BUCHANAN WEST

BURNABY, BRITISH COLUMBIA

CONCEPT BOOK

Rezoning #19-35
August 26, 2022

CHRIS DIKEAKOS ARCHITECTS INC.

FIRST CAPITAL

Artistic Concept Rendering

PROJECT INFORMATION

PROPERTY ADDRESS
4265 Lougheed Highway
Burnaby, BC

PACKAGE TYPE
Concept Book

SUBMISSION DATE
March 8, 2022

MUNICIPALITY
City of Burnaby
4949 Canada Way
Burnaby, BC V5G 1M2

OWNER
First Capital
800 Carnarvon Street - Suite 320
Vancouver, BC V3M 0G3

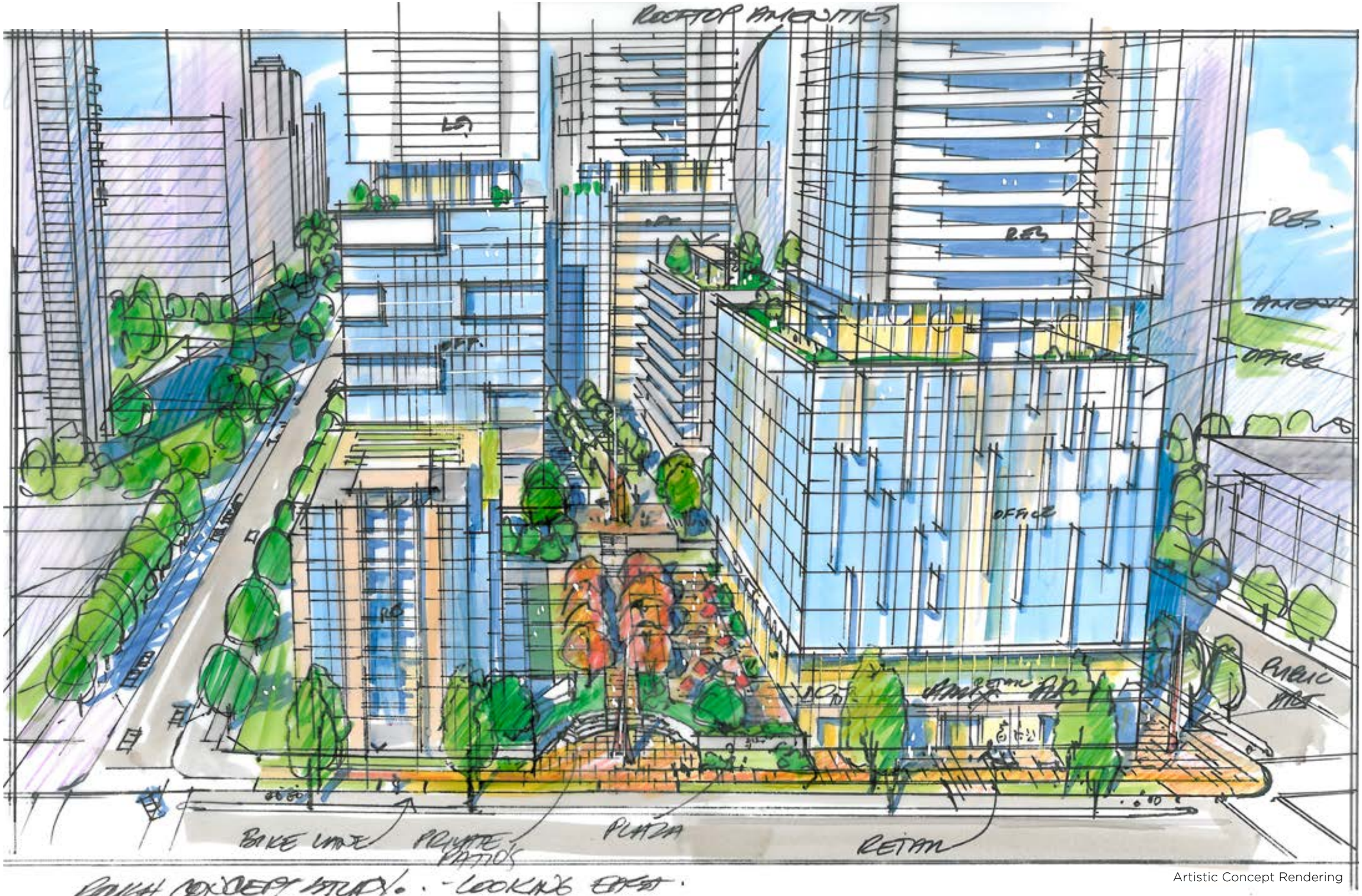
ARCHITECT + PLANNER
Chris Dikeakos Architects Inc.
1635 West Broadway,
Vancouver, BC V6J 1W9

URBAN DESIGN
Frank Ducote Urban Design
511-555 Abbott Street
Vancouver, BC V6B 6B8

LANDSCAPE ARCHITECT
Perry & Associates Inc
1558 6th Avenue W, Suite 200
Vancouver, BC V6J 1R2

CIVIL ENGINEER
Vector Engineering
6450 Roberts Street - Suite 150
Burnaby, BC V5G 4G2

TRANSPORTATION PLANNERS
Bunt & Associates
1050 West Pender Street - Suite 1050
Vancouver, BC V6E 3S7



ROUGH CONCEPT STUDY. - LOOKING EAST.

Artistic Concept Rendering

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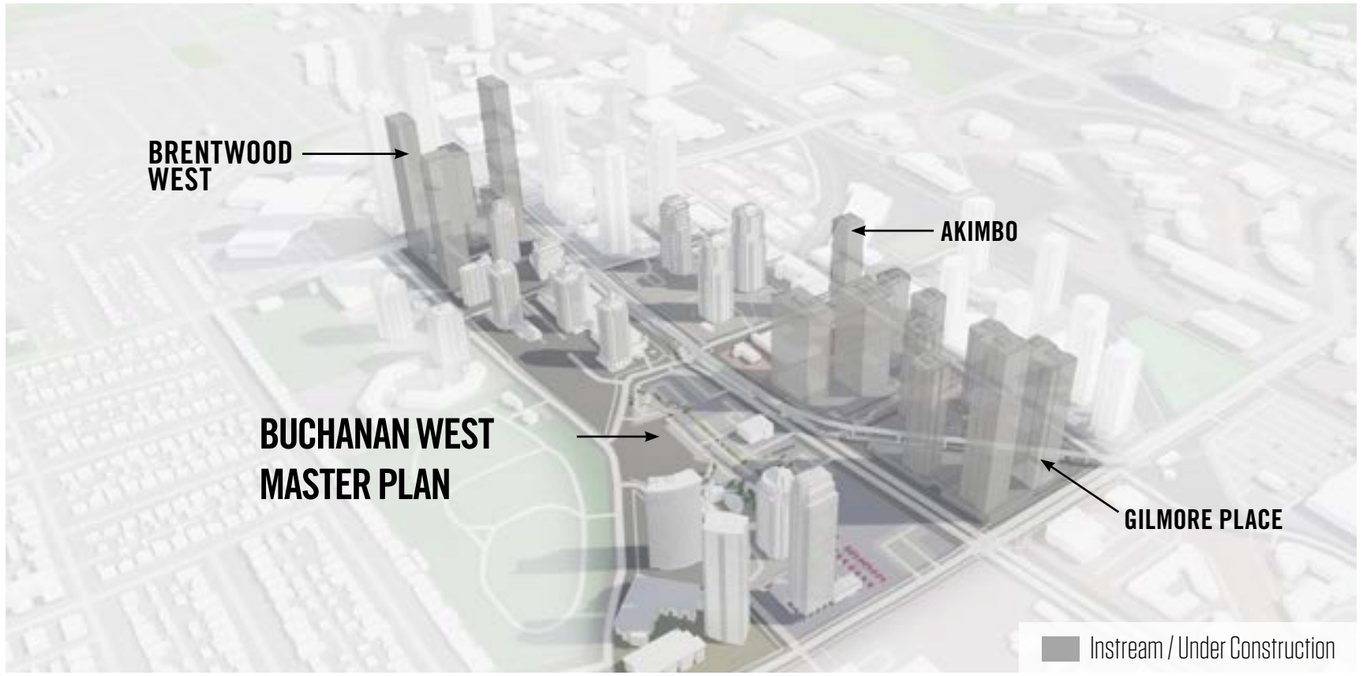
MASTER PLAN CONTEXT (FIGURE 1.1.1)



MASTER PLAN SITE WITH EXISTING AND PROPOSED SURROUNDINGS (FIGURE 1.1.2)

Lougheed + Madison I Concept Book

1.1 MASTER PLAN INTENT

First Capital is pleased to submit this master plan and Community Plan Amendment for this multiple ownership 4.3 hectare site. The subject lands form one of the largest components of adjacent properties in the entire Brentwood Town Centre. As such, it warrants a holistic vision for future development that will take place incrementally through separate rezoning processes. Once fully realized, the site will complete the northwest corner of the of Brentwood.

In order to achieve the goals, vision, and community benefits proposed for the master plan site, as it falls outside of the core area of the Brentwood Town Centre, an amendment to the 1996 Brentwood Town Centre Plan is necessary to enable rezoning for each phase of development.

The intent of this master plan is to establish a coherent framework for eventual site by site rezoning applications to achieve an integrated mixed-use, transit-oriented community that will provide opportunities for working, shopping, and living within an evolving and dynamic urban context. The overall purpose of the master plan is:

(1) to establish a framework and design guidelines for development of the multiple ownership 4.3 hectare site through future site specific rezoning applications;

(2) to determine road network and access, land uses, open space framework, and servicing requirements;

(3) to advance a community plan amendment to support mixed-land use designations.

It is important to note that this master plan provides only a conceptual framework, that will be refined and ultimately determined through site specific rezoning. Massing and built forms were explored to ensure the lots created by the new road networks are viable.

This Community Plan Amendment will support rezonings to a CD (RM5s / RM5r and C3) Zone, which will permit up to 14.3 FAR through specific site rezoning applications. Individual rezonings will likely vary in FAR from these shown in this master plan. The scope of the technical studies conducted assumed an average of 9.5 FAR, which was determined to be a realistic projection of overall site density at build out.

In accordance with the recently adopted Rental Use Zoning Implementation Policy, stream 2 Inclusionary Rental will be applicable to the subject site and proposed Community Plan Amendment. In this regard, the equivalent of 20% of the proposed multiple family strata units would be provided as below market rental housing.

Upon completion, this master plan is envisioned to generate approximately 4,100 dwellings and considerable employment opportunities. Approximately 1,000,900 square feet (93,000 square meters) of retail and office floor space will be added to support new employment opportunities.

1.2 MASTER PLAN DESCRIPTION

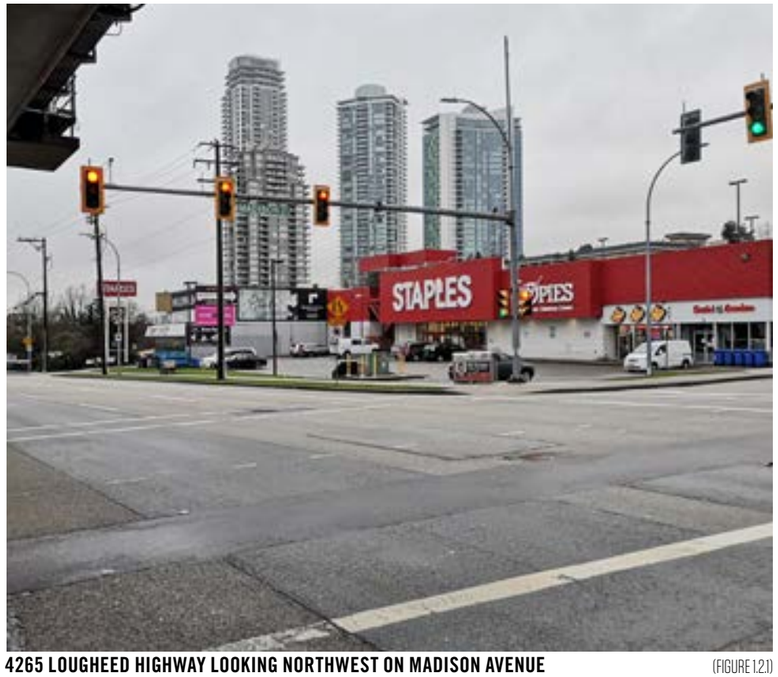
The Buchanan West master plan is envisioned as a vital addition to the evolving Brentwood Town Centre. It will complement the proposed Gilmore Place development to the south, and will also reinforce the western gateway to Brentwood. With its diverse mix of land uses, road and open space network, the Community Plan Amendment provides a conceptual framework that ultimately will strengthen the exciting neighbourhood core of Brentwood. Improvements to the mobility (vehicular, pedestrian, and cyclists) networks are planned for all existing perimeter streets to Brentwood Town Centre standards as well as the two new internal streets.

Most vehicular access to individual parcels will be from to internal streets to create four city blocks and to provide vehicular access to individual properties . Two new internal roads are envisioned to provide the internal access to the individual sites and to divide the master plan site into four city blocks.

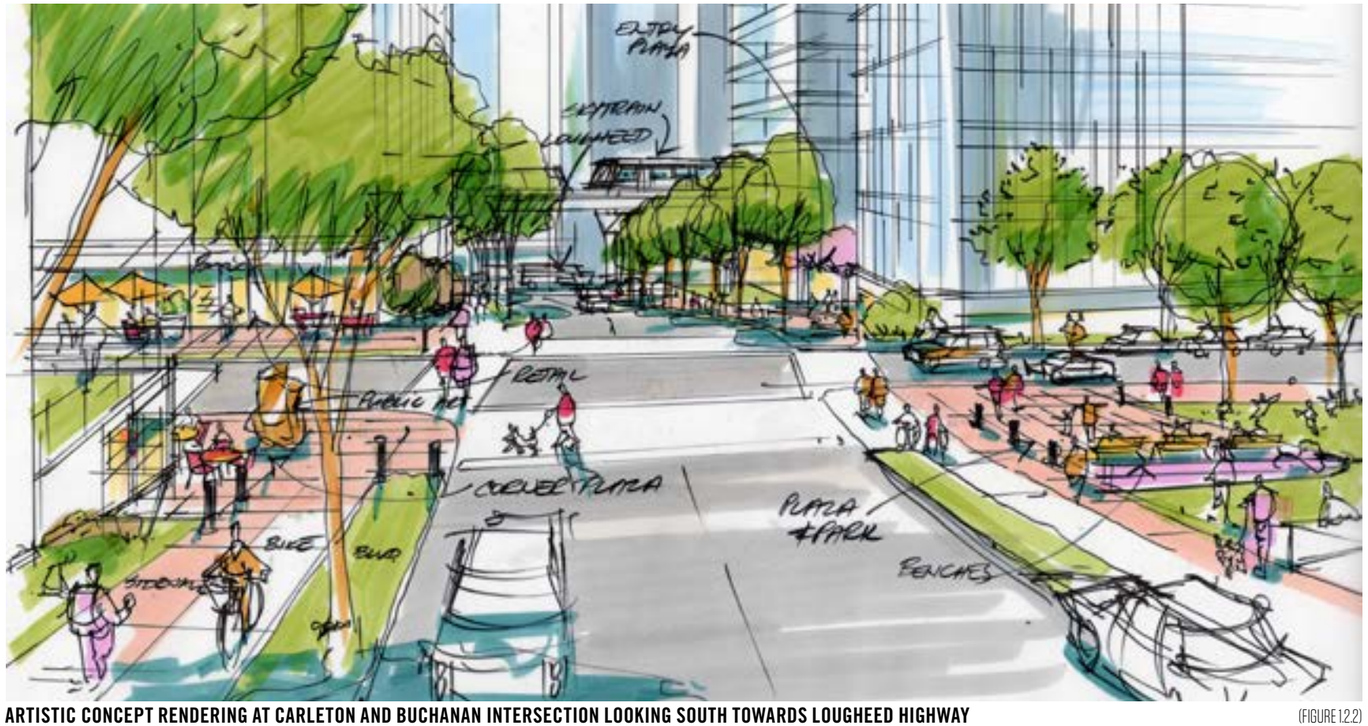
At the heart of the site is an ideal location for an urban square or plaza. Active uses should frame and animate the square.

