indirectly from reduced road congestion.
- There could be local political pressure to spend funds where they have been raised. The implication would be that transit capital investments might have to be managed so as to appear to be distributed commensurately with the DCC collections, without reference to regional priorities and the actual distribution of benefits.
- Uniform rates avoid the need to draw boundaries for tiered rates. Drawing justifiable boundaries will (based on discussions with stakeholders) be contentious because there are very different perceptions about the appropriate basis for varying rates: should they be based on the distribution of investment, distribution of benefits, different levels of transit service, ability to absorb the cost, ridership levels, or some combination?

One disadvantage of a uniform rate structure is that the rate for each type of development must be viable across the entire region, meaning that the rates must be set with regard to market conditions in the areas with lowest property values. A positive byproduct of this requirement is that there is no suggestion that the DCC rates are set based on variable ability to pay. In other words, this approach is clearly not a tax on value.

Of course, this has a downside in terms of revenue potential, because it does not take advantage of the ability of some submarkets to pay higher DCCs.

The main arguments in favour of tiered rates are:

- Depending on the basis for drawing boundaries, the DCC rate can be linked to where capital investments are being made. This can appeal to communities that perceive that they are receiving proportionately less investment (or benefit) than others.
- DCC rates can (from a financial perspective) be higher in areas that can absorb higher cost, although this tends to make the DCC appear more like a tax on value than a cost recovery mechanism.

Almost all stakeholders in the development industry expressed a preference for uniform rates. Local government stakeholders were mixed, with support for uniform rates expressed mainly by municipalities likely to have higher rates in a tiered system and support for tiered rates expressed mainly by municipalities that assumed they would have lower rates in a tiered system.

The preliminary technical analysis included testing of some alternatives that used tiered rates. This analysis is summarized in Appendix D. The main results of the preliminary testing were that (a) it was clear from meetings with stakeholders that obtaining universal agreement on the appropriate boundaries of sub-areas was not likely achievable and (b) in the outlying (lower land value) areas, the differences between what the rates would be in a uniform system versus what the rates would be in a tiered system are not large enough to have material benefits for development economics in the lower transit service tier area.

Consequently, in our view, in the initial bylaw TransLink should charge uniform rates by type of development across the region.

7.5 Basis for the Charge

The legislation does not prescribe the basis of the charge, so it allows flexibility to charge by floor area or (for housing) by unit.

For residential DCCs, some municipalities charge by unit (with different rates for different types of units) and some charge by floor area. Charging by floor area implies a connection between unit size and the demands placed on infrastructure, if it is assumed that unit size is a surrogate for household size. However, several Metro Vancouver municipalities and the GVS&DD charge residential DCCs by residential unit (with different rates for apartment, townhouse, and single detached units). For ease of administration, in our view TransLink should charge residential development on a per residential unit basis.

Differences in household size (as an indicator of use or benefit) can be captured by setting different rates by type of dwelling, but charging per unit cannot account for differences in household size within unit types. Charging a flat rate for single detached units probably does not introduce much distortion, as these tend to be larger households, but charging a flat rate for apartment units means that a studio unit (often occupied by one person) and a 3 bedroom unit (often occupied by 2 or 3 people) pay the same. TransLink could revisit charging residential uses based on floor area in the future.

For office, retail, and institutional use, DCCs are typically charged on a floor area basis, which is reasonable because floor area is a good indicator of total employment. In our view, the TransLink DCC should be based on floor area for these uses.

Industrial DCCs in Metro Vancouver are charged on a floor area basis in some municipalities and a site area basis in others. Using site area makes sense for forms of infrastructure that are affected by total land area in industrial use (e.g. storm drainage volumes are affected by total paved area not just floor area; road use is affected by total site area for uses that involve distribution by truck of materials kept in outdoor storage areas).

Transit load is more linked to employment than goods movement, though, so in our view the TransLink DCC for industrial use should be based on floor area.

7.6 Time of Collection

The legislation states that the TransLink DCC is payable by every person who obtains approval of a subdivision or building permit authorizing the construction, alteration, or extension of a building or structure within the transportation service region.

This matches the Greater Vancouver Sewerage and Drainage District (GVS&DD) bylaw. Collection entities (member municipalities in the case of the GVS&DD) collect the GVS&DD DCC either at the same time as any municipal charges are levied or, if no municipal charges are levied, prior to the issuance of approval of the subdivision or issuance of approval of the building permit.

Most municipalities in the region have DCC bylaws with the same approach – the municipal charges must be paid by every person who obtains approval of a subdivision or a building permit, prior to subdivision approval or building permit issuance. Many municipalities charge municipal levies at subdivision for single family lots and at building permit for other uses, but some charge at subdivision for both single family lots and industrial lots.

While TransLink could charge all of the DCC rates at building permit, in our view it should charge the single detached DCC rate at subdivision[25] and all other DCC rates at building permit for the following reasons:

- Consistency with the legislation that enables the TransLink DCC.
- Consistency with the GVS&DD and municipalities for when their DCCs are collected.
- Charging single family units at subdivision avoids any question as to whether a new single detached home on a new lot should be exempt under the fewer than 4 units exemption.
- All other uses pay based on number of units or gross floor area, which is not determined at subdivision but at the time of application for building permit.

As with the GVS&DD DCC, collection entities (which, in TransLink's case, includes municipalities in Metro Vancouver, Metro Vancouver for electoral areas, and UBC) should levy the DCC at the same time as collecting municipal charges and the GVS&DD DCC and remit funds to TransLink on a regular basis (e.g. two times per year as with the GVS&DD DCC).

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25 In the case of a single family lot that is subdivided before collections of the new DCC commence and then a building permit is issued after the new DCC takes effect, the legislation (Bill 33, Section 34.23(2)) states that the DCC is not payable if a DCC has previously been paid for the same development unless "further development" (which could mean the construction of the house) imposes a new capital burden (i.e. a load on the regional transportation system). The position could be taken that a previously paid municipal DCC for water, sewer, etc on a lot does not eliminate the validity of charging a new DCC for an entirely new purpose (transit infrastructure) at issuance of the building permit for the house, but pragmatically there will not be many of these situations and, for ease of administrative consistency with other DCCs, in our view TransLink should only collect single family DCCs at subdivision approval.

7.7 Inflationary Adjustments

In June 2018, the Province passed a regulation (*Ministerial Order No. M 231*) that allows TransLink to make inflationary adjustments for up to 4 years[26] without approval from the Inspector of Municipalities (see Appendix C). The regulation states that TransLink's development cost charge amendment bylaw is exempt from needing approval of the Inspector of Municipalities if the bylaw changes one or more of the DCC rates once in a 12 month period after the date of adoption of the bylaw and if the change does not exceed the Vancouver Consumer Price Index (CPI). Under the *Local Government Act*, municipalities in Metro Vancouver have this same authority under the *Development Cost Charge Amendment Bylaw Approval Exemption Regulation (Reg No. 130/2010).*

A small number of local governments in Metro Vancouver update their DCC rates annually based on the Vancouver CPI, but the typical approach to adjusting DCCs is to leave the rates in place for several years and then adjust them to take into account updated capital investment plans and inflation on costs. This approach often results in relatively large increases in the year of adjustment. Because of the impact of DCCs on the land market for development sites, large infrequent increases can make it difficult for the market to adjust.

The City of Vancouver (governed by the *Vancouver Charter* not the *Local Government Act*) has a Council-adopted policy regarding annual inflationary adjustments to the City's DCL rates. It uses an inflationary index that is based on a blend of property value inflation (the change in BC Assessment net property value[27] for all for all land classes and assessment areas in the City of Vancouver) and construction cost inflation (Statistics Canada Non-Residential construction price index for Vancouver). The inflationary indicators are available in March (BC Assessment data) and May (Statistics Canada data), are combined in June to produce an overall inflationary adjustment (based on the ratio of property acquisition and non-residential construction costs in the City's public benefits strategy), staff produce a report to Council in July outlining the inflationary adjustment and recommended new rates, and the new rates (if adopted by Council) come into effect September 30 each year.

In our view, TransLink should make regular adjustments for inflation based on a standard published index, so that increases happen on the same annual cycle all the time and are somewhat predictable. There was stakeholder support for an automatic inflation adjustment.

Using the Vancouver CPI as the basis for TransLink's DCC annual inflationary adjustments would be administratively simple, as TransLink could make these adjustments for up to 4 years without needing approval of the Inspector of Municipalities. However, the Vancouver CPI is a general inflationary index that measures the rate of price change for goods and services bought by Vancouver consumers. It is based on about 600 goods and services that are consumer items with a retail price, ranging from "ground beef to hair cuts and from spark plugs to property taxes."[28] The Vancouver CPI does not reflect inflation on transit infrastructure costs, which is what the DCC revenues will fund.

Because the TransLink DCC will fund transit expansion capital costs, in our view it makes sense to use an index that reflects changes in construction costs not general inflation. This would, however, require approval from the Inspector of Municipalities each year.

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26 The regulation states that TransLink may make use of the exemption for approval once a year for up to four years from the date of the adoption of a DCC bylaw approved by the Inspector of Municipalities or the date of adoption of a DCC amendment bylaw approved by the Inspector of Municipalities.

27 This is customized to net out changes in land value associated with rezoning.

28 Statistics Canada, "Your Guide to the Consumer Price Index." Catalogue No. 62-557-XPB. 1996, Page 5.

One available index is the Statistics Canada Non-Residential Building Construction Price Index for the Vancouver CMA (which the City of Vancouver uses as part of its DCC inflationary adjustments).[29] The Statistics Canada Non-Residential Building Construction Price Index is a quarterly series that measures changes in contractors' selling prices for new non-residential buildings in several Census Metropolitan Areas across the country including the Vancouver CMA. Contractors' selling prices includes the cost of materials, labour and equipment, provincial sales taxes if applicable, and contractors overhead and profit, but does not include land, land assembly, design and development, real estate fees, or GST. The index is published for each building type (commercial, institutional, and industrial where industrial was recently amended to include a transit building) and for the three building types combined (non-residential).[30] The index is generally released within 2 months of the end of each quarter. For example, the Q1 2018 figures were released in May 2018. Using an index such as this (either the overall non-residential category or a component of the index) or a customized[31] transit infrastructure construction cost index from Statistics Canada would better reflect inflation on TransLink's DCC expenditures than the Vancouver CPI.

7.8 Transparency and Accountability

There are mechanisms in place in existing legislation to ensure that municipal DCC systems are transparent and that municipalities are accountable. These include:

- DCC rates must be adopted by bylaw by Councils, who are directly responsible to the electorate.
- The approval of the Inspector of Municipalities is required.
- Local governments are required to take into consideration impact on land use patterns and may consider whether the DCC will deter development or discourage the construction of reasonably priced housing or reasonably priced land.
- Local governments must make available to the public the considerations, information, and calculations used to determine DCC rates.
- DCC revenues must be deposited in separate reserve funds for each type of DCC.
- Local governments must prepare an annual report on the amount of DCCs collected, expenditures of the funds, and the balance on hand in the reserve funds. This report must be available to the public.

TransLink's new DCC structure will necessarily be somewhat different:

- TransLink's Directors and the Mayors' Council are not directly responsible to the electorate in the same way a municipal Council is. However, TransLink is required to consult with stakeholders and the public on its Investment Plans (which must set out funding sources).

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29 Statistics Canada, Table 18-10-0135-01. Note that as of the first quarter of 2018, the index was revised to reflect newer construction technologies and materials, to add a new transit building index to increase coverage of building construction in the industrial sector, and to set the index to 2017=100 (instead of the former version which was indexed as 2002=100).

30 The commercial category takes into account materials, labour and equipment, provincial sales taxes if applicable, and contractors' overhead and profit for constructing an office building, warehouse, and shopping centre; the institutional category is for a school; and the industrial category is for a factory and a bus depot with maintenance and repairs facilities.

31 For example, the City of Ottawa contracts Statistics Canada to produce a custom Infrastructure Construction Price Index measuring annual changes in the cost of municipal infrastructure construction projects funded by development charges and completed by the City.

- TransLink's approach to setting DCC rates is based on a target for revenue generation that will contribute a portion of capital costs for transit projects in 10-Year Investment Plans rather than being driven by a specific set of capital costs that will be funded by the DCC. This makes sense in that TransLink's total capital budget is far in excess of what could be raised by DCCs, but it raises the question of what constrains TransLink in the setting of the revenue target for DCCs.

For these reasons, stakeholders expressed the desire for transparency, accountability, stakeholder consultation, and full disclosure in the setting of rates, the use of the funds, and reporting on the status of DCC funds.

Some stakeholders advocated including specific constraints, such as limiting the amount of increases in DCC rates or setting a maximum percentage of total capital budget or maximum share of the regional funding for an Investment Plan that can be paid by DCCs. In our view, TransLink should be reluctant to hard-wire in a cap on the revenue potential in dollar terms or percentage terms for two main reasons. First, over the long term the revenue from various TransLink sources (e.g. senior government contributions, revenues from fuel tax, the potential shift to road pricing and so on) is hard to predict. TransLink may face crucial funding gaps and it may be necessary to have the flexibility to consider higher revenue shares from some sources, provided there are no significant impacts. Second, over the long term the total amount of urban development that occurs in the region each year is likely to increase. DCC revenues should rise commensurately, due to more growth, not higher rates, so having a cap on revenue regardless of the amount of development that is occurring (when more development would mean increased transit demand) seems counter-intuitive.

TransLink should commit to using other means to create checks and balances on future rate setting. The legislation requires that:

- Any changes in DCC rates must be set out by bylaw and through an Investment Plan, so there is a requirement for public and stakeholder discussion prior to the change.
- TransLink must report annually on the amount of DCC revenue collected, expenditures of DCC moneys, balance held in the DCC reserve account, and waivers or exemptions that have been granted.
- TransLink must consider certain factors when setting DCC rates, notably whether the charges are excessive in relation to the capital cost of prevailing standards of service in the transportation service region, and whether the charges would discourage the construction of reasonably priced housing.
- TransLink must provide information about the considerations, information, and calculations used to determine the DCC rates to collection entities and make this available to the public.
- TransLink's Investment Plans must set out for each year in the Investment Plan the amount of DCC revenue anticipated to be collected, the eligible projects to be funded, and the expected expenditures on such projects.
- The Inspector of Municipalities must approve the DCC Rate bylaw before adoption by the TransLink Board.

In addition, TransLink's existing legislation requires public and stakeholder consultation every time it adopts a new Investment Plan, so there will be transparency regarding proposed capital investment projects and the intended application of DCC revenues to these projects.

TransLink could also consider having annual consultation with stakeholders to discuss the amount of DCC revenue collected, expenditures of DCC moneys, and proposed inflationary adjustments or other refinements.

7.9 Monitoring and Adjusting

The DCC bylaw will contain an initial set of DCC rates for residential, office, retail, industrial, and institutional development. These rates have been set to achieve two main objectives:

1. Keep the DCC rate at a level that is not likely to have a negative impact on the pace of new urban development or the financial viability of new urban development, in order to ensure that the DCC does not have a negative impact on supply or affordability.
2. Generate about $29 million per year over during 2020 to 2027, based on the assumed expansion capital investment in the Phase One and Phase Two Investment Plans.

These objectives give rise to three potential kinds of monitoring and adjustment:

- The first objective requires monitoring to see if the DCC is having any undesirable impacts on the pace or distribution of urban development or any negative impacts on affordability.
- The second objective requires monitoring the actual DCC revenues collected; if the collections are significantly more or less than $29 million, there may need to be adjustments to rates, waivers, capital investment plans, debt repayment, or other elements of the transportation strategy.
- The second objective also requires monitoring the actual expenditures on infrastructure; if costs are lower or higher than anticipated, borrowing rates change, or capital projects are added or removed from the investment plan, there may be a need to adjust the system to yield more or less revenue.

The following sections set out some suggestions for how, in our view, TransLink should monitor the DCC program and the kinds of adjustments it could consider if the actual DCC revenue results turn out to be persistently and significantly different than the forecast.

7.9.1 Monitoring Market Impacts

The TransLink DCC rates are calibrated to try to ensure that they will not cause impacts on the pace of development, project viability, or the affordability of housing, taking into account known municipal and regional sewer DCCs and current market conditions.

Starting immediately, TransLink should commence monitoring key indicators of market conditions:

- The pace of new urban development (residential, retail, office, industrial, institutional) in the region.
- The geographic distribution of new urban development in the region.
- The number of new multifamily units that qualify for the affordable housing waiver.
- Changes in the DCC rates charged by local governments and the GVS&DD.
- Input from the development industry regarding market conditions and project viability.
- Indicators of housing prices (e.g. index material published by real estate institutions).

In our view, this monitoring activity should be shared by TransLink and GVS&DD and should include GVS&DD documenting the total number of units or floorspace by type that pays the regional sewer levy each year as well as the number of units that qualify for the GVS&DD DCC affordable housing waiver.

Based on these indicators, four questions should be addressed:

1. Is the pace of development (by type) materially lower than anticipated?
2. Are prices (particularly housing prices) rising faster than the rate of inflation?

3. If either or both of these conditions are true, does it appear likely that rising costs are contributing to the problem?
4. If rising costs appear to be an important consideration, is the TransLink DCC large enough to be a concern?

Keeping in mind that the proposed TransLink DCC rates are generally lower than the GVS&DD DCC rates and lower than most municipal DCC rates across Metro Vancouver, it is highly unlikely that the answer to the fourth question above would be affirmative because the TransLink DCC *on its own* is not large enough to cause any market impacts. If rising costs are a concern that can be shown to be impairing project viability, leading to a lower pace of development, it is likely that other items are the problem (e.g. hard construction cost, cumulative other DCCs, other soft costs). If there is a need to address costs, it would be inappropriate for TransLink to reduce its DCC rates if no other steps are being taken by others to reduce development cost charges or other fees. Any adjustments should be collaborative and reflect the combined load of all DCCs and other charges, not just the TransLink DCC.

7.9.2 Monitoring DCC Revenues

Based on the 2017-2026 Phase One Investment Plan and the 2018-2027 Phase Two Investment Plan, the DCC framework has been targeted to deliver about $29 million dollars per year (uninflated$) *on average* during the period from when collections commence (2020) to when the Phase Two Investment Plan is completed (2027). The pace of development in Metro Vancouver tends to fluctuate over time for a variety of reasons (e.g. population growth rate; employment growth rate; investment levels; provincial, national, and international economic conditions; interest rates; and government policy). Over the last 10 years for example, the pace of apartment development (net of demolitions) in the region has ranged from a low of about 2,200 apartment units in 2009 to a high of about 16,300 apartment units in 2016.

Such fluctuations are likely to continue, so it is probable that DCC revenues in any one year will be more or less than the target average of $29 million.

TransLink's challenge in monitoring actual DCC revenues will be to distinguish between "normal" annual variance that will likely yield the total target revenue over the long term versus persistent variance that will result in significantly less or more revenue than anticipated over a multi-year period.

The indicators to be monitored should include actual TransLink DCC revenues plus those listed in Section 7.9.1 above.

The most important trend for TransLink to monitor is actual DCC revenues to detect any material variance between actual DCC revenues and the forecast, particularly if the variance persists over several years. If there is a difference, TransLink will need to understand why, so that it can identify whether any of the following have occurred:

- A significant and persistent difference between the actual pace of development (by type) and the forecast average pace of development.
- A significant and persistent difference between the actual share and assumed share of new residential development that qualifies for the affordable housing waiver.
- A significant change in the share of regional development that is occurring on lands within the transportation service region but not in the DCC collection area (which is not likely, considering the small share of the regional developable land base in areas that may be excluded in the DCC bylaw).

"Significant and persistent variance" will be challenging to confirm because of normal market fluctuation. TransLink should not over-react to one or two years of lower or higher revenues which could be offset by future fluctuations. Within the last decade, the annual pace of apartment development has varied by a factor of seven (comparing the lowest to the highest years).

In our view, the following guidelines should be used for detecting variances that could require action in the first 5 years after collections commence:

- If total DCC revenue is below 90% of the target in 2020, TransLink should assess whether this appears to be an early warning of a possible ongoing deficit.
- If total DCC revenues over the first 3-year period (2020 to 2022) average more than 25% above or below the target, adjustments may be warranted.
- If total DCC revenues over the first 5-year period (2020 to 2024) average more than 20% above or below the target, adjustments may be warranted.

If TransLink determines that it is likely to collect significantly *more* revenue than planned over the course of an Investment Plan, it should make an adjustment. There are several possible responses:

- Postpone inflationary adjustments.
- Accelerate capital investment funded by the DCC (if there is no evidence that the DCC rates are too high and causing affordability problems).
- Accelerate debt repayment for projects funded by the DCC.
- Take the increased revenue into account when setting DCC rates as part of the next Investment Plan.
- Expand the definition of projects that qualify for the affordable housing waiver, if there is evidence that DCCs are making it difficult to create new affordable rental units.
- Reduce the DCC rates.

The right response will depend on the size of the variance and the ongoing market monitoring. The main point is that a “surplus” of DCC revenue should not automatically lead to a reduction in DCC rates if there is no evidence that the rates are having a negative effect.

If TransLink determines that it is likely to collect significantly *less* revenue than planned over the course of an Investment Plan, it should make an adjustment. There are several possible responses:

- Increase the DCC rates.
- Narrow the definition of projects that qualify for the affordable housing waiver or reduce the amount of the waiver.
- Spread the capital investment funded by the DCC over a longer time frame.
- Reduce the capital investment plan for projects funded by the DCC.
- Spread debt repayment for projects funded by the DCC over a longer timeframe.
- Increase revenues from other sources.
- Identify new revenue sources.

The right response will depend on the size of the variance and ongoing market monitoring. If the cause of the deficit is slower market activity, increasing DCC rates could exacerbate the problem.

7.9.3 Monitoring Infrastructure Expenditures

DCC revenues may be on target but capital expenditures could be lower or higher than anticipated, leading to questions about whether TransLink's DCC revenue target is appropriate.

Costs could increase because of inflation, rising interest rates, faster construction schedule, adding projects, or discovering that initial cost estimates were too low. Higher costs should not lead to automatic DCC increases but should trigger consideration of a range of options:

- Slowing the pace of investment by postponing projects.
- Increasing DCC rates (if supported by market conditions and after stakeholder consultation).
- Increasing other revenues sources or tapping new revenue sources.

Similarly, if costs are lower than expected, TransLink should not automatically reduce DCCs but should consider a range of options:

- Not adjusting DCCs for inflation in a given year.
- Accelerating construction or debt repayment.
- Adding projects.
- Reducing some other revenue sources.

It is also possible that future Investment Plans could include additional transit expansion capital projects. At the time of producing new Investment Plans, TransLink should consider whether the DCC should fund a portion of any additional transit expansion capital projects and, if so, the relative share to be funded by the DCC versus other funding sources.

8.0 DCC Rates

8.1 Draft DCC Rates (Now Superceded) as of December 2017 and Reasons for Refinement

As part of the funding strategy in the Phase One Investment Plan approved by the Mayors' Council and TransLink Board in November 2016, the Mayors' Council initially set a proposed target of about $20 million per year (uninflated$) from the DCC to help pay for transit capital expansion projects in the Phase One Investment Plan. Exhibit 1 shows the draft DCC rates that were proposed in December 2017[32] and communicated to stakeholders, which were based on:

- The initial average annual DCC revenue target of about $20 million per year from the Phase One Investment Plan.
- The objective of setting the DCC rates to minimize the risk that the DCC could result in a reduced pace of development, reduced viability of new development, or increased prices for housing or employment space.
- A decision to set uniform rates by type of development across the region (which constrains the rates by the ability to pay at the low end of the regional market).

Appendix E summarizes the approach to setting the December 2017 draft rates. At that time, the enabling legislation had not yet been drafted or passed by the Provincial government.

Exhibit 1: Draft Proposed TransLink DCC Rates for 2020 as of December 2017

	Uniform Rates Throughout Region
Single family	$2,100 per unit
Townhouse	$1,900 per unit
Apartment	$1,200 per unit
Retail/service	$1.00 per sq.ft.
Office	$0.50 per sq.ft.
Institutional	$0.50 per sq.ft.
Industrial	$0.50 per sq.ft.

Local government stakeholders did not express any significant concerns about the December 2017 draft proposed rates (except for those with a continued preference for a tiered rate system, who argued the rates should be lower in the outer communities).

The development industry generally did not express significant concerns about the December 2017 draft residential rates (from a strata residential perspective), although a few expressed the view that the residential rates should be higher for apartment units (many of which will benefit more directly from transit) and lower for the lower density housing forms. A few expressed the view that the draft industrial rate was too high, because of the land value challenges faced by industry in this region.

At the same time as work was being done on the proposed DCC rates, work was being done on the total forecasted pace of development by land use in the region and the share of development for which the DCC might be waived. Because the work on the rates and the updated development forecast was being done at

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32 As documented in the November 2017 draft DCC Framework and in the draft technical report (Coriolis Consulting Corp., *"A Regional DCC for Transit Infrastructure: Proposed Structure and Rates."* December 2017, Draft for Discussion Purposes).

the same time, when the end results of both pieces of work were combined they produced a forecasted average annual revenue stream that was higher than the $20 million per year target (i.e. the result was about $23.5 million per year on average in uninflated$).

In March 2018, the Mayors' Council directed that additional revenue be generated from the DCC to contribute to the capital costs of projects in the Phase Two Investment Plan (2018-2027), resulting in a new revenue target of $29 million per year (uninflated$) for the DCC. Even without the revised revenue target, the DCC rates needed to be revisited before finalizing the rates to reflect changes in market conditions since the initial analysis, to assess the effect of new provincial property taxes introduced after the initial analysis was completed, and to address stakeholder comments on the industrial rate.

8.2 Revised Revenue Target

It was necessary to consider revisions to the December 2017 draft rates to meet the revised DCC revenue target of about $29 million per year on average (uninflated$). TransLink consulted with stakeholders on three[33] main alternatives for adjusting the proposed DCC residential rates to achieve the new revenue targets:

- Increasing the DCC rates starting in 2020 (see Option 1 in Exhibit 2).
- Starting collections in mid-2019 instead of 2020 (see Option 2 in Exhibit 2).
- Stagger the increase over initial years (three iterations were considered: see Options 3, 4, 5 in Exhibit 2).

The development industry expressed a preference for keeping the rates for 2020 as previously communicated and increasing the 2021 rates as needed to achieve the revenue target (i.e. Option 3 in Exhibit 2), to give developers the balance of 2018, 2019, and 2020 to factor the higher DCC rates into their land acquisition and development cycles. The Joint Finance Committee confirmed the direction to use a staggered approach along these lines at its meeting in June 2018.

Exhibit 2: Approaches to Adjusting the Residential DCC Rates ($ per unit)

	Previously Proposed 2020 Rates	Option 1: Single Increase to 2020 Rates	Option 2: Start Collections in Mid-2019[34]	Option 3: 2020 at Rates Previously Proposed, Single Increase to 2021 Rates	Option 4: Inflate 2020 Rates Plus Increase to 2021 Rates	Option 5: Inflate 2020 Rates and Stagger Increase over 2021 and 2022 Rates
Single family	$2,100	$2,850	$2,680	2020: $2,100 2021: $2,975	2020: $2,250 2021: $2,955	2020: $2,250 2021: $2,500 2022: $3,030
Townhouse	$1,900	$2,400	$2,260	2020: $1,900 2021: $2,470	2020: $2,050 2021: $2,450	2020: $2,050 2021: $2,250 2022: $2,485
Apartment	$1,200	$1,500	$1,410	2020: $1,200 2021: $1,545	2020: $1,275 2021: $1,535	2020: $1,275 2021: $1,405 2022: $1,555

33 Two other options were also presented that involved adjusting assumptions about the development forecast (e.g. reducing the portion of apartment units assumed to qualify for the affordable housing waiver or increasing the forecasted average pace of development). These approaches were not recommended because the original forecast was determined to be reasonable (albeit on the conservative side) based on long-term trends.

34 This approach allows the rates to be about 2% lower than if the full adjustment was in 2020, but shortens the notice period by about 6 months.

8.3 Updated Financial Analysis

The December 2017 draft rates were based on market conditions as of August 2017, so the analysis was updated to confirm that the proposed refinements to the DCC rates would not impact the pace of development or housing affordability.

The updated financial analysis takes into consideration:

- Market changes in the sales prices of new residential space and employment lease rates since August 2017.
- Escalation in construction costs since August 2017.
- Changes in local government DCCs since August 2017.
- The estimated impact of increased/new provincial property taxes that have been introduced since August 2017 (i.e. speculation tax[35], increased school tax[36], and increased property transfer tax[37]). It is not yet clear that these will all apply to all development sites, but the analysis assumes the maximum possible impact.

8.3.1 Residential

As described in Appendix E, the December 2017 analysis established a draft rate for apartment units and then set rates for townhouse and single family uses based on comparative household size, using household size as an indicator of the potential relative load on transit of different forms of housing. So, for residential uses, the updated financial analysis focused on the rate that could be charged on strata-titled residential development projects based on current market conditions without impacting the pace of development or price of new housing.[38]

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35 In February 2018, the Province of BC introduced the BC Speculation Tax which applies to residential property in some large urban centres that is not a primary residence and not rented out for at least six months of the year. The tax applies to the Metro Vancouver Regional District (except Bowen Island and the parts of Electoral Area A that are not UBC or the UEL). The tax rate is set at 0.5% on residential property value in 2018 and, for British Columbians who are Canadian citizens or permanent residents that are not part of a satellite family, 0.5% on residential property value in 2019 onwards. The 2019 tax rate is 1% of residential property value for Canadian citizens and permanent residents who do not live in BC and 2% of residential property value for foreign investors and satellite families.

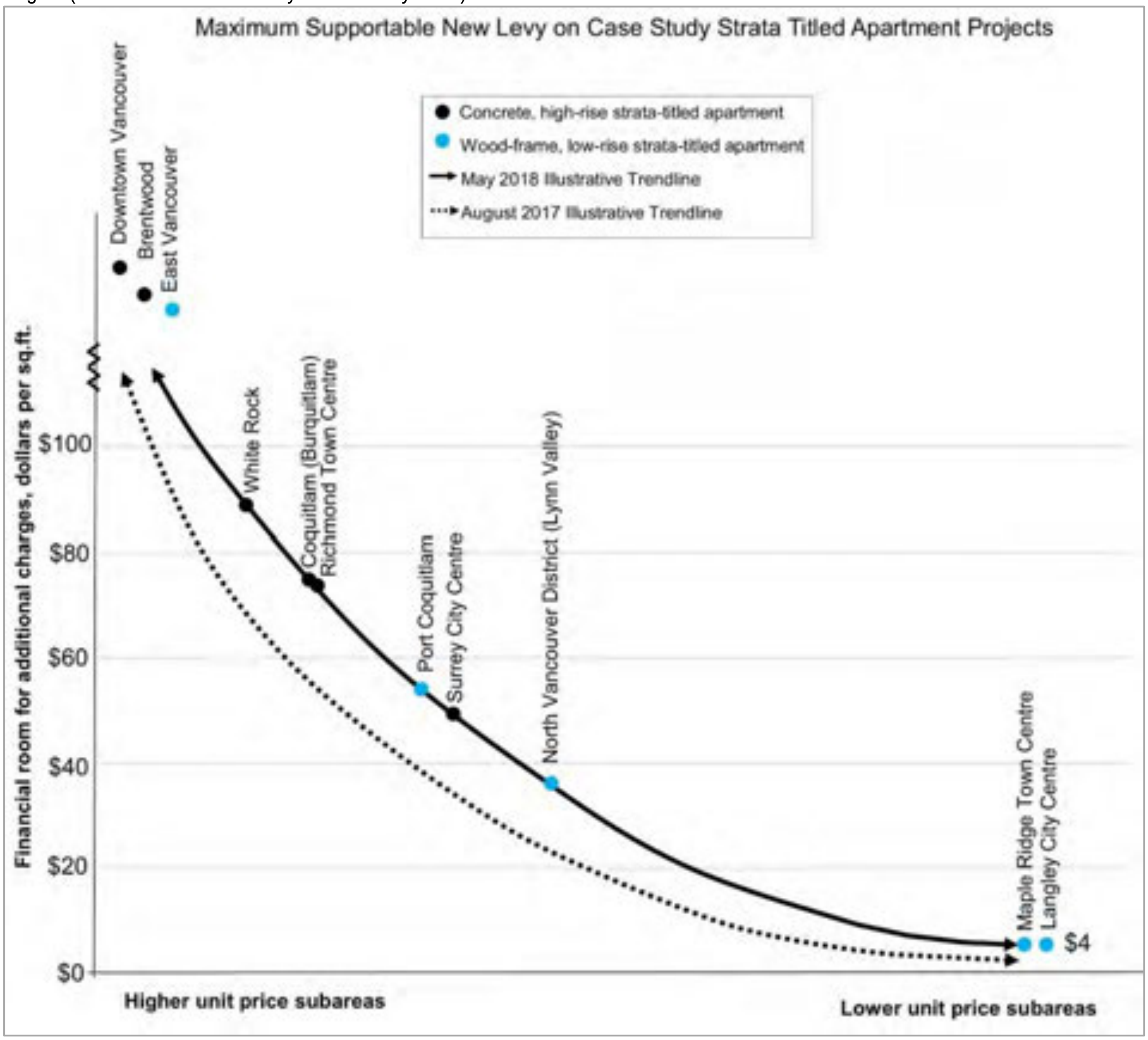
36 In February 2018, the Province of BC introduced an additional School Tax that, starting in 2019, applies to most high-valued residential properties in BC including detached homes, stratified condominium or townhouse units, and most vacant land. The additional tax is 0.2% on the residential portion of assessed property value between $3 million and $4 million and 0.4% on the residential portion of assessed property value greater than $4 million.

37 In February 2018, the Province of BC introduced an additional Property Transfer Tax on residential properties valued at greater than $3 million. Property transfer tax is paid by purchasers based on the fair market value of the property. Property transfer tax is calculated as 1% on the first $200,000 of fair market value, $2% on the portion of fair market value between $200,000 and $2 million, and 3% on the portion of fair market value greater than $2 million plus, as of February 2018, if the property is residential an additional 2% property transfer tax applies to the portion of fair market value greater than $3 million (taking the final tranche to 5% of the portion of fair market value greater than $3 million).

38 Note that the updated proposed DCC rates shown in Exhibit 2 and Exhibit 5 use the same ratio between the apartment and duplex/row/townhouse DCC rate as in the December 2017 draft technical analysis (i.e. a ratio commensurate with the relative difference in average household size) but a slightly higher ratio between the duplex/row/townhouse DCC rate and single family than in the December 2017 draft technical analysis in order to help achieve the revised revenue target.

Appendix F contains updated detailed calculations for a diverse array of case study apartment development sites around the region. The analysis suggests that growth in sales prices since August 2017 has been more than sufficient to offset escalation in construction costs and the potential impact of increased/new provincial property taxes. The analysis suggests that in lower land value locations in the region, the maximum supportable new levy is about $4 per square foot of floorspace based on current market conditions without changing the highest and best use of most strata-titled apartment development sites making properties less valuable as residential development sites than as holding properties in their current use compared to about $2 per square foot as of August 2017.

Exhibit 3: Illustration of Maximum Supportable New DCC Based on Analysis of Illustrative Strata-Titled Apartment Projects in the Region (Based on Financial Analysis as of May 2018)



The proposed DCC rate for apartment units is $1,200 per unit in 2020 and $1,545 per unit in 2021, with inflationary adjustments in 2022 onwards. A DCC of $1,200 per apartment unit works out to about $1.41 per square foot on the average sized apartment unit in the region and a DCC of $1,545 per apartment unit works out to about $1.82 per square foot on the average sized apartment unit in the region, which is well below the $4 per square foot maximum threshold.[39]

8.3.2 Non-Residential

As described in Appendix E, the December 2017 analysis found that the rate for office development needed to be modest or nominal and that the rate for industrial needed to be nominal as there was no material financial room for a new levy on industrial projects. The December 2017 analysis set the retail rate based on the premise that retail puts more demand on transit infrastructure than office or industrial use because it involves trips driven by both employees and customers, so instead of pro forma analysis the retail rate was set higher than the draft office and industrial rates. So, for the updated financial analysis for employment uses, the focus was on re-visiting the financial performance of office and industrial projects.

Appendix G contains updated illustrative office pro formas and Appendix H contains updated illustrative industrial pro formas. The pro formas should be considered approximate as minor changes in the assumptions can have significant impacts on the outcome. It was not necessary to complete very many examples to be able to illustrate that suburban office development and industrial development cannot absorb a material new charge. A DCC of $1.00 per square foot for the office pro formas and $0.30 per square foot for the industrial pro formas are minor compared to the calculated results.

8.4 Reconsideration of the Industrial DCC Rate

As part of stakeholder consultation on possible approaches to revising the proposed rates, NAIOP expressed concern about the December 2017 draft industrial rate of $0.50 per square foot and suggested reducing the industrial rate with offsetting increases in the office and retail rates (such that the average annual revenue generated by non-residential uses would remain the same and not shift more burden to residential uses). In addition, the Joint Finance Committee asked that the draft industrial rate be reviewed in comparison to the draft DCC rates for other employment uses.

In response, three options were considered:

- Leave the DCC rates on employment space as previously proposed ($0.50 per square foot for industrial, $0.50 per square foot for office, and $1.00 per square foot for retail).
- Adjust the DCC rates on employment space so that the industrial rate is lower and the retail and office rates are higher ($0.30 per square foot for industrial, $1.00 per square foot for office, and $1.25 per square foot for retail).
- Charge the same DCC rate on all employment space.

There are several compelling reasons to lower the industrial DCC rate:

- Industrial development generates less revenue and supports lower land value than all other uses and must compete with other uses for sites.

[39] Based on data from the Greater Vancouver and Fraser Valley Real Estate boards, new apartment units in the region (built in 2016/17 only) that sold during the 6 month period from April to September 2017 had an average unit size of 850 square feet gross.

- Industrial development has little room to absorb any additional costs, although it is worth noting that rates of $0.50 per square foot or less are marginal and beyond the precision of analysis aiming to anticipate market conditions and impacts by 2020.
- Any extra costs on industrial development would cause pressure for land use change (i.e. business park, service commercial).
- The revised draft proposed rates work out to about the same ratio of DCC to hard construction cost on industrial, office and retail space (see Exhibit 4).

Exhibit 4: Ratio of Proposed Rates to Hard Construction Cost for Suburban Industrial, Office, and Retail (May 2018)

	Industrial	Office	Retail
Proposed DCC ($ per sq.ft.)	$0.30	$1.00	$1.25
Hard construction cost (including parking), suburban ($ per sq.ft.)	$120	$340	$340*
DCC as a percentage of hard construction cost	0.3%	0.3%	0.4%

* Assumes retail in a mixed-use project with underground parking.

- Adjusting the industrial DCC rate downward with offsetting increases in the office and retail DCC rates is supported by NAIOP.
- If all employment uses were charged the same rate (as with the GVS&DD DCC), the rate would need to be set to work for the use with the least financial room (industrial), which would impact revenues or require shifting more of the burden to residential development to be able to still achieve the $29 million per year revenue target.
- Adjusting the industrial rate with corresponding changes to the office and retail rates has no impact on total DCC revenues.

Therefore, the proposed DCC rates include an adjustment on the DCC rates on employment space so that the industrial rate is lower.

8.5 Final Draft DCC Rates as of June 2018

The proposed DCC rates as of June 2018 are summarized in Exhibit 5. The proposed rates incorporate a stagger in residential rates between 2020 and 2021 to achieve the revised revenue target, leaving the rates in 2020 as previously communicated to stakeholders and incorporating a pre-determined adjustment in 2021.

The non-residential DCC rates do not include a stagger, because the changes to the proposed rates on employment space since the December 2017 draft rates include both upward changes (office, retail) and downward changes (industrial) so it makes sense to incorporate those as of the commencement of DCC collections.

After 2021, the rates will be subject to annual inflationary increases and may be re-visited in the future as part of new Investment Plans.

Exhibit 5: Current Proposed DCC Rates to Form the Basis of the Draft Bylaws and Stakeholder Consultation on the Draft Bylaws (June 2018)

Type of Development	Rates effective January 15, 2019***	Rates effective January 15, 2020	Rates effective January 1, 2021**
Single Family Dwelling	$0 per Dwelling Unit	$2,100 per Dwelling Unit	$2,975 per Dwelling Unit
Duplex	$0 per Dwelling Unit	$1,900 per Dwelling Unit	$2,470 per Dwelling Unit
Townhouse Dwelling Unit	$0 per Dwelling Unit	$1,900 per Dwelling Unit	$2,470 per Dwelling Unit
Apartment Dwelling Unit	$0 per Dwelling Unit	$1,200 per Dwelling Unit	$1,545 per Dwelling Unit
Retail/Service	$0 per sq. ft. of Floor Area*	$1.25 per sq. ft. of Floor Area*	$1.25 per sq. ft. of Floor Area*
Institutional	$0 per sq. ft. of Floor Area*	$0.50 per sq. ft. of Floor Area*	$0.50 per sq. ft. of Floor Area*
Office	$0 per sq. ft. of Floor Area*	$1.00 per sq. ft. of Floor Area*	$1.00 per sq. ft. of Floor Area*
Industrial	$0 per sq. ft. of Floor Area*	$0.30 per sq. ft. of Floor Area*	$0.30 per sq. ft. of Floor Area*

* Calculated as the rate multiplied by the number of square feet of Gross Floor Area.

** Rates subject to annual inflationary increases starting January 1, 2022.

*** DCC collections are proposed to commence in January 2020 but the DCC Rate bylaw will include a rate of $0 effective January 2019 to provide a full year notice period of the new DCC during which the charge will be $0.

9.0 DCC Revenue Forecast

The DCC revenue forecasts are for the period from 2020 to 2027. This timeframe reflects that collections are proposed to commence in January 2020 and TransLink's Phase Two Investment Plan is for the period from 2018-2027.

The DCC revenue forecast involves four main steps:

1. Estimating the average annual amount of net new residential development (by type of unit) and new retail, institutional, office, and industrial development that will occur in the region over the forecast period.
2. Netting out the portion of apartment development that is assumed to be affordable rental housing for which the DCC will be waived.
3. Applying the rates to the forecast of urban development to generate the estimated DCC revenues for 2020 to 2027.
4. Incorporating an assumption about inflation.

9.1 Forecast of Residential Development

9.1.1 Overall Forecast of Average Annual Residential Development by Unit Type

The following factors were considered in estimating average annual residential development over the forecast period:

- The pace of residential development in the region by type of unit during 2008 to 2017.
- The amount of residential development anticipated in Metro Vancouver's Regional Growth Strategy.
- Household growth forecasts by BC Stats.
- The portion of residential development that will be in the form of secondary suites and laneway houses which are proposed to be exempt (at least in the initial bylaw).
- The estimated portion of apartment development that could qualify for the affordable housing waiver and therefore not pay the DCC.

Exhibit 6 summarizes actual total housing starts, demolitions, and net new housing starts (i.e. total starts less demolitions) in Metro Vancouver from 2008 to 2017 based on data from Canada Mortgage and Housing Corp (CMHC). Appendix I contains notes about how the laneway house and secondary suites figures were calculated (because CMHC changed how these were recorded in 2012).

Net new housing starts in the region ranged from about 6,200 starts in 2009 to about 24,000 starts in 2016, averaging 16,400 net new starts per year from 2008 to 2017. This includes an average of about 1,600 net new single family starts per year, 1,500 net new laneway houses and secondary suites per year, 400 net new duplex units per year, 2,600 net new row/townhouse units per year, and 10,300 net new apartment units per year.

Exhibit 6: Net New Housing Starts by Type of Unit in Metro Vancouver, 2008 to 2017

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2008-2017 Average
Starts:	Single detached	3,972	3,231	4,979	4,485	4,121	3,485	3,941	4,097	4,539	4,348	4,120
	Secondary suites	357	326	653	1,113	1,144	1,083	1,100	1,690	2,018	1,950	1,143
	Laneway houses	19	24	207	314	404	519	433	525	630	563	364
	Semi-detached (duplex)	709	330	414	502	480	510	508	486	430	409	478
	Row (triplex, townhouse)	2,309	1,655	2,324	2,836	2,389	2,373	2,719	2,512	3,398	3,386	2,590
	Apartment	12,225	2,773	6,640	8,618	10,489	10,726	10,511	11,553	16,899	15,548	10,598
	Total starts	19,591	8,339	15,217	17,867	19,027	18,696	19,212	20,863	27,914	26,204	19,293
Demolitions:	Single detached	2,236	1,618	2,283	2,488	2,651	2,054	2,544	3,182	3,145	2,907	2,511
	Secondary suites (a)	0	0	0	0	0	0	0	0	0	0	0
	Laneway houses (a)	0	0	0	0	0	0	0	0	0	0	0
	Semi-detached (duplex)	36	31	61	48	50	27	42	91	56	163	61
	Row (triplex, townhouse)	7	0	0	1	3	2	0	0	70	8	9
	Apartment	108	495	96	89	310	192	231	168	623	826	314
	Total demolitions	2,387	2,148	2,440	2,626	3,014	2,275	2,823	3,444	3,894	3,904	2,896
Net new:	Single detached	1,736	1,613	2,696	1,997	1,470	1,431	1,397	915	1,394	1,441	1,609
	Secondary suites	357	326	653	1,113	1,144	1,083	1,100	1,690	2,018	1,950	1,143
	Laneway houses	19	24	207	314	404	519	433	525	630	563	364
	Semi-detached (duplex)	673	299	353	454	430	483	466	395	374	246	417
	Row (triplex, townhouse)	2,302	1,655	2,324	2,835	2,386	2,371	2,719	2,512	3,328	3,378	2,581
	Apartment	12,117	2,278	6,544	8,529	10,179	10,534	10,280	11,385	16,276	14,722	10,284
	Total net new	17,204	6,191	12,777	15,241	16,013	16,421	16,389	17,419	24,020	22,300	16,398
	Total net new less secondary suites and laneway houses	16,828	5,841	11,917	13,815	14,465	14,819	14,856	15,204	21,372	19,787	14,890

Source: CMHC data summarized by Coriolis. Note a: Assumes no demolitions are secondary suites or laneway houses.

Exhibit 7 shows projected growth in the number of dwelling units in Metro Vancouver as anticipated by the Regional Growth Strategy. The timeframe for the DCC revenues forecast is 2020 to 2027, so the most applicable period from the Regional Growth Strategy forecasts is 2021 to 2031. Metro Vancouver anticipates average annual growth of about 17,500 residential units per year during this timeframe, which is about 1,000 units higher than the pace of development in the region over the last decade.

Exhibit 7: Dwelling Unit Forecast in Metro Vancouver's Regional Growth Strategy, 2011 to 2041

					Average Annual Growth		
	2011	2021	2031	2041	2011-2021	2021-2031	2031-2041
Metro Vancouver dwelling units	890,000	1,112,000	1,287,000	1,423,000	22,200	17,500	13,600

Source: Greater Vancouver Regional District Growth Strategy Amendment Bylaw No. 1223, 2015. These figures represent updates to the RGS in 2015 to reflect accepted Regional Context Statements.

Applying the historic share of housing starts by type to this Regional Growth Strategy forecast for 2021-2031 suggests average annual growth of about 1,700 new single family houses, 1,750 new laneway houses and secondary suites per year, 400 new duplex units, 2,700 new row/townhouse units, and 11,000 new apartment units.

The regional residential market is cyclical. It could be optimistic to use the most recent years (which have been relatively high growth years) as the indicator of future growth over the next decade. While the pace of residential development has been higher in recent years (as much as 24,000 in 2016), the long-term trend and available forecasts suggest an average of about 16,400 to 17,500 net new units per year.

To establish a residential development forecast for the purposes of forecasting potential DCC revenues, the analysis focused on trends and forecasts for each type of unit and settled on the rounded figures for single family, secondary suites/laneway houses, duplexes, row/townhouse units, and apartment units shown in Exhibit 8. These sum to a total of 17,100 net new residential units per year in the region. The allocation by unit type assumes a continued shift towards multi-family development accounting for a larger share of regional development over the long term.

Exhibit 8: Coriolis Forecast of Average Annual Net New Residential Development in the Region from 2020 to 2027 (BEFORE Accounting for Units that are Assumed Not to Pay the DCC)

	Forecast of Average Annual Net New Residential Units in Metro Vancouver, 2020 to 2027
Single detached	1,600 units
Secondary suites/laneway houses	1,500 units
Duplex	400 units
Row/Townhouse	2,600 units
Apartment	11,000 units
Residential Total	17,100 units

9.1.2 Estimated Number of Units Not Paying the DCC

TransLink proposes not to charge secondary suites and laneway houses in the initial bylaws, so these types of units will not pay the DCC.

TransLink also proposes to waive the DCC for certain types of affordable rental housing projects and intends to align its definition of affordable rental housing projects with the GVS&DD affordable housing waiver.

The December 2017 draft DCC revenue forecasts assumed that 20% of net new apartment units would qualify for the affordable housing waiver. Some stakeholders have questioned whether the 20% assumption is too high. The 20% figure is an assumption in the forecast of total DCC revenues, but it affects the proposed DCC rates because a lower percentage of apartment units that qualify for the waiver means more units would pay, so the residential DCC rates could be lower than proposed.

There are several indicators that support using an assumed share of 20% in forecasting DCC revenues and setting the DCC rates:

- 20% is similar to the forecast in Metro Vancouver's *Regional Affordable Housing Strategy*, which anticipates that 19% of total housing demand from 2016 to 2026 will be demand for affordable rental housing.

Exhibit 9: Forecasted 2016-2026 Housing Demand by Tenure in Metro Vancouver's Regional Affordable Housing Strategy

	% of Total Anticipated Housing Demand, 2016 to 2026
Market condo	70%
Rental:	
Market rental	11%
Affordable rental:	
Low income rental	6%
Very low income rental	13%
Affordable rental total	19%
Rental total	30%
Total	100%

Source: Metro Vancouver, "Regional Affordable Housing Strategy". Updated 20 June 2016, page 13.

- Housing affordability is a significant concern in the region. There will be increasing pressure for local, regional, provincial and federal governments to respond to the regional affordability challenge, so the number of affordable rental housing units (and their share of total) being built in the region is likely to increase.

- TransLink intends to model its affordable housing waiver on the GVS&DD affordable housing waiver, which waives the DCC on all units in a project if at least 30% of the units are occupied by households that meet HILS (housing income limits) as published by BC Housing or an equivalent agency. This means that some market units could receive the waiver simply because they are within a building with 30% or more units that meet the HILS criteria.
- Based on information about the average annual number of apartment units that the GVS&DD expects to pay the regional sewer levy and the average annual number of apartment units that the GVS&DD anticipates could qualify for the affordable housing waiver, the GVS&DD figures can be interpreted to suggest an estimate of about 13% to 19% of new apartment units will qualify for the regional sewer levy waiver.
- In forecasting potential DCC revenues and setting DCC rates, it is important to be conservative. Recognizing that the forecast is unlikely to be exactly right, it is better to collect a little more versus a little less than the forecast, as it is easier for TransLink and the development industry to adjust for over-collecting than under-collecting.
- The impact on DCC rates of reducing the 20% assumption is not substantial. For example, assuming only 15% of net new apartment units qualify for the waiver instead of 20% means that the 2021 apartment DCC rate could be $1,500 per unit instead of $1,545 per unit.
- There would be no impact on total DCC revenues of assuming a smaller share of apartment development qualifies for the wavier because the DCC rates would be adjusted to still achieve the $29 million per year target.

9.1.3 Forecast of Average Annual Residential Development Paying the DCC

Based on the residential development forecast from Section 9.1.1 and the assumptions about the share of different types of units that are assumed not to pay the DCC from Section 9.1.2, Exhibit 10 summarizes the anticipated average annual number of net new units that will pay the DCC over the forecast period.[40]

[40] The December 2017 draft technical report included a similar amount of residential development (i.e. 1,500 single family units per year, 3,000 duplex/row/townhouse units, and 11,500 apartment units for a total of 16,000 units per year of which 13,700 units were assumed to pay). Earlier revenue tests including those that explored uniform versus tiered rates as summarized in Appendix C also assumed a similar amount of residential development (i.e. 1,560 single family units per year, 3,080 townhouse units, and 11,200 apartment units for a total of 15,900 units per year of which 13,670 units were assumed to pay).

Exhibit 10: Forecast of Average Annual Net New Residential Development in the Region that will Pay the DCC from 2020 to 2027

	Forecast of Average Annual Net New Residential Units in Metro Vancouver, 2020 to 2027	% Assumed to Pay the DCC	Average Annual Residential Development Forecast for the DCC Revenues Forecast
Single detached	1,600 units	100%	1,600 units
Secondary suites/laneway houses	1,500 units	0%	0 units
Duplex	400 units	100%	400 units
Row/Townhouse	2,600 units	100%	2,600 units
Apartment	11,000 units	80%	8,800 units
Residential Total	17,100 units	n/a	13,400 units

9.2 Forecast of Retail Development

Two indicators were considered in estimating average annual retail floorspace development over the forecast period:

- The historic pace of retail floorspace development in the region.
- The amount of floorspace implied by anticipated population growth in the region and typical retail floorspace per capita ratios.

Exhibit 11 summarizes the amount of retail floorspace that was built in the region from 2003 to 2012 (the most current year for which complete regional retail floorspace data is available). As shown, annual retail floorspace development in the region varied from about 778,500 sq.ft. in 2012 to 2,150,000 sq.ft. in 2008. Over the ten-year period, retail floorspace growth averaged about 1.37 million square feet per year in Metro Vancouver.

Exhibit 11: Retail Floorspace Growth in Metro Vancouver (sq.ft.), 2003 to 2012

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Average Annual Growth 2003-2012
Retail/service	1,375,442	2,686,377	1,068,102	1,370,323	1,131,435	2,150,795	901,470	1,203,354	996,110	778,541	1,366,195

Source: Coriolis Consulting Corp. based on BC Assessment Authority data.

Based on periodic analysis over the past 30 years, there has consistently tended to be about 40 square feet of retail space per capita in the region (see Exhibit 12). Applying this ratio to anticipated population growth in the region from 2020 to 2027 suggests average retail floorspace development of about 1.48 million square feet per year in Metro Vancouver (see Exhibit 13). There are trends affecting the retail industry that may mean demand for physical retail space declines in the future (e.g. online shopping, consolidation and adjustments in the retail sector, the rise of on-demand delivery that reduces the need for the amount of physical retail space), so the forecast based on typical per capita ratios could be considered the high end of the likely range.

Exhibit 12: Historic Retail Floorspace Per Capita Ratios in Metro Vancouver, Various Data Points Since 1981

	1981	1996	2001	2006	2011	2011	2012
Retail/service space per capita	39.1	38.9	39.6	41.0	40.8	40.6	40.3

Source: Coriolis Consulting Corp. based on BC Assessment Authority data.