Higher buildings are generally located adjacent to Lougheed Highway, helping to frame this major arterial and to reinforce the intended urban image and skyline of the Brentwood Town Centre.

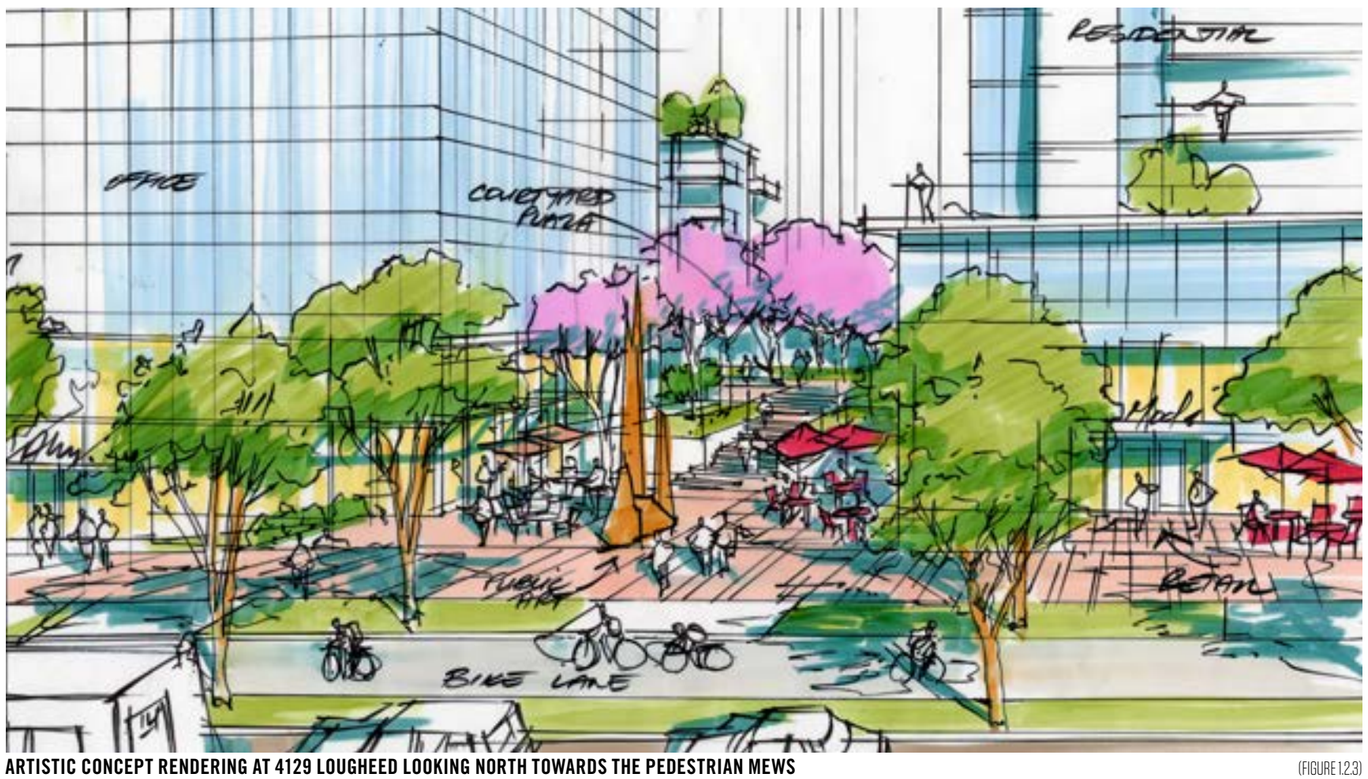
A mix of lower building and tower forms are envisioned along the new Buchanan Street extension, with apartment and office lobbies and entrances to provide the pedestrian animation. The Community Plan Amendment contains a vital mix of commercial, employment and residential uses in a form of development which reinforces this key site as a major component in the creation of an overall town centre befitting the vision for Brentwood.



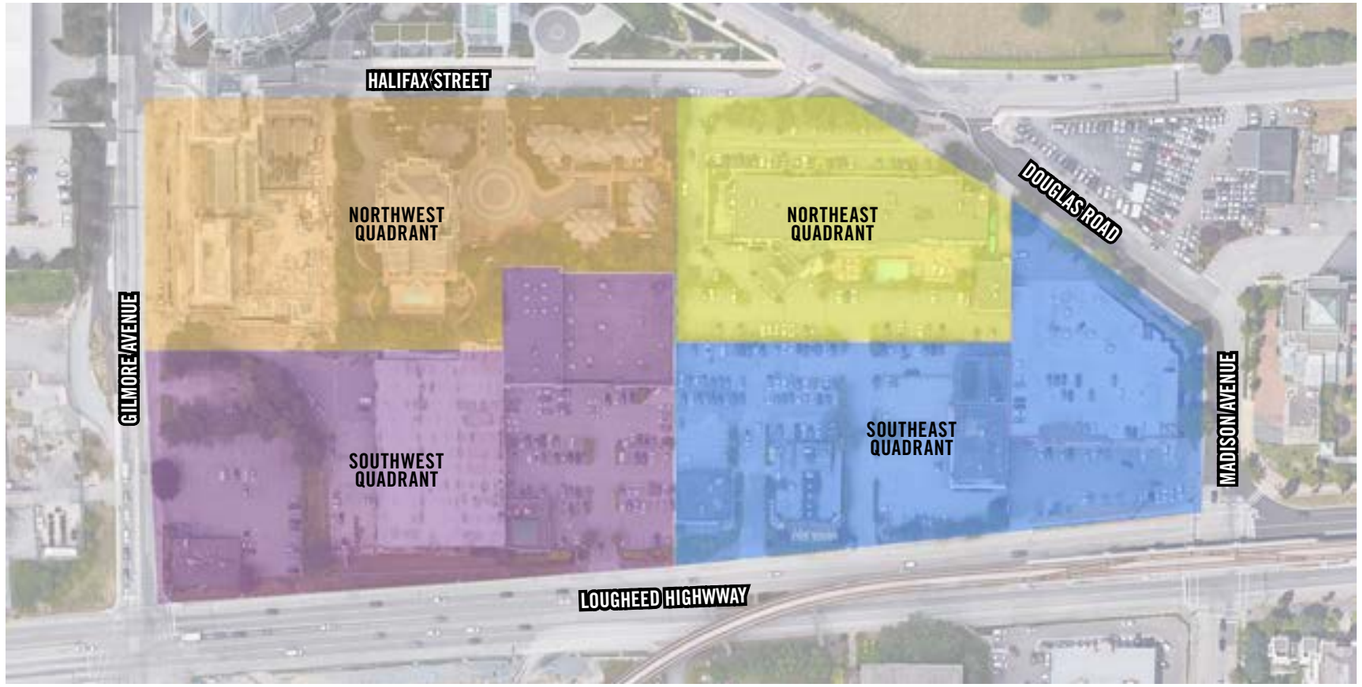
4265 LOUGHEED HIGHWAY LOOKING NORTHWEST ON MADISON AVENUE (FIGURE 1.2.1)



ARTISTIC CONCEPT RENDERING AT CARLETON AND BUCHANAN INTERSECTION LOOKING SOUTH TOWARDS LOUGHEED HIGHWAY (FIGURE 1.2.2)



ARTISTIC CONCEPT RENDERING AT 4129 LOUGHEED LOOKING NORTH TOWARDS THE PEDESTRIAN MEWS (FIGURE 1.2.3)



FOUR QUADRANTS OF MASTER PLAN SITE (FIGURE 1.3.1)

MASTER PLAN SITE LOOKING NORTH WEST ON LOUGHEED HIGHWAY (FIGURE 1.3.2)

1.3 APPLICATION OVERVIEW

The two new internal streets will create four distinct quadrants within the area bounded by Lougheed Highway, Gilmore Avenue, Halifax Street and Madison Avenue. This section describes the proposed development of the properties in the three quadrants that are the subject of this Community Amendment Plan .

NORTHEAST QUADRANT

This quadrant is composed of a single 876 square meter (9429 square feet) property at 4201 Lougheed Highway. It is the largest of the properties included in this Community Plan Amendment. It is framed by Halifax Street to the north, Douglas Road to the east, and segments of the two proposed internal streets to the south and west. The site slopes from north to south about 9 meters (30 feet). It is currently the site of the Executive Inn Hotel. The Community Plan Amendment provides for a hospitality/commercial use to be incorporated into a new development. The site is envisioned to support two residential towers with a residential rental and commercial podium, with rental housing base facing Douglas Road, and a commercial podium facing the Carleton Avenue frontage. Primary vehicular access and loading is from Carleton Avenue. The main feature of the public realm is a neighborhood square located at the southwestern corner of the property facing the crossroads of the two proposed new internal streets. This study has assumed 9.5 FAR, but up to 14.3 FAR may be supported through the site specific rezoning.

SOUTHEAST QUADRANT

This quadrant is composed of two adjacent properties framed by Lougheed Highway to the south, Madison Avenue to the east, and the proposed Carleton Avenue and Buchanan Street to the west and north, respectively. 4265 Lougheed Highway is the Staples site owned by First Capital, the applicant for this Community Plan Amendment. It has a site area of 6083 square meters (65,477 square feet).

The property is bifurcated by a diagonal railway tunnel, splitting the site into two unequal and somewhat triangular pieces. The presence of the tunnel is a fundamental shaping factor for development of this site. The design response calls for a two tower approach, sharing a commercial and parking podium. The taller of the two mixed use towers (Tower 1) is 53 storeys and has a 10 storey commercial podium. Tower 2 on the Madison Avenue part of the site is a 19 storey rental housing component.

Vehicular parking and loading are to be provided by driveways accessed from Madison Avenue and the new Buchanan Street extension. The parking structure spans the railway tunnel, and its roof provides common amenity and open space for residents and office employees as well as private patios for the rental building residents.

4219 Lougheed Highway is the second largest of the six lots, at 9,020 square meters (97,090 square feet). It is defined by Lougheed Highway on the south, the extension of Carleton Avenue to the west, that of Buchanan Street to the north, and abuts 4265 Lougheed on the east. It has the longest frontage on Lougheed, about 386 meters (1,266 feet) in length. The conceptual development of this property includes two residential towers. Tower 1 is 57 storeys above a 13 storey commercial podium, at the corner of Lougheed and Carleton. Tower 2 is a 43 storey residential tower above an 11 storey rental residential base. A deep 2 storey commercial podium will provide for large format commercial and office occupancies. Access to off-street parking and loading for this site is via Carleton Avenue and Buchanan Street.

SOUTHWEST QUADRANT

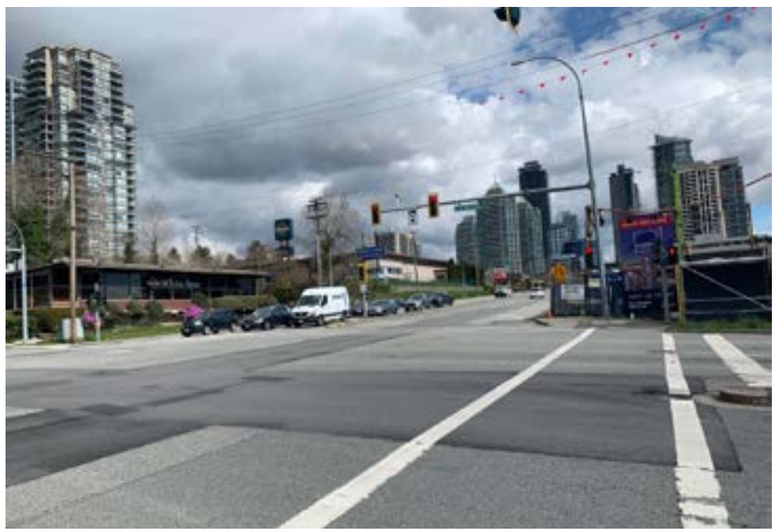
The southwest quadrant is located on the prominent corner of Lougheed Highway and Gilmore Avenue. The Buchanan Street and Carleton Avenue extensions define the quadrant on the north and east sides, respectively. While development may proceed independently for one of the end properties due to available access, the development of 4141 Lougheed Highway (central to the site) could also proceed independently by securing an access through the site to the west, via an easement.

Each development is proposed to include a residential tower between 52 and 58 storeys, as well as a lower residential and mixed-use building of varying heights. The towers are arranged in a staggered or checkerboard pattern, to provide sufficient spacing and access to light, air and private views. Each tower has a floor plate between 743 and 789 square meters (7,998 and 8,493 square feet).

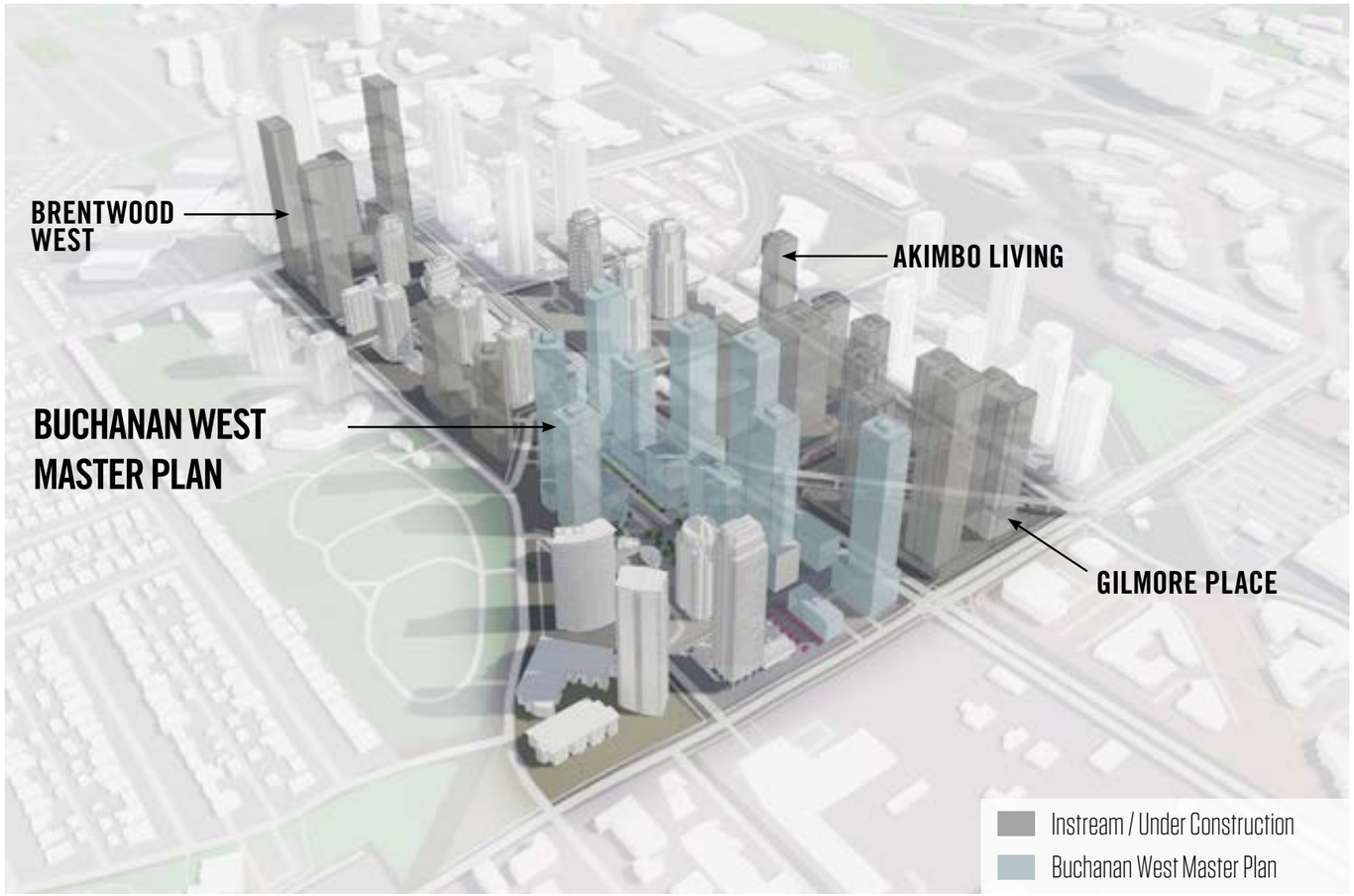
The pedestrian-friendly public realm of this quadrant includes the following key features:

1. An east-west pedestrian greenway midway between Lougheed Highway and the Buchanan Street extension;
2. Two north-south midblock pedestrian links connecting Lougheed Highway to the greenway and Buchanan Street, animated by retail storefronts wrapping around the corner at grade level on Lougheed Highway;
3. A neighbourhood passive open space at the northerly remnant of 4199 Lougheed Highway created by the proposed Buchanan Street extension. This green space will also serve to create a transition to the existing townhouses to the north at 4132 Halifax Street.