Exhibit 13: Calculated Retail Floorspace Growth based on Anticipated Population Growth and a Per Capita Ratio, 2020 to 2027

	2018 Population	2027 Population	Population Growth, 2018 to 2027	Assumed Retail Space Per Capita (sq.ft.)	Resulting Anticipated Growth in Retail Floorspace Inventory (sq.ft.)	Calculated Average Annual Retail Floorspace Growth (sq.ft.) 2018 to 2027
Metro Vancouver	2,628,420	2,961,890	333,470	40	13,338,800	1,482,089

Source: Population data from BC Stats PEOPLE 2017.

These two indicators (past trends and potential future growth based on the region's average retail space per capita ratio) suggest average retail floorspace growth of about 1.36 to 1.48 million square feet per year. For the DCC revenue forecasts, retail floorspace growth is assumed to average about 1.4 million square feet per year.[41]

9.3 Forecast of Institutional Development

Exhibit 14 summarizes the amount of institutional floorspace that was built in the region from 2003 to 2012 (the most recent year for which complete regional institutional floorspace data is available). As shown, institutional floorspace development in the region varied widely from about 84,000 square feet in 2009 to 1,697,000 square feet in 2007. Institutional floorspace growth in the region averaged 443,000 square feet per year over this ten year period.

Exhibit 14: Institutional Floorspace Growth in Metro Vancouver (sq.ft.), 2003 to 2012

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Average Annual Growth 2003-2012
Institutional	287,851	87,383	583,253	126,966	1,697,209	244,142	84,137	246,972	984,158	89,148	443,122

Source: Coriolis Consulting Corp. based on BC Assessment Authority data.

The DCC revenue forecasts assume there will be an average of about 450,000 sq.ft. of institutional floorspace growth per year during the forecast period.[42]

9.4 Forecast of Office and Industrial Development

There are different proposed DCC rates for office and industrial development as these land uses have different land values and market conditions, but in reviewing historic floorspace trends it is useful to look at office and industrial space separately as well as combined because a significant amount of space that might be thought of as industrial has an office component (e.g. offices in business parks or that are ancillary to office space).

Office and industrial floorspace data from both Colliers and BC Assessment was reviewed, and the two data sources tell a similar story.

41 The December 2017 draft technical report included the same amount of retail development (i.e. 1.4 million square feet per year). Earlier revenue tests including those that explored uniform versus tiered rates as summarized in Appendix C assumed a slightly lower pace of retail development (i.e. 1.14 million square feet per year) which was based on traffic zone employment estimates and forecasts produced by Metro Vancouver in 2011.

42 The December 2017 draft technical report included the same amount of institutional development (i.e. 450,000 square feet per year). Earlier revenue tests including those that explored uniform versus tiered rates as summarized in Appendix C did not include an estimate of potential DCC revenues from institutional space such as hospitals, universities and schools, and community centres, because there was discussion at the time about whether or not to charge the new transit DCC on institutional space. The discussion evolved to reach agreement that all forms of urban development, including institutional development, benefit from new transit in the region and should therefore contribute.

As shown in Exhibit 15, Colliers reports that office floorspace growth in major office buildings in Metro Vancouver averaged 436,000 square feet per year from 2003 to 2012, although office floorspace growth was higher in the past five years (averaging 880,000 square feet per year from 2012 to 2017). Data from BC Assessment Authority (to 2013) indicates that office floorspace growth averaged 545,000 square feet per year in the region from 2003 to 2012 (see Exhibit 16). This includes all office space, not just office space in major office buildings, so the figure is higher than the Colliers estimate.

Exhibits 15 and 16 also show industrial floorspace growth over the same time periods. The two data sets suggest a similar amount of industrial floorspace growth in the region from 2003 to 2012 (i.e. on the order of 3.3 million to 3.6 million square feet per year). The Colliers data suggests that industrial floorspace development averaged 3.2 million square feet per year from 2012 to 2017.

Exhibit 15: Colliers Data on Office and Industrial Floorspace Growth in Metro Vancouver (sq.ft.), 2003 to 2017

Total Floorspace Inventory (sq.ft.)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Office floorspace	48,185,045	51,098,814	51,072,401	51,295,700	51,701,052	52,193,332	52,535,432	53,115,194	51,751,503	52,106,718	52,615,648	53,556,830	55,622,702	55,846,280	56,507,252
Industrial floorspace	143,838,739	147,053,482	151,053,661	155,327,447	160,290,596	163,522,283	168,270,992	170,055,799	171,532,075	174,134,329	176,290,759	181,393,126	184,468,109	187,084,637	190,080,432

Growth in Floorspace Inventory (sq.ft.)

															Average Annual Growth	
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2003-2012	2012-2017
Office floorspace	n/a	2,913,769	-26,413	223,299	405,352	492,280	342,100	579,762	-1,363,691	355,215	508,930	941,182	2,065,872	223,578	660,972	435,741	880,107
Industrial floorspace	n/a	3,214,743	4,000,179	4,273,786	4,963,149	3,231,687	4,748,709	1,784,807	1,476,276	2,602,254	2,156,430	5,102,367	3,074,983	2,616,528	2,995,795	3,366,177	3,189,221
Combined	n/a	6,128,512	3,973,766	4,497,085	5,368,501	3,723,967	5,090,809	2,364,569	112,585	2,957,469	2,665,360	6,043,549	5,140,855	2,840,106	3,656,767	3,801,918	4,069,327

Source: Colliers Office Market Reports. Note that the total office inventory in 2017 was estimated by taking the 2016 inventory and adding the combined net new supply in Q1, Q2, Q3, and Q4 2017 as reported by Colliers.

Exhibit 16: Office & Industrial Floorspace Growth in Metro Vancouver (sq.ft), 2003 to 2012 Based on BC Assessment Authority Data

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Average Annual Growth 2003-2012
Office floorspace growth	474,275	423,299	827,646	243,603	715,432	655,317	885,948	442,516	332,599	544,478	554,511
Industrial floorspace growth	9,323,310	4,166,788	2,739,853	4,517,568	4,883,122	2,679,565	3,492,797	970,164	1,203,431	2,237,500	3,621,410
Office & Industrial Combined	9,797,585	4,590,087	3,567,499	4,761,171	5,598,554	3,334,882	4,378,745	1,412,680	1,536,030	2,781,978	4,175,921

Source: Coriolis Consulting Corp. based on BC Assessment Authority data.

The DCC revenue forecasts assume average annual office floorspace growth of about 550,000 square feet per year and average annual industrial floorspace growth of about 3.5 million square feet per year, for a combined total of 4.05 million square feet of office and industrial floorspace growth per year from 2020 to 2027.[43]

43 The December 2017 draft technical report included the same amount of office and industrial development (i.e. 450,000 square feet of office floorspace growth per year and 3.5 million square feet of industrial floorspace growth per year). Earlier revenue tests including those that explored uniform versus tiered rates as summarized in Appendix C assumed a lower pace of office and industrial development (i.e. 2.8 million square feet per year) which was based on traffic zone employment estimates and forecasts produced by Metro Vancouver in 2011 which assumed a lower pace of employment growth than more recent forecasts.

9.5 Summary of Development Forecast for the DCC Revenue Estimates

Exhibit 17 summarizes the average annual net new development forecasts by land use that are incorporated into the DCC revenues forecast in the following section.

Exhibit 17: Summary of 2020 to 2027 Average Annual Net Development Forecast by Land Use for the DCC Revenues Forecast

	Forecast of Average Annual Development in Metro Vancouver, 2020 to 2027	% Assumed to Pay the DCC	Average Annual Development Forecast for the DCC Revenues Forecast from 2020-2027
Residential (units)			
Single detached	1,600 units	100%	1,600 units
Secondary suites/laneway houses	1,500 units	0%	0 units
Duplex	400 units	100%	400 units
Row/Townhouse	2,600 units	100%	2,600 units
Apartment	11,000 units	80%	8,800 units
Residential Total	17,100 units	n/a	13,400 units
Non-Residential (sq.ft.)			
Retail/service	1,400,000 sq.ft.	100%	1,400,000 sq.ft.
Office	550,000 sq.ft.	100%	550,000 sq.ft.
Industrial	3,500,000 sq.ft.	100%	3,500,000 sq.ft.
Institutional	450,000 sq.ft.	100%	450,000 sq.ft.
Non-Residential Total	5,900,000 sq.ft.	100%	5,900,000 sq.ft.

9.6 Forecast of Annual DCC Revenue for 2020 to 2027

Exhibit 18 combines the proposed DCC rates from Exhibit 5 and the development forecast from Exhibit 17 to produce an estimate of the potential revenue stream from the DCC without factoring in inflationary adjustments to the rates. As shown, the DCC revenues are projected to generate a total of about $228.6 million (uninflated) between 2020 and 2027 which works out to an average of about $28.6 million (uninflated) per year over the 8 year forecast period. This is slightly lower than the $29 million per year (uninflated) target but it can be characterized as conservative, as the development forecast is somewhat conservative and the assumption that 20% of apartment units will qualify for the affordable housing waiver may be high particularly in the first few years of the forecast period. Note that the 2018 and 2019 revenues are $0 because DCC collections are assumed to commence in January 2020, and that the 2020 revenues are lower than in other years because of the stagger in the residential DCC rates between 2020 and 2021.

Exhibit 18: DCC Revenues Forecast (Uninflated) ($ millions)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2020-2027 Sum	2020-2027 Average Annual
Residential:												
Single family	$0	$0	$3.4	$4.8	$4.8	$4.8	$4.8	$4.8	$4.8	$4.8	$36.7	$4.6
Secondary suites and laneway houses	$0	$0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Duplex	$0	$0	$0.8	$1.0	$1.0	$1.0	$1.0	$1.0	$1.0	$1.0	$7.7	$1.0
Row/townhouse	$0	$0	$4.9	$6.4	$6.4	$6.4	$6.4	$6.4	$6.4	$6.4	$49.9	$6.2
Apartment	$0	$0	$10.6	$13.6	$13.6	$13.6	$13.6	$13.6	$13.6	$13.6	$105.7	$13.2
Residential Total	$0	$0	$19.6	$25.8	$25.8	$25.8	$25.8	$25.8	$25.8	$25.8	$200.0	$25.0
Non-Residential:												
Retail/service	$0	$0	$1.8	$1.8	$1.8	$1.8	$1.8	$1.8	$1.8	$1.8	$14.0	$1.8
Office	$0	$0	$0.6	$0.6	$0.6	$0.6	$0.6	$0.6	$0.6	$0.6	$4.4	$0.6
Industrial	$0	$0	$1.1	$1.1	$1.1	$1.1	$1.1	$1.1	$1.1	$1.1	$8.4	$1.1
Institutional	$0	$0	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$1.8	$0.2
Non-Residential Total	$0	$0	$3.6	$3.6	$3.6	$3.6	$3.6	$3.6	$3.6	$3.6	$28.6	$3.6
Total:												
Total	$0	$0	$23.2	$29.3	$29.3	$29.3	$29.3	$29.3	$29.3	$29.3	$228.6	$28.6
Total (rounded)	$0	$0	$23.2	$29.3	$29.3	$29.3	$29.3	$29.3	$29.3	$29.3	$228.6	$28.6

TransLink anticipates making annual adjustments to the DCC rates based on a standard published index. Exhibit 19 shows the Statistics Canada Non-Residential Building Construction Price Index for the Vancouver CMA for the past ten years and Exhibit 20 shows the Vancouver CPI over the same timeframe. For the Statistics Canada Building Construction Price Index, the data for the first quarter of each year is shown on the assumption that TransLink would have summarized data on hand about DCC revenues and expenditures from the previous year by say spring, so the first quarter index results (which are published by May) would be available around the same time.

The annual percentage changes in this construction cost index ranged from -9% to +10.1% between 2007 and 2018, with an average annual growth rate of 1.8% per year from 2007 to 2018 and 3.2% per year from 2012 to 2018. The annual percentage change in the Vancouver CPI ranged from +0.1% to +2.4% between 2007 and 2017, with an average annual growth rate of 1.5% per year from 2007 to 2017 and 1.4% per year from 2012 to 2017.

Exhibit 19: Statistics Canada Non-Residential Building Construction Price Index for the Vancouver CMA (Index, 2017=100)

													Average Annual Growth Rate	
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2007-2018	2012-2018
Q1	84.4	92.9	84.5	78.8	81.8	85.3	86.4	88.9	90.4	92.6	98.3	102.9	1.8%	3.2%
Annual Percent Change	n/a	10.1%	-9.0%	-6.7%	3.8%	4.3%	1.3%	2.9%	1.7%	2.4%	6.2%	4.7%	n/a	n/a

Source: Statistics Canada, Table 18-10-0135-01 Building Construction Price Indexes By Type of Building. Note that as of the first quarter of 2018, the index was revised to reflect newer construction technologies and materials, to add a new transit building index to increase coverage of building construction in the industrial sector, and to set the index to 2017=100 (instead of the former version which was indexed as 2002=100).

Exhibit 20: Vancouver CPI (Index, 2002=100)

													Average Annual Growth Rate	
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2007-2017	2012-2017
Vancouver CPI	110.2	112.8	112.9	114.9	117.5	119	119.2	120.5	121.9	124.6	127.3	n/a	1.5%	1.4%
Annual percent change	n/a	2.4%	0.1%	1.8%	2.3%	1.3%	0.2%	1.1%	1.2%	2.2%	2.2%	n/a	n/a	n/a

Source: BC Stats, based on Statistics Canada CANSIM Table 326-0021 data. Published January 2018.

Exhibit 21 uses the 2007-2018 average annual growth rate from the Statistics Canada Non-Residential Building Construction Price Index for the Vancouver CMA (1.8% per year) to inflate the DCC rates in 2022 to 2027 and shows the resulting DCC revenue forecast. As shown, with inflation at 1.8% per year, the DCC is projected to generate a total of about $240 million[44] in revenues between 2020 and 2027 which works out to an average of about $30 million per year over the 8 year forecast period.[45] About 88% of the forecasted total DCC revenues are from residential development and about 12% are from non-residential development.

Exhibit 21: DCC Revenues Forecast (With Assumed Inflation of 1.8% Per Year) ($ millions)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2020-2027 Sum	2020-2027 Average
Residential:												
Single family	$0	$0	$3.4	$4.8	$4.8	$4.9	$5.0	$5.1	$5.2	$5.3	$38.5	$4.8
Secondary suites and laneway houses	$0	$0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Duplex	$0	$0	$0.8	$1.0	$1.0	$1.0	$1.0	$1.1	$1.1	$1.1	$8.1	$1.0
Row/townhouse	$0	$0	$4.9	$6.4	$6.5	$6.7	$6.8	$6.9	$7.0	$7.1	$52.4	$6.5
Apartment	$0	$0	$10.6	$13.6	$13.8	$14.1	$14.3	$14.6	$14.9	$15.1	$111.0	$13.9
Residential Total	$0	$0	$19.6	$25.8	$26.2	$26.7	$27.2	$27.7	$28.2	$28.7	$210.0	$26.3
Non-Residential:												
Retail/service	$0	$0	$1.8	$1.8	$1.8	$1.8	$1.8	$1.9	$1.9	$1.9	$14.7	$1.8
Office	$0	$0	$0.6	$0.6	$0.6	$0.6	$0.6	$0.6	$0.6	$0.6	$4.6	$0.6
Industrial	$0	$0	$1.1	$1.1	$1.1	$1.1	$1.1	$1.1	$1.1	$1.2	$8.8	$1.1
Institutional	$0	$0	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.3	$1.9	$0.2
Non-Residential Total	$0	$0	$3.6	$3.6	$3.6	$3.7	$3.8	$3.8	$3.9	$4.0	$30.0	$3.7
Total:												
Total	$0	$0	$23.2	$29.3	$29.9	$30.4	$31.0	$31.5	$32.1	$32.7	$240.0	$30.0
Total (rounded)	$0	$0	$23.2	$29.3	$29.9	$30.4	$31.0	$31.5	$32.1	$32.7	$240.0	$30.0

44 This work was underway at the same time as the Phase Two Investment Plan was being finalized. The Phase Two Investment Plan includes a projected total of $252 million (inflated$) in DCC revenues between 2020 and 2027. The forecast of total DCC revenues in inflated dollars in this report is lower ($240 million) because (a) the forecast in this report incorporates a stagger in residential rates from 2020 to 2021 as preferred by the development community and (b) the forecast in this report and the forecast in the Phase Two Investment Plan incorporate different assumptions about the projected rate of inflation and the timing of when the inflationary adjustments commence. Ongoing monitoring and adjusting of the DCC should take this into consideration.

45 If the DCC revenue forecasts assume annual inflationary adjustments of 1.5% per year in 2022 to 2027 commensurate with the average annual growth rate in the Vancouver CPI from 2007-2017, total DCC revenues from 2020 to 2027 would be about $238.1 million.

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Appendix A: Bill 33

2018 Legislative Session: 3rd Session, 41st Parliament
THIRD READING

The following electronic version is for informational purposes only.
The printed version remains the official version.

Certified correct as passed Third Reading on the 17th day of May, 2018
Craig James, Clerk of the House

HONOURABLE SELINA ROBINSON
MINISTER OF MUNICIPAL AFFAIRS AND HOUSING

BILL 33 – 2018
SOUTH COAST BRITISH COLUMBIA TRANSPORTATION AUTHORITY AMENDMENT ACT, 2018

HER MAJESTY, by and with the advice and consent of the Legislative Assembly of the Province of British Columbia, enacts as follows:

1 Section 1 of the South Coast British Columbia Transportation Authority Act, S.B.C. 1998, c. 30, is amended

(a) in subsection (1) by adding the following definitions:

"development cost charge" means a charge imposed by a development cost charge bylaw;

"development cost charge bylaw" means a bylaw under section 34.21; **,**

(b) in subsection (5) (a) by adding "in the definition of "collection entity" in section 34.2, in the definition of "issuing entity" in section 34.29***" after "***34 (1) (b),***", and***

(c) in subsection (5) by striking out "and***" at the end of paragraph (d), by adding "***, and***" at the end of paragraph (e) and by adding the following paragraph:***

(f) a reference to "zoning bylaw" in section 34.29 must be read as including a law of the treaty first nation.

2 Section 6 (2) (b) is amended by striking out "and***" at the end of subparagraph (v), by adding "***and***" at the end of subparagraph (vi) and by adding the following subparagraph:***

(vii) development cost charges, **.**

3 Section 13.4 is amended by adding the following paragraph:

(i) if the authority imposes development cost charges during that year,

(i) the amount of the development cost charges received in that year,

(ii) the expenditures from the reserve fund under section 34.27 in that year,

(iii) the balance in the reserve fund under section 34.27 at the start and at the end of that year, and

(iv) any waivers and reductions under section 34.24 (3) in that year.

4 The following Part is added:

PART 3.1 – DEVELOPMENT COST CHARGES

Definitions

34.2 In this Part:

"capital costs" includes

(a) planning, engineering and legal costs directly related to the work for which a capital cost may be incurred under this Part, and

(b) interest costs directly related to an eligible project that are approved by the inspector to be included as capital costs;

"collection entity" means the following, as applicable under the development cost charge bylaw:

(a) a municipality in the transportation service region;

(b) the Metro Vancouver Regional District;

(c) The University of British Columbia;

"development" means those items referred to in section 34.21 (1) (a) and (b) for which a development cost charge may be imposed;

"eligible project" means a project to provide, construct, alter or expand assets, facilities and other real or personal property required for the regional transportation system;

"inspector" means the inspector of municipalities under section 758 of the *Local Government Act*;

"subdivision" has the same meaning as in section 455 of the *Local Government Act*.

Development cost charges – imposition and collection

34.21 (1) Subject to an agreement under section 34.31, the authority may, by bylaw, for the purpose described in subsection (2) of this section, impose development cost charges on every person who obtains

(a) approval of a subdivision that is within the transportation service region, or

(b) a building permit authorizing the construction, alteration or extension of a building or structure that is within the transportation service region.

(2) Subject to subsection (3), development cost charges may be imposed under subsection (1) for the purpose of providing funds to assist the authority to pay the capital costs of an eligible project to service, directly or indirectly, the development for which the charge is being imposed.

(3) Development cost charges may not be imposed under subsection (1) for the purpose of providing funds to assist the authority to pay capital costs incurred before 2018 or in relation to any of the following:

(a) a motor vehicle, other than a ferry;

(b) a vehicle that may be propelled by muscular power;

(c) a parking facility.

(4) Subject to subsection (5), a development cost charge that is payable under a bylaw under this section must be paid before or at the time of the approval of the subdivision or the issue of the building permit.

(5) The minister may, by regulation in respect of all or different classes of developments, authorize the payment of development cost charges in instalments and prescribe conditions under which the instalments may be paid.

(6) A collection entity must collect and remit the development cost charges imposed under subsection (1) to the authority in the manner provided for in the development cost charge bylaw or, if applicable, in accordance with a regulation under subsection (5).

Inspector approval required for development cost charge bylaw

34.22 (1) A bylaw that imposes a development cost charge must not be adopted until it has been approved by the inspector.

(2) The inspector may refuse to grant approval under subsection (1) if the inspector determines that

(a) the development cost charge is not related to capital costs attributable to eligible projects included in the investment plan, or

(b) the authority has not properly considered the matters referred to in section 34.25 (4).

(3) The inspector may revoke an approval under subsection (1) in respect of all or part of a bylaw that imposes a development cost charge.

(4) If the inspector revokes an approval, the part of the bylaw in respect of which the revocation applies has no effect until the authority amends the bylaw and obtains the inspector's approval of the amendment.

(5) The minister may, by regulation, provide exemptions from the requirement in subsection (1) to obtain the approval of the inspector.

(6) A regulation under this section may provide that an exemption is or may be made subject to the terms and conditions specified by the minister or by a person designated by name or title in the regulation.

Circumstances in which development cost charges are not payable

34.23 (1) A development cost charge is not payable in relation to a development authorized by a building permit that authorizes the construction, alteration or extension of a building or part of a building that is, or will be, after the construction, alteration or extension, exempt from taxation under any of the following:

(a) section 220 (1) (h) *[statutory exemption for places of public worship]* of the *Community Charter*;

(b) section 224 (2) (f) *[permissive exemptions in relation to places of public worship]* of the *Community Charter*;

(c) section 15 (1) (d) *[exemption for places of public worship]* of the *Taxation (Rural Area) Act*;

(d) section 396 (1) (c) (iv) *[property tax exemptions – churches]* of the *Vancouver Charter*;

(e) a law of a treaty first nation that provides for an exemption similar to an exemption under paragraphs (a) to (d) of this subsection.

(2) A development cost charge is not payable if a development cost charge has previously been paid for the same development unless, as a result of further development, additional capital cost burdens will be imposed on the authority.

(3) A development cost charge is not payable if the development does not impose additional capital cost burdens on the authority.

(4) Subject to a bylaw under subsection (5), a development cost charge is not payable in relation to a development authorized by a building permit that authorizes the construction, alteration or extension of a building that will, after the construction, alteration or extension,

(a) contain fewer than 4 self-contained dwelling units, and

(b) be put to no use other than the residential use in those dwelling units.

(5) The authority may, in a development cost charge bylaw, provide that a development cost charge is payable under the bylaw in relation to a building permit referred to in subsection (4).

(6) A development cost charge is not payable in relation to the construction, alteration or extension of self-contained dwelling units in a building authorized by a building permit if

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(a) subject to a bylaw under subsection (7) or a regulation under subsection (10) (a), each unit is no larger in area than 29 square metres, and

(b) each unit is to be put to no use other than the residential use in those dwelling units.

(7) The authority may, in a development cost charge bylaw, establish an area for the purposes of subsection (6) (a) that is greater than the area otherwise applicable, subject to the maximum area permitted by regulation under subsection (10) (b).

(8) A development cost charge is not payable in relation to a development authorized by a building permit if the value of the work authorized by the permit does not exceed, as applicable,

(a) $50 000, if no bylaw under subsection (9) or regulation under subsection (10) (c) applies,

(b) the amount prescribed by regulation under subsection (10) (c), if no bylaw under subsection (9) applies, or

(c) the amount established by bylaw under subsection (9).

(9) The authority may, in a development cost charge bylaw, establish an amount for the purposes of subsection (8) (c) that is greater than the amount otherwise applicable under subsection (8), subject to the maximum value permitted by regulation under subsection (10) (d).

(10) The minister may, by regulation, do one or more of the following:

(a) prescribe an area for the purpose of subsection (6) (a);

(b) prescribe a maximum area that may be established under subsection (7);

(c) prescribe an amount for the purposes of subsection (8) (b);

(d) prescribe a maximum value that may be established under subsection (9).

Development for which charges may be waived or reduced

34.24 (1) In this section, **"eligible development"** means a development that is eligible in accordance with an applicable bylaw or regulation under this section as being for one or more of the following categories:

(a) not-for-profit rental housing, including supportive living housing;

(b) for-profit affordable rental housing;

(c) a subdivision of small lots that is designed to result in low greenhouse gas emissions;

(d) a development that is designed to result in a low environmental impact.

(2) Except as authorized under this section, the authority must not waive or reduce a development cost charge.

(3) Subject to a bylaw under subsection (4) and an applicable regulation under subsection (5), the authority may waive or reduce a development cost charge for an eligible development.

(4) For the purposes of subsection (3), the authority, by bylaw,

(a) must establish what constitutes an eligible development or a class of eligible development for the purposes of one or more categories of eligible development described in subsection (1),

(b) must establish the amount or rates of reduction for an eligible development, which may be different for different categories of eligible development described in subsection (1) or different classes of eligible development established in the bylaw, and

(c) may establish the requirements that must be met in order to obtain a waiver or reduction under subsection (3) and the conditions on which such a waiver or reduction may be granted.

(5) The minister may make regulations in relation to subsection (4)

(a) establishing,

(b) restricting, or

(c) establishing criteria for determining

what constitutes an eligible development or a class of eligible development for the purposes of one or more categories of eligible development described in subsection (1).

Amount of development cost charges to be specified in bylaw

34.25 (1) A development cost charge bylaw must specify the amount of the charge or charges imposed in one or more schedules of development cost charges.

(2) Development cost charges may vary as provided in subsection (3), but must be similar for all developments that impose similar capital cost burdens on the authority.

(3) Development cost charges may vary with respect to one or more of the following:

(a) different zones or different defined or specified areas;

(b) different uses;

(c) different capital costs as they relate to different classes of development;

(d) different sizes or different numbers of lots or units in a development.

(4) In setting development cost charges, the authority must take the following into consideration:

(a) future land use patterns and development;

(b) the phasing of works and services;

(c) how development designed to result in a low environmental impact may affect the capital costs of an eligible project;

(d) whether the charges are excessive in relation to the capital cost of prevailing standards of service in the transportation service region;

(e) whether the charges will, in the transportation service region,

(i) deter development,

(ii) discourage the construction of reasonably priced housing or the provision of reasonably priced serviced land, or

(iii) discourage development designed to result in a low environmental impact.

(5) The authority must

(a) provide to every collection entity, and

(b) make available to the public on request

the considerations, information and calculations used to determine the schedule or schedules referred to in subsection (1), except that any information respecting the contemplated acquisition costs of specific properties need not be provided.

Deductions from development cost charges

34.26 Despite a development cost charge bylaw, if

(a) an owner has, with the approval of the authority, carried out or paid the cost of carrying out all or part of an eligible project, outside the boundaries of land being subdivided or developed, and

(b) the cost of the eligible project is included in the calculations used to determine the amount of a development cost charge,

the cost incurred or paid by the owner in respect of the carrying out of the eligible project must be deducted from the development cost charge applicable to the development.

Reserve fund and use of development cost charges

34.27 (1) If the authority receives money from the imposition of a development cost charge, the authority must, by bylaw, establish a reserve fund for that purpose.

(2) Amounts received by the authority under section 34.21 or 34.31 must be deposited by the authority in, or be credited to, the reserve fund.