Due to irregular property line conditions on the north side of the proposed Buchanan Street extension, there is limited space for a full municipal road right-of-way in the middle section of this quadrant. Accordingly, on-street parking is provided on only the south side of the street, allowing for the standard sidewalk, bike path, and boulevard conditions. Off-street access to parking and loading is provided from the new internal streets.



EXISTING INTERSECTION OF GILMORE AVENUE AND LOUGHEED HIGHWAY (FIGURE 1.3.3)



MASTER PLAN AERIAL SURROUNDINGS (FIGURE 1.3.4)

PROJECT OVERVIEW

LOT 4201 LOUGHEED HIGHWAY
PID 016 - 386 - 540
LOT 65,477 SF

LOT 4129 LOUGHEED HIGHWAY
PID 000 - 561 - 576
LOT 40,515 SF

LOT 4265 LOUGHEED HIGHWAY
PID 003 - 292 - 312
LOT 65, 477 SF

LOT 4199 LOUGHEED HIGHWAY
PID 001 - 885 - 804
LOT 76,994 SF

LOT 1934 GILMORE AVENUE
PID 000 - 561 - 550
LOT 25,650 SF

LOT 4219 LOUGHEED HIGHWAY
PID 016 - 386 - 671
LOT 101,487 SF

LOT 4141 LOUGHEED HIGHWAY
PID 003 - 239 - 411
LOT 57,931 SF

02 LOCATION AND POLICY CONTEXT

1. City of Burnaby Context
2. Burnaby's Four Town Centres
3. Site Location
4. Historical and Current Uses
5. Site Context
6. Applicable Regional and City Policies
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    - 6.2 Metro Vancouver Regional Growth Strategy
    - 6.3 Transport 2050
    - 6.4 Burnaby Official Community Plan
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    - 6.6 Social Sustainability Strategy
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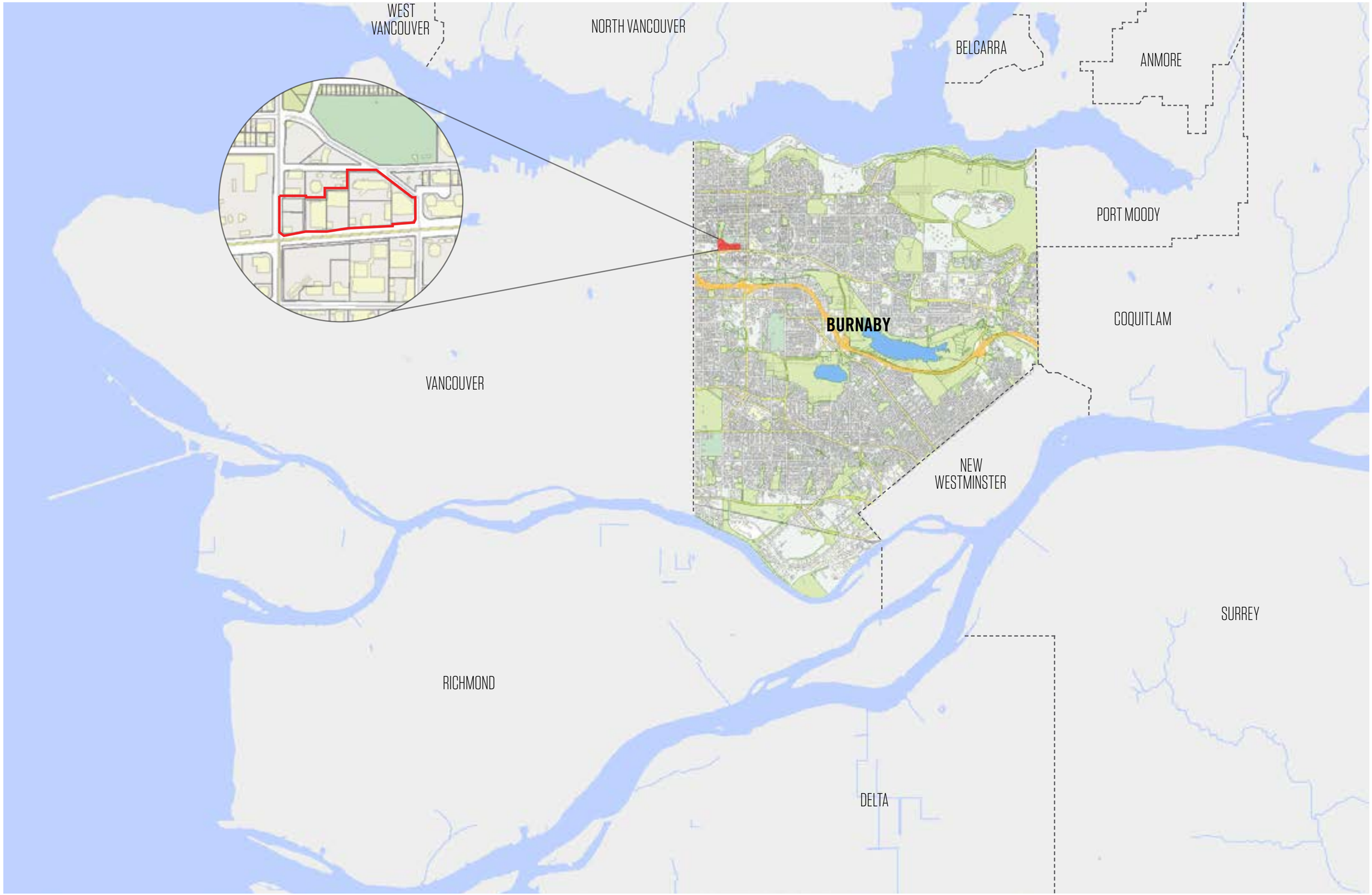
    - 6.10 Housing and Homelessness Strategy
7. Community Consultation and Response to City Policy
8. Concept Rendering


WEST VANCOUVER
NORTH VANCOUVER
BELCARRA
ANMORE
PORT MOODY
BURNABY
COQUITLAM
VANCOUVER
NEW WESTMINSTER
SURREY
RICHMOND
DELTA

(FIGURE 2.1.1)

2.1 CITY OF BURNABY CONTEXT

The City of Burnaby is the third most populated city in the Lower Mainland region of British Columbia, Canada. Burnaby is in the geographical centre of the Greater Vancouver Regional District, situated between the City of Vancouver on the west, and Port Moody, Coquitlam, and New Westminster on the east, and bounded by the Burrard Inlet and the Fraser River on the north and south respectively. Occupying 98.6 square kilometres, the City of Burnaby is divided into four interconnected town centres:

- Brentwood in the northwest
- Lougheed in the northeast
- Metrotown in the southwest
- Edmonds in the southeast

Prior to Burnaby's establishment as a municipality, the land was hosted by several generations of Central Coast Salish peoples. Natural landmarks such as Burnaby Mountain, Deer Lake, and the Brunette River provided several resources for Indigenous communities. Families often travelled to the Fraser River in spring to fish for eulachon and returned in the summer for the sockeye salmon run. In the 1850's, the arrival of settlers significantly altered the culture and lives of Indigenous communities by clearing the land for agriculture and development.

Over the last 50 years, Burnaby has evolved from a suburban community to a significant urban centre celebrating social, economic, and cultural diversity. In 1960, the British Columbia Institute of Technology was established as the first permanent trades school in British Columbia and In 1965, Simon Fraser University was also established to expand higher education in Canada. Other large urban developments include high density residential areas, major commercial town centres, rapid transit, business parks, and industrial estates establishing Burnaby as a centrally located and attractive community.

01
1965
(FIGURE 2.1.2.)

02
1992
(FIGURE 2.1.3)

03
2002
(FIGURE 2.1.4)

04
2004
(FIGURE 2.1.5)

05
2014
(FIGURE 2.1.6)

06
2017
(FIGURE 2.1.7)

BRENTWOOD TOWN CENTRE - NORTHWEST QUADRANT (FIGURE 2.2.1)

LOUGHEED TOWN CENTRE - NORTHEAST QUADRANT (FIGURE 2.2.2)

METROTOWN REGIONAL CITY CENTRE - SOUTHWEST QUADRANT (FIGURE 2.2.3)

EDMONDS TOWN CENTRE - SOUTHEAST QUADRANT (FIGURE 2.2.4)

(FIGURE 2.2.5)

2.2 BURNABY'S FOUR TOWN CENTRES

Adopted on June 15, 1998, the Burnaby Official Community Plan (OCP) establishes a framework for the City's future growth. The OCP is a City-wide policy that envisions a community that is complete, environmentally aware, full of economic opportunity, with multiple transportation choices, and situated in a liveable region. The Brentwood Town Centre is one of four Town Centres identified in the OCP, along Lougheed, Edmonds, and Metrotown. These Town Centres are planned to accommodate a significant portion of Burnaby's population, job growth, commercial services, and community amenities.

The principal functions of the OCP are to:

- Establish contemporary goals, directions and broad development strategies to guide the future growth of the City;
- Provide a framework for subsequent preparation of area and sub-area plans in conjunction with local community involvement;
- Provide a Regional Context Statement that demonstrates the consistency between the OCP and the adopted regional growth strategy;
- Provide policy guidance for development, programs, actions, and services;
- Provide a basis for coordinating decisions;
- Provide a general policy basis for assessing proposals for change or development not currently anticipated; and
- Provide a degree of certainty for the public, the development community and the regional municipalities with respect to an updated development strategy that best meets the anticipated needs of both the City and the region.

This Community Plan Amendment application is located within the Brentwood Town Centre and is consistent with the OCP policy direction for Town Centre development.

BURNABY'S NORTHWEST QUADRANT LOOKING SOUTH (FIGURE 2.2.6)

2.3 SITE LOCATION

This Community Plan Amendment is located within the Northwest quadrant of Burnaby, in close proximity to Gilmore and Brentwood skytrain stations. The area represents a gateway to the City of Burnaby by connecting the two northern quadrants of Burnaby to the City of Vancouver.

Areas within the 500 meter (1,640 feet) ring around the site include fine-grain single family neighbourhoods to the north, and larger commercial, institutional and multi family developments to the east and south. The Brentwood Town Centre SkyTrain Station is located within a walking distance to the east side of the subject site.

With this strategic location, this proposed master plan and the Community Plan Amendment will define the City of Burnaby skyline and will help contribute to the City's growth and vibrancy.

BRENTWOOD TOWN CENTRE FACING NORTHWEST (FIGURE 2.3.1)

SITE LOCATION AND PROXIMITY (FIGURE 2.3.2)

SITE FACING NORTHEAST (FIGURE 2.3.3)

OVERALL SITE CONTEXT (FIGURE 2.3.4)

SITE DESCRIPTION

The site is bounded by Lougheed Highway to the south, Madison Avenue to the east, Gilmore Avenue to the west, and Halifax Street with Douglas Road to the north.

The site is compromised of seven individual parcels some are irregular in shape. The parcels include 4265, 4201, 4219, 4199, 4141, and 4129 Lougheed Highway and 1934 Gilmore Avenue. The 4265 Lougheed Highway parcel, which is known as The Staples Site, is located on the east side of the master plan at the Lougheed Highway and Madison Avenue intersection. First Capital Asset Management LP is the owner of the Staples Site and is the applicant for this Community Plan Amendment. The site includes a City lane, which is identified for closure under the Brentwood Town Centre Community Plan

Across Madison Avenue, the Madison Centre development with residential high-rise buildings situated upon a retail podium. To the north are residential developments on Halifax Street, with the Masonic Cemetery beyond. Across Lougheed Highway to the south is the high-density mixed-use Gilmore Place master plan site, Gilmore Station and the SkyTrain guideway, and an auto dealership. To the west of the site across Gilmore Avenue is the BC Hydro Horne Payne electrical substation.

Within the master plan site, four parcels are currently occupied by retail buildings (4265, 4219, 4199, and 4129 Lougheed Highway); one parcel is occupied by a hotel (4201 Lougheed Highway); one parcel is occupied by an older warehouse (4141 Lougheed Highway); and one parcel is vacant (1934 Gilmore Avenue).

2.4 HISTORICAL AND CURRENT USES

PAST, PRESENT, FUTURE;

The subject site is in a transitional area between Willingdon Heights to the north and the flat land of Broadview to the south. A pioneering use in the area was the Masonic Cemetery, also known as the Burnaby Heritage Cemetery, across Halifax Street to the north. It continues in operation to this day. Early in the 20th century, development of the industrial neighbourhood of Broadview to the south was fostered by rail transportation, just as it is continuing to be today in a much different form.

The B.C. Electric Interurban Railway formerly provided passenger service for the Lower Mainland. Its Right of Way was adopted for use by the Expo SkyTrain Line in the 1980s. The CN Railway continues to provide the heavy rail service north across Burrard Inlet, and is in a tunnel that bifurcates the easternmost property on the site, presently occupied by Staples.

1936 MAP OF INTERURBAN RAILWAY ROUTES IN BURNABY (FIGURE 2.4.1)

The electric substation at the northwest corner of Lougheed Highway and Gilmore Avenue was built in 1913 by the B.C. Electric Railway Company, to serve the entire Burrard peninsula. Prior to World War II, Broadview developed as an industrial area, anchored by Dominion Bridge, where steel sections were fabricated for both the Golden Gate Bridge in San Francisco and the Lions Gate Bridge.

After the War, postwar housing for veterans and their families was built in Willingdon Heights, spurring single-family residential growth there, while auto-oriented uses were located along Lougheed Highway. The Lougheed Drive-In Theatre opened in 1951, immediately across Lougheed Highway from the subject site. Operation of the drive-in ended in 1981.

The postwar building boom also led to the development of Brentwood Mall in 1959, two blocks east of the master plan site. The properties on the master plan site itself were originally used for a variety of low-intensity industrial uses, evolving over time to auto-oriented large format and fast food businesses as well as a hotel. Two recent high-rise residential developments are in the northwest quadrant of the block along Halifax Street.

Recognizing the City adopted the unplanned growth potential of the mall and surrounding area, adopted its first Brentwood Town Centre Plan in 1966. The plan supported high density mixed and residential uses in the Town Centre. The presence of two large malls along Lougheed Highway, in combination with significant area planning supported by the Burnaby councils of the day, led to the Lougheed corridor being eventually selected for the alignment of the Millennium Line, which was opened in the new century. The nearby Gilmore and Brentwood stations provide convenient public transit and pedestrian access to the master plan properties from the south and east, respectively.

01 **BURNABY HERITAGE CEMETERY** (FIGURE 2.4.2)

05 **BRENTWOOD TOWN CENTRE MALL (1959)** (FIGURE 2.4.6)

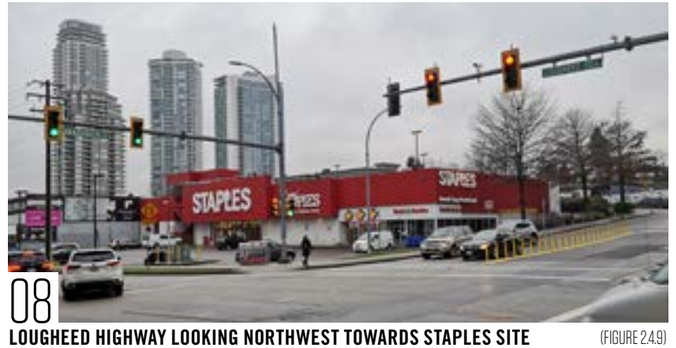
02 **ELECTRICAL SUBSTATION (1913)** (FIGURE 2.4.3)

06 **NEW DEVELOPMENT AT NORTHWEST QUADRANT** (FIGURE 2.4.7)

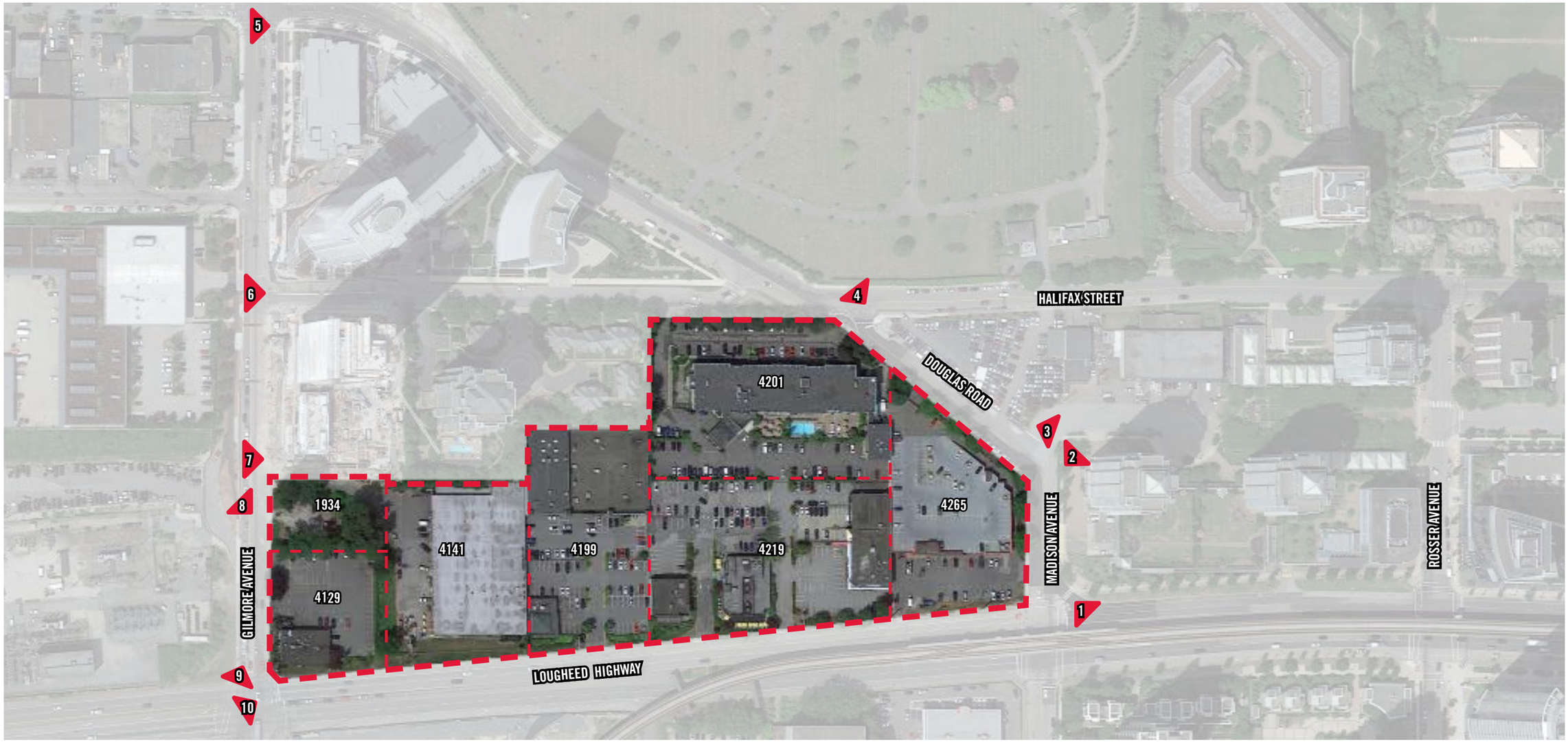
03 **DOMINION BRIDGE CO., BOUNDARY ROAD AND LOUGHEED HIGHWAY** (FIGURE 2.4.4)

07 **GILMORE PLACE CONSTRUCTION AT GILMORE SKYTRAIN STATION** (FIGURE 2.4.8)

04 **LOUGHEED DRIVE-IN** (FIGURE 2.4.5)



08 **LOUGHEED HIGHWAY LOOKING NORTHWEST TOWARDS STAPLES SITE** (FIGURE 2.4.9)



(FIGURE 2.5.1)

01 **LOOKING NORTHWEST FROM LOUGHEED HIGHWAY AND MADISON AVENUE** (FIGURE 2.5.2)

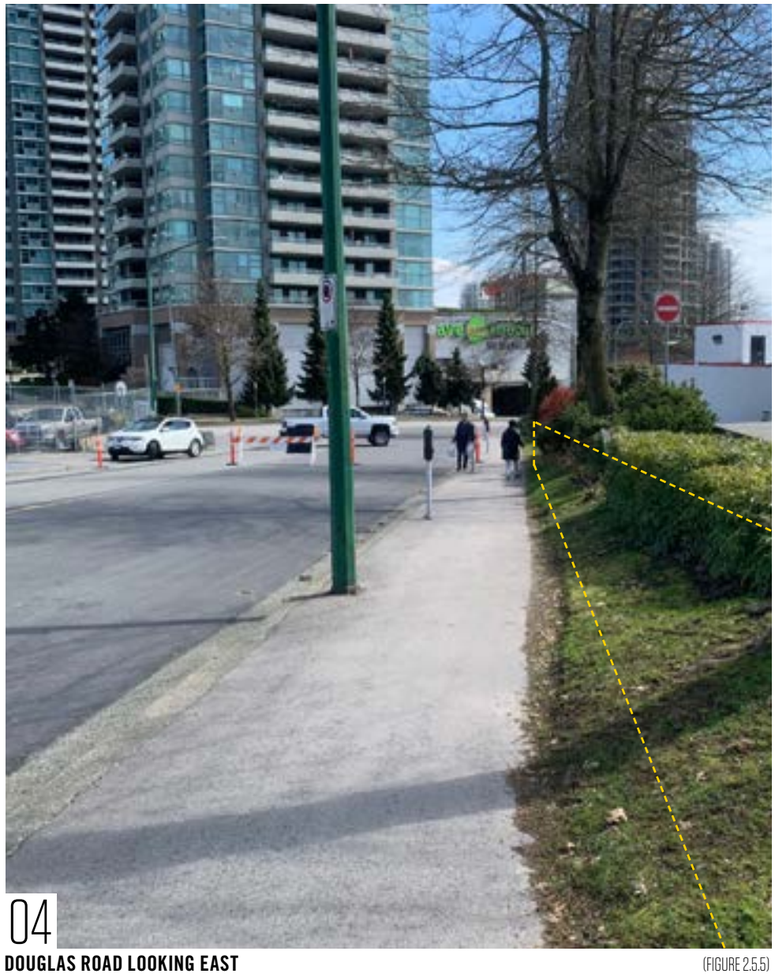
02 **LOOKING SOUTHWEST FROM MADISON AVENUE** (FIGURE 2.5.3)

03 **LOOKING AT SITE ALONG DOUGLAS ROAD** (FIGURE 2.5.4)

2.5 SITE CONTEXT

A study of the existing master plan site and its surroundings was conducted to understand the site context. A significant area of the site is currently occupied by warehouse structures, restaurants with surface parking, and the Executive Inn Hotel. There are multiple driveways and access points from Lougheed Highway and Gilmore Avenue to service the multiple parking lots. Most of the high-rise buildings around the site are located on the east side of Madison Avenue with newer high-rise residential buildings on the northwest corner of the site. The adjacent buildings included the Triumph Tower, the Halifax Residence, and the Madison Centre.

There is an existing pedestrian and cycling path located on Buchanan Street to the north of the Centre, connecting Madison Avenue to the Brentwood Mall through green landscaped areas.



04
DOUGLAS ROAD LOOKING EAST (FIGURE 2.5.5)

05
GILMORE AVENUE LOOKING EAST TOWARD DOUGLAS ROAD (FIGURE 2.5.6)

06
GILMORE AVENUE LOOKING EAST (FIGURE 2.5.7)

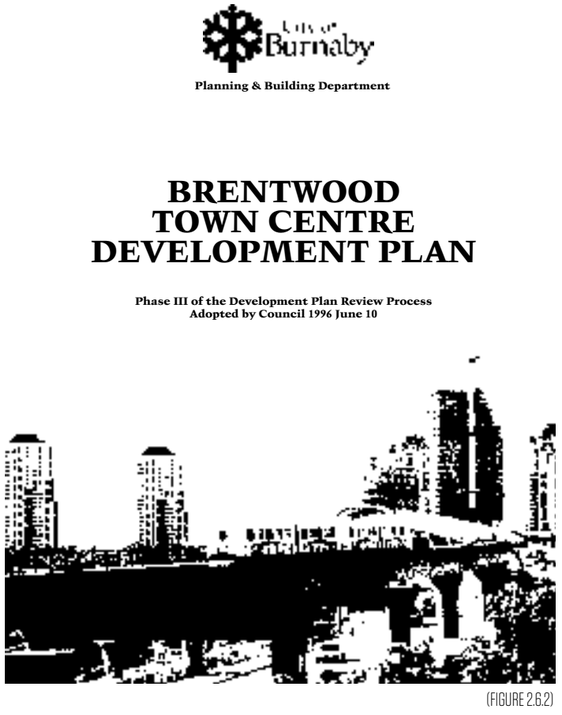
07
LOOKING BETWEEN SITE AND TRIOMPHE BUILDING AT GILMORE AVENUE (FIGURE 2.5.8)

08
LOOKING TOWARD SITE ALONG GILMORE AVENUE (FIGURE 2.5.9)

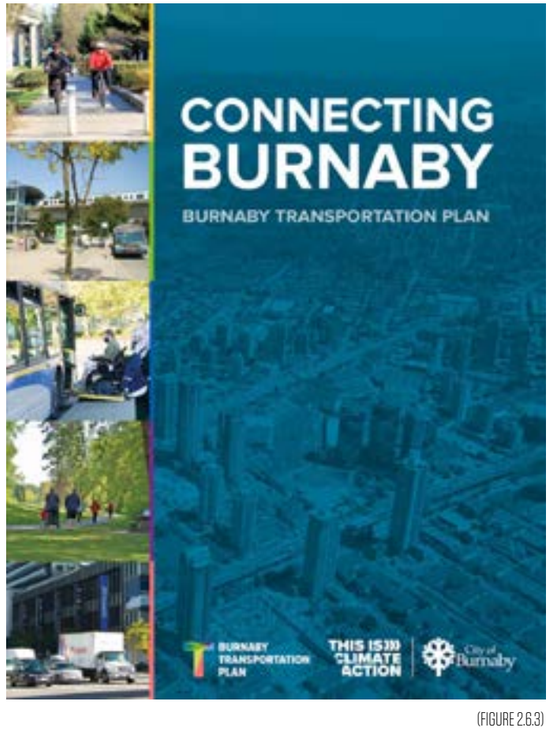
09
LOOKING NORTHEAST ON LOUGHEED HIGHWAY (FIGURE 2.5.10)

10
LOOKING NORTHEAST FROM LOUGHEED HIGHWAY AND GILMORE AVENUE (FIGURE 2.5.11)

(FIGURE 2.6.1)



(FIGURE 2.6.2)



(FIGURE 2.6.3)

(FIGURE 2.6.4)

2.6 APPLICABLE REGIONAL AND CITY POLICIES

2.6.1 POLICY FRAMEWORK INTRODUCTION

There is a nested series of regional, citywide, and town centre policies that have implications for and will help inform and shape the master plan and subsequent rezonings of the subject site. These policies exist at the regional, municipal and town centre levels (as shown in Figure 2.5.5). Each level of policy is broadly consistent with the next level above it, while the level of detail increases as an application moves through the master planning and/or rezoning process.

METRO VANCOUVER: The key polices are the Regional Growth Strategy and Transport 2050. The Regional Growth Strategy addresses and allocates the distribution of broad land use, employment and housing targets across all municipalities, while Transport 2050 is the framework for the public transportation and major road network.

CITY OF BURNABY: There are a broad range of citywide policies impinging on planning and development within the City. Of particular note are the Official Community Plan, the Town Centre policy, zoning district schedules, and strategies for the achievement of social, economic, environmental sustainability, and rental housing aspirations. City policies also guide master planning and rezoning.

TOWN CENTRES: At the local level, the Brentwood Town Centre Plan provides guidance for implementing a coherent vision for a transit-based regional town centre, and to ensures individual sites redevelop in a manner which is consistent and reflects the overall vision in a site specific way. City and town centre policies provide for public review and comment before to consideration for adoption by Council. Specific guidance is provided by City staff for land use and density, the movement network, built form, open spaces and amenities, and related physical and non-physical aspects of development. Site specific master planning and rezoning applications must also take into consideration the existing and anticipated kinds of development in the site's immediate vicinity.

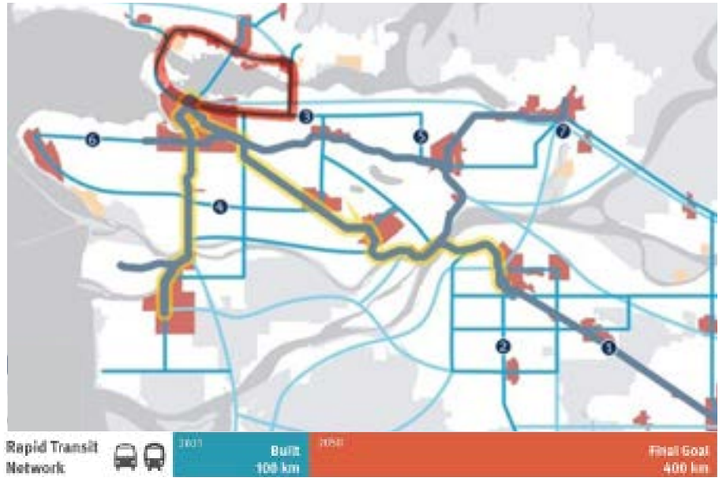
2.6.2 METRO VANCOUVER REGIONAL GROWTH STRATEGY

Metro Vancouver's Regional Growth Strategy was adopted by the Greater Vancouver Regional District Board in 2011 and updated in 2017 by Metro Vancouver. The framework outlined in the strategy, looks to accommodate growth in both liveability and sustainability.