(3) Subject to subsection (4), money in the reserve fund, together with interest on it, may be used only for the following purposes:

(a) to pay the capital costs of an eligible project that relate directly or indirectly to the development in respect of which the charge was collected;

(b) to pay principal and interest on a debt incurred by the authority as a result of an expenditure under paragraph (a);

(c) to pay a person subject to a development cost charge for some or all of the capital costs the person incurred in completing an eligible project described in paragraph (a) if

(i) the project was completed under an agreement between the person and the authority, and

(ii) the project is included in the calculations used to determine the amount of that development cost charge.

(4) If the amount to the credit of the reserve fund is greater than required for the purposes set out in subsection (3), the authority may, by bylaw, transfer all or part of the amount to another fund established by the authority for a capital purpose.

(5) A bylaw under subsection (4) must not be adopted until it has been approved by the inspector.

(6) Authority to make payments under subsection (3) must be authorized by resolution of the board.

(7) The inspector may require the authority to provide the inspector with a report

(a) on the status of development cost charge collections, expenditures and proposed expenditures for a time period the inspector specifies, and

(b) on waivers or reductions under section 34.24 (3).

(8) After reviewing a report under subsection (7), the inspector may order the transfer of funds from the reserve fund to another fund established by the authority for a capital purpose.

Effect of bylaws adopted after application for subdivision submitted

34.28 (1) This section applies in relation to a development cost charge bylaw that is adopted after

(a) an application for a subdivision of land located within a municipality has been submitted to a designated municipal officer and the applicable subdivision fee has been paid,

(b) subject to paragraph (c), an application for a subdivision of land located outside a municipality has been submitted to a district highway manager in a form satisfactory to that official, or

(c) an application for a subdivision of land in respect of a parcel of treaty lands of a treaty first nation has been submitted to the approving officer and the applicable subdivision fee has been paid.

(2) A development cost charge bylaw that would otherwise be applicable to the subdivision has no effect with respect to that subdivision for a period of 12

months after the bylaw is adopted.

(3) Subsection (2) does not apply if the applicant for that subdivision agrees in writing that the bylaw should have effect.

Effect of bylaws adopted after application for rezoning, development permit or building permit submitted

34.29 (1) In this section:

"in-stream" means not determined, rejected or withdrawn;

"issuing entity" means the following, as applicable in relation to an application for a building permit, development permit or amendment to a zoning bylaw:

(a) a municipality;

(b) the Metro Vancouver Regional District;

(c) a local trust committee under the *Islands Trust Act*;

(d) the board of governors of The University of British Columbia;

(e) the minister authorized to enact bylaws applicable to the University Endowment Land under the *University Endowment Land Act*;

"precursor application" means, in relation to a building permit,

(a) the application for the issuance of the building permit, if the application has been submitted in accordance with the applicable procedures established by the issuing entity and the applicable fee has been paid,

(b) an application for the issuance of a development permit, if

(i) the application has been submitted in accordance with the applicable procedures established by the issuing entity and the applicable fee has been paid, and

(ii) the development authorized by the building permit is entirely within the area of land that is the subject of the application, or

(c) an application for an amendment to a zoning bylaw, if

(i) the application has been submitted in accordance with the applicable procedures established by the issuing entity and the applicable fee has been paid, and

(ii) the development authorized by the building permit is entirely within the area of land to which the application relates.

(2) A development cost charge bylaw that would otherwise be applicable to the construction, alteration or extension of a building or structure has no effect with respect to that construction, alteration or extension if

(a) the building permit authorizing that construction, alteration or extension is issued within 12 months after the date the bylaw is adopted, and

(b) a precursor application in relation to that building permit is in-stream on the date the bylaw is adopted.

(3) Subsection (2) does not apply if the applicant for that building permit agrees in writing that the development cost charge bylaw should have effect.

Records relating to development cost charges

34.3 Each collection entity must

(a) maintain records in accordance with a development cost charge bylaw, and

(b) permit an employee or agent of the authority to inspect and make copies of those records.

Agreement with collection entity to replace development cost charges with payment

34.31 (1) The authority and a collection entity may enter into an agreement under which

(a) the authority agrees that all, or a portion of, the development cost charges that would otherwise apply are not required to be collected and remitted by the collection entity, and

(b) the collection entity agrees to pay to the authority an amount equal to the development cost charges given up by the agreement.

(2) If an agreement under subsection (1) applies, the collection entity must make payments to the authority in accordance with the agreement.

5 Section 194 (3) (d) is amended by adding the following subparagraph:

(v.1) all development cost charges referred to in section 199.1; .

6 The following section is added:

Investment plan references to development cost charges

199.1 The investment plan must, for each applicable year,

(a) set out the total amount the authority anticipates it will receive from development cost charges in that year,

(b) identify the eligible projects, as defined in section 34.2, the authority plans to engage in for or in relation to which expenditures from the reserve fund under section 34.27 will be required in that year, and

(c) estimate the money the authority will be required to pay in that year to fund the eligible projects referred to in paragraph (b).

Commencement

7 This Act comes into force on the date of Royal Assent.

Appendix B: Proposed DCC Framework (June 2018)

Revised Framework for DCC for Regional Transportation Infrastructure in Metro Vancouver: Proposed Structure and Rates | June 21, 2018

Introduction

As part of the funding strategy for future investments in the regional transportation system, TransLink is introducing a new regional Development Cost Charge (DCC). This new DCC will be levied on new development in the region, similar to how municipalities use DCCs to pay for certain types of local infrastructure and how the Greater Vancouver Sewerage and Drainage District (GVS&DD) uses a DCC to pay for regional sewer infrastructure. Provincial legislation has been amended to allow funds to be collected for regional transportation investments and to give TransLink the ability to raise funds in this way. This document summarizes the proposed structure of the new DCC and the proposed initial DCC rates for different types of development.

Status

The Provincial legislation to enable the new DCC was passed in May 2018. TransLink is now drafting two bylaws (a DCC Rate bylaw and an Affordable Housing DCC Waiver bylaw) based on the legislation and has developed this framework to assist in implementing the new DCC. Following further stakeholder consultation, TransLink intends to finalize the bylaws in the fall of 2018. As required by legislation, TransLink will seek approval of the DCC Rate bylaw by the Inspector of Municipalities. If approved, TransLink will then adopt the bylaws and DCC collections will commence in January 2020.

Legislation

The new DCC is enabled via amendments to the *South Coast British Columbia Transportation Authority Act* ("Bill 33"). The legislation is very similar to the provisions of the *Local Government Act* that allow municipalities to collect DCCs and to the legislation that allows GVS&DD to collect the regional sewer DCC. As with other DCCs, TransLink must pass a bylaw to implement the DCC.

Agency Responsible for the DCC

The TransLink Board, in consultation with the Mayors' Council and stakeholders, will be responsible for establishing DCC rates. TransLink will receive the revenue and allocate the funds to "eligible projects" (as defined in Bill 33). Collection entities (municipalities, the Metro Vancouver Regional District, and UBC) within the transportation service region will collect the DCCs as part of their development approval processes and remit the funds semi-annually to TransLink similar to the GVS&DD DCC process. Collection entities may, through an agreement with TransLink, not collect the DCC and instead remit an equivalent amount to TransLink, similar to the GVS&DD DCC structure.

Use of Funds

The DCC revenue is proposed to be applied to new transit capital investments identified in TransLink's Investment Plans. The legislation allows TransLink to apply the DCC revenues to eligible projects required for the regional transportation system. This could include, for example, new rapid transit lines, projects for capacity increases to existing rapid transit lines, new rail expansion vehicles, and new or expanded transit exchanges and bus depots. New or expanded regional bridges are also an eligible use of funds, as these are required for the regional transportation system, although TransLink initially intends to direct the funds to transit projects. The legislation does not allow the funds to be used for acquiring motor vehicles (which would include buses), bicycles, or parking facilities. Funds can be used for capital costs (as defined in Bill 33), including interest costs, but will not be applied to pay capital costs incurred before 2018, as required by legislation. Funds cannot be applied to transit operating expenses. The funds will initially be used for transit expansion capital projects identified in the 2017-2026 Phase One Investment Plan and in the 2018-2027 Phase Two Investment Plan. A list of transit expansion eligible projects expected to be funded by the DCC will be specified in the Investment Plans.

DCC's Contribution to Regional Share of Expansion Capital

The DCC is intended to be a supporting funding source by which new growth contributes to the regional share of capital expansion investments in TransLink 10-Year Investment Plans. The proposed DCC rates are intended to generate approximately $29 million annually, starting in 2020, growing with an annual inflation index. Other funding sources such as property tax and fuel sales tax would also contribute to paying for new growth-related capital investments, recognizing that the existing population also benefits from new transportation infrastructure.

Area of Collection

The DCC will be collected throughout the entire transportation service region (Metro Vancouver), except for any lands located outside the jurisdiction of the new legislation.

Types of Development for which the DCC Will Be Collected

The DCC will apply to new residential, commercial, industrial and institutional development. It is proposed that there would be exemptions for agricultural uses and waivers for certain types of affordable rental housing units, as well as statutory exemptions such as for places of worship. The legislation also gives TransLink the option of exempting residential projects with fewer than four new self-contained residential units. TransLink is proposing to apply the DCC to projects with fewer than four new self-contained units, consistent with the GVS&DD DCC (i.e. no exemption for duplexes, triplexes, and small townhouse projects). Also consistent with the GVS&DD, TransLink is proposing not to apply the DCC to laneway houses and secondary suites, although this exemption will be reviewed in the future. TransLink intends to generally align housing definitions and waivers with the GVS&DD DCC to the extent appropriate for the TransLink DCC, for ease of implementation by collection entities which collect the TransLink and GVS&DD DCCs on behalf of the regional agencies.

Basis of the Charge

For residential uses, TransLink intends to charge per unit (consistent with GVS&DD and many local governments in the transportation service region), although TransLink has the option of switching to a charge based on floor area in the future. For all non-residential uses, the DCC will be charged based on gross floor area.

Rate Structure

As with other legislation regarding DCCs, the new TransLink legislation gives the option of charging uniform rates across the entire transportation service region for each type of development or varying the rates by subarea. In the initial DCC Rate bylaw, TransLink intends to adopt uniform charges across the whole region for each type of residential unit and for each type of non-residential space.

Effective Date

The target for commencing DCC collections is January 15, 2020. The effective date of the DCC bylaws is proposed to be January 15, 2019, with the rates set to $0 (nil) in 2019 so that the DCC is not collected on building permits or subdivision approvals until January 15, 2020.

Inflation Adjustment

TransLink intends to adjust the DCC rates annually for inflation with prior notice of the amount of the annual adjustments.

Periodic Review and Rate Changes

TransLink intends to review the DCC rates at least every 3 years as part of its requirement to prepare a 10-Year Investment Plan at least every 3 years.

Transparency and Accountability

The legislation requires that:

- Any changes in DCC rates from a previously approved bylaw be set out by bylaw and through an Investment Plan, so there is a requirement for public and stakeholder discussion prior to the change.
- TransLink must report annually on the amount of DCC revenue collected, expenditures of DCC moneys, balance held in the DCC reserve account, and waivers or exemptions that have been granted.
- TransLink consider certain factors when setting DCC rates, notably whether the charges are excessive in relation to the capital cost of prevailing standards of service in the transportation service region, and whether the charges would discourage the construction of reasonably priced housing.
- TransLink provide information about the considerations, information, and calculations used to determine the DCC rates to collection entities and make this available to the public.
- TransLink's Investment Plans set out for each year in the Investment Plan the amount of DCC revenue anticipated to be collected, the eligible projects to be funded, and the expected expenditures on such projects.
- The Inspector of Municipalities must approve the DCC Rate bylaw before adoption by the TransLink Board.

In addition, TransLink's existing legislation requires public and stakeholder consultation every time it adopts a new Investment Plan, so there will be transparency regarding proposed capital investment projects and the intended application of DCC revenues to these projects.

Proposed DCC Rates:

Type of Development	Rates effective January 15, 2019	Rates effective January 15, 2020	Rates effective January 1, 2021**
Single Family Dwelling	$0 per Dwelling Unit	$2,100 per Dwelling Unit	$2,975 per Dwelling Unit
Duplex	$0 per Dwelling Unit	$1,900 per Dwelling Unit	$2,470 per Dwelling Unit
Townhouse Dwelling Unit	$0 per Dwelling Unit	$1,900 per Dwelling Unit	$2,470 per Dwelling Unit
Apartment Dwelling Unit	$0 per Dwelling Unit	$1,200 per Dwelling Unit	$1,545 per Dwelling Unit
Retail/Service	$0 per sq. ft. of Floor Area*	$1.25 per sq. ft. of Floor Area*	$1.25 per sq. ft. of Floor Area*
Institutional	$0 per sq. ft. of Floor Area*	$0.50 per sq. ft. of Floor Area*	$0.50 per sq. ft. of Floor Area*
Office	$0 per sq. ft. of Floor Area*	$1.00 per sq. ft. of Floor Area*	$1.00 per sq. ft. of Floor Area*
Industrial	$0 per sq. ft. of Floor Area*	$0.30 per sq. ft. of Floor Area*	$0.30 per sq. ft. of Floor Area*

*Calculated as the rate multiplied by the number of square feet of Gross Floor Area

**Rates subject to annual inflationary increases starting January 1, 2022

Appendix C: Ministerial Order M. 231

PROVINCE OF BRITISH COLUMBIA

REGULATION OF THE MINISTER OF MUNICIPAL AFFAIRS AND HOUSING

South Coast British Columbia Transportation Authority Act

Ministerial Order No. M 231

I, Selina Robinson, Minister of Municipal Affairs and Housing, order that the attached Development Cost Charge Regulation is made.

JUN 12 2018

Date

Minister of Municipal Affairs and Housing

(*This part is for administrative purposes only and is not part of the Order.*)

Authority under which Order is made:

Act and section: *South Coast British Columbia Transportation Authority Act*, S.B.C. 1998, c. 30, ss. 34.21 and 34.22

Other:

R10239612

page 1 of 3

DEVELOPMENT COST CHARGE REGULATION

Definitions

1 In this regulation:

"Act" means the *South Coast British Columbia Transportation Authority Act*;

"developer" means a person on whom a development cost charge is imposed;

"development cost charge amendment bylaw" means a bylaw that changes the amount of a development cost charge specified in a development cost charge bylaw.

Exemption – approval of development cost charge bylaws

2 (1) Subject to subsections (2) and (3), a development cost charge amendment bylaw is exempt from the approval requirement in section 34.22 of the Act if

(a) the bylaw changes the amount of one or more development cost charges once in a 12 month period after the date of the adoption of the bylaw, and

(b) the change in the amount of the development cost charge does not exceed the percentage change in the annual average Consumer Price Index for Vancouver, as published by Statistics Canada under the authority of the *Statistics Act* (Canada), for the calendar year before the date of the bylaw change referred to in paragraph (a) of this subsection.

(2) The authority may make use of an exemption under subsection (1) once each year for up to 4 years from

(a) the date of the adoption of a development cost charge bylaw approved by the inspector, or

(b) the date of the adoption of a bylaw approved by the inspector that amends a development cost charge bylaw.

(3) A copy of a development cost charge amendment bylaw under subsection (1) must be filed as soon as is reasonable with the inspector after the bylaw has been adopted.

Payment may be in instalment

3 A developer liable to pay a development cost charge may elect to pay it in instalments, subject to the conditions set out in sections 4 to 8.

Exception

4 Section 3 does not apply if the development cost charge is under $50 000 unless the authority has, in the development cost charge bylaw, authorized that all development cost charges under $50 000 imposed may be paid in instalments in accordance with this regulation.

Payment of charge in full

5 A developer must pay the development cost charge in full within 2 years after the date that the developer obtains a building permit or approval of a subdivision by paying not less than

(a) 1/3 of the total development cost charge at the time of obtaining the building permit or approval of the subdivision, and

(b) 1/2 of the balance within one year after the date of obtaining the building permit or approval of the subdivision.

Failure to pay instalment

6 If a developer elects to pay a development cost charge in instalments and fails to pay an instalment within any time required for payment by section 5, the total balance of the development cost charge becomes due and payable immediately.

Interest

7 If a developer elects to pay a development cost charge in instalments, no interest is payable on the unpaid balance of that development cost charge until the unpaid balance becomes due and payable, but when it does, interest is payable from that date until payment at the rate or rates prescribed under section 11 (3) of the *Taxation (Rural Area) Act* for the period of non-payment.

Surety for payment in instalment

8 A developer who elects to pay a development cost charge in instalments must deposit with the authority, at the same time as the developer pays the first instalment,

(a) an irrevocable letter of credit or undertaking from a bank, or a credit union or trust company that has a business authorization issued under the *Financial Institutions Act*,

(b) a bond of an insurer that has a business authorization issued under the *Financial Institutions Act*, or

(c) a security duly assigned

that ensures to the satisfaction of the authority that upon default the balance of the unpaid development cost charge will be recoverable from the person, the bank, the credit union, the trust company or the insurer or from the proceeds of the realization of the security, as the case may be.

Appendix D: Fall 2017 Preliminary Test of Uniform Vs Tiered Rates (Superceded)

D.1 Overview

The following preliminary DCC revenue tests were completed in fall 2017 and the results were presented at the workshop with government agencies and the workshop with developers held in October 2017. These preliminary DCC revenue tests have since been **superceded** based on refinements generated by feedback at the workshop and further detailed analysis, but are provided here for reference.

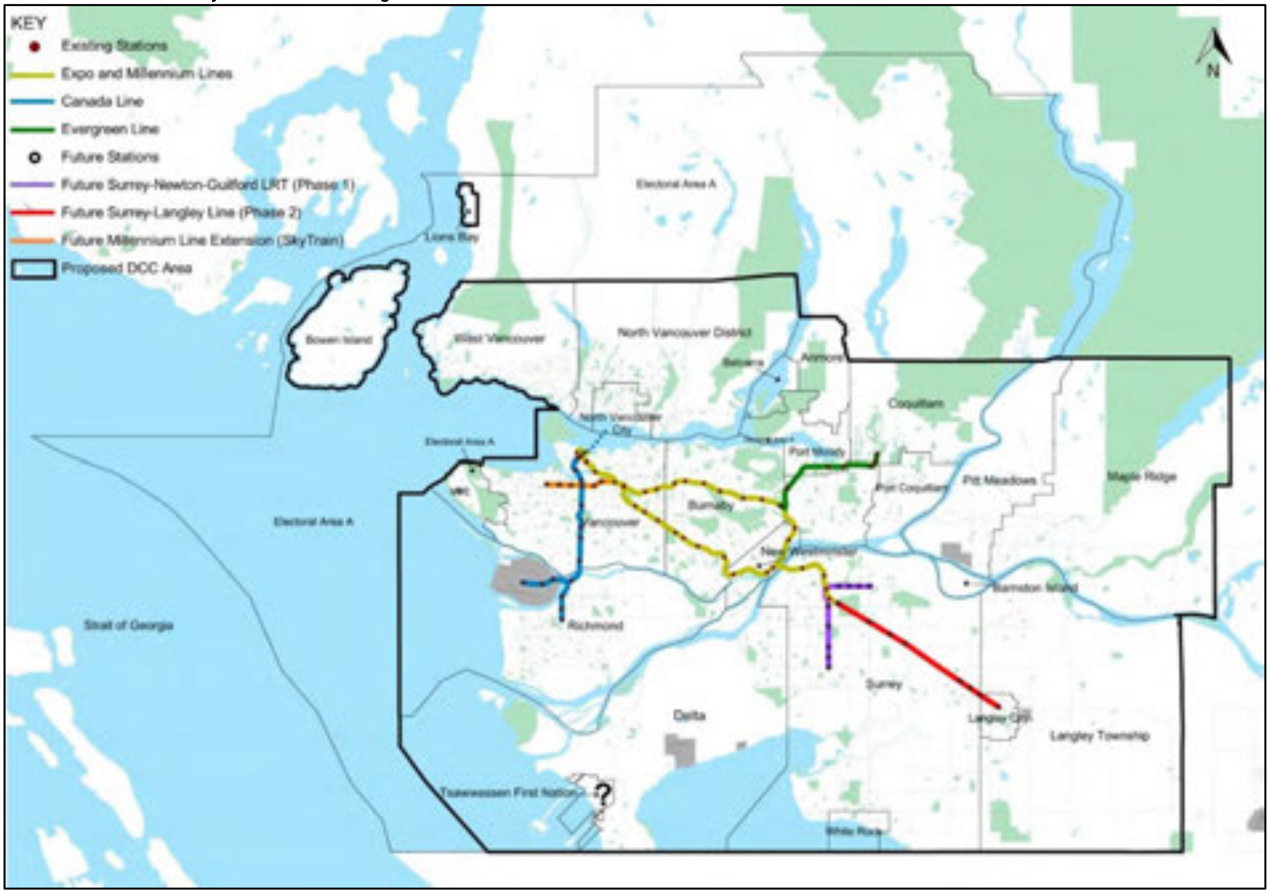
D.2 Boundaries

In considering whether to charge the DCC as a uniform rate or vary the DCC by sub-area within the region, the biggest challenge was deciding on the basis for dividing the region into subareas. These options were considered:

- One early test involved considering a higher rate in the two municipalities (Vancouver and Surrey) that are proposed to have the next major capital investments in rapid transit. This approach has two major flaws. First, while new development in Vancouver can sustain a higher DCC than most places in the region, Surrey cannot because it has less financial room than, for example, Burnaby or North Vancouver. This leads to the paradox that Surrey "should" be in the higher rate area, based on investment, but cannot pay a higher rate than places not receiving the same level of investment. This approach would only work if Vancouver had a materially higher rate than Surrey, which would seem to violate the principle of fairness in that both municipalities are proposed to receive significant capital investment. Second, this approach assumes that Vancouver is getting a disproportionate share of the benefits because it is getting a disproportionate share of the investment. However, most beneficiaries of improved rapid transit in the Broadway corridor live outside the City of Vancouver.
- A second test was based on defining corridors within walking distance along all of the Frequent Transit Network (FTN) routes in the region. The premise is that these areas are most likely to directly benefit from transit investments. Mapping these corridors showed an immediate challenge: in some municipalities the extensive FTN network produced a swiss cheese patchwork of higher and lower rates that would have been difficult to administer and could lead to an unintentional shift in development activity to just the other side of the corridor boundaries.
- A third test involved the idea that the whole region could be divided into a large subarea with a relatively higher intensity of transit service and a relatively lower intensity of transit service. This third approach was selected as being the best basis for a financial test of the tiered approach.

As a preliminary basis for a financial test, the boundary map shown in Exhibit D1 was used for the test of uniform rates across the region.

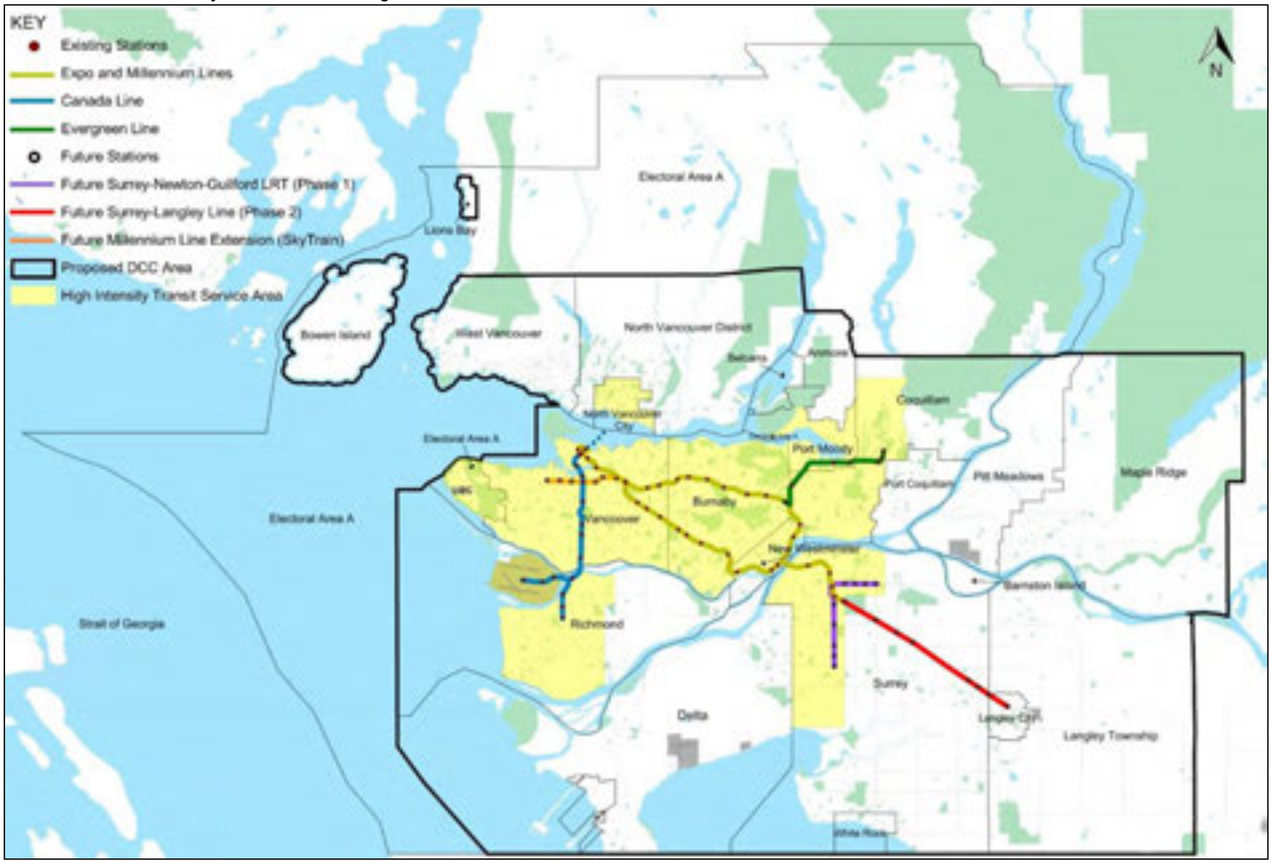
Exhibit D1: Preliminary Basis for Testing Uniform Rates



As a preliminary basis for a financial test, the boundary map in Exhibit D2 was used for the test of tiered rates in different sub-areas throughout the region.

The sub-area map in Exhibit D2 is almost certainly not "right" in the sense of accurately mapping in fine detail the difference between levels of transit service. However, it was a rough approximation based on the premise that areas connected to the existing and proposed rapid transit network will have a higher level of service. So, the City of North Vancouver (SeaBus), Richmond (Canada Line), the Northeast Sector (Evergreen Extension of the Millennium Line), Surrey (Expo line and future LRT lines), Burnaby (Expo and Millennium lines), New Westminster (Expo and Millennium lines), and Vancouver (Expo, Millennium, Canada, and SeaBus lines) are shown as the higher intensity service area. Refinement eliminated the west half of Richmond, south half of Surrey, and the east half of Coquitlam as these are not near rapid transit lines. The east half of Surrey and Langley City Centre which are served by Phase 2 of the future Surrey-Langley line are not included as they are not part of the capital expansion projects in the Phase One Investment Plan.

Exhibit D2: Preliminary Basis for Testing Tiered Rates



D.3 Rates and Revenues Tested

The preliminary uniform versus tiered rate boundaries were used to produce a comparison of two different DCC rate structures. Key assumptions in this comparison were:

- The uniform rate test was designed to produce the target of about $20 million per year (uninflated$), using DCC rates regarded as viable for each use across Metro Vancouver.
- The tiered rate test was designed to produce the same total target revenue, but with a material difference in DCC rates for each use in the two sub-areas. The upper limit on rates in the higher transit service tier area was based on the portions of the subarea with the least ability to absorb new development costs.