The Metro Vancouver 2040 Regional Growth Strategy is comprised of goals, strategies and actions to facilitate the regions anticipated population growth of 1 million residents by 2041. The five goals identified in the strategy are:

- Create a Compact Urban Area
- Support a Sustainable Economy
- Protect the Environment and Respond to Climate Change Impacts
- Develop Complete Communities
- Support Sustainable Transportation Choices

The Community Plan Amendment is located within the Brentwood Town Centre which has been designated as a Municipal Town Centre in Metro Vancouver 2040. This designation is intended to be the region's primary focus for concentrated growth and provides the opportunity for people to live, work, and access amenities and services within their own community.



(FIGURE 2.6.5)

RAPID TRANSIT NETWORK LEGEND

Major Transit Network
- Existing/Committed
- Capacity relief measures needed
- Proposed new

Express/Interregional
- Existing and proposed new

Other
- Urban Centres/ Frequent Transit Development Areas
- First Nation Reserves and Tsawwassen Treaty Lands
- First Nation Reserves and Tsawwassen Treaty Lands
- Non-urban Land

2.6.3 TRANSPORT 2050

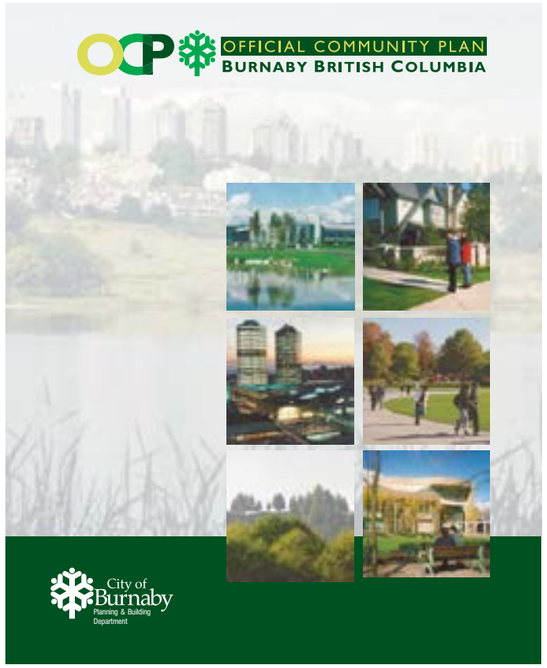
The Regional Transportation Strategy is Metro Vancouver's long term commitment to bring "access for all" to the region's transportation system by 2050. It includes strategies for achieving improvements in mobility and movement aimed at reducing dependence and reliance on private automobile use and the creation of greenhouse gas emissions.

The "15 minute city" concept is a key part of the land use strategy to help achieve complete communities where active transportation modes can connect residents to the goods and services they need. Burnaby in general already achieves this aspiration for the great majority of its neighbourhoods.

In the context of this master plan application, a proposed fixed rail route to the North Shore and west along the Hastings corridor will connect to the Millennium Line in the Brentwood Town Centre area (red in Figure 2.6.5). This new extension will affect all movement patterns around the Gilmore and Brentwood stations in significant ways.

TRANSPORT 2050

(FIGURE 2.6.6)



(FIGURE 2.6.7)

2.6.4 BURNABY OFFICIAL COMMUNITY PLAN

Adopted on June 15, 1998, the Burnaby Official Community Plan (OCP) establishes a framework for the City's future growth. The OCP is a City-wide policy that envisions a more complete community, an environmentally aware community, a community of economic opportunity, a community with increased transportation choice, an involved community and a community within a liveable region. The Brentwood Town Centre is one of four Town Centres identified in the OCP, alongside Lougheed, Edmonds, and Metrotown. These Town Centres are planned to accommodate a significant portion of Burnaby's population, job growth, commercial services, and community amenities. The principal functions of the OCP are to:

- Establish contemporary goals, directions and broad development strategies to guide the future growth of the City;
- Provide a framework for the subsequent preparation of area and sub-area plans in conjunction with local community involvement;
- Provide a Regional Context Statement that demonstrates the consistency between the OCP and the adopted regional growth strategy;
- Provide policy guidance for development, programs, actions, and services;
- Provide a basis for coordinating decisions;
- Provide a general policy basis for assessing proposals for change or development not currently anticipated; and
- Provide a degree of certainty for the public, the development community and the regional municipalities with respect to an updated development strategy that best meets the anticipated needs of both the City and the region.

The Community Plan Amendment is located within the Brentwood Town Centre and is consistent with the OCP policy direction for Town Centre development.

BRENTWOOD TOWN CENTRE LAND USE MAP

(FIGURE 2.6.8)

- Medium Density Multiple Family Residential
- High Density Multiple Family Residential
- Medium Density Mixed Use
- High Density Mixed Use
- Medium or High Density Multi-Family Residential
- High Density Multiple Family Residential - Brentwood Succession
- Commercial
- Institutional
- Business Centre
- Park and Public Use/Public School
- Cemetery
- Parcels Proposed for Plan Amendment

2.6.5 THE BRENTWOOD TOWN CENTRE VISION

The Brentwood Town Centre Development Plan was adopted by Burnaby City Council on June 10, 1996. Located within the northwest quadrant of Burnaby's four Town Centres, the Brentwood Town Centre is organized on the basis of a transit-oriented, high-density, mixed-use, high-vitality central core with surrounding medium density supporting development. Brentwood is planned to be a complete community, enabling people to live, work and play within the area, with the goal of providing an inclusive and diverse community to benefit it all.

A strong, centrally located, mixed-use core, building upon and enriching existing elements proposed to be retained, is indicated. There is a need to overcome the divisive nature of the Lougheed Highway and Willingdon Avenue. The strength of Brentwood Mall and its mixed-use redevelopment potential as the linchpin of the core is acknowledged. The core is linked across Willingdon Avenue to the west and across Lougheed Highway to the south. Commercial uses are emphasized in close proximity to the Lougheed/Willingdon intersection, blending with high-density residential uses away from the intersection and becoming predominantly residential of a high and medium density nature at the outer reaches of the core.

Major growth opportunities particularly for residential development are offered by the site's proximity to the Millennium SkyTrain line and other focused transit improvements. While an urban environment is proposed, it is one which emphasizes a pedestrian-oriented village scale and the creation of neighbourhood enclaves linked by greenways.

The Community Plan Amendment, is consistent with these established directions.

(FIGURE 2.6.9)

(FIGURE 2.6.10)

2.6.6 SOCIAL SUSTAINABILITY STRATEGY

Burnaby's Social Sustainability Strategy was adopted by Council on July, 2011. The Strategy focuses on seven strategic priorities to achieve its vision of creating a more inclusive, liveable, and resilient community: Meeting Basic Needs, Celebrating Diversity and Culture, Getting Involved, Learning for Life, Enhancing Neighbourhoods, Getting Around, and Protecting our Community. The Strategy will continue to guide Burnaby's plans and resource allocations in the social realm in the present and beyond. Along with the Economic Development Strategy, Environmental Sustainability Strategy, the Social Sustainability Strategy will provide the foundation for the continued strengthening of Burnaby's overall well-being.

The Community Plan Amendment focuses on Social Sustainability through three specific design criteria: Housing, Mobility, and Equity and Well Being.

A brief summary of the goals and design strategies are listed below:

HOUSING

- Provide a mix of housing types and tenures (affordable rental, rental and for sale)
- Incorporate adaptable housing units to meet the needs of all ages and abilities

MOBILITY

- Provide improved cycling and pedestrian access upgrades
- Provide pedestrian oriented commercial zones
- Provide universal accessibility

EQUITY AND WELL BEING

- Create a dynamic public realm that promotes social interaction
- Create strong linkages to surrounding neighbourhoods
- Provide access to a broad range of services and amenities

Burnaby
Social
Sustainability
Strategy

2.6.7 ECONOMIC DEVELOPMENT STRATEGY

Burnaby's Economic Development Strategy (EDS) 2020 was adopted in March 2007 to improve Burnaby's strong local economy. The goals of the EDS are to: maintain and increase the diversity of the local economy; increase the total number of jobs and total investment in Burnaby; increase the quality and sophistication of the local economy; and influence growth and change in the local economy.

The EDS contains 11 overarching community-wide strategies intended to make Burnaby a preferred location for business growth by helping to strengthen the community and in doing so improve the platform on which the economic development occurs. The following community-wide strategies are of particular relevance to community development in general and this project in particular:

G1: BUILDING A STRONG, LIVEABLE, HEALTHY COMMUNITY

First, the EDS by maintaining and enhancing local quality of life, skilled residents, including immigrants and entrepreneurs, should continue to relocate to Burnaby. The presence of skilled workers will in turn attract businesses looking for qualified employees. The EDS identifies a number of elements (or economic development levers) that are related to building a strong, liveable, healthy community and these are: a strong public education system, a locally accessible continuum of health care services, a safe community, a complete network of social services, and a diverse and affordable housing stock which is appropriate to residents' needs.

G2: MAKING EFFICIENT USE OF LAND

Second, the EDS will encourage infill development at higher densities and ensure "replacement employment" in older industrial areas.

G3: CREATING URBAN CHARACTER

Third, the EDS will focus on creating an attractive public realm with which to attract firms that hire diverse, well-educated, and skilled employees.

G4: STRIVING FOR A GREENER COMMUNITY

Fourth, the EDS will help Burnaby to position itself as a leader in sustainable community development by continuing to embrace sustainability, smart growth, and green building technology in the planning, design, development, and operation of the community.

There are also 11 sector focused strategies that are aimed at building synergies and strengthening these sectors of the local economy.

(FIGURE 2.6.11)

(FIGURE 2.6.12)

2.6.8 ENVIRONMENTAL SUSTAINABILITY STRATEGY

In November 2016, Burnaby City Council adopted Burnaby's Environmental Sustainability Strategy (ESS). The Environmental Sustainability Strategy is a plan for Burnaby's green future. The ESS is organized into a framework of 10 themes with distinct goals, strategies and suggested actions based on public, stakeholder, and Steering Committee input for each. The following themes are significant to this project:

GREEN	Healthy and resilient ecosystems
FLOW	Healthy and resilient watersheds
BREATHE	A community resilient to climate change, with clean air and low carbon emissions
LIVE	A network of compact and Complete Communities, within a fabric of healthy ecosystems
MOVE	A walkable, bikeable and transit-supported city that supports a healthy community and environment
BUILD	Buildings and infrastructure that have a positive impact on the environment
PROSPER	A prosperous economy that supports a healthy environment
NOURISH	A food system that supports healthy community and a healthy environment
CONSERVE	World-leading waste reduction, diversion and management
MANAGE	Environmentally aware and engaged community working together to improve Burnaby's environmental performance

(FIGURE 2.6.13)

In September 2019, City Council declared a Climate Emergency to reduce carbon emissions by 45% by 2030, 75% by 2040, and to become carbon neutral by or before 2050. As a result, the Climate Action Framework was approved as a roadmap for the City to take meaningful actions addressing climate change. The Climate Action Framework (CAF) contains Seven Big Moves to accelerate Burnaby's climate action over the next decade so that the City's Climate Emergency can be met:

CLIMATE LEADERSHIP	Community engagement for climate and energy
RESILIENT NEIGHBOURHOODS	Resilient housing for all
HEALTHY ECOSYSTEMS	Improve health of green spaces
ACCELERATED MODE SHIFT	All modes of transportation are enjoyable
ZERO (ZE) EMISSIONS VEHICLES	Passenger and commercial
ZE BUILDINGS NET ZERO NEW	New buildings are zero-emissions at occupancy
ZE BUILDINGS RETROFIT	Existing buildings transition to low-carbon energy source
GREEN	Healthy and resilient ecosystems

The Community Energy and Emissions Plan (CEEP) was developed in support of the ESS. The CEEP focuses on reducing community greenhouse gas (GHG) emissions and energy use to help address climate change, save money, and to support community health and liveability. Together, the ESS, CAF, and CEEP will provide the necessary framework for a more environmentally sustainable Burnaby.

2.6.9 RENTAL USE ZONING POLICY

The City of Burnaby Rental Use Zoning Policy was adopted by Council on March 2020 to support construction of new rental housing and to prevent the loss of existing rental housing to development. The Rental Policy established rental-only sub-districts in the Zoning By-law for RM, C, and P zones as well as a Density Offset to provide affordable rental units. The Rental Use Zoning Policy has identified four "streams" which recognize different contexts and opportunities for rental housing in the City.

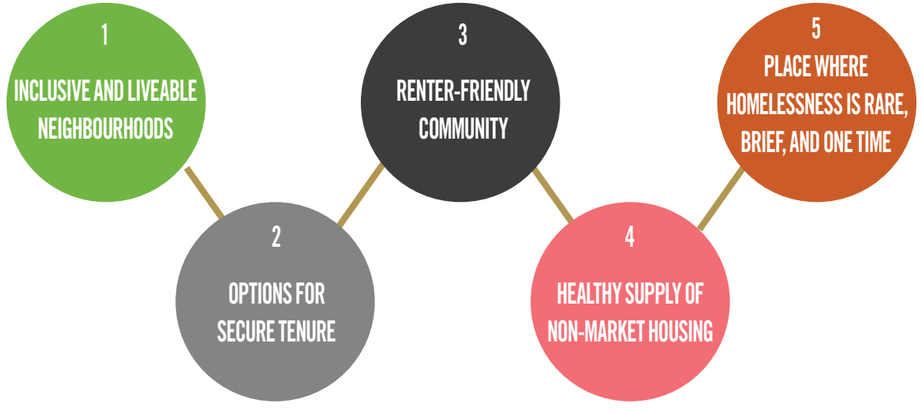
STREAM 1	Rental Replacement
STREAM 2	Inclusionary Rental
STREAM 3	Voluntary Rental Housing in Commercial Districts
STREAM 4	Protection of Existing Rental Sites

RENTAL USE ZONING POLICY with the focus to improve affordability, the policy contains a density offset mechanism that provides additional residential density above the base density in exchange for secured affordable rental units at a rate of 20% below CMHC market median rents for that neighbourhood. In order to achieve the maximum density offset, affordable rental units are to be supplied at a rate of 20% of the proposed market units derived from the RM5s density. The Rental Use Zoning Policy also allows the ability to offer voluntary rental density in commercial districts with 49% of the commercial area to be residential market rental housing, provided the remaining 51% of the floor area is commercial uses. All residential densities, including bonus must be fully utilized prior to achieving this additional density.

2.6.10 HOUSING AND HOMELESSNESS STRATEGY

The City of Burnaby's Housing + Homelessness Strategy is a comprehensive ten-year strategy intended to achieve five key goals, with numerous actions to be undertaken by both the private and public sectors in order to implement them. The goals and implementing strategies are summarized below.

(FIGURE 2.6.14)



(FIGURE 2.6.15)

BURNABY'S HOUSING AND HOMELESSNESS STRATEGY (FIGURE 2.6.16)

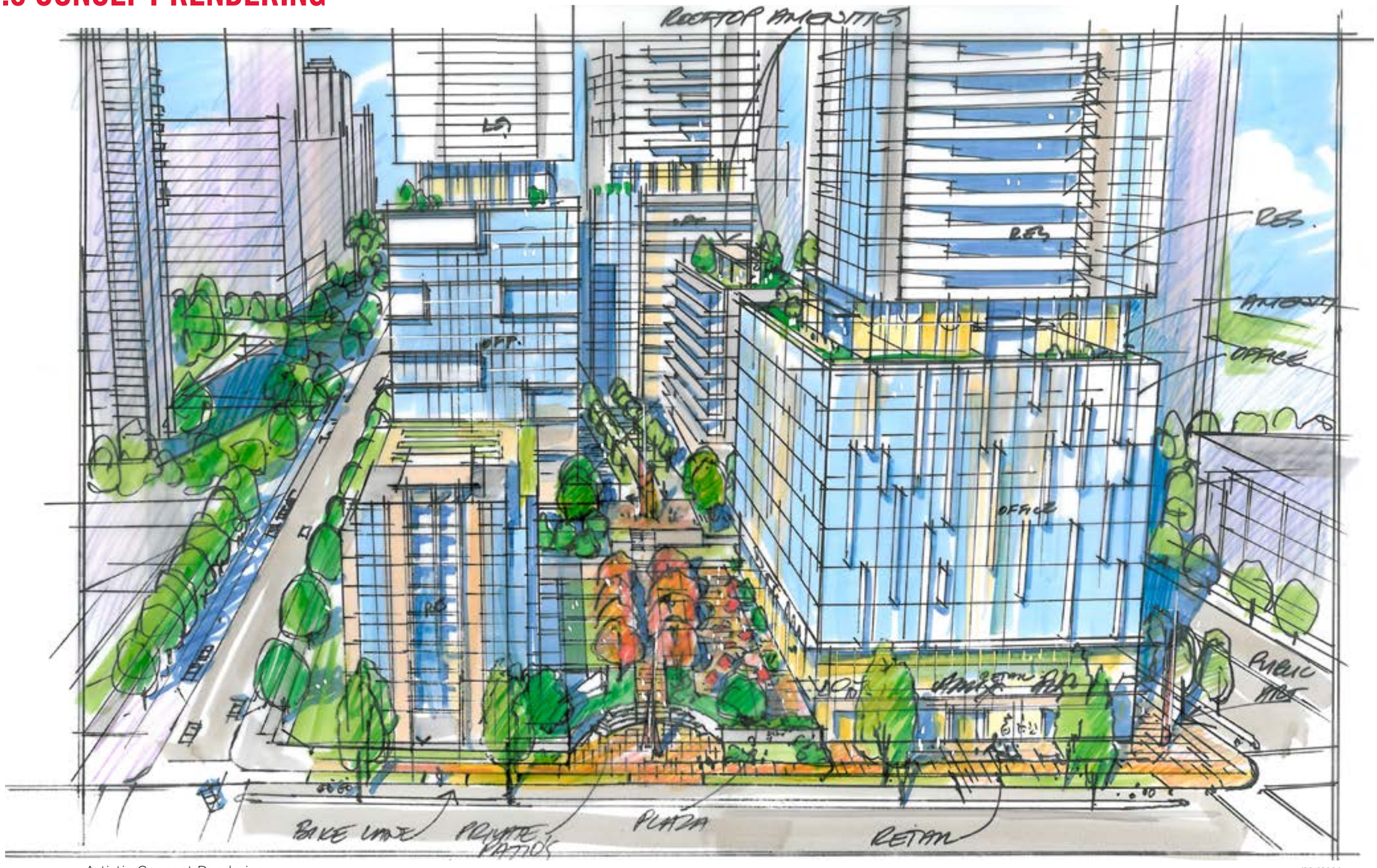
GOAL 1	STRATEGIES 1 - 5	# OF ACTIONS
Inclusive and Livable Neighbourhoods	Increase Housing Choice	6
	Create More Housing in Mixed-Use, Transit-Friendly Areas	5
	Support Housing for Diverse Needs	9
	Promote Social Connections and Resilience	6
	Support Climate-Friendly and Sustainable Housing Development	7
GOAL 2	STRATEGIES 6-7	# OF ACTIONS
Options for Secure Housing Tenure	Explore ways to make homeownership more attainable	3
	Support co-operatives, co-housing and other secure, collaborative housing options	6
GOAL 3	STRATEGIES 8-9	
A Renter-Friendly Community	Protect and grow our rental housing stock	6
	Support tenants facing displacement and other challenges	5
GOAL 4	STRATEGIES 10-12	
A Healthy Supply of Non-Market Housing	Pursue non-market housing partnerships with governments and housing providers	11
	Provide regulatory support for non-market housing	3
	Facilitate redevelopment of low-density sites for affordable housing	6
GOAL 5	STRATEGIES 13-15	
A Place Where Homelessness is Rare, Brief, and One Time	Prevent pathways into homelessness	5
	Support pathways out of homelessness	6
	Contribute to continued collaboration and coordination among homeless serving partners	6

HOME STRATEGY AT A GLANCE (FIGURE 2.6.17)

2.7 COMMUNITY CONSULTATION AND RESPONSE TO CITY POLICY

TO INCLUDE AFTER PUBLIC HEARING COMMENTS AND RESPONSE

2.8 CONCEPT RENDERING



Artistic Concept Rendering

(FIGURE 2.8.1)

03 EXISTING NEIGHBOURHOOD CONTEXT

1. Introduction
2. Existing Site and Land Use
3. Existing Road Network
4. Existing Neighbourhood Features
5. Existing Pedestrian, Bicycle, and Transit Network
6. Existing Site Access
7. Current Adjacent Developments
8. Adjacent Built Forms

MASTER PLAN SITE AND FUTURE NEIGHBOURHOOD CONTEXT (FIGURE 3.1.1)

3.1 INTRODUCTION

To fully understand the future neighbourhood context, we must consider what is existing and likely to remain, what is planned, and the existing policy context.

The immediate neighbourhood context of the master plan site runs from the Brentwood Town Centre boundary to the north, Rosser Avenue to the east, Dawson Street to the south, and Gilmore Avenue to the west.

This westerly portion of Brentwood Town Centre is undergoing change in accordance with the Brentwood Town Centre Plan through site specific rezoning. A significant master plan development to the south is Gilmore Place across Lougheed Highway. Gilmore Place is a 5.15 hectare mixed use, transit-oriented community. It will have a mix of residential, office, retail and entertainment/recreational uses. The Gilmore Place master plan anticipates approximately 3,000 dwelling units and about 6,000 jobs at full build-out.

GILMORE PLACE MASTER PLAN LOOKING NORTHEAST (FIGURE 3.1.2)
Lougheed + Madison I Concept Book

3.2 EXISTING SITE AND LAND USE

The master plan site is located in the “Mixed Transitional” sub-area of the Brentwood Town Centre Development Plan.

In the Brentwood Town Centre Plan, lands north of Lougheed Highway to Halifax Street are a mix of Commercial and High Density Multiple Family Residential. North of Halifax Street, the lands are either designated as Cemetery or, to the west at Gilmore Avenue, High Density Multiple Family Residential.

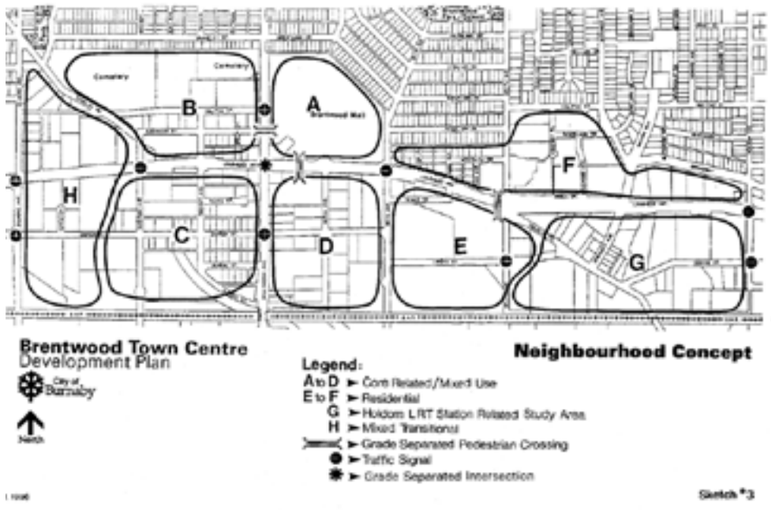
South of Lougheed Highway to Dawson Street/Skyline Drive the generalized land use is designated for High Density Mixed Use.

The significance of these policies is that the site is to serve as a key link and transition between subarea C on the south side of Lougheed Highway and the Willingdon Heights area north of the cemetery. To help facilitate that role, all perimeter and new internal roads will facilitate local vehicular and particularly non-motorized circulation, both in the north-south and east-west directions.

The master plan site is currently zoned to the C4 and M1 Districts. The majority of the site is zoned C4, Service Commercial District. The C4 district schedule permits a range of automobile-oriented, low intensity commercial uses. Height is limited to two storeys. While there is no specified density limit, the low height limit, required large setbacks and parking requirements ensure a very low floor area ratio.

The two westernmost properties are both zoned M1. This industrial district schedule is intended for light industrial and some commercial uses that minimize conflict with abutting uses. The minimum frontage is 30 meters (98 feet) and site area 930 square meters (10,014 square feet), and a maximum height of 12 meters (39 feet).

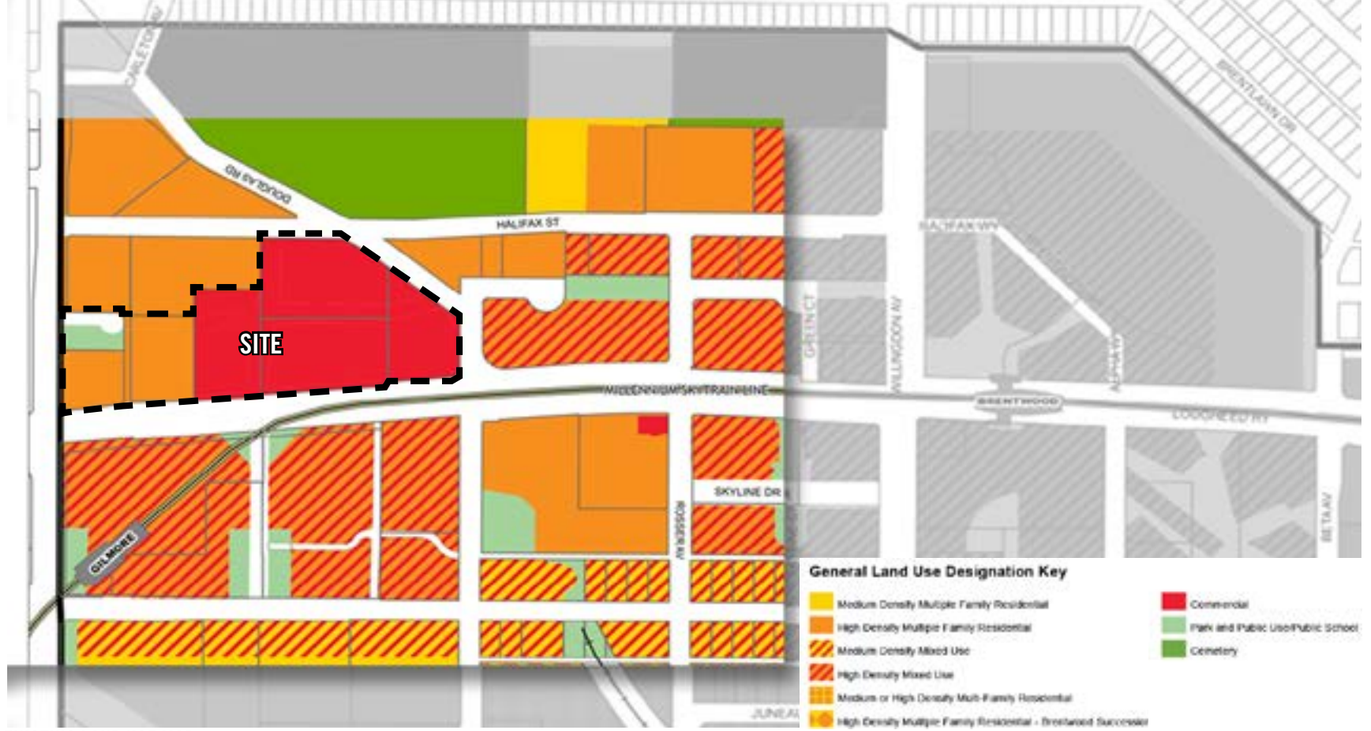
The overall intent of this master plan is to complete a Community Plan Amendment for the collective seven-parcel site, in order to permit future mixed-use developments based on the RM5s/RM5r and C3 uses. This master plan also provides conceptual design guidelines to inform future site specific rezoning applications.



(FIGURE 3.2.1)

EXISTING PARCELS

(FIGURE 3.2.2)



EXISTING LAND USE MAP

(FIGURE 3.2.3)

(FIGURE 3.3.1)

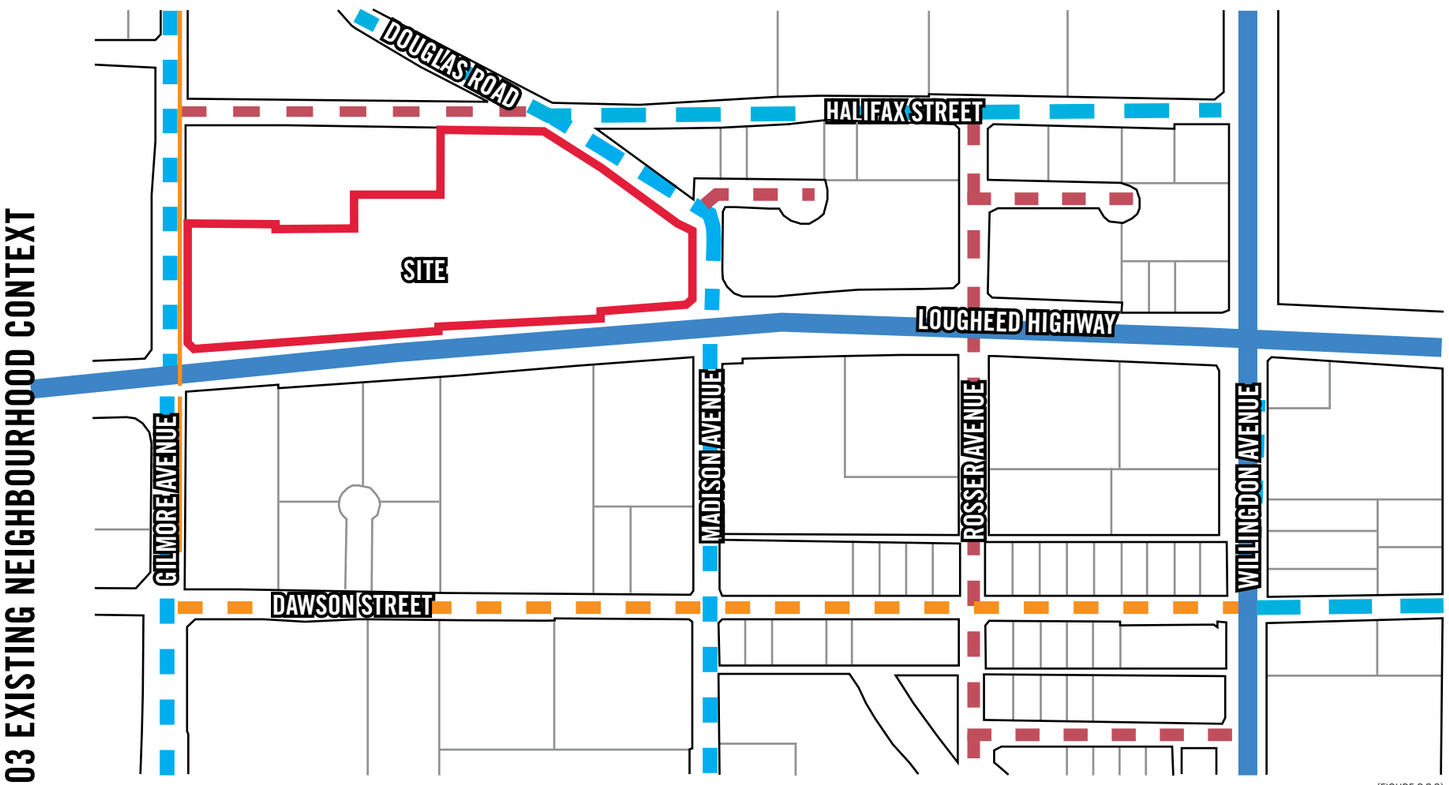
3.3 EXISTING ROAD NETWORK

Due to a combination of topographical and historical factors, there are few through roads in this quadrant of Burnaby north of Highway 1. Waterways and rail lines contribute to the lack of an interconnected street network. Accordingly, the regionally important Lougheed Highway carries the bulk of east-west vehicular movements. The two north-south arterials serving the area are Gilmore Avenue immediately to the west of the site and Willingdon Avenue further to the east. Willingdon Avenue also provides the closest access to Highway 1. Historically, this particular area was heavily industrialized, which did not require a fine grained street network. As the area transitioned to mixed-use, a walkable town centre, and finer grained network of streets and connections are required.