The two rate structures are shown in Exhibit D3 and the two revenue estimates are summarized in Exhibit D4. Exhibit D5 contains the more detailed calculations of revenues.

One outcome of this experiment in tiered rates is that it became clear during meetings of the Local Government Working Group as well as the workshop with local government representatives in the fall of 2017 that obtaining universal agreement among municipal stakeholders on the appropriate boundaries was not likely achievable.

Another argument in favour of uniform rates resulting from these tests are that the differences between the rates under a tiered system compared to a uniform system for the lower transit served portions of the region are significant in percentage terms but not in absolute dollar terms.

Exhibit D3: Fall 2017 Rates[a] for Testing a Uniform vs. Tiered System

	Scenario 1: Uniform Rates Throughout Region	Scenario 2: Tiered Rates	
		Rates in High Intensity Transit Area	Rates in Rest of Region
Single family ($ per unit)	$2,100	$2,400	$1,600
Townhouse ($ per unit)	$1,900	$2,200	$1,400
Apartment ($ per unit)	$1,200	$1,400	$900
Retail/service ($ per square foot)	$1.00	$1.00	$0.50
Office ($ per square foot)	$0.50	$0.75	$0.25
Industrial ($ per square foot)	$0.50	$0.50	$0.50

Exhibit D4: Summary of Fall 2017 Average Annual DCC Revenues from Testing Uniform vs. Tiered Rates (see Exhibits D5 and D6 for details)

	Scenario 1: Uniform Rates Throughout Region (average annual revenues in millions)	Scenario 2: Tiered Rates		
		Revenue from High Intensity Transit Area (average annual revenues in millions)	Revenue from Rest of Region (average annual revenues in millions)	Scenario 2 Total (average annual revenues in millions)
Single family	$3.1	$0.3	$2.2	$2.4
Townhouse	$5.6	$3.1	$2.1	$5.2
Apartment*	$10.3	$9.7	$1.5	$11.2
Retail/service	$1.1	$0.7	$0.2	$0.9
Office	$0.5	$0.5	$0.1	$0.6
Industrial	$0.9	$0.4	$0.4	$0.9
Total**	$21.5	$14.7	$6.5	$21.2
Share of Total DCC Revenues	100%	69%	31%	100%

Notes: * Assumes 20% of apartment development is affordable rental and exempt and ** Does not include a revenue forecast for institutional.

Exhibit D5: Fall 2017 Detailed Calculation of Preliminary DCC Revenues Test from Uniform Rates

	Uniform Rates Throughout Region	2011-2045 Total Development Forecast for Region	2011-2045 Development Forecast for Region Included in Preliminary DCC Revenue Forecast*	2011-2045 Total DCC Revenue	% deemed affordable housing	Adjustment factor for share of revenues in first 10 years after implementation (2020-2030)	Total DCC Revenue in 2020-2030	Average Annual DCC Revenue in 2020-2030 (rounded)
SF	$2,100	54,007	53,187	$111,693,435	0%	28.0%	$31,306,016	$3,131,000
TH	$1,900	105,337	104,790	$199,101,486	0%	28.0%	$55,805,198	$5,581,000
APT	$1,200	382,136	382,136	$458,563,673	20%	28.0%	$102,822,886	$10,282,000
Retail/service	$1.00	38,643,481	37,986,638	$37,986,638	0%	28.3%	$10,757,910	$1,076,000
Office	$0.50	35,039,063	34,963,955	$17,481,977	0%	28.3%	$4,950,939	$495,000
Industrial	$0.50	61,269,431	60,270,495	$30,135,248	0%	28.3%	$8,534,377	$853,000
Total	n/a	n/a	n/a	$854,962,457	n/a	n/a	$214,177,328	**$21,418,000**

Note: The preliminary DCC Revenue tests were completed using development forecasts on a traffic zone basis from previous work Coriolis Consulting Corp. completed for TransLink in July 2014 ("Population, Household, and Employment Forecasts for the Regional Transportation Strategy (RTS) Base Case and Alternatives"). The residential development forecasts are in number of units and the retail/service, office, and industrial development forecasts are floorspace in sq.ft.. * The Fall 2017 analysis excluded development in traffic zone 6750 (Tsawwassen First Nation) and excluded institutional development.

Exhibit D6: Fall 2017 Detailed Calculation of Preliminary DCC Revenues Test for Tiered Rates

HIGH INTENSITY AREA

	DCC Rates High Intensity Transit Area	2011-2045 Total Development Forecast for High Intensity Area	2011-2045 Development Forecast for High Intensity Area Included in Preliminary DCC Revenue Forecast	2011-2045 Total DCC Revenue for High Intensity Area	% deemed affordable housing	Adjustment factor for share of revenues in first 10 years after implementation (2020-2030)	Total DCC Revenue in 2020-2030 from High Intensity Area	Average Annual DCC Revenue in 2020-2030 from High Intensity Area (rounded)
SF	$2,400	3,835	3,835	$9,202,800	0%	28%	$2,579,409	$258,000
TH	$2,200	50,148	50,148	$110,324,596	0%	28%	$30,922,351	$3,092,000
APT	$1,400	308,985	308,985	$432,578,939	20%	28%	$96,996,377	$9,700,000
Retail/service	$1.00	25,482,339	25,482,339	$25,482,339	0%	28%	$7,216,662	$722,000
Office	$0.75	24,578,039	24,578,039	$18,433,529	0%	28%	$5,220,421	$522,000
Industrial	$0.50	29,183,780	29,183,780	$14,591,890	0%	28%	$4,132,459	$413,000
Total	n/a	n/a	n/a	$610,614,093	n/a	n/a	$147,067,679	**$14,707,000**

REST OF REGION

	DCC Rates in Rest of Region	2011-2045 Total Development Forecast for Rest of Region	2011-2045 Development Forecast for Rest of Region Included in Preliminary DCC Revenue Forecast*	2011-2045 Total DCC Revenue for Rest of Region	% deemed affordable housing	Adjustment factor for share of revenues in first 10 years after implementation (2020-2030)	Total DCC Revenue in 2020-2030 from Rest of Region	Average Annual DCC Revenue in 2020-2030 from Rest of Region (rounded)
SF	$1,600	50,172	49,353	$78,964,560	0%	28%	$22,132,597	$2,213,000
TH	$1,400	55,189	54,643	$76,499,797	0%	28%	$21,441,760	$2,144,000
APT	$900	73,151	73,151	$65,836,294	20%	28%	$14,762,351	$1,476,000
Retail/service	$0.50	13,161,141	12,504,299	$6,252,149	0%	28%	$1,770,624	$177,000
Office	$0.25	10,461,025	10,385,916	$2,596,479	0%	28%	$735,329	$74,000
Industrial	$0.50	32,085,651	31,086,715	$15,543,358	0%	28%	$4,401,918	$440,000
Total	n/a	n/a	n/a	$245,692,637	n/a	n/a	$65,244,579	**$6,524,000**

TOTAL FOR TIERED SYSTEM

	2011-2045 Total Development Forecast for Region	2011-2045 Development Forecast for Region Included in Preliminary DCC Revenue Forecast*	2011-2045 Total DCC Revenue	Total DCC Revenue in 2020-2030	Average Annual DCC Revenue in 2020-2030 (rounded)
SF	54,007	53,187	$88,167,360	$24,712,006	$2,471,000
TH	105,337	104,790	$186,824,393	$52,364,111	$5,236,000
APT	382,136	382,136	$498,415,233	$111,758,728	$11,176,000
Retail/service	38,643,481	37,986,638	$31,734,489	$8,987,286	$899,000
Office	35,039,063	34,963,955	$21,030,008	$5,955,751	$596,000
Industrial	61,269,431	60,270,495	$30,135,248	$8,534,377	$853,000
Total	n/a	n/a	$856,306,730	$212,312,258	**$21,231,000**

Note: The preliminary DCC Revenue tests were completed using development forecasts on a traffic zone basis from previous work Coriolis Consulting Corp. completed for TransLink in July 2014 ("Population, Household, and Employment Forecasts for the Regional Transportation Strategy (RTS) Base Case and Alternatives"). The residential development forecasts are in number of units and the retail/service, office, and industrial development forecasts are floorspace in sq.ft.. * The Fall 2017 analysis excluded development in traffic zone 6750 (Tsawwassen First Nation) and excluded institutional development.

Appendix E: Supporting Analysis for the December 2017 Draft DCC Rates (Superceded)

E.1 December 2017 Draft Proposed Residential Rates

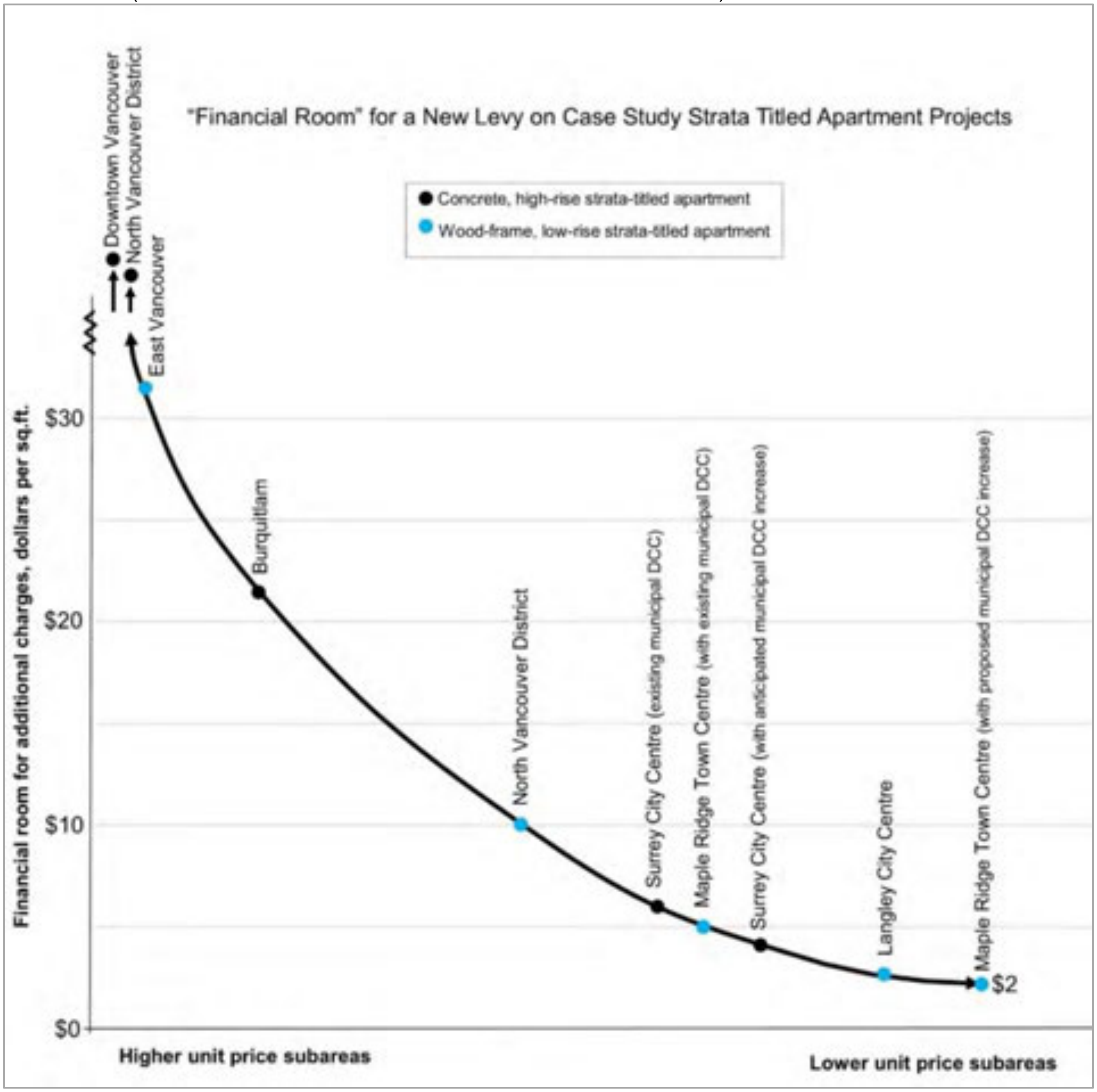
For residential development, the approach to calculating the December 2017 draft rates was as follows:

- Analyze the DCC rate that could be absorbed by new apartment development, because apartments support the lowest land value (per unit) in any submarket, apartments will account for a large share of total residential development, and apartments must compete with other high land value uses (e.g. single family homes, commercial projects) for land.
- Select a diverse array of case study sites around the region. These sites are all in locations that are good candidates for redevelopment, based on municipal policy and market interest.
- For each site, model the financial performance of a new strata title apartment development, based on the applicable allowable density in that area. The approach to modeling is called residual land analysis, which is a common method of estimating the value of land that includes an estimate the revenue from selling the completed units, deducts all construction costs (hard and soft), and deducts a typical allowance for developer profit. The amount left over is the residual land value, which is the maximum a developer could afford to pay for the site and have a viable development project.
- Estimate the value of the case study site in its current use (in most cases the sites are assemblies of single family houses or older lower density commercial properties) and, where applicable, add a premium so that there is a built-in incentive for the existing land owner to sell the property to a developer. As long as redevelopment supports a higher land value than the existing use, the site should be a redevelopment candidate. The analysis incorporated the (at that time) proposed increase in the GVS&DD regional sewer rates (this has since been approved), recent/planned increases in local government DCCs at the time, and any fixed rate local government CACs where applicable. CACs in cases in which they would be negotiated are not included.
- Calculate the difference between the value of the site in its current use and the value of the site under redevelopment, which is the financial "room" for the new DCC and then express this in terms of dollars per square foot of developable floor area. There could be competing interests for this financial "room", including the TransLink DCC, future changes to municipal DCC rates, and negotiated local government CACs where applicable.

The analysis found that the ability to absorb a new DCC varied widely across the region because of large differences in the market price of new units and existing land values. The graph in Exhibit E1 summarizes the results of the apartment pro forma analysis based on market analysis in August 2017. At that time, the lowest land value areas could only support a new levy of about $2 per square foot of residential space. For this reason, the November 2017 draft DCC framework and the December 2017 draft technical report proposed a DCC rate for apartment units of $1,200 per unit, which worked out to about $1.41 per square foot on the average sized apartment.[46]

[46] Based on data from the Greater Vancouver and Fraser Valley Real Estate boards, new apartment units in the region (built in 2016/17 only) that sold during the 6 month period from April to September 2017 had an average unit size of 850 square feet gross.

Exhibit E1: "Financial Room" for a New DCC Based on Analysis for Illustrative Strata-Titled Apartment Projects in the Region AS OF AUGUST 2017 (INCLUDED IN THE DECEMBER 2017 DRAFT TECHNICAL REPORT)



For townhouses, case studies in the lowest value markets were also tested using pro forma analysis. The analysis found that there could be a substantial difference in ability to pay between and within submarkets. At that time, new suburban townhouse project on a greenfield site could absorb a relatively large new charge, whereas a similar project on a nearby redevelopment site (say an assembly of single detached lots) could absorb a charge on the order of $5 per square foot.

For this reason, the DCC rates for different forms of residential development were set to be commensurate with their relative load on regional transit or relative benefit, based on comparative household size, rather than be based solely on ability to pay based on financial analysis. It did not seem fair to charge a much higher rate for townhouses simply because that form of development has greater financial capacity to pay.

Exhibit E2 shows the average household size in Metro Vancouver by type of dwelling based on 2016 census data. Average household size in townhouse units in the region is 2.9 people per household, compared to 1.9 people per household for apartment units (i.e. 1.6 times larger). Using this ratio, the December 2017 proposed DCC rate was $1,900 per townhouse unit (i.e. $1,200 per apartment unit x 1.6, rounded). This works out to (for example) about $1.26 per square foot for a 1,500 square foot townhouse unit.[47]

A similar approach was used for single family housing because new subdivision on a greenfield site creates the ability to absorb a substantial charge, considering that the alternative use of the land is limited. Average household size in single detached units in the region is 3.1 people per household, compared to 2.9 people per household for townhouse units (i.e. 1.1 times larger). Using this ratio, the December 2017 proposed DCC rate was $2,100 per single detached unit (i.e. $1,900 per townhouse unit x 1.1, rounded).

Exhibit E2: Average Household Size in Metro Vancouver by Type of Dwelling (2016)

	# of private households	# of people	Average household size	Multiplier
Single family	282,355	881,260	3.1	1.1 (single family compared to townhouse)
Duplex/townhouse	271,695	791,680	2.9	1.6 (townhouse compared to apartment)
Apartment	402,265	745,230	1.9	n/a
Regional Total	956,315	2,418,170	2.5	n/a

Source: Statistics Canada, Data Tables, 2016 Census. Excludes mobile homes. Summarized by Coriolis.

E.2 December 2017 Draft Proposed Non-Residential Rates

The December 2017 draft proposed non-residential rates were proposed using this approach:

- **Office**: The same basic method to estimating the financial room for a new levy was used for office development as for residential (altered to reflect the difference in how commercial real estate is valued) and found that, based on market conditions as of August 2017 and in the context of setting uniform region-wide rates, the rate for office development needed to be modest or nominal. Even in higher land value sub-areas, the analysis suggested that there was no material financial room for a new transit DCC on office projects. This was consistent with the findings in work Coriolis completed for the City of Vancouver in June 2017 which noted that a significant increase in the office DCL rate in Vancouver would negatively affect the viability of office development.

  This conclusion reflects the fact that there are many low density commercial sites around the region where it is not economical to buy the site, demolish the existing low density improvements, and build an

47 Based on data from the Greater Vancouver and Fraser Valley Real Estate boards, new townhouse units in the region (built in 2016/17 only) that sold during the 6 month period from April to September 2017 had an average unit size of 1,500 square feet.

office project. The rents achieved by older, low density retail space are often sufficiently high enough that the property is worth more as an income-producing asset than as an office redevelopment site. In order for office development to be viable, it needs to happen in locations where office use is not competing with residential use (which is challenging particularly in transit-oriented locations where local governments might want to see both employment and residential space developed) and where existing property values are low.

Based on this, the December 2017 draft proposed office rate was proposed at $0.50 per square foot as a nominal charge.

- **Industrial**: The same basic method to estimating the financial room for a new levy was also used for industrial and, as with office development, found that, based on market conditions as of August 2017 and in the context of setting uniform region-wide rates, the rate for industrial development needed to be nominal as there was no material financial room for a new levy on industrial projects.

  Industrial development often occurs on zoned, serviced, subdivided lots so there is not the same change in land use and density as typically occurs for multi-family residential or high density office development. Therefore, the analysis also looked at the impact of a new nominal charge on developer's profit. A simple example illustrates this approach. Assume a one acre light industrial site to be developed at a typical low density of 0.5 FAR. In this case, the building will have an area of about 22,000 square feet and will likely cost on the order of $150 per square foot (all costs included) to build. Industrial land values in the suburbs are in the range of say $3 million per acre. So, this project would cost about $6.3 million to build ($3 million for the land and $3.3 million for the structure). Adding a new DCC of $0.50 per square foot adds about $11,000 (i.e. around two tenths of one percent) to the cost.

  Based on this, the December 2017 draft industrial rate was proposed at $0.50 per square foot as a nominal charge. Given the low ability of industrial (and office) uses to absorb a new cost, it might be argued that the rate for these uses should be $0. However, the use of a nominal rate sets up the expectation that all development should make a contribution and will make it simpler to make adjustments later if supported by market conditions. Making a small change to a fee is usually easier than adding a cost that was previously set to zero.

- **Retail**: A substantial amount of retail development in the region occurs as part of mixed-use projects, so instead of pro forma analysis, the December 2017 draft DCC rate for retail was set based on the premise that retail puts more demand on transit infrastructure than office or industrial use because retail space involves trips driven by both employees and customers. The December 2017 draft retail rate was proposed at $1.00 per square foot (i.e. double the proposed office and industrial rate).

- **Institutional**: For institutional uses, a different approach is needed because there is not an ability to shift the DCC cost onto land value. Most institutional uses (e.g. hospitals, universities, civic buildings) are somewhat comparable to office environments in terms of intensity of use (by employees and users) so the December 2017 draft DCC rate for institutional use was set to match the draft proposed office rate ($0.50 per square foot).

Appendix F: Financial Analysis of Hypothetical Strata Titled Apartment Development Case Studies

Downtown Vancouver – Concrete, High-Rise, Strata-Titled Apartment

Downtown Vancouver (assumes site in Downtown South - DD L1 District) Analysis completed in May 2018
Land Residual Analysis for High Rise Concrete Strata Residential Project at 5.0 FSR with 300 feet height limit
New GVS&DD DCC and New Municipal DCL
Major Assumptions ***(shading indicates figures that are inputs; unshaded cells are formulas)***

Site and Building Size						
Site Size	24,000	sq.ft.				
	200	feet of frontage				
Existing Base Density	5.00	FSR				
Residential Density Before Exclusions	5.00	FSR				
Storage	0.25		39.8	sf per unit		
Total Effective Gross Density After Bonuses and Exclusions	5.25	FSR				
Total Gross floorspace	125,974	gross sq.ft.				
Market Strata Residential floorspace	125,974	gross square feet				
Net saleable space	107,078	sq.ft. or	85%	of gross area		
Average Gross unit size	840	sq.ft. gross				
Average Net unit size	714	sq.ft.				
Number of units	150	units or	672	per hectare		
Total Market Strata Unit Parking Stalls (including visitors)	165	stalls or	1.1	per unit		
Underground/structured parking stalls provided	165	stalls	66,000	square feet		
Strata Revenue and Value						
Overall Average Sales Price Per Sq. Ft.	$1,900	per sq.ft. of net saleable residential space				
Construction Costs						
Allowance for Demolition of Existing Buildings	$300,000					
Site Servicing	$182,927	or	$3,000	per metre of frontage		
Connection fees	$50,000					
Hard Construction Costs						
Hard Cost Used in Analysis	$500	per gross sq.ft.				
Soft costs/professional fees (excluding management)	9.0%	of above				
Project Management	3.0%	of above				
Post Construction Holding Costs	$500	per unit per month on	50%	of units	6	months
Contingency on hard and soft costs	3.5%	of hard and soft costs				
Local Government Levies						
GVS&DD DCC - regional sewer levy (residential)	$1,072	per market unit				
Municipal DCL - residential	$15.62	per sq.ft. of floorspace				
Financing Assumptions						
Financing rate on construction costs	5.0%	on 50% of costs, assuming a	3.00	year construction period		
		and a total loan of	75%	on costs		
Financing fees	1.50%	of financed construction costs				
Financing on Land Acquisition	5.0%	during construction on	50%	of land cost		
Marketing and Commissions						
Commissions/sales costs on residential	3.0%	of gross strata market residential revenue				
Marketing on residential	3.0%	of gross strata market residential revenue				
Total Property Taxes						
Tax Rate (res)	0.25549%	of assessed value				
Tax Rate (comm)	1.244%	of assessed value				
Current assessment (Year 1 of analysis)	$40,085,900					
Assumed assessment after 1 year of construction (Year 2 of analysis)	$101,724,139	(50% of completed project value)				
School Tax Surcharge During Development						
Tax Rate	0.2%	between $3.0-$4.0 million, and	0.4%	over $4.0 million		
Residential Portion of current assessment (Year 1 of analysis)	$0					
Assumed residential portion of assessment after 1 year of construction	$101,724,138.86	(50% of completed residential project value)				
Speculation Tax During Development*						
Tax Rate	0.5%					
Residential Portion of current assessment (Year 1 of analysis)	$0					
Assumed residential portion of assessment after 1 year of construction	$101,724,139	(50% of completed residential project value)				
*Assumes BC Owner						
Allowance for Developer's Profit	15.0%	of total costs or	13.0%	of gross revenue		

Downtown Vancouver – Concrete, High-Rise, Strata-Titled Apartment CONTINUED

Analysis

Revenue		
Gross Market Residential Sales Revenue	$203,448,278	
Less commissions and sales costs	$6,103,448	
Net residential sales revenue	$197,344,829	
Total Value Net of Commissions	$197,344,829	
Project Costs		
Allowance for Demolition of Existing Buildings	$300,000	
Site Servicing	$182,927	
Connection fees	$50,000	
Hard construction costs	$62,987,083	
Soft costs	$5,716,801	
Project Management	$2,077,104	
Residential Marketing	$6,103,448	
Post Construction Holding Costs	$112,500	
Contingency on hard and soft costs	$2,713,545	
GVS&DD DCC - regional sewer levy (residential)	$160,800	
DCLs - residential	$1,967,907	
Less Property Tax Allowance During Development	$622,203	
Less School Tax Surcharge During Development	$785,793	
Less Speculation Tax Surcharge During Development	$1,017,241	
Construction financing	$4,769,851	
Financing fees/costs	$1,007,631	
Total Project Costs Before Land Related	$90,574,836	
Allowance for Developer's Profit	$26,529,655	
Residual to Land and Land Carry	**$80,240,338**	
Less financing on land during construction and approvals	$6,509,497	
Less property purchase tax	$2,103,848	
Residual Land Value	**$71,626,993**	
Existing Income Producing Value	$28,480,000	Note A
Increase in Value	$43,146,993	
Max supportable DCL increase per sq. ft.	**$343**	

Note A:
Existing use = 5 lots with a combined site size of 24,000 sq.ft. an existing older, low density commercial space including 3,750 sq.ft. office and 21,250 sq.ft. retail
Existing value = $23.7 million (assuming office rents of $22 per sq.ft., retail rents of $38 per sq.ft., 100% of the space is rentable, 0% vacancy/non-recoverables, and a cap rate of 3.75%)
Assembly premium/incentive to sell = 20%
Total existing value = $23.7 million x 120% = $28.5 million

Summary

Gross sales revenue	$203,448,300	
- Total costs	$105,291,600	(all-in cost = $835.82 per gross sq.ft.)
- Profit	$26,529,700	
= Land value	$71,627,000	
- Existing use value	$28,480,000	
= Financial room	$43,147,000	
Maximum "room" for a new levy ($ per sq.ft. buildable)	**$343**	

East Vancouver Main Street – Woodframe, Low-Rise, Strata-Titled Apartment

City of Vancouver - Main Street

Low-Rise Woodframe Apartment in C-2 Zone - 4 storeys at 2.5 FSR

New GVS&DD DCC and Existing Municipal DCC Analysis completed in May 2018

Major Assumptions (shading indicates figures that are inputs; unshaded cells are formulas)

Site and Building Size						
Site Size	14,645	sq.ft.				
	122	feet of frontage				
Existing Base Density	2.50	FSR				
Density with Bonuses	2.50	FSR				
Assumed Commercial Density	0.30	FSR				
Residential Density Before Exclusions	2.20	FSR				
Effective Residential Density After Bonuses and Exclusions	2.20	FSR				
Total Effective Gross Density After Bonuses and Exclusions	2.50	FSR				
Total Gross floorspace	36,613	gross sq.ft.				
Commercial floorspace	4,394	sq.ft.				
Retail	4,394	sq.ft.				
Market Strata Residential floorspace	32,219	gross square feet				
Net saleable space	27,386	sq.ft. or	85%	of gross area		
Average Gross unit size	716	sq.ft. gross				
Average Net unit size	609	sq.ft.				
Number of units	45	units or				
Total Market Strata Unit Parking Stalls (including visitors)	50	stalls or	1.1	per unit		
Total Retail Parking Stalls	5	stalls or 3 for the first 300 sq.m. plus 1 per 50 additional sq.m.				
Total Parking Stalls	55	stalls				
Underground/structured parking stalls provided	55	stalls	22,000	square feet of parking		
Strata Revenue and Value						
Average Sales Price Per Sq. Ft.	$1,150	per sq.ft. of net saleable residential space				
Retail Revenue and Value						
Average Retail Lease Rate for Retail Space	$50.00	per sq. ft. net				
Capitalization Rate for Retail Space	4.25%					
Value of Retail Space on Lease Up	$1,118	per sq. ft. of leasable area, with	5.00%	allowance for vacancy		
Construction Costs						
Allowance for Demolition of Existing Buildings	$45,000					
Site Servicing	$111,623	or	$3,000	per metre of frontage		
Connection fees	$50,000					
Hard Cost Used in Analysis	$280	per gross sq.ft.				
Landscaping	$146,450	or	$20	per sq.ft. on 50% of site		
Soft costs/professional fees (excluding management)	9.0%	of above				
Project Management	3.0%	of above				
Post Construction Holding Costs	$500	per unit per month on	50%	of units	6	months
Contingency on hard and soft costs	3.5%	of hard and soft costs				
Local Government Levies						
Regional Levy	$1,072	per market unit				
Regional Levy - Commercial	$0.930	per sq.ft. of floorspace				
Residential DCLs	$15.62	per sq.ft. of floorspace				
Commercial DCLs	$13.91	per sq.ft. of floorspace				
Financing Assumptions						
Financing rate on construction costs	5.0%	on 50% of costs, assuming a	1.50	year construction period		
		and a total loan of	75%	on costs		
Financing fees	1.50%	of financed construction costs				
Financing on Land Acquisition	5.0%	during construction on	50%	of land cost		
Marketing and Commissions						
Commissions/sales costs on residential	3.0%	of gross strata market residential revenue				
Commissions on commercial sale	2.0%	of commercial value				
Marketing on residential	3.0%	of gross strata market residential revenue				
Leasing commissions on commercial	17.0%	of Year 1 income				
Marketing/TI on commercial space	$25	psf				
Total Property Taxes						
Tax Rate (res)	0.255489%	of assessed value				
Tax Rate (comm)	1.386%	of assessed value				
Current assessment (Year 1 of analysis)	$13,277,400					
Assumed assessment after 1 year of construction (Year 2 of analysis)	$18,202,227	(50% of completed project value)				
School Tax Surcharge During Development						
Tax Rate	0.2%	between $3.0-$4.0 million, and	0.4%	over $4.0 million		
Residential portion of current assessment (Year 1 of analysis)	$0					
Assumed residential portion of assessment after 1 year of construction	$15,747,036.25	(50% of completed residential project value)				
Speculation Tax During Development*						
Tax Rate	0.5%					
Residential portion of current assessment (Year 1 of analysis)	$0					
Assumed residential portion of assessment after 1 year of construction	$15,747,036	(50% of completed residential project value)				
*Assumes BC Owner						
Allowance for Developer's Profit	15.0%	of total costs or	13.0%	of gross revenue		

East Vancouver Main Street – Woodframe, Low-Rise, Strata-Titled Apartment CONTINUED

Analysis

Revenue	
Gross Market Residential Sales Revenue	$31,494,073
Less commissions and sales costs	$944,822
Net residential sales revenue	$30,549,250
Retail Value	$4,910,382
Total Commercial Value	$4,910,382
Commission on Commercial Sale	$98,208
Net commercial value	$4,812,175
Total Value Net of Commissions	$35,361,425
Project Costs	
Allowance for Demolition of Existing Buildings	$45,000
Site Servicing	$111,623
Connection fees	$50,000
Hard construction costs	$10,251,500
Landscaping	$146,450
Soft costs	$954,412
Project Management	$346,770
Residential Marketing	$944,822
Post Construction Holding Costs	$33,750
Contingency on hard and soft costs	$456,103
Regional Levy	$48,240
Regional Levy - Commercial	$4,086
DCLs - residential	$503,261
DCCs - commercial	$61,114
Less Property Tax Allowance During Development	$87,542
Less School Tax Surcharge During Development	$24,494
Less Speculation Tax Surcharge During Development	$39,368
Construction financing	$400,942
Financing fees/costs	$164,887
Total Project Costs Before Land Related	$14,821,545
Allowance for Developer's Profit	**$4,747,141**
Residual to Land and Land Carry	**$15,792,739**
Less financing on land during construction and approvals	$777,792
Less property purchase tax	$412,830
Residual Land Value	**$14,602,116**
Income Producing Value (including 20% premium)	$9,073,440
Increase in Value	**$5,528,676**
Max supportable increase in levies per sq. ft. of zoned FSR	**$151**
Note A:	
Existing use = Older Retail Strip Centre	
Existing value = Income Value	$7,561,200
Assembly premium/incentive to sell = 20%	$1,512,240
Total existing value =	$9,073,440

Summary

Gross sales revenue	$36,404,500		
- Total costs	$17,055,200	(all-in cost =	$465.83 per sq.ft.)
- Profit	$4,747,100		
= Land value	$14,602,200		
- Existing use value	$9,073,400		
= Financial room	$5,528,800		
Maximum "room" for a new levy ($ per sq.ft. buildable)	**$151**		

Burquitlam – Concrete, High-Rise, Strata-Titled Apartment

Coquitlam (assumes site in Burquitlam) Analysis completed in May 2018
Land Residual Analysis for Concrete Strata Residential Project
High Density Residential
New GVS&DD DCC and Existing Municipal DCC
Major Assumptions (shading indicates figures that are inputs; unshaded cells are formulas)

Site Size	122,000	sq.ft.				
Assumed Density	4.00	FSR				
Total Gross floorspace	488,000	sq.ft.				
Commercial Floorspace	0	sq.ft.				
Market Strata Residential floorspace	488,000	gross square feet				
Net saleable space	414,800	sq.ft. or	85%	of gross area		
Average Gross unit size	938	sq.ft. gross				
Average Net unit size	798	sq.ft.				
Number of units	520	units or	186	upa		
Residential Parking Stalls	702	stalls or	1.35	per unit		
Total Parking Stalls	702	stalls or				
Strata Revenue and Value						
Average Sales Price Per Sq. Ft.	$925	per sq.ft. of net saleable residential space				
Pre-Construction Costs						
Marginal Extra Costs Associated with Rezoning	$200,000					
Allowance for CAC/Density Bonus Payment (Fixed Portion)	$3.00	per sq. ft. up to 2.5 FSR				
Construction Costs						
Allowance for Demolition of Existing Buildings	$2,580,000	or	$20	per sq. ft. of existing building		
Servicing and Infrastructure	$750,000	or	$3,000	per lineal metre of frontage		
Connection fees	$50,000					
Overall Average Hard Costs used in Analysis	$350	per gross square foot of residential space (cost of parking included in cost psf)				
Landscaping	$1,220,000	or	$20	psf of site on 50% of site		
Soft Costs/Professional Fees	9.0%	of demo, hard costs, servicing costs, landscape				
Project Management	3.0%	of demo, hard costs, servicing costs, landscape, soft costs, rezoning				
Post Construction Holding Costs	$500	per unit on average of	50%	of units	6	months
Contingency on hard and soft costs	3.5%	of above				
Local Government Levies						
GVS&DD DCC - sewer levy (apartment)	$3,531	per apartment unit				
GVRD Sewer Levy - Non Residential	$2.67	per sq.ft. of floorspace				
Municipal DCC - residential	$11.43	per sq.ft. of floorspace				
Commercial DCCs	$5.76	per sq.ft. of floorspace				
School Site Acquisition Charge	$600	per unit				
Financing Assumptions						
Financing rate on construction costs	5.0%	on 50% of costs, assuming a	3.00	year construction period		
		and a total loan of	75%	on costs		
Financing fees	1.50%	of financed construction costs				
Financing on Land Acquisition	5.0%	during approvals and construction on	50%	of land cost		
Marketing and Commissions						
Commissions/sales costs	3.0%	of gross strata market residential revenue				
Marketing	3.0%	of gross strata market residential revenue				
Commercial leasing	17.0%	of Year 1 lease income				
Commercial TI/Marketing	$25	psf				
Commercial sales commission upon lease-up	2.0%					
Total Property Taxes						
Tax Rate (res)	0.19577%	of assessed value				
Tax Rate (comm)	0.858%	of assessed value				
Current assessment (Year 1 of analysis)	$61,754,000					
Assumed assessment after 1 year of construction (Year 2 of analysis)	$191,845,000	(50% of completed project value)				
School Tax Surcharge During Development						
Tax Rate	0.2%	between $3.0-$4.0 million, and	0.4%	over $4.0 million		
Residential portion of current assessment (Year 1 of analysis)	$61,754,000					
Assumed residential portion of assessment after 1 year of constructior	$191,845,000	(50% of completed residential project value)				
Speculation Tax Surcharge During Development*						
Tax Rate	0.5%					
Residential portion of current assessment (Year 1 of analysis)	$61,754,000					
Assumed residential portion of assessment after 1 year of constructior	$191,845,000	(50% of completed residential project value)				
*Assumes BC Owner						
Allowance for Developer's Profit	15.0%	of total costs or	13.0%	of gross revenue		

Burquitlam – Concrete, High-Rise, Strata-Titled Apartment CONTINUED

Analysis

Revenue		
Gross Market Residential Sales Revenue	$383,690,000	
Less Commissions and Sales Costs	$11,510,700	
Net Residential Sales Revenue	$372,179,300	
Total Net Value	$372,179,300	
Project Costs		
Marginal Extra Costs Associated with Rezoning	$200,000	
Allowance for CAC/Density Bonus (Fixed)	$951,600	
Allowance for CAC/Density Bonus (Negotiated)	$0	
Allowance for Demolition of Existing Buildings	$2,580,000	
Servicing and Infrastructure	$750,000	
Hard Construction Costs	$170,800,000	
Landscaping	$1,220,000	
Soft Costs/Professional Fees	$15,781,500	
Project Management	$5,739,945	
Post Construction Holding Costs	$780,000	
Contingency on Above	$6,958,107	
Residential Marketing	$11,510,700	
GVS&DD DCC - sewer levy (apartment)	$1,836,120	
DCCs - residential	$5,576,366	
School Site Acquisition Charge	$312,000	
Less Property Tax Allowance During Development	$872,046	
Less School Tax Surcharge During Development	$1,739,776	
Less Speculation Tax Surcharge During Development	$2,227,220	
Construction Financing	$12,928,240	
Financing Fees	$2,731,091	
Total Project Costs Before Land Related	$245,494,710	
Allowance for Developer's Profit	$50,033,176	
Residual to Land, Closing Costs and Land Carry	**$76,651,414**	
Less financing on land during construction	$6,036,299	
Less property purchase tax	$3,279,718	
Residual Land Value	**$67,335,397**	
Existing Value	$30,828,417	Note A
Increase in Value	**$36,506,980**	
Maximum increase in levy per sq.ft. of permitted FAR	**$75**	

Note A:

Existing use = older 3-storey rental apartment building on a 122,000 sq.ft. lot

Existing value (from income) =	$25,690,348
Assembly premium/incentive to sell = 20%	$5,138,070
Total existing value	$30,828,417

Summary

Gross sales revenue	$383,690,000	
- Total costs	$266,321,400	(all-in cost = $545.74 per gross sq.ft.)
- Profit	$50,033,200	
= Land value	$67,335,400	
- Existing use value	$30,828,000	
= Financial room	$36,507,400	
Maximum "room" for a new levy ($ per sq.ft. buildable)	**$75**	

Surrey City Centre – Concrete, High-Rise, Strata-Titled Apartment

Surrey City Centre Analysis completed in May 2018

Land Residual Analysis for Concrete Mixed Use Strata Residential Project with Commercial at Grade

High Density Residential at 7.5 FSR

New GVS&DD DCC and Existing Municipal DCC

Major Assumptions shading indicates figures that are inputs; unshaded cells are formulas)

Site Size	45,000	sq.ft.				
Assumed Density	7.50	FSR				
Total Gross floorspace	337,500	sq.ft.				
Commercial Floorspace	22,500	sq.ft.				
Market Strata Residential floorspace	315,000	gross square feet				
Net saleable space	267,750	sq.ft. or	85%	of gross area		
Average Gross unit size	940	sq.ft. gross				
Average Net unit size	799	sq.ft.				
Number of units	335	units or	324	upa		
Residential Parking Stalls	503	stalls or	1.50	per unit		
Commercial Parking Stalls	63		3.00	per 100 square metres		
Total Parking Stalls	566	stalls or	1.20	per unit		
Commercial Value						
Avg Lease Rate	$27.50	psf net				
Vacancy	5.0%					
Cap Rate	5.25%					
Leaseable Area	95.0%	of gross commercial area				
Capitalized Value Per Sq.Ft	$473	per ft. of commercial space				
Strata Revenue and Value						
Average Sales Price Per Sq. Ft.	$780	per sq.ft. of net saleable residential space				
Pre-Construction Costs						
Marginal Extra Costs Associated with Rezoning	$200,000					
Construction Costs						
Allowance for Demolition of Existing Buildings	$90,000					
Servicing and Infrastructure	$225,000					
Connection fees	$50,000					
Residential Hard Construction Costs	$230					
Commercial Hard Construction Costs	$210					
Parking Costs	$50,000	per stall				
Overall Average Hard Costs	$312	per gross square foot of residential space (cost of parking included in cost psf)				
Overall Average Hard Costs Used in Analysis	$320					
Landscaping	$450,000	or	$20	on 50% of site area		
Soft Costs/Professional Fees	9.0%	of demo, hard costs, servicing costs, landscape				
Project Management	3.0%	of demo, hard costs, servicing costs, landscape, soft costs, rezoning				
Post Construction Holding Costs	$500	per unit per month on	50%	of units	6	months
Contingency on hard and soft costs	3.5%	of above				
Local Government Levies						
GVS&DD DCC - sewer levy - apartment	$3,531	per apartment unit				
GVS&DD DCC - sewer levy - non-residential	$2.67	per sq.ft. of floorspace				
Municipal DCC - commercial	$13.71	per sq.ft. of floorspace				
Municipal DCC - residential	$23.05	per sq.ft. of floorspace				
School Site Acquisition Charge	$600	per unit				
Financing Assumptions						
Financing rate on construction costs	5.0%	on 50% of costs, assuming a	3.00	year construction period		
		and a total loan of	75%	on costs		
Financing fees	1.5%	of financed construction costs				
Financing on Land Acquisition	5.0%	during approvals and construction on	50%	of land cost		
Marketing and Commissions						
Commissions/sales costs	3.0%	of gross strata market residential revenue				
Marketing	3.0%	of gross strata market residential revenue				
Commercial leasing	17.0%	of Year 1 lease income				
Commercial TI/Marketing	$25	psf				
Commercial sales commission upon lease-up	2.0%					
Total Property Taxes						
Tax Rate (res)	0.34553%	of assessed value				
Tax Rate (comm)	1.244%	of assessed value				
Current assessment (Year 1 of analysis)	$26,480,000					
Assumed assessment after 1 year of construction (Year 2 of analysis)	$109,740,804	(50% of completed project value)				
School Tax Surcharge During Development						
Tax Rate	0.2%	between $3.0-$4.0 million, and	0.4%	over $4.0 million		
Residential portion of current assessment (Year 1 of analysis)	$26,480,000					
Assumed residential portion of assessment after 1 year of construction	$104,422,500	(50% of completed residential project value)				
Speculation Tax Surcharge During Development*						
Tax Rate	0.5%					
Residential portion of current assessment (Year 1 of analysis)	$26,480,000					
Assumed residential portion of assessment after 1 year of construction	$104,422,500	(50% of completed residential project value)				
*Assumes BC Owner						
Allowance for Developer's Profit	15.0%	of total costs or	13.0%	of gross revenue		

Surrey City Centre – Concrete, High-Rise, Strata-Titled Apartment CONTINUED

Analysis

Revenue		
Gross Market Residential Sales Revenue	$208,845,000	
Less Commissions and Sales Costs	$6,265,350	
Net Residential Sales Revenue	$202,579,650	
Commercial Value	$10,636,607	
Commercial Sales Commission	$212,732	
Net Commercial Value	$10,423,875	
Total Net Value	$213,003,525	
Project Costs		
Marginal Extra Costs Associated with Rezoning	$200,000	
Allowance for Demolition of Existing Buildings	$90,000	
Servicing and Infrastructure	$225,000	
Hard Construction Costs	$108,000,000	
Landscaping	$450,000	
Soft Costs/Professional Fees	$9,788,850	
Project Management	$3,562,616	
Post Construction Holding Costs	$251,250	
Contingency on Above	$4,289,870	
Residential Marketing	$6,265,350	
Commercial Leasing	$99,928	
Commercial Marketing	$562,500	
GVS&DD DCC - sewer levy - apartment	$1,182,885	
GVS&DD DCC - sewer levy - non-residential	$60,075	
DCCs - Commercial	$308,475	
DCCs - Residential	$7,260,750	
School Site Acquisition Charge	$201,000	
Less Property Tax Allowance During Development	$997,201	
Less School Tax Surcharge During Development	$899,300	
Less Speculation Tax Surcharge During Development	$1,176,625	
Construction Financing	$8,205,282	
Financing Fees	$1,733,366	
Total Project Costs Before Land Related	$155,810,322	
Allowance for Developer's Profit	$28,620,402	
Residual to Land, Closing Costs and Land Carry	**$28,572,801**	
Less financing on land during construction	$2,250,108	
Less property purchase tax	$738,494	
Residual Land Value	**$25,584,200**	
Existing Value	$8,128,512	Note A
Change in Value	**$17,455,688**	
Max supportable increase in levies per sq. ft. of zoned FSR	**$52**	

Note A:	
Existing use = Older commercial building	
Existing value = Income value	$6,773,760
Assembly premium/incentive to sell = 20%	$1,354,752
Total existing value =	$8,128,512

Summary

Gross sales revenue	$219,481,600	
- Total costs	$165,277,000	(all-in cost = $489.71 per gross sq.ft.)
- Profit	$28,620,400	
= Land value	$25,584,200	
- Existing use value	$8,129,000	
= Financial room	$17,455,200	
Maximum "room" for a new levy ($ per sq.ft. buildable)	**$52**	

Maple Ridge Town Centre – Woodframe, Low-Rise, Strata-Titled Apartment (Proposed Municipal DCCs)

Maple Ridge Town Centre Analysis completed in May 2018

Land Residual Analysis for Low Rise Woodframe Strata Residential Project

Property Built to Base Density of 1.8 FAR with 1 Level of underground parking

New GVS&DD DCC and Proposed Maple Ridge DCC

Major Assumptions (shading indicates figures that are inputs; unshaded cells are formulas)

Site Size	63,000	sq.ft.				
Frontage	198	feet				
Assumed Density	1.80	FAR				
Total Gross floorspace	113,400	sq.ft.				
Market Strata Residential floorspace	113,400	gross square feet or				
Net saleable space	96,390	sq.ft. or	85%	of gross area		
Average Gross unit size	945	sq.ft. gross				
Average Net unit size	803	sq.ft.				
Number of units	120	units or	205	per Ha		
Total Lowrise Unit Parking Stalls	180	stalls or	1.50	per unit		
Underground/structured parking stalls provided	162	stalls requiring about	60,750	square feet of parking		
Payment in lieu stalls	18	stalls (maximum of 10% of required stalls - Downtown only)				
Strata Revenue and Value						
Average Sales Price Per Sq. Ft.	$465	per sq.ft. of net saleable residential space				
Average Price per Unit	$373,511					
Pre-Construction Costs						
Marginal Extra Costs Associated with Rezoning	$200,000					
Density Bonus Contribution	$0	per square foot of bonus floorspace (FAR)				
Construction Costs						
Allowance for Demolition of Existing Buildings	$60,000	or	$20,000	per existing house		
Site Servicing	$181,098	or about	$3,000	per lineal metre of frontage		
Connection fees	$50,000					
Hard Construction Costs						
Hard Cost Used in Analysis	$210	per gross sq.ft.				
Landscaping	$630,000	or	$20	psf of site on 50% of site		
Soft Costs	9.0%	of hard costs, site prep/servicing costs, soft costs				
Project Management	3.0%	of hard costs, site prep/servicing costs, soft costs, marketing				
Post Construction Holding Costs	$500	per unit per month on	50%	of units	6	months
Contingency on hard and soft costs	3.5%	of hard and soft costs				
Local Government Levies						
GVS&DD DCC (sewer levy) - Apartment	$3,531	per apartment unit				
School Site Acquisition Charge	$700.00	per apartment Unit				
Residential DCCs	$132.40	per m2 GFA				
Financing Assumptions						
Financing rate on construction costs	5.0%	on 50% of costs, assuming a	1.50	year construction period		
		and a total loan of	75%	on costs		
Financing fees	1.50%	of financed construction costs				
Financing on Land Acquisition	5.0%	during approvals and construction on			50%	of land cost
Marketing and Commissions						
Commissions/sales costs	3.0%	of gross strata market residential revenue				
Marketing	3.0%	of gross strata market residential revenue				
Total Property Taxes						
Tax Rate	0.4630%	of assessed value				
Assumed current assessment (Year 1 of analysis)	$2,397,000					
Assumed assessment after 1 year of construction (Year 2 of analysis)	$22,410,675	(50% of completed project value)				
School Tax Surcharge During Development						
Tax Rate	0.2%	between $3.0-$4.0 million, and	0.4%	over $4.0 million		
Residential portion of current assessment (Year 1 of analysis)	$2,397,000					
Assumed residential portion of assessment after 1 year of construction	$22,410,675	(50% of completed residential project value)				
Speculation Tax Surcharge During Development*						
Tax Rate	0.5%					
Residential portion of current assessment (Year 1 of analysis)	$2,397,000					
Assumed residential portion of assessment after 1 year of construction	$22,410,675	(50% of completed residential project value)				
*Assumes BC Owner						
Allowance for Developer's Profit	15.0%	of costs or	13.0%	of gross revenue		

Maple Ridge Town Centre – Woodframe, Low-Rise, Strata-Titled Apartment CONTINUED (Proposed Municipal DCCs)

Analysis

Revenue		
Gross Market Residential Sales Revenue	$44,821,350	
Total Gross Value	$44,821,350	
Less commissions and sales costs	$1,344,641	
Net sales revenue	$43,476,710	
Project Costs		
Marginal Extra Costs Associated with Rezoning	$200,000	
Density Bonus Contribution	$0	
Site Servicing	$181,098	
Connection fees	$50,000	
Hard construction costs	$23,814,000	
Landscaping	$630,000	
Soft costs	$2,209,860	
Marketing	$1,344,641	
Project Management	$830,355	
Post Construction Holding Costs	$180,000	
Contingency on hard and soft costs	$1,023,398	
GVS&DD DCC (sewer levy) - Apartment	$423,720	
SSAC	$84,000	
DCCs	$1,394,849	
Less Property Tax Allowance During Development	$62,977	
Less School Tax Surcharge During Development	$37,821	
Less Speculation Tax Surcharge During Development	$68,012	
Construction financing	$916,727	
Financing fees/costs	$377,004	
Total Project Costs Before Land Related	$33,888,462	
Allowance for Developer's Profit	$5,844,704	
Residual to Land and Land Carry	**$3,743,543**	
Less financing on land during construction	$174,075	
Less property purchase tax	$93,626	
Residual Land Value	**$3,475,842**	
Existing Value	$2,999,796	Note A
Increase in Value	$476,046	
Max supportable increase in levies per sq. ft. of zoned FSR	**$4**	

Note A:
Existing use = 3 older single detached houses on 21,000 sq.ft. lots

Existing value =	$2,564,790
Assembly premium/incentive to sell = 20%	$435,006
Total existing value =	$2,999,796

Summary

Gross sales revenue	$44,821,400	(all-in cost = $313.06)
- Total costs	$35,500,800	
- Profit	$5,844,700	
= Land value	$3,475,900	
- Existing use value (three single family lots with a 20% assembly premiu	$3,000,000	
= Financial room	$475,900	
Maximum "room" for a new levy ($ per sq.ft. buildable)	**$4**	

Langley City Centre – Woodframe, Low-Rise, Strata-Titled Apartment

City of Langley - (Town Centre) Analysis completed in May 2018
Low Rise Woodframe Strata Residential Project at 1.6 FAR with 1 Level of Underground Parking
New GVS&DD DCC and Existing Municipal DCC
Major Assumptions (shading indicates figures that are inputs; unshaded cells are formulas)

Site Size	34,000	sq.ft.				
frontage	265	feet				
Assumed Density	1.60	FAR				
Bonus Floorspace	0.00	FAR				
Total FAR	1.6	FAR				
Total Gross floorspace	54,400	sq.ft.				
Market Strata Residential floorspace	54,400	gross square feet or				
Net saleable space	46,240	sq.ft. or	85%	of gross area		
Average Gross unit size	837	sq.ft. gross				
Average Net unit size	711	sq.ft.				
Number of units	65	units or	206	per Ha		
Total Lowrise Unit Parking Stalls	98	stalls or	1.50	per unit		
Underground/structured parking stalls provided	88	stalls requiring about	33,000	square feet of parking		
Payment in lieu stalls	10	stalls (maximum of 10% of required stalls - Downtown only)				
Strata Revenue and Value						
Average Sales Price Per Sq. Ft.	$530	per sq.ft. of net saleable residential space				
Averge Price per Unit	$377,034					
Pre-Construction Costs						
Marginal Extra Costs Associated with Rezoning	$200,000					
Construction Costs						
Allowance for Demolition of Existing Buildings	$45,000					
Site Servicing	$242,100	or about	$3,000	per lineal metre of frontage		
Connection fees	$50,000					
Hard Construction Costs						
Hard Cost Used in Analysis	$210	per gross sq.ft.				
Landscaping	$340,000	or	$20	psf of site on 50% of site		
Soft Costs	9.0%	of hard costs, site prep/servicing costs, soft costs				
Project Management	3.0%	of hard costs, site prep/servicing costs, soft costs, marketing				
Post Construction Holding Costs	$500	per unit per month on	50%	of units	6	months
Contingency on hard and soft costs	3.5%	of hard and soft costs				
Local Government Levies						
GVS&DD DCC - sewer levy - apartment	$3,531	per apartment unit				
Municipal DCC - residential	$9,549	per apartment unit				
School Site Acquisition Charge	$442.50	per apartment unit				
Financing Assumptions						
Financing rate on construction costs	5.0%	on 50% of costs, assuming a	1.50	year construction period		
		and a total loan of	75%	on costs		
Financing fees	1.50%	of financed costruction costs				
Financing on Land Acquisition	5.0%	during approvals and construction on	50%	of land cost		
Marketing and Commissions						
Commissions/sales costs	3.0%	of gross strata market residential revenue				
Marketing	3.0%	of gross strata market residential revenue				
Total Property Taxes						
Tax Rate	0.4525%	of assessed value				
Assumed current assessment (Year 1 of analysis)	$2,596,700					
Assumed assessment after 1 year of construction (Year 2 of analysis)	$12,253,600	(50% of completed project value)				
School Tax Surcharge During Development						
Tax Rate	0.2%	between $3.0-$4.0 million, and	0.4%	over $4.0 million		
Residential portion of current assessment (Year 1 of analysis)	$2,596,700					
Assumed residential portion of assessment after 1 year of construction	$12,253,600	(50% of completed residential project value)				
Speculation Tax Surcharge During Development*						
Tax Rate	0.5%					
Residential portion of current assessment (Year 1 of analysis)	$2,596,700					
Assumed residential portion of assessment after 1 year of construction	$12,253,600	(50% of completed residential project value)				
*Assumes BC Owner						
Allowance for Developer's Profit	15.0%	of total costs or	13.0%	of gross revenue		