At the block level, Halifax Street abuts the site on the north, Madison Avenue and the diagonal Douglas Road abuts it to the east. Buchanan Street is a cul de sac that includes a greenway connection between Madison Avenue/Douglas Road and Willingdon Avenue. Buchanan Street will connect the site to Brentwood Centre for active transportation modes. The map below is illustrating the application of the City's Town Centre Standards.

MAP LEGEND

- Six-Lane Standard
- Four-Lane Standard
- Two-Lane Collector Standard
- Two-Lane Local Standard
- Custom Design
- Perimeter Street Standard
- Proposed Master Plan



(FIGURE 3.3.2)

3.4 EXISTING NEIGHBORHOOD FEATURES

The features of the Brentwood Town Centre are slowly increasing over time. The open green space across Halifax Street offers a large and beautiful area for passive enjoyment by visitors. To the northwest is Willingdon Heights Park and the Willingdon Community Centre. Madison Centre Park is a linear passive park east of Madison Avenue. Various grocery stores and other shopping and services are located to the south east of the site. In addition, two blocks east on Lougheed Highway, the regional shopping centre Brentwood Mall is just past Willingdon Avenue.

MAP LEGEND

- Community Service Provider
- Service for People with Disabilities
- Childcare
- Open Green Space
- Shopping Centre
- Proposed Community Plan Amendment

01 **WILLINGDON COMMUNITY CENTRE** (FIGURE 3.4.1)

02 **YUKON CRESCENT CHILDREN'S CENTRE** (FIGURE 3.4.2)

03 **SHOPPING AND SERVICES AT SOLO DISTRICT** (FIGURE 3.4.3)

04 **BRENTWOOD COMMUNITY RESOURCE CENTRE** (FIGURE 3.4.4)

05 **BRENTWOOD MALL** (FIGURE 3.4.5)

(FIGURE 3.4.6)

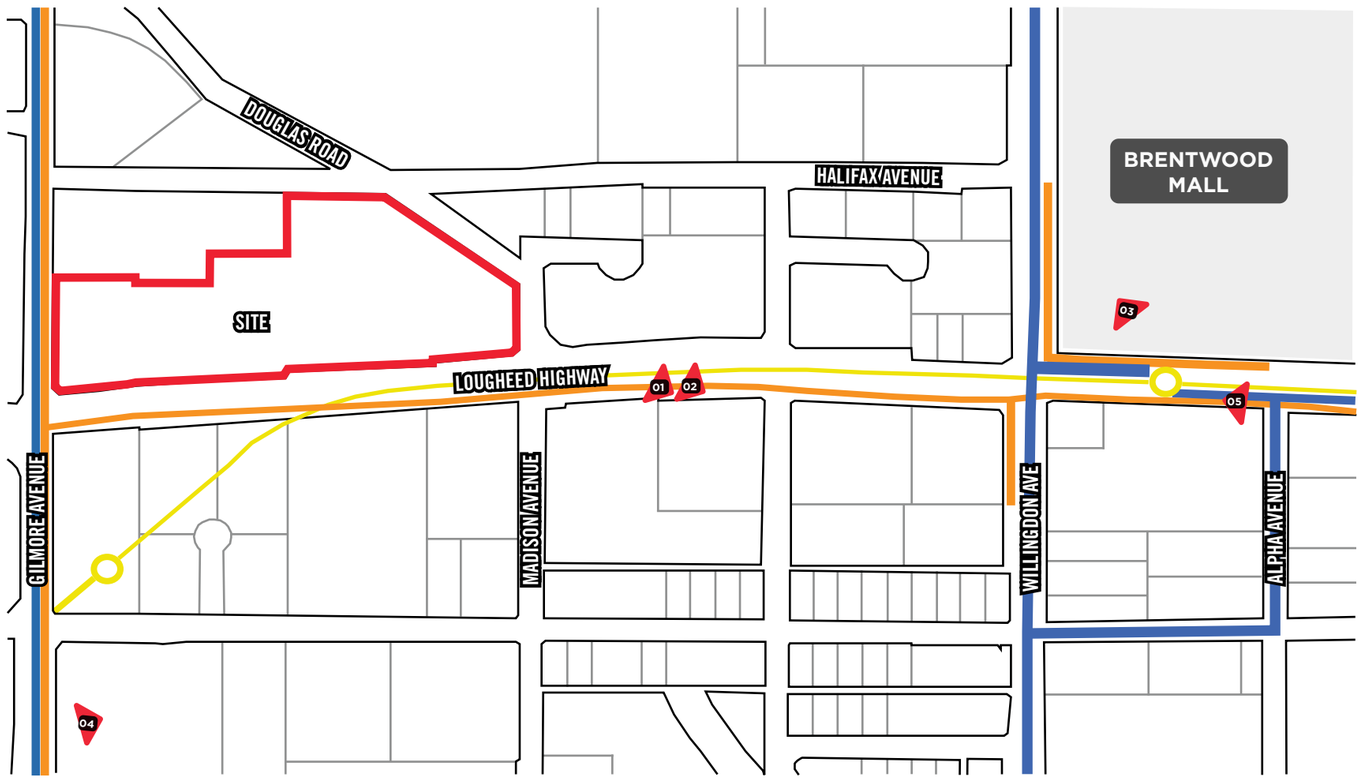
01
LOUGHEED HWY RAIN GARDENS AND SIDEWALKS (FIGURE 3.5.1)

02
LOUGHEED HWY DEDICATED BIKE PATH (FIGURE 3.5.2)

03
BRENTWOOD MALL PUBLIC PLAZA (FIGURE 3.5.3)

04
CHUB CREEK URBAN TRAIL (FIGURE 3.5.4)

05
BRENTWOOD TOWN CENTRE STATION BUS STOP (FIGURE 3.5.5)



(FIGURE 3.5.6)

3.5 EXISTING PEDESTRIAN, BICYCLE, AND TRANSIT NETWORK

The master plan site is currently served by three bus routes accessed at Gilmore Station: #28 (Joyce SkyTrain Station to Exchange in North Vancouver), #129 (Metrotown SkyTrain Station to Edmonds SkyTrain Station), and #N9 (Downtown Vancouver to Coquitlam Station) on Lougheed Highway). Brentwood Town Centre is a hub for a number of additional bus routes as well.

The Gilmore SkyTrain Station is the main component of the regional transportation network serving this part of the Brentwood Town Centre, linking the site to Coquitlam to the east and Vancouver to the west, as well as much of Burnaby along the Lougheed Highway Corridor. The planned improvements to this station area will greatly enhance the public realm in general and specifically for pedestrian and biking access to and from the master plan site.

The City of Burnaby will continue to work with TransLink on an area transit plan for the Brentwood Town Centre in order to encourage new and expanded transit service to other centres in the City.

- SkyTrain Station
- SkyTrain
- Bus Route
- Urban Trail
- Bike Route
- Proposed Community Plan Amendment
- Brentwood Core Area
- 01 Key View

PEDESTRIAN AND BIKE PATH FROM MADISON CENTRE PARK (FIGURE 3.5.7)

3.6 EXISTING SITE ACCESS

Currently, seven parcels contain separate vehicular entry accessed directly from perimeter roads. The following outlines access points for each parcel:

4265 LOUGHEED HIGHWAY

Three entry points from Lougheed Highway and Madison Avenue with one providing access to 4201 Lougheed Highway

4219 LOUGHEED HIGHWAY

Two entry points from Lougheed Highway

4201 LOUGHEED HIGHWAY

Three entry point; two from Halifax street and one from Lougheed Highway

4199 LOUGHEED HIGHWAY

One entry point from Lougheed Highway

4141 LOUGHEED HIGHWAY

One entry point from Gilmore Avenue through an extended right of way driveway

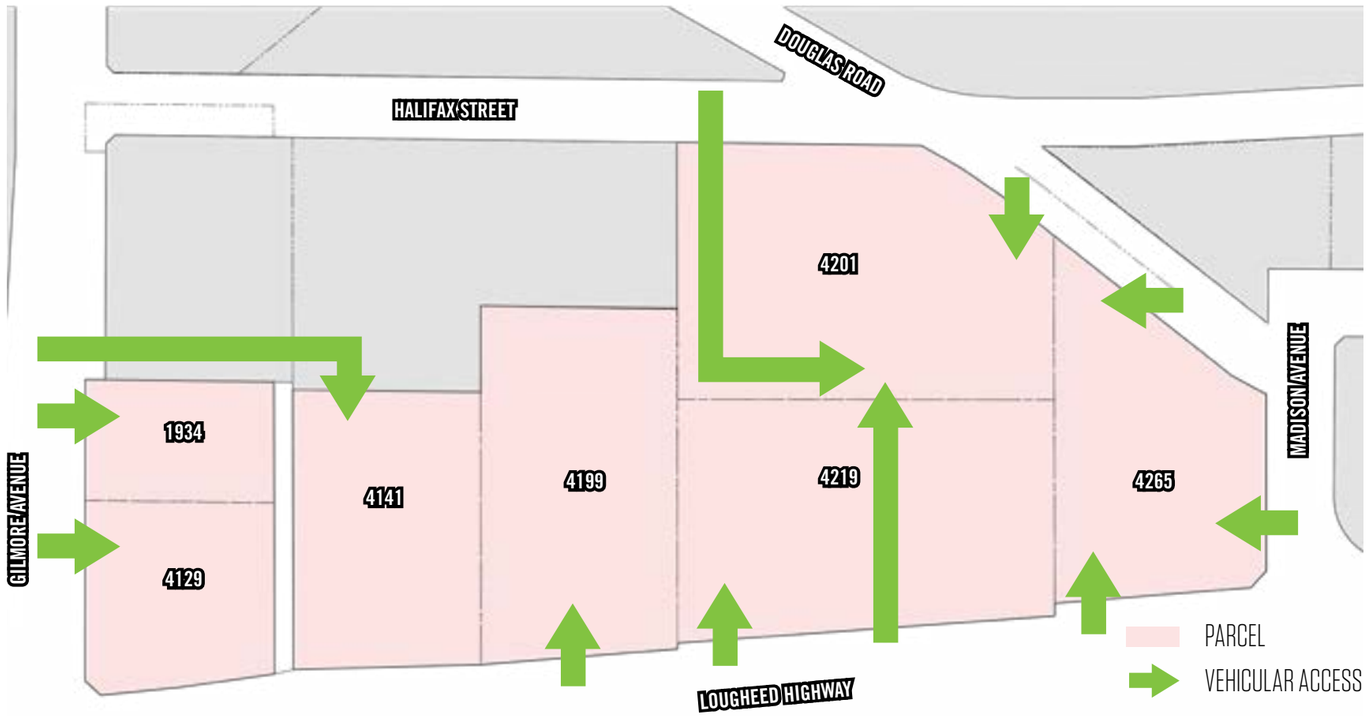
4129 LOUGHEED HIGHWAY

Two entry points from Gilmore Avenue through a parking driveway

1934 LOUGHEED HIGHWAY

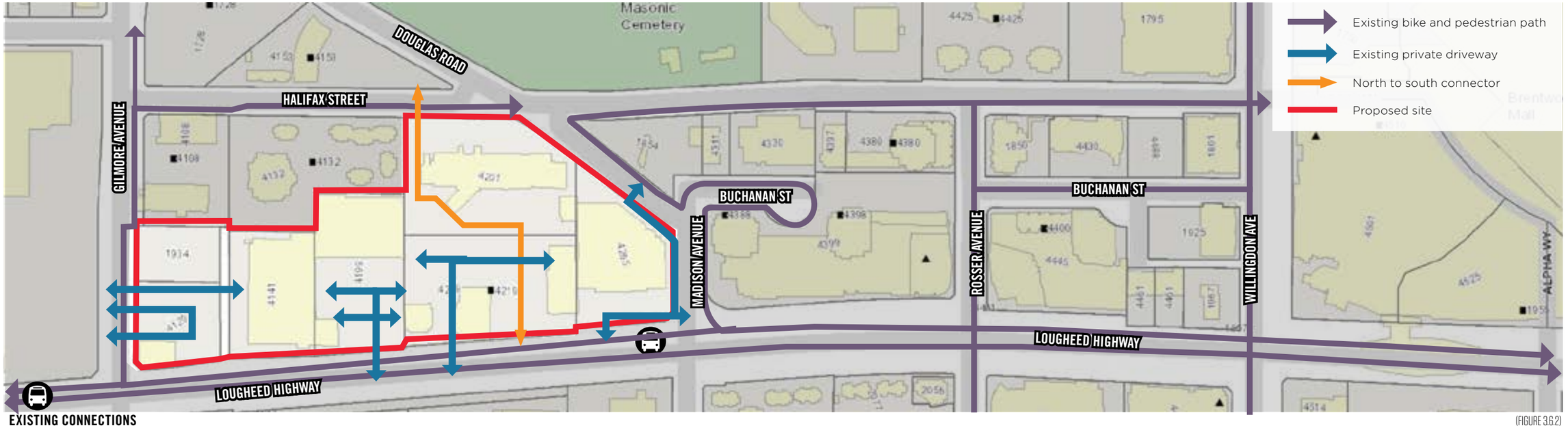
One entry point from Gilmore Avenue

Upon redevelopment, it is anticipated that all future access to on-site parking and loading will be provided by new internal roads, with the exception of a driveway to 4265 Lougheed Highway from Madison Avenue.