Langley City Centre – Woodframe, Low-Rise, Strata-Titled Apartment CONTINUED

Analysis

Revenue	
Gross Market Residential Sales Revenue	$24,507,200
Total Gross Value	$24,507,200
Less commissions and sales costs	$735,216
Net sales revenue	$23,771,984
Project Costs	
Marginal Extra Costs Associated with Rezoning	$200,000
Allowance for Demolition of Existing Buildings	$45,000
Site Servicing	$242,100
Connection fees	$50,000
Hard construction costs	$11,424,000
Landscaping	$340,000
Soft costs	$1,067,310
Marketing	$735,216
Project Management	$405,646
Contingency on hard and soft costs	$97,500
Contingency on hard and soft costs	$511,237
GVS&DD DCC - sewer levy - apartment	$229,515
DCCs	$620,685
SSAC	$28,763
Less Property Tax Allowance During Development	$39,471
Less School Tax Surcharge During Development	$17,507
Less Speculation Tax Surcharge During Development	$43,618
Construction financing	$452,744
Financing fees/costs	$186,191
Total Project Costs Before Land Related	$16,736,502
Allowance for Developer's Profit	$3,195,739
Residual to Land and Land Carry	**$3,839,743**
Less financing on land during construction	$178,548
Less property purchase tax	$97,754
Residual Land Value	**$3,563,441**
Existing Value	$3,334,163
Increase in Value	$229,278
Maximum increase in levy per sq.ft. of permitted FAR	**$4**
Note A:	
Existing use = 4 older single detached houses on adjacent lots	
Existing value = 4 lots @ $695,000 each	$2,778,469
Assembly premium/incentive to sell = 20%	$555,694
Total existing value =	$3,334,163

Summary

Gross sales revenue	$24,507,200		
- Total costs	$17,748,000	(all-in cost =	$326.25 per sq.ft.)
- Profit	$3,195,700		
= Land value	$3,563,500		
- Existing use value	$3,334,200		
= Financial room	$229,300		
Maximum "room" for a new levy ($ per sq.ft. buildable)	**$4**		

Burnaby Brentwood – Concrete, High-Rise, Strata-Titled Apartment

City of Burnaby (Town Centre) - Dawson Street — Analysis completed in May 2018

Highrise Mixed Use Apartment - 3.4 FAR

New GVS&DD DCC and Existing Municipal DCC

Major Assumptions *(shading indicates figures that are inputs; unshaded cells are formulas)*

Site and Building Size						
Site Size	37,272	sq.ft.				
	409	feet of frontage				
Total Assumed Density	3.40	FAR				
Residential Density	3.15					
Commercial Density	0.25					
Total Gross floorspace	126,725	sq.ft.				
Commercial floorspace	10,058					
Market Strata Residential floorspace	116,667	gross square feet				
Net saleable space	99,167	sq.ft. or	85%	of gross area		
Average Gross unit size	997	sq.ft. gross				
Average Net unit size	848	sq.ft.				
Number of units	117	units or				
Total Market Strata Unit Parking Stalls (including visitors)	129	stalls or	1.1	per unit		
Total Commercial Parking Stalls	20	stalls or 1 per	46.0	square metres		
Total Parking Stalls	149	stalls				
Underground/structured parking stalls provided	149	stalls				
Strata Revenue and Value						
Average Sales Price Per Sq. Ft.	$1,100	per sq.ft. of net saleable residential space				
Commercial Revenue and Value						
Average Retail Lease Rate for Retail Space	$35.00	per sq. ft. net for shell space, no TI's				
Capitalization Rate for Retail Space	5.25%					
Value of Retail Space on Lease Up	$633	per sq. ft. of leasable area, with	5.00%	allowance for vacancy		
Pre-Construction Costs						
Marginal Extra Costs Associated With Rezoning	$200,000					
Construction Costs						
Allowance for Demolition of Existing Buildings	$372,720		$20	per square foot based on existing buildings built to 0.5 FAR		
Site Servicing (Upgrade of adjacent roads/sidewalks/etc)	$374,085	or	$3,000	per metre of frontage		
Connection fees	$50,000					
Hard Construction Costs						
Hard Cost Used in Analysis	$380					
Landscaping	$372,720	or	$20	per sq.ft. on 50% of site		
Soft costs/professional fees (excluding management)	9.0%	of above				
Project Management	3.0%	of above				
Post Construction Holding Costs	$500	per unit on average of	50%	of units	6	months
Contingency on hard and soft costs	3.5%	of hard and soft costs				
Local Government Levies						
Regional Levy - Apartment	$1,072	per market unit				
Regional Levy - Commercial	$0.93	per sq.ft. of floorspace				
School Site Acquisition Charge	$600	per unit				
Burnaby Parkland DCC	$3.55	per sq.ft. of floorspace or	$3,540	per unit		
Financing Assumptions						
Financing rate on construction costs	5.0%	on 50% of costs, assuming a	1.75	year construction period		
		and a total loan of	75%	on costs		
Financing fees	1.50%	of financed construction costs				
Financing on Land Acquisition	5.0%	during construction on	50%	of land cost		
Marketing and Commissions						
Commissions/sales costs on residential	3.0%	of gross strata market residential revenue				
Commissions on commercial sale	2.0%	of commercial value				
Marketing on residential	3.0%	of gross strata market residential revenue				
Leasing commissions on commercial	17.0%	of Year 1 income				
Marketing on commercial/TI	$25	per sq.ft. of commercial floorspace				
Total Property Taxes						
Tax Rate (res)	0.28395%	of assessed value				
Tax Rate (comm)	1.16773%	of assessed value				
Current assessment (Year 1 of analysis)	$12,678,000					
Assumed assessment after 1 year of construction (Year 2 of analysis)	$57,726,834	(50% of completed project value)				
School Tax Surcharge During Development						
Tax Rate	0.2%	between $3.0-$4.0 million, and	0.4%	over $4.0 million		
Residential Portion of current assessment (Year 1 of analysis)	$0					
Assumed residential portion of assessment after 1 year of construction	$54,541,952	(50% of completed residential project value)				
Speculation Tax Surcharge During Development*						
Tax Rate	0.5%					
Residential Portion of current assessment (Year 1 of analysis)	$0					
Assumed residential portion of assessment after 1 year of construction	$54,541,952	(50% of completed residential project value)				
*Assume BC Owner						
Allowance for Developer's Profit	13.0%	of gross revenue, or	15.0%	of total costs		

Burnaby Brentwood – Concrete, High-Rise, Strata-Titled Apartment CONTINUED

Analysis

Revenue		
Gross Strata Residential Sales Revenue	$109,083,903	
Less commissions and sales costs	$3,272,517	
Net residential sales revenue	$105,811,386	
Commercial Value	$6,369,765	
Commission on Commercial Sale	$127,395	
Net commercial value	$6,242,370	
Total Value Net of Commissions	$112,053,756	
Project Costs		
Marginal Extra Costs Associated With Rezoning	$200,000	
Allowance for Demolition of Existing Buildings	$372,720	
Site Servicing	$374,085	
Connection fees	$50,000	
Hard construction costs	$48,155,424	
Landscaping	$372,720	
Soft costs	$4,439,245	
Project Management	$1,618,926	
Residential Marketing	$3,272,517	
Commercial Marketing/TI	$251,438.10	
Leasing commissions on commercial space	$59,842	
Post Construction Holding Costs	$175,500	
Contingency on hard and soft costs	$2,076,985	
Regional Levy - Apartment	$125,424	
Regional Levy - Commercial	$9,353	
School Site Acquisition Charge	$70,200	
Burnaby Parkland DCC	$449,873	
Less Property Tax Allowance During Development	$65,249	
Less School Tax Surcharge During Development	$153,126	
Less Speculation Tax Surcharge During Development	$204,532	
Construction financing	$2,050,688	
Financing fees/costs	$726,163	
Total Project Costs Before Land Related	$65,274,012	
Allowance for Developer's Profit	**$15,055,158**	
Residual to Land and Land Carry	**$31,724,586**	
Less financing on land during construction and approvals	$1,606,057	
Less property purchase tax	$847,814	
Residual Land Value	**$29,270,715**	
Existing Value	$6,057,534	Note A
Change in Value	**$23,213,180**	
Maximum increase in levy per sq.ft. of zoned FAR	$183	

Note A:

Existing use = Older Industrial Buildings

Existing value (from income) =	$5,047,945
Assembly premium/incentive to sell = 20%	$1,009,589
Total existing value	$6,057,534

Summary

Gross sales revenue	$115,453,700	
- Total costs	$71,127,800	(all-in cost = $561.28 per gross sq.ft.)
- Profit	$15,055,200	
= Land value	$29,270,700	
- Existing use value	$6,058,000	
= Financial room	$23,212,700	
Maximum "room" for a new levy ($ per sq.ft. buildable)	**$183**	

North Vancouver Lynn Creek – Woodframe, Low-Rise, Strata-Titled Apartment

District of North Vancouver - Rupert Street
Woodframe Lowrise Apartment - 2.5 FSR
New GVS&DD DCC and Existing Municipal DCC
Major Assumptions (shading indicates figures that are inputs; unshaded cells are formulas)

Analysis completed in May 2018

Site Size	20,100	sq.ft.				
Frontage	165	feet				
Assumed Density	2.50	FSR				
Total Gross floorspace	50,250	sq.ft.				
Market Strata Residential floorspace	50,250	gross square feet or				
Net saleable space	42,713	sq.ft. or	85%	of gross area		
Average Gross unit size	1,005	sq.ft. gross				
Average Net unit size	854	sq.ft.				
Number of units	50	units or				
Total Lowrise Unit Parking Stalls	60	stalls or	1.2	per unit		
Underground/structured parking stalls provided	60	stalls				
Strata Revenue and Value						
Average Sales Price Per Sq. Ft.	$825	per sq.ft. of net saleable residential space				
Pre-Construction Costs						
Marginal Extra Costs Associated With Rezoning	$200,000					
Fixed Rate CAC	$20.55	psf of additional permitted floorspace over existing permitted FSR (0.8)				
Construction Costs						
Allowance for Demolition of Existing Buildings	$200,000		$20,000	per house		
Site Servicing/Infrastructure	$150,915	or about	$3,000	per lineal metre of frontage		
Connection fees	$50,000					
Hard Construction Costs						
Hard Cost Used in Analysis	$250	per gross sq.ft.				
Landscaping	$201,000	or	$20	psf of site on 50% of site		
Soft costs/professional fees (excluding management)	9.0%	of hard costs, site prep/servicing costs, soft costs				
Project Management	3.0%	of hard costs, site prep/servicing costs, soft costs, marketing				
Post Construction Holding Costs	$500	per unit per month on	50%	of units	6	months
Contingency on hard and soft costs	3.5%	of hard and soft costs				
Local Government Levies						
GVRD Sewer Levy - Apartment	$1,416	per apartment unit				
Residential DCCs	$13.37	per sq.ft. of floorspace				
Financing Assumptions						
Financing rate on construction costs	5.0%	on 50% of costs, assuming a	1.50	year construction period		
		and a total loan of	75%	on costs		
Financing fees	1.50%	of financed construction costs				
Financing on Land Acquisition	5.0%	during approvals and construction on	50%	of land cost		
Marketing and Commissions						
Commissions/sales costs	3.0%	of gross strata market residential revenue				
Marketing	3.0%	of gross strata market residential revenue				
Total Property Taxes						
Tax Rate	0.28547%	of assessed value				
Assumed current assessment (Year 1 of analysis)	$5,940,000					
Assumed assessment after 1 year of construction (Year 2 of analysis)	$17,618,906	(50% of completed project value)				
School Tax Surcharge During Development						
Tax Rate	0.2%	between $3.0-$4.0 million, and	0.4%	over $4.0 million		
Residential Portion of current assessment (Year 1 of analysis)	$5,940,000					
Assumed residential portion of assessment after 1 year of construction	$17,618,906	(50% of completed residential project value)				
Speculation Tax Surcharge During Development*						
Tax Rate	0.5%					
Residential Portion of current assessment (Year 1 of analysis)	$5,940,000					
Assumed residential portion of assessment after 1 year of construction	$17,618,906	(50% of completed residential project value)				
*Assumes BC Owner						
Allowance for Developer's Profit	13.0%	of gross revenue, or	15.0%	of total costs		

North Vancouver Lynn Creek – Woodframe, Low-Rise, Strata-Titled Apartment CONTINUED

Analysis

Revenue	
Gross Market Residential Sales Revenue	$35,237,813
Total Gross Value	$35,237,813
Less commissions and sales costs	$1,057,134
Net sales revenue	$34,180,678
Project Costs	
Marginal Extra Costs Associated With Rezoning	$200,000
Fixed Rate CAC	$846,763
Allowance for Demolition of Existing Buildings	$200,000
Site Servicing/Infrastructure	$150,915
Connection fees	$50,000
Hard construction costs	$12,562,500
Landscaping	$201,000
Soft costs	$1,171,215
Marketing	$1,057,134
Project Management	$457,225
Post Construction Holding Costs	$75,000
Contingency on hard and soft costs	$561,750
GVRD Sewer Levy - Apartment	$70,800
DCCs	$671,843
Less Property Tax Allowance During Development	$42,105
Less School Tax Surcharge During Development	$37,998
Less Speculation Tax Surcharge During Development	$73,747
Construction financing	$518,344
Financing fees/costs	$213,169
Total Project Costs Before Land Related	$19,161,507
Allowance for Developer's Profit	**$4,595,011**
Residual to Land and Land Carry	**$10,424,161**
Less financing on land during construction	$484,723
Less property purchase tax	$394,154
Residual Land Value	**$9,545,284**
Existing Land Value	$7,626,960
Increase in Value	**$1,918,324**
Maximum increase in levy per sq.ft. of permitted FSR	**$38**

Note A:

Existing use = 5 older single family homes

Existing value (Lot Value) =	$6,355,800
Assembly premium/incentive to sell = 20%	$1,271,160
Total existing value	$7,626,960

Summary

Gross sales revenue	$35,237,800	
- Total costs	$21,097,500	(all-in cost = $419.85 per gross sq.ft.)
- Profit	$4,595,000	
= Land value	$9,545,300	
- Existing use value	$7,627,000	
= Financial room	$1,918,300	
Maximum "room" for a new levy ($ per sq.ft. buildable)	**$38**	

Richmond Town Centre – Concrete, High-Rise, Strata-Titled Apartment

City of Richmond - No. 3 Road Analysis completed in May 2018

Mixed-use Concrete Highrise at 3.0 FSR
New GVS&DD DCC and Existing Municipal DCC

Major Assumptions ***(shading indicates figures that are inputs; unshaded cells are formulas)***

Site and Building Size						
Site Size	34,520	sq.ft.				
	135	feet of frontage				
Existing Base Density	3.00	FSR				
Assumed Commercial Density	0.35	FSR				
Residential Density	2.65	FSR				
Total Gross floorspace	108,538	gross sq.ft.				
Commercial floorspace	12,082	sq.ft.				
Retail	12,082	sq.ft.				
Market Strata Residential floorspace	96,456	gross square feet				
Net saleable space	81,988	sq.ft. or	85%	of gross area		
Average Gross unit size	772	sq.ft. gross				
Average Net unit size	656	sq.ft.				
Number of units	125	units or	390	per hectare		
Total Market Strata Unit Parking Stalls (including visitors)	138	stalls or	1.1	per unit		
Total Retail Parking Stalls	19					
Total Parking Stalls	157	stalls				
Underground/structured parking stalls provided	157	stalls	62,800	square feet		
Surface parking stalls	0	stalls				
Strata Revenue and Value						
Overall Average Sales Price Per Sq. Ft.	$940	per sq.ft. of net saleable residential space				
Retail Revenue and Value						
Average Retail Lease Rate for Retail Space	$40.00	per sq. ft. net				
Capitalization Rate for Retail Space	4.75%					
Value of Retail Space on Lease Up	$800	per sq. ft. of leasable area, with	5.00%	allowance for vacancy		
Construction Costs						
Allowance for Demolition of Existing Buildings	$100,000					
Site Servicing	$123,476	or	$3,000	per metre of frontage		
Connection fees	$50,000					
Hard Construction Costs						
Hard Cost Used in Analysis	$330	per gross sq.ft.				
Landscaping	$345,199	or	$20	per sq.ft. on 50% of site		
Soft costs/professional fees (excluding management)	9.0%	of above				
Project Management	3.0%	of above				
Post Construction Holding Costs	$500	per unit per month on	50%	of units	6	months
Contingency on hard and soft costs	3.5%	of hard and soft costs				
Local Government Levies						
Regional Levy	$1,388	per market unit				
Regional Levy - Commercial	$1.050	per sq.ft. of floorspace				
Residential DCCs	$22.61	per sq.ft. of floorspace				
Commercial DCCs	$14.52	per sq.ft. of floorspace				
SSAC	$463.00	per market unit				
Financing Assumptions						
Financing rate on construction costs	5.0%	on 50% of costs, assuming a	2.00	year construction period		
		and a total loan of	75%	on costs		
Financing fees	1.50%	of financed construction costs				
Financing on Land Acquisition	5.0%	during construction on	50%	of land cost		
Marketing and Commissions						
Commissions/sales costs on residential	3.0%	of gross strata market residential revenue				
Commissions on commercial sale	2.0%	of commercial value				
Marketing on residential	3.0%	of gross strata market residential revenue				
Leasing commissions on commercial	17.0%	of Year 1 income				
Marketing/TI on commercial space	$25	psf				
Total Property Taxes						
Tax Rate (res)	0.30079%	of assessed value				
Tax Rate (comm)	1.172%	of assessed value				
Current assessment (Year 1 of analysis)	$14,525,900					
Assumed assessment after 1 year of construction (Year 2 of analysis)	$43,367,011	(50% of completed project value)				
School Tax Surcharge During Development						
Tax Rate	0.2%	between $3.0-$4.0 million, and	0.4%	over $4.0 million		
Residential portion of current assessment (Year 1 of analysis)	$0					
Assumed residential portion of assessment after 1 year of construction	$38,534,229	(50% of completed residential project value)				
Speculation Tax Surcharge During Development*						
Tax Rate	0.5%					
Residential portion of current assessment (Year 1 of analysis)	$0					
Assumed residential portion of assessment after 1 year of construction	$38,534,229	(50% of completed residential project value)				
*Assumes BC Owner						
Allowance for Developer's Profit	15.0%	of total costs or	13.0%	of gross revenue		

Richmond Town Centre – Concrete, High-Rise, Strata-Titled Apartment CONTINUED

Analysis

Revenue	
Gross Market Residential Sales Revenue	$77,068,457
Less commissions and sales costs	$2,312,054
Net residential sales revenue	$74,756,404
Retail Value	$9,665,565
Total Commercial Value	$9,665,565
Commission on Commercial Sale	$193,311
Net commercial value	$9,472,254
Total Value Net of Commissions	$84,228,657
Project Costs	
Allowance for Demolition of Existing Buildings	$100,000
Site Servicing	$123,476
Connection fees	$50,000
Hard construction costs	$35,817,572
Landscaping	$345,199
Soft costs	$3,279,262
Project Management	$1,191,465
Residential Marketing	$2,312,054
Commercial Marketing	$302,049
Leasing commissions on commercial space	$82,157
Post Construction Holding Costs	$93,750
Contingency on hard and soft costs	$1,529,394
Regional Levy	$173,500
Regional Levy - Commercial	$12,686
DCCs - residential	$2,180,873
DCCs - commercial	$175,430
SSAC	$57,875
Less Property Tax Allowance During Development	$230,312
Less School Tax Surcharge During Development	$140,137
Less Speculation Tax Surcharge During Development	$192,671
Construction financing	$1,814,620
Financing fees/costs	$564,800
Total Project Costs Before Land Related	$50,769,284
Allowance for Developer's Profit	$11,310,117
Residual to Land and Land Carry	**$22,149,257**
Less financing on land during construction and approvals	$1,326,187
Less property purchase tax	$585,751
Residual Land Value	**$20,237,319**
Existing Value	$12,306,840
Increase in Value	$7,930,479
Maximum increase in levy per sq.ft. of permitted FAR	**$73**

Note A:

Existing use = Older retail	
Existing value = Income Value	$10,255,700
Assembly premium/incentive to sell = 20%	$2,051,140
Total existing value =	$12,306,840

Summary

Gross sales revenue	$86,734,000	
- Total costs	$55,186,600	(all-in cost = $508.45 per sq.ft.)
- Profit	$11,310,100	
= Land value	$20,237,300	
- Existing use value	$12,306,800	
= Financial room	$7,930,500	
Maximum "room" for a new levy ($ per sq.ft. buildable)	**$73**	

Port Coquitlam Town Centre – Woodframe, Low-Rise, Strata-Titled Apartment

Port Coquitlam - Mary Hill Road
Land Residual Analysis for Low Rise Woodframe Strata Residential Project
RA-1 Property Built to Base Density of 2.0 FAR, assume 1 Level of Underground Parking
New GVS&DD DCC and Existing Municipal DCC
Major Assumptions (shading indicates figures that are inputs; unshaded cells are formulas)

Site Size	19,228	sq.ft.				
Frontage	280	feet				
Assumed Density	2.00	FAR				
Total FAR	2.0	FAR				
Exclusions	0%					
Density with Exclusions	2.00	FAR				
Total Gross floorspace	38,456	sq.ft.				
Market Strata Residential floorspace	38,456	gross square feet or				
Net saleable space	32,688	sq.ft. or	85%	of gross area		
Average Gross unit size	874	sq.ft. gross				
Average Net unit size	743	sq.ft.				
Number of units	44	units or				
Total Lowrise Unit Parking Stalls	66	stalls or	1.50	per unit		
Underground/structured parking stalls provided	59	stalls requiring about	22,125	square feet of parking		
Payment in lieu stalls	7	stalls (maximum of 10% of required stalls - Downtown only)				
Strata Revenue and Value						
Average Sales Price Per Sq. Ft.	$650	per sq.ft. of net saleable residential space				
Pre-Construction Costs						
Marginal Extra Costs Associated with Rezoning	$200,000					
Density Bonus Contribution	$25	per square foot of bonus floorspace (FAR)				
Payment in lieu of parking	$15,000	per stall				
Construction Costs						
Site Servicing	$256,098	or about	$3,000	per lineal metre of frontage		
Connection fees	$50,000					
Hard Construction Costs						
Hard Cost Used in Analysis	$210	per gross sq.ft.				
Landscaping	$192,280	or	$20	psf of site on 50% of site		
Soft Costs	9.0%	of hard costs, site prep/servicing costs, soft costs				
Project Management	3.0%	of hard costs, site prep/servicing costs, soft costs, marketing				
Post Construction Holding Costs	$500	per unit per month on	50%	of units	6	months
Contingency on hard and soft costs	3.5%	of hard and soft costs				
Local Government Levies						
GVRD Sewer Levy - Apartment	$3,531	per apartment unit				
School Site Acquisition Charge	$600	per apartment Unit				
Residential DCCs	$4,849	per apartment Unit				
Financing Assumptions						
Financing rate on construction costs	5.0%	on 50% of costs, assuming a	1.50	year construction period		
		and a total loan of	75%	on costs		
Financing fees	1.50%	of financed construction costs				
Financing on Land Acquisition	5.0%	during approvals and construction on	50%	of land cost		
Marketing and Commissions						
Commissions/sales costs	3.0%	of gross strata market residential revenue				
Marketing	3.0%	of gross strata market residential revenue				
Total Property Taxes						
Tax Rate	0.4211%	of assessed value				
Assumed current assessment (Year 1 of analysis)	$2,587,500					
Assumed assessment after 1 year of construction (Year 2 of analysis)	$10,623,470	(50% of completed project value)				
School Tax Surcharge During Development						
Tax Rate	0.2%	between $3.0-$4.0 million, and	0.4%	over $4.0 million		
Residential Portion of current assessment (Year 1 of analysis)	$2,587,500					
Assumed residential portion of assessment after 1 year of construction	$10,623,470	(50% of completed residential project value)				
Speculation Tax Surcharge During Development*						
Tax Rate	0.5%					
Residential Portion of current assessment (Year 1 of analysis)	$2,587,500					
Assumed residential portion of assessment after 1 year of construction	$10,623,470	(50% of completed residential project value)				
*Assumes BC Owner						
Allowance for Developer's Profit	15.0%	of total costs or	13.0%	of gross revenue		

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Port Coquitlam Town Centre – Woodframe, Low-Rise, Strata-Titled Apartment CONTINUED

Analysis

Revenue	
Gross Market Residential Sales Revenue	$21,246,940
Total Gross Value	$21,246,940
Less commissions and sales costs	$637,408
Net sales revenue	$20,609,532
Project Costs	
Marginal Extra Costs Associated with Rezoning	$200,000
Payment in lieu of parking	$105,000
Site Servicing	$256,098
Connection fees	$50,000
Hard construction costs	$8,075,760
Landscaping	$192,280
Soft costs	$748,624
Marketing	$637,408
Project Management	$291,354
Post Construction Holding Costs	$66,000
Contingency on hard and soft costs	$371,788
GVRD Sewer Levy - Apartment	$155,364
SSAC	$26,400
DCCs	$213,356
Less Property Tax Allowance During Development	$33,260
Less School Tax Surcharge During Development	$14,247
Less Speculation Tax Surcharge During Development	$39,496
Construction financing	$322,775
Financing fees/costs	$132,741
Total Project Costs Before Land Related	$11,931,950
Allowance for Developer's Profit	$2,770,601
Residual to Land and Land Carry	**$5,906,981**
Less financing on land during construction	$274,675
Less property purchase tax	$190,402
Residual Land Value	**$5,441,904**
Assumed Existing Value	**$3,322,350**
Change	**$2,119,554**
Maximum increase in levy per sq.ft. of permitted FAR	**$55**
Note A:	
Existing use = 3 older single family Homes	
Existing value = Lot Value	$2,768,625
Assembly premium/incentive to sell = 20%	$553,725
Total existing value =	$3,322,350

Summary

Gross sales revenue	$21,246,900		
- Total costs	$13,034,400	(all-in cost =	$338.94 per sq.ft.)
- Profit	$2,770,600		
= Land value	$5,441,900		
- Existing use value	$3,322,400		
= Financial room	$2,119,500		
Maximum "room" for a new levy ($ per sq.ft. buildable)	**$55**		

Appendix G: Financial Analysis of Hypothetical Office Development Case Studies

Downtown Vancouver – Office

Downtown Vancouver Office Development at 7.0 FSR Analysis completed May 2018

Assumptions

Site and Building Size Assumptions:					
Assumed Site Size	12,000	or	0.3	acre	
FSR	7.00				
Project Size	84,000				
Gross Office Area	79,800	sq. ft.	6.65	FSR	
Gross Retail	4,200	sq. ft.	0.35	FSR	
Rentable Area (Office)	75,810	sq. ft. or	95%	of gross area	
Rentable Area (Retail)	3,990	sq. ft. or	95%	of gross area	
Parking	54	1	per 145 m2		
Total Stalls	54				
Underground/structured Parking Stalls	54				
Surface Parking Stalls	0				
Revenue and Value Assumptions:					
Average Net Lease Rate (Office)	$40.00	per sq.ft. of rentable area assuming landlord provides fit up allowance			
Average Net Lease Rate (Retail)	$55.00	per sq.ft. of rentable area assuming landlord provides fit up allowance			
Operating Costs (Office)	$18.00	per sq.ft. of rentable area			
Operating Costs (Retail)	$18.00	per sq.ft. of rentable area			
Annual Vacancy Allowance	5.0%				
Assumed Net Parking Revenue	$275	per stall per month			
Capitalization Rate	4.25%				
Profit Allowance	13.0%	of value or	15.0%	of costs	
Cost Assumptions:					
Demolition Allowance	$280,000	or	$20	per sq. ft. of existing building	
Site Servicing (sidewalks, landscaping, etc)	$45,732				
Allowance for piling, stabilization	$0	per gross sq.ft.			
Building Construction Costs (to base building office)	$320	per sq.ft.			
Building Construction Costs (to base building retail)	$320	per sq.ft.			
Parking Construction Costs	$65,000	per stall (assuming underground)			
Parking Construction Costs	$5,000	per stall (assuming at grade)			
Base Building Hard Construction Costs	$360	per sq.ft. buildable (including parking)			
Allowance to finish common areas	$50	per sq.ft. of common area			
Fit-up Allowance Office	$50	per rentable square foot			
Fit-up Allowance Retail	$25	per rentable square foot			
Soft Costs (including project management)	15%	of hard costs			
Contingency	3.5%	of hard and soft costs			
City of Vancouver DCL	$13.91	per sq. ft. of floorspace			
Layered DCL	$0.00	per sq. ft. of floorspace			
Metro Vancouver DCL	$0.930	per sq. ft. of floorspace			
Interim Financing	5.0%	on 50% of all costs assuming a	2.50	year construction period	
Finance Fee	1.5%				
Share of Construction Costs Financed	75.0%				
Share of Land Costs Financed	50.0%				
Property Taxes During Development	1.244%	applied to land value in Year 1	$19,202,000		
		applied to 50% of gross value of building in Year 2, which is:			$38,440,676
Upfront Leasing Commissions	17%	of Year 1 revenue			
Marketing	$500,000				
Lease-up period after construction complete	6	months, or	0.5	years	
Assumed up-front vacancy cost during lease-up	$58.00	per sq.ft. (i.e. lease revenue+operating costs) on		50%	of space during lease-up
Sales Commission	2%				

Downtown Vancouver – Office CONTINUED

Analysis

Lease Revenue	$3,089,258	
Recovered Operating Costs	$1,436,400	
Parking Income	$178,200	
Total Gross Revenue	$4,703,858	
Less Operating Costs	$1,436,400	
Net Operating Income	$3,267,458	
Capitalized Value	$76,881,353	
Less Commission	$1,537,627	
Net Proceeds	$75,343,726	
Total Value per sq.ft. buildable	**$897**	
Demolition Allowance	$280,000	
Site Servicing	$45,732	
Allowance for piling, stabilization	$0	
Hard Construction (including parking)	$30,240,000	
Allowance to finish common areas	$210,000	
Fit-Up	$4,095,000	
Upfront Leasing Commissions	$525,174	
Marketing	$500,000	
Upfront Vacancy Cost during Lease-up	$1,157,100	
Soft Costs (including project management)	$4,536,000	
Contingency	$1,217,160	
City of Vancouver DCL	$1,168,440	
Layered DCL	$0	
Metro Vancouver DCL	$78,120	
Property Taxes during Development	$956,483	
Interim Financing	$2,109,807	
Finance Fee	$701,899	
Total Costs Before Land and Profit	$47,820,915	
Total Costs per sq.ft. buildable	**$569**	
Profit:	$10,025,328	
Land Residual:		
Land Residual Before Holding Costs	$17,497,483	
Less interim financing on land	$1,181,080	
Less property taxes during approvals	$119,475	
Less property transfer tax	$467,492	
Residual Land Value	$15,729,436	
Existing Value	$16,250,000	Note A
Increase in Value	-$520,564	
Max supportable DCL increase per sq. ft.	**-$6**	

Note A:
Existing use = 12,000 sq.ft. site with older commercial space including 5,000 sq.ft. of office, 9,000 sq.ft. of retail, and 35 hostel rooms
Existing value = capitalized value of commercial space (5,000 sq.ft. of office @ $25 per sq.ft. plus 9,000 sq.ft. of retail @ $35 per sq.ft., a cap rate of 4%
plus 35 hostel rooms @ $150,000 per room = $16,250,000

Summary

Gross value	$76,881,400
- Total costs	$51,126,600
- Profit	$10,025,300
= Land value	$15,729,500
- Existing use value	$16,250,000
= Financial room	-$520,500
Maximum "room" for a new levy ($ per sq.ft. buildable)	**-$6**

(all-in cost = $608.65 per gross sq.ft.)

Richmond – Office

Richmond City Centre Office Development
Assumes Rezoning to 3.0 FAR

Analysis completed May 2018

Assumptions

Site and Building Size Assumptions:					
Assumed Site Size	75,000	or	1.7	acre	
FAR	3.00				
Project Size	225,000				
Gross Office Area	198,750	sq. ft.	2.65	FAR	
Gross Retail	26,250	sq. ft.	0.35	FAR	
Rentable Area (Office)	188,813	sq. ft. or	95%	of gross area	
Rentable Area (Retail)	26,250	sq. ft. or	100%	of gross area	
Parking	3		1	per 100 m2 for first 300 m2	
	412		1	per 50 m2 for remainder	
Total Stalls	415				
Underground/structured Parking Stalls	415				
Surface Parking Stalls	0				
Revenue and Value Assumptions:					
Average Net Lease Rate (Office)	$30.00	per sq.ft. of rentable area assuming landlord provides fit up allowance			
Average Net Lease Rate (Retail)	$40.00	per sq.ft. of rentable area assuming landlord provides fit up allowance			
Operating Costs (Office)	$15.00	per sq.ft. of rentable area			
Operating Costs (Retail)	$15.00	per sq.ft. of rentable area			
Annual Vacancy Allowance	5.0%				
Property Management	0.0%	of lease revenue (included in operating costs)			
Structural Allowance	0.0%	of lease revenue			
Assumed Net Parking Revenue	$128	per stall per month			
Capitalization Rate	4.75%				
Profit Allowance	13.0%	of value or	15.0%	of costs	
Rezoning application fee	$50,000				
Rezoning costs	$200,000				
Public art	$0.00	psf			
Cost Assumptions:					
Demolition Allowance	$320,000	or	$20	per square foot of existing building	
Site Servicing (sidewalks, landscaping, etc)	$285,823				
Base Building Hard Construction Costs	$340	per sq.ft. buildable (including parking)			
Allowance to finish common areas	$50	per sq.ft. of common area			
Fit-up Allowance Office	$50	per rentable square foot			
Fit-up Allowance Retail	$25	per rentable square foot			
Soft Costs (including project management)	15%	of hard costs			
Contingency	3.5%	of hard and soft costs			
City of Richmond DCC - commercial	$14.52	per sq. ft. of floorspace			
Layered DCC	$0.00	per sq. ft. of floorspace			
GVS&DD DCC - sewer levy - non-residential	$1.05	per sq. ft. of floorspace			
Interim Financing	5.0%	on 50% of all costs assuming a	2.00	year construction period	
Finance Fee	1.5%				
Share of Construction Costs Financed	75.0%				
Share of Land Costs Financed	50.0%				
Property Taxes During Development	1.172%	applied to land value in Year 1	$20,814,800		
		applied to 50% of gross value of building in Year 2, which is:			$73,620,197
Upfront Leasing Commissions	17%	of Year 1 revenue			
Marketing	$250,000				
Lease-up period after construction complete	6	months, or	0.5	years	
Assumed up-front vacancy cost during lease-up	$45.00	per sq.ft. (i.e. lease revenue+operating costs) on	50%	of space during lease-up	
Sales Commission	2%				

Richmond – Office CONTINUED

Analysis

Lease Revenue	$6,378,656	
Recovered Operating Costs	$3,206,250	
Parking Income	$634,950	
Total Gross Revenue	$10,219,856	
Less Operating Costs	$3,225,938	
Less Management	$0	
Less Structural	$0	
Net Operating Income	$6,993,919	
Capitalized Value	$147,240,395	
Less Commission	$2,944,808	
Net Proceeds	$144,295,587	
Total Value per sq.ft. buildable	**$641**	
Rezoning application fee	$50,000	
Rezoning costs	$200,000	
Public art	$0	
Demolition Allowance	$320,000	
Site Servicing	$285,823	
Allowance for piling, stabilization	$0	
Hard Construction (including parking)	$76,500,000	
Allowance to finish common areas	$562,500	
Fit-Up	$10,593,750	
Upfront Leasing Commissions	$1,084,372	
Marketing	$250,000	
Upfront Vacancy Cost during Lease-up	$2,404,688	
Soft Costs (including project management)	$11,475,000	
Contingency	$3,079,125	
City of Richmond DCC - commercial	$3,267,000	
Layered DCC	$0	
GVS&DD DCC - sewer levy - non-residential	$236,250	
Property Taxes during Development	$1,107,194	
Interim Financing	$4,178,089	
Finance Fee	$1,733,907	
Total Costs Before Land and Profit	$117,327,697	
Total Costs per sq.ft. buildable	**$521**	
Profit:	$19,200,147	
Land Residual:		
Land Residual Before Holding Costs	$7,767,743	
Less interim financing on land	$436,936	
Less property taxes during approvals	$122,021	
Less property transfer tax	$197,924	
Residual Land Value	**$7,010,863**	
Existing Value	$15,058,824	Note A
Increase in Value	-$8,047,961	
Max supportable DCC increase per sq. ft.	**-$36**	

Note A:
Existing use = 75,600 sq.ft. site occupied by older, low density retail space
Existing value = capitalized value of 16,000 sq.ft. of retail @ $40 per sq.ft. and a 4.25% cap rate = $15,058,000

Summary

Gross value	$147,240,400	
- Total costs	$121,029,400	(all-in cost $537.91 per sq.ft.)
- Profit	$19,200,100	
= Land value	$7,010,900	
- Existing use value	$15,058,800	
= Financial room	-$8,047,900	
Maximum "room" for a new levy ($ per sq.ft. buildable)	**-$36**	

Appendix H: Financial Analysis of Hypothetical Industrial Development Case Studies

Surrey – Industrial

Surrey Industrial Residual Land Value Analysis — Analysis completed in May 2018

Hypothetical Warehouse Building in Campbell Heights North Business Park

Assumes developer builds, leases, and then sells to an investor and expects a 15% profit margin on costs
Assumes vacant and serviced land (with municipal DCC already paid at subdivision)

1.0 Assumptions

Site and Building Size Assumptions:					
Assumed Site Size	75,000	sq. ft.			
FSR	0.50				
Project Size	37,500				
Rentable Area	100%	of gross area			
Underground/structured Parking	1	stall per	1000	sq.ft. of gross building area	
Total Stalls	38				
Revenue and Value Assumptions:					
Average Net Lease Rate	$9.25	per sq.ft. of rentable area assuming landlord provides fit up allowance			
Operating Costs	$3.50	per sq.ft. of rentable area			
Annual Vacancy Allowance	5.0%				
Capitalization Rate	4.25%				
Profit Allowance	13.0%	of value			
Cost Assumptions:					
Demolition Allowance	$0				
Site Servicing (sidewalks, landscaping, etc)	$100,000	per acre			
Base Building Hard Construction Costs	$120	per sq.ft. buildable (including parking)			
Soft Costs (including project management)	12%	of hard costs			
Contingency	3.5%	of hard and soft costs			
GVS&DD DCC - sewer levy - non-residential	$2.67	per sq.ft. of building area for non-residential uses			
Surrey DCC	$0.00	per sq.ft. of building area for industrial buildings (assumes DCC paid at subdivision)			
Area-specific DCC	$0.00	per sq.ft. of building area			
Interim Financing	5.0%	on 50% of all costs assuming a	1.25	year construction period	
Property Taxes During Development	1.221%	applied to land value in Year 1	$2,778,000		
		applied to 50% of gross value of building in Year 2, which is:			$3,799,632
Upfront Leasing Commissions	17%	of Year 1 revenue			
Marketing	$50,000				
Lease-up period after construction complete	6	months, or	0.5	years	
Assumed up-front vacancy cost during lease-up	$12.75	per sq.ft. (i.e. lease revenue+operating costs) on	50%	of space during lease-up	
Sales Commission	2%				

Surrey – Industrial – CONTINUED

2.0 Analysis

Value:		
Lease Revenue	$329,531	
Recovered Operating Costs	$124,688	
Total Gross Revenue	$454,219	
Less Operating Costs	$131,250	
Net Operating Income	$322,969	
Capitalized Value	$7,599,265	
Less Commission	$151,985	
Net Proceeds	$7,447,279	
Total Value per sq.ft. buildable	**$199**	
Costs:		
Demolition Allowance	$0	
Site Servicing	$0	
Hard Construction (including parking)	$4,502,500	
Upfront Leasing Commissions	$56,020	
Marketing	$50,000	
Upfront Vacancy Cost during Lease-up	$119,531	
Soft Costs (including project management)	$540,300	
Contingency	$176,498	
GVRD Sewer Levy (GVS&DD Development Cost Levy)	$100,125	
Surrey DCC	$0	
Area-specific DCC	$0	
Property Taxes during Development	$45,525	
Interim Financing	$174,703	
Total Costs Before Land and Profit	$5,765,202	
Total Costs per sq.ft. buildable	**$154**	
Profit:	$990,944	
Land Residual:		
Land Residual Before Holding Costs	$691,133	
Less interim financing on land for construction plus 6 months	$51,403	
Less property taxes during approvals	$16,962	
Less property closing costs	$6,228	
Residual Land Value	**$616,540**	
Existing Value	$2,778,000	Note A
Change in Value	**-$2,161,460**	
Max supportable DCL increase per sq. ft.	**-$57.64**	

Note A:
Existing use = 1 vacant zoned and serviced lot
Existing value = (Assessment) $2,778,000

Summary

Gross value	$7,599,300	
- Total costs	$5,991,800	(all-in cost = $159.78 per sq.ft.)
- Profit	$990,900	
= Land value	$616,600	
- Existing use value	$2,778,000	
= Financial room	-$2,161,400	
Maximum "room" for a new levy ($ per sq.ft. buildable)	**-$57.64**	

Without DCC			
Net revenue	$7,447,279		
Total costs	$5,765,202		
Land (includes carrying costs)	$2,852,593		
DCC	0		
Profit	-$1,170,516	or	-15.72% of Net Revenue
With $0.30 per sq. ft. New DCC	$7,447,279		
Total Costs	$5,765,202		
Land (Includes Carrying Costs)	$2,852,593		
DCC	$11,250		
Profit	-$1,181,766	or	-15.87% Of Net Revenue

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Langley – Industrial

Township of Langley Industrial Residual Land Value Analysis Updated May 2018
Hypothetical Warehouse Building
Assumes developer builds, leases, and then sells to an investor and expects a 15% profit margin on costs

1.0 Assumptions

Site and Building Size Assumptions:					
Assumed Site Size	245,000	sq. ft. or	4.47	acre	
FSR	0.50				
Project Size	122,500				
Rentable Area	100%	of gross area			
Underground/structured Parking	1	stall per	1000	sq.ft. of gross building area	
Total Stalls	123				
Revenue and Value Assumptions:					
Average Net Lease Rate	$13.00	per sq.ft. of rentable area assuming landlord provides fit up allowance			
Operating Costs	$3.50	per sq.ft. of rentable area			
Annual Vacancy Allowance	5.0%				
Capitalization Rate	4.25%				
Profit Allowance	13.0%	of value			
Cost Assumptions:					
Demolition Allowance	$15,000				
Site Servicing (sidewalks, landscaping, etc)	$100,000	per acre			
Base Building Hard Construction Costs	$120	per sq.ft. buildable (including parking)			
Soft Costs (including project management)	12%	of hard costs			
Contingency	3.5%	of hard and soft costs			
GVS&DD DCC - sewer levy - non-residential	$2.67	per sq.ft. of building area for non-residential uses			
Langley DCC - industrial	$1.86	per sq.ft. of building area for industrial buildings			
Interim Financing	5.0%	on 50% of all costs assuming a	1.25	year construction period	
Property Taxes During Development	1.283%	applied to land value in Year 1	$10,273,000		
		applied to 50% of gross value of building in Year 2, which is:			$17,546,324
Upfront Leasing Commissions	17%	of Year 1 revenue			
Marketing	$50,000				
Lease-up period after construction complete	6	months, or	0.5	years	
Assumed up-front vacancy cost during lease-up	$16.50	per sq.ft. (i.e. lease revenue+operating costs) on	50%	of space during lease-up	
Sales Commission	2%				

Langley – Industrial – CONTINUED

2.0 Analysis

Value:		
Lease Revenue	$1,512,875	
Recovered Operating Costs	$407,313	
Total Gross Revenue	$1,920,188	
Less Operating Costs	$428,750	
Net Operating Income	$1,491,438	
Capitalized Value	$35,092,647	
Less Commission	$701,853	
Net Proceeds	$34,390,794	
Total Value per sq.ft. buildable	**$281**	
Costs:		
Demolition Allowance	$15,000	
Site Servicing	$447,000	
Hard Construction (including parking)	$14,700,000	
Upfront Leasing Commissions	$257,189	
Marketing	$50,000	
Upfront Vacancy Cost during Lease-up	$505,313	
Soft Costs (including project management)	$1,764,000	
Contingency	$576,240	
GVRD Sewer Levy (GVS&DD Development Cost Levy)	$327,075	
City-wide DCC	$227,726	
Property Taxes during Development	$188,053	
Interim Financing	$595,550	
Total Costs Before Land and Profit	$19,653,145	
Total Costs per sq.ft. buildable	**$160**	
Profit:	$4,576,081	
Land Residual:		
Land Residual Before Holding Costs	$10,161,568	
Less interim financing on land for construction plus 6 months	$755,767	
Less property taxes during approvals	$65,891	
Less property closing costs	$93,399	
Residual Land Value	**$9,246,511**	
Existing Value	$10,273,000	Note A
Change in Value	**-$1,026,489**	
Max supportable DCC increase per sq. ft.	**-$8.38**	
Value per sq.ft. buildable	**$75**	

Note A:
Existing use = 1 large lot improved with an older single detached house and used for storage
Existing value = 1 lot @ $8,560,833
Assembly premium/incentive to sell = 20%
Total existing value = $8560,833 x 120% = $10,273,658

Summary

Gross value	$35,092,600
- Total costs	$21,270,100
- Profit	$4,576,100
= Land value	$9,246,400
- Existing use value	$10,273,000
= Financial room	-$1,026,600
Maximum "room" for a new levy ($ per sq.ft. buildable)	**-$8.38**

Without DCC				
Net Revenue	$34,390,794			
Total Costs	$19,653,145			
Land (Includes Carrying Costs)	$11,188,057			
DCC	0			
Profit	$3,549,592	or	10.32%	Of Net Revenue
With $0.30 per sq. ft. New DCC	$34,390,794			
Total Costs	$19,653,145			
Land	$11,188,057			
DCC (Includes Carrying Costs)	$36,750			
Profit	$3,512,842	or	10.21%	Of Net Revenue

Vancouver – Industrial

I2 District - South Vancouver

Updated in May 2018

Assumptions

Site and Building Size Assumptions:				
Assumed Site Size	62,291	or	1.4	acre
FSR	0.85			
Project Size	52,947			
Gross Industrial Area	52,947	sq. ft.		
Rentable Area (Industrial)	52,947	sq. ft. or	100%	of gross area
Parking (Industrial)	1	stall per	93	square metres of gross area
Total Stalls	47			
Surface Parking Stalls	47			
Revenue and Value Assumptions:				
Average Net Lease Rate (Industrial)	$18.00	per sq.ft. of rentable area assuming landlord provides fit up allowance		
Operating Costs (Industrial)	$5.00	per sq.ft. of rentable area		
Annual Vacancy Allowance	2.0%			
Capitalization Rate	4.00%			
Profit Allowance	13.0%	of value or	15.0%	of costs
Cost Assumptions:				
Demolition Allowance	$400,000			
Site Servicing (sidewalks, landscaping, etc)	$395,649			
Base Building Hard Construction Costs	$144	per sq.ft. buildable (including parking)		
Soft Costs (including project management)	12%	of hard costs		
Contingency	3.5%	of hard and soft costs		
City of Vancouver DCL	$5.55	per sq. ft. floorspace		
Metro Vancouver DCL	$0.443	per sq. ft. of floorspace		
Interim Financing	5.0%	on 50% of all costs assuming a	1.25	year construction period
Share of Construction Costs Financed	75.0%			
Share of Land Costs Financed	50.0%			
Property Taxes During Development	1.44%	applied to land value in Year 1	$11,695,900	
		applied to 50% of gross value of building in Year 2, which is:	$11,608,706	
Upfront Leasing Commissions	17%	of Year 1 revenue		
Marketing	$50,000			
Lease-up period after construction complete	6	months, or	0.5	years
Assumed up-front vacancy cost during lease-up	$23.00	per sq.ft. (i.e. lease revenue+operating costs) on	25%	of space during lease-up
Sales Commission	2%			

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Analysis

Lease Revenue	$933,991
Recovered Operating Costs	$259,442
Less Operating Costs	$264,737
Net Operating Income	$928,697
Capitalized Value	$23,217,413
Less Commission	$464,348
Net Proceeds	$22,753,065
Total Value per sq.ft. buildable	**$430**
Demolition Allowance	$400,000
Site Servicing	$395,649
Hard Construction (including parking)	$7,624,418
Upfront Leasing Commissions	$158,779
Marketing	$50,000
Upfront Vacancy Cost during Lease-up	$152,224
Soft Costs (including project management)	$914,930
Contingency	$298,877
City of Vancouver DCL	$293,858
Metro Vancouver DCL	$23,456
Property Taxes during Development	$210,081
Interim Financing	$246,616
Total Costs Before Land and Profit	$10,768,887
Total Costs per sq.ft. buildable	**$203**
Profit:	$3,027,551
Land Residual:	
Land Residual Before Holding Costs	$8,956,627
Less interim financing on land	$352,667
Less property taxes during approvals	$84,158
Less property transfer tax	$236,119
Residual Land Value	$8,283,683
Existing Value	$12,645,750 Note A
Change in Value	-$4,362,067
Max supportable DCC increase per sq. ft.	**-$82.38**

Note A
Existing use = 1 large lot improved with an older commercial space
Existing value = 38,910 sq.ft. @ $13 psf capped at 4% = $12,645,750

Summary

Gross value	$23,217,400
- Total costs	$11,906,200
- Profit	$3,027,600
= Land value	$8,283,600
- Existing use value	$12,645,800
= Financial room	-$4,362,200
Maximum "room" for a new levy ($ per sq.ft. buildable)	**-$82.39**

Without DCC			
Net Revenue	$22,753,065		
Total Costs	$10,768,887		
Land (Includes Carrying Costs)	$13,318,694		
DCC	0		
Profit	-$1,334,517	or	-5.87% Of Net Revenue
With $0.30 per sq. ft. New DCC	$22,753,065		
Total Costs	$10,768,887		
Land (Includes Carrying Costs)	$13,318,694		
DCC	$15,884		
Profit	-$1,350,401	or	-5.94% Of Net Revenue

Appendix I: CMHC Housing Starts and Demolitions Data

Exhibit I1 shows housing starts as reported by CMHC. The way that single family houses with secondary suites were recorded by CMHC changed in 2013, so Exhibit I1 highlights the categories that are single family starts (blue), secondary suite starts (yellow), and apartment starts (pink).

Exhibit I1: CMHC Housing Starts by Type of Unit and Tenure, 2008 to 2017

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Starts:	Single detached:										
	Homeowner	3,586	2,888	4,287	3,336	2,943	3,454	3,920	4,031	4,394	4,235
	Rental (laneway houses)	19	24	207	314	404	519	433	525	630	563
	Condo	29	17	39	36	34	31	21	66	145	113
	Co-op	0	0	0	0	0	0	0	0	0	0
	Subtotal	3,634	2,929	4,533	3,686	3,381	4,004	4,374	4,622	5,169	4,911
	Semi-detached	709	330	414	502	480	510	508	486	430	409
	Row (triplex, townhouse)	2,309	1,655	2,324	2,836	2,389	2,373	2,719	2,512	3,398	3,386
	Apartment:										
	Homeowner:										
	Single family dwelling in single family house with suite	357	326	653	1,113	1,144					
	Secondary suite in single family house with suite	357	326	653	1,113	1,144					
	Apartment unit						2	102	57	30	0
	Homeowner subtotal	714	652	1,306	2,225	2,288	2	102	57	30	0
	Rental										
	Apartment unit	729	418	847	1,441	873	1,539	1,743	1,595	4,159	2,077
	Secondary suite in single family house with suite	0	0	0	0	0	1,083	1,100	1,690	2,018	1,950
	Rental subtotal	729	418	847	1,441	873	2,622	2,843	3,285	6,177	4,027
	Condo	11,496	2,355	5,793	7,177	9,616	9,185	8,666	9,901	12,620	13,471
	Co-op	0	0	0	0	0	0	0	0	90	0
	Subtotal	12,939	3,425	7,946	10,843	12,777	11,809	11,611	13,243	18,917	17,498
	Total starts	19,591	8,339	15,217	17,867	19,027	18,696	19,212	20,863	27,914	26,204

single family houses
secondary suites
apartment units

Exhibit I2 shows the data re-organized to group starts by type (regardless of tenure), and to deduct demolitions to yield the number of net new housing starts by type.

Exhibit I2: CMHC Housing Starts by Type of Unit and Tenure, 2008 to 2017

	Starts:	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2008-2017
Starts:	Single detached	3,972	3,231	4,979	4,485	4,121	3,485	3,941	4,097	4,539	4,348	4,120
	Secondary suites	357	326	653	1,113	1,144	1,083	1,100	1,690	2,018	1,950	1,143
	Laneway houses	19	24	207	314	404	519	433	525	630	563	364
	Semi-detached (duplex)	709	330	414	502	480	510	508	486	430	409	478
	Row (triplex, townhouse)	2,309	1,655	2,324	2,836	2,389	2,373	2,719	2,512	3,398	3,386	2,590
	Apartment	12,225	2,773	6,640	8,618	10,489	10,726	10,511	11,553	16,899	15,548	10,598
	Total starts	19,591	8,339	15,217	17,867	19,027	18,696	19,212	20,863	27,914	26,204	19,293
Demolitions:	Single detached	2,236	1,618	2,283	2,488	2,651	2,054	2,544	3,182	3,145	2,907	2,511
	Secondary suites (a)	0	0	0	0	0	0	0	0	0	0	0
	Laneway houses (a)	0	0	0	0	0	0	0	0	0	0	0
	Semi-detached (duplex)	36	31	61	48	50	27	42	91	56	163	61
	Row (triplex, townhouse)	7	0	0	1	3	2	0	0	70	8	9
	Apartment	108	495	96	89	310	192	231	168	623	826	314
	Total demolitions	2,387	2,148	2,440	2,626	3,014	2,275	2,823	3,444	3,894	3,904	2,896
Net new:	Single detached	1,736	1,613	2,696	1,997	1,470	1,431	1,397	915	1,394	1,441	1,609
	Secondary suites	357	326	653	1,113	1,144	1,083	1,100	1,690	2,018	1,950	1,143
	Laneway houses	19	24	207	314	404	519	433	525	630	563	364
	Semi-detached (duplex)	673	299	353	454	430	483	466	395	374	246	417
	Row (triplex, townhouse)	2,302	1,655	2,324	2,835	2,386	2,371	2,719	2,512	3,328	3,378	2,581
	Apartment	12,117	2,278	6,544	8,529	10,179	10,534	10,280	11,385	16,276	14,722	10,284
	Total starts	17,204	6,191	12,777	15,241	16,013	16,421	16,389	17,419	24,020	22,300	16,398
	Total net new less secondary suites and laneway houses	16,828	5,841	11,917	13,815	14,465	14,819	14,856	15,204	21,372	19,787	14,890

Note: Demolitions data by unit type (single detached, semi-detached, row, apartment) was provided by Metro Vancouver based on CMHC custom data tabulation. This table assumes that demolitions do not include secondary suites or laneway houses.