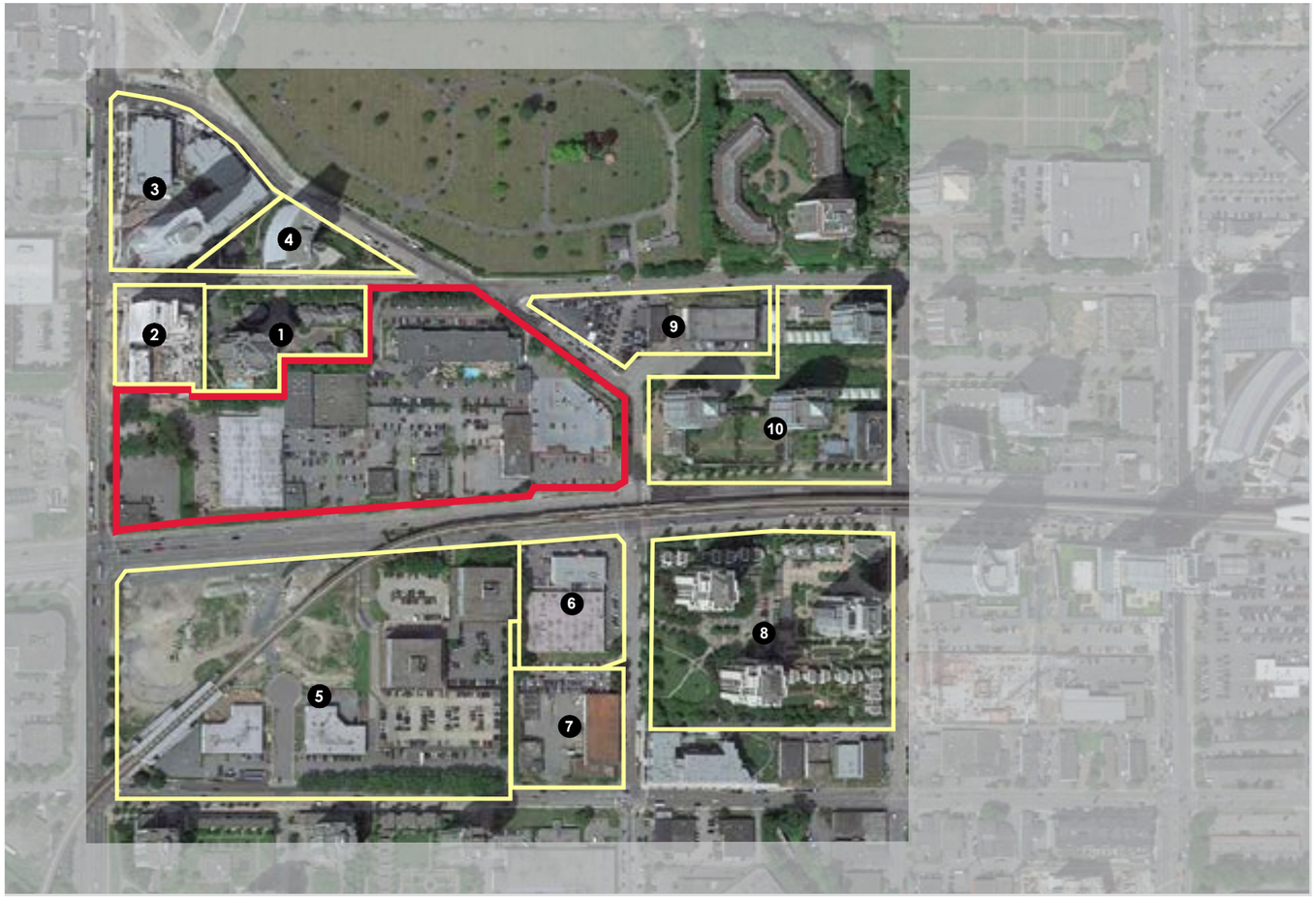
EXISTING ACCESS POINTS

(FIGURE 3.6.1)

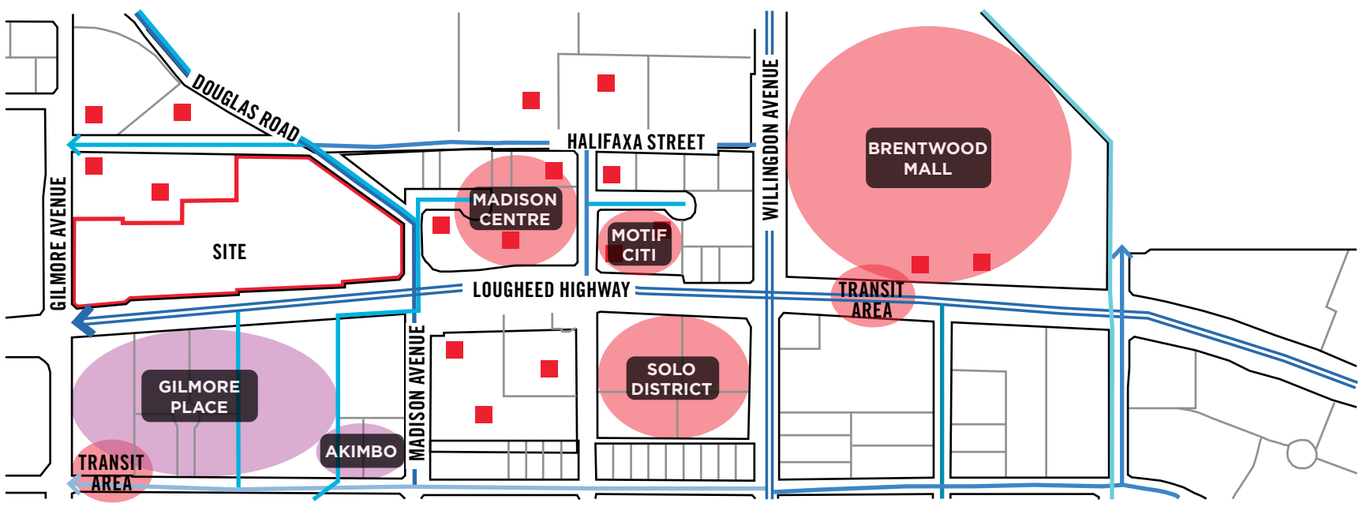


EXISTING CONNECTIONS

(FIGURE 3.6.2)



LOCATION OF ADJACENT DEVELOPMENTS (FIGURE 3.7.1)



EXISTING PRECINCTS (FIGURE 3.7.2)

3.7 CURRENT ADJACENT DEVELOPMENTS

The site is currently surrounded by developments built over the last few decades. Sites 1-4, and site 8 are fully developed residential developments, site 5 is comprised of the Gilmore Place mixed use development, and sites 6 and 9 are yet to be developed in accordance with their community plan land use designation. Site 7 is the Akimbo development which is currently under construction. Site 10 is the mixed-use Madison Centre.

The chart below summarizes the current adjacent developments

SITE	CURRENT STATUS
1. 4132 Halifax Street	Complete
2. 1888 Gilmore Avenue	Complete
3. 1788 Gilmore Avenue	Complete
4. 4189 Halifax Street	Complete
5. Gilmore Place	Under Construction
6. 4278 Lougheed Highway	To Be Developed
7. Akimbo	Under Construction
8. 2088, 2138 Madison Avenue	Complete
9. 4290 Halifax Street	To Be Developed
10. 4399 Lougheed Highway	Complete

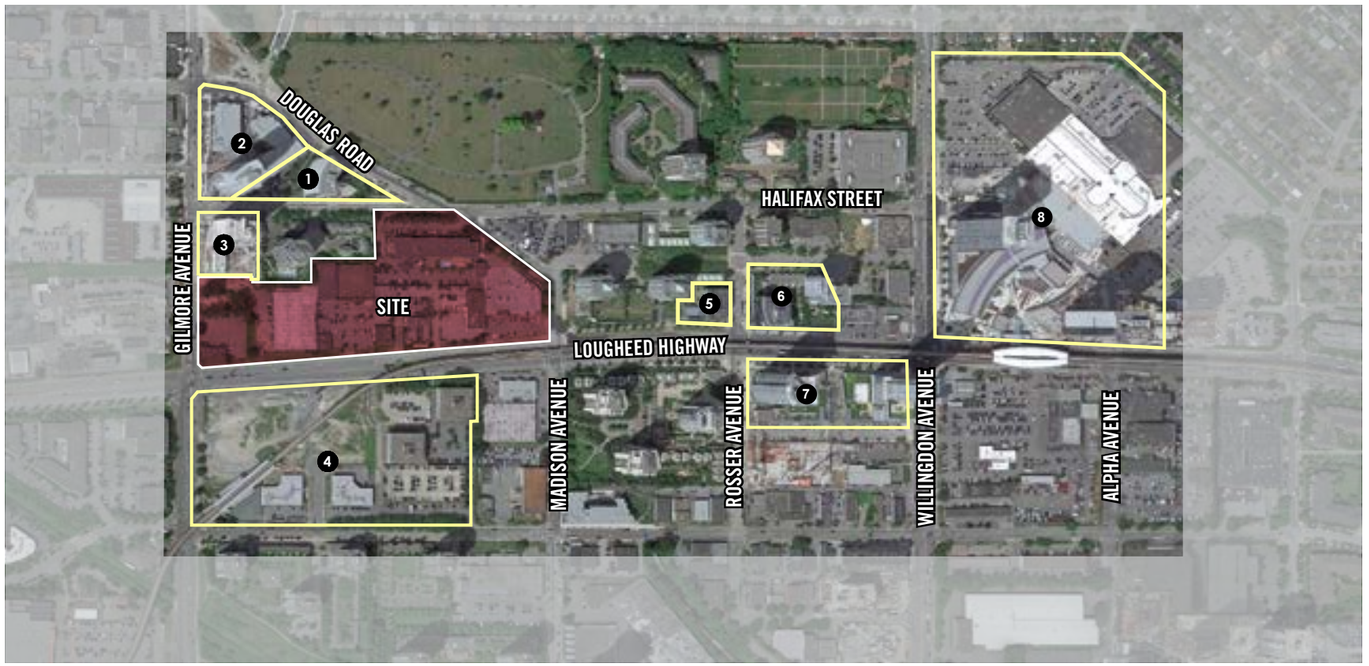
LEGEND OF EXISTING PRECINCTS

- Existing Developments
- Proposed Developments
- Existing Towers
- Six-Lane Standard
- Four-Lane Standard
- Two-Lane Standard
- Two-Lane Local Standard
- Custom Design
- Proposed Community Plan Amendment
- Brentwood Core Area

3.8 ADJACENT BUILT FORMS

Building typology around the master plan site is composed of high-density mixed-use, high-density residential, medium-density residential, townhomes, and commercial warehouse structures. The high-density projects are mainly in a form of concrete and window wall high-rise buildings, while the medium-density and townhomes are wood frame structures.

Two recent residential developments are adjacent to the master plan site, which were both recently occupied, are both located in the northwest quadrant facing Halifax Street. Each has a residential tower and a low-rise podium. Across Halifax Street at Gilmore Avenue is a newer residential tower with a prominent forecourt and waterfall feature. At the junction of Halifax Street and Douglas Road is the long-established Masonic Cemetery. New development on the master plan site will seek to respect municipal tower separation guidelines of 100 feet to face, and 80 feet corner to corner. South of the existing townhouses at Halifax Residence on Halifax Street, the master plan proposes to locate a neighbourhood open space.



SITE AND CONTEXT BUILT FORM (FIGURE 3.8.1)

01 **AVIARA** (FIGURE 3.8.2)

02 **ESCALA** (FIGURE 3.8.3)

03 **TRIOMPHE** (FIGURE 3.8.4)

04 **GILMORE PLACE (RENDERING)** (FIGURE 3.8.5)

05 **MADISON CENTRE** (FIGURE 3.8.6)

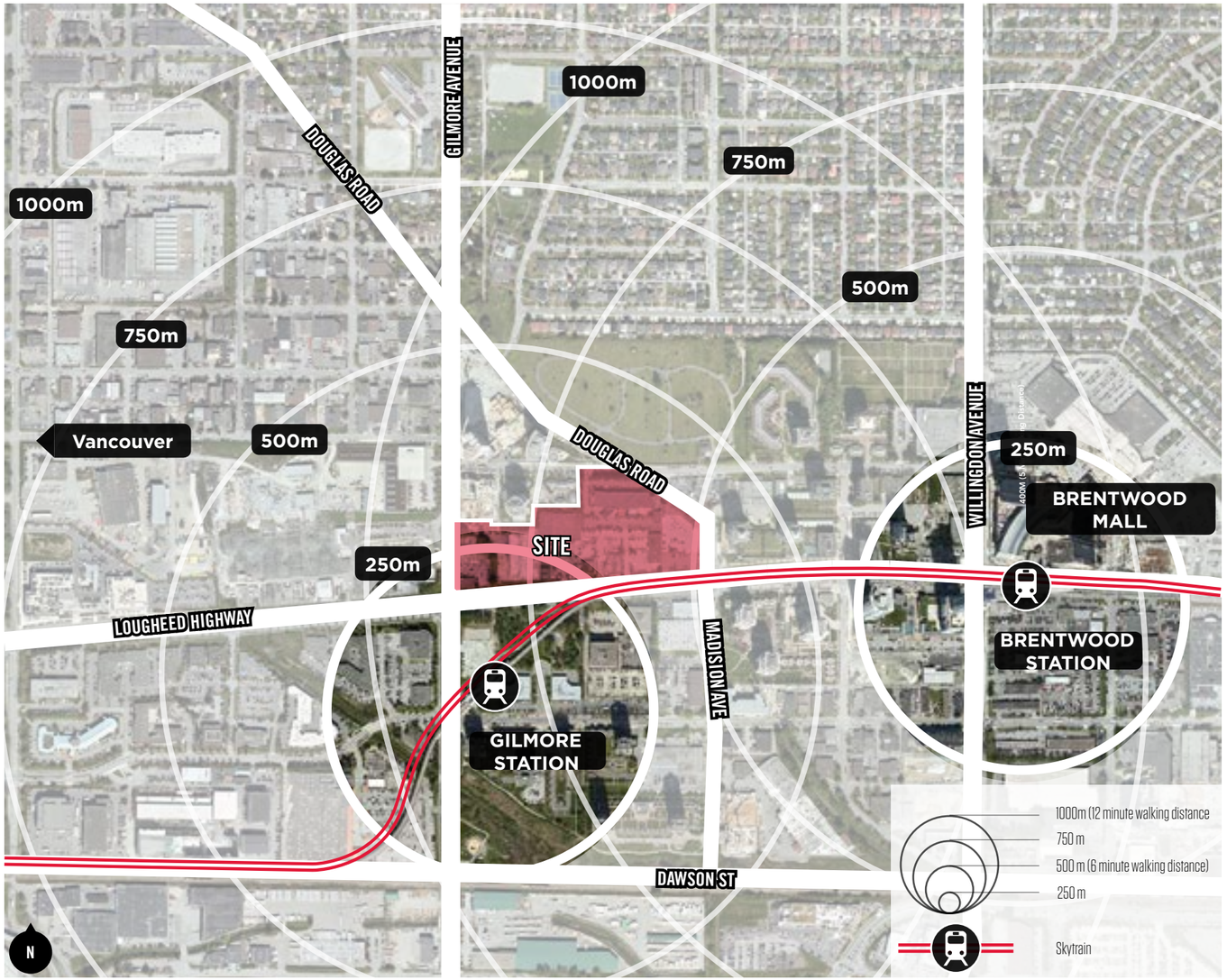
06 **MOTIF AT CITI** (FIGURE 3.8.7)

07 **SOLO DISTRICT** (FIGURE 3.8.8)

08 **BRENTWOOD MALL** (FIGURE 3.8.9)

04 MASTER PLAN INFLUENCES

1. Neighbourhood Connectivity
2. Parcel and Ownership
3. Existing Surroundings and Parks
4. Site Topography
5. Solar Orientation
6. The Thronton Tunnel
7. Opportunities and Constraints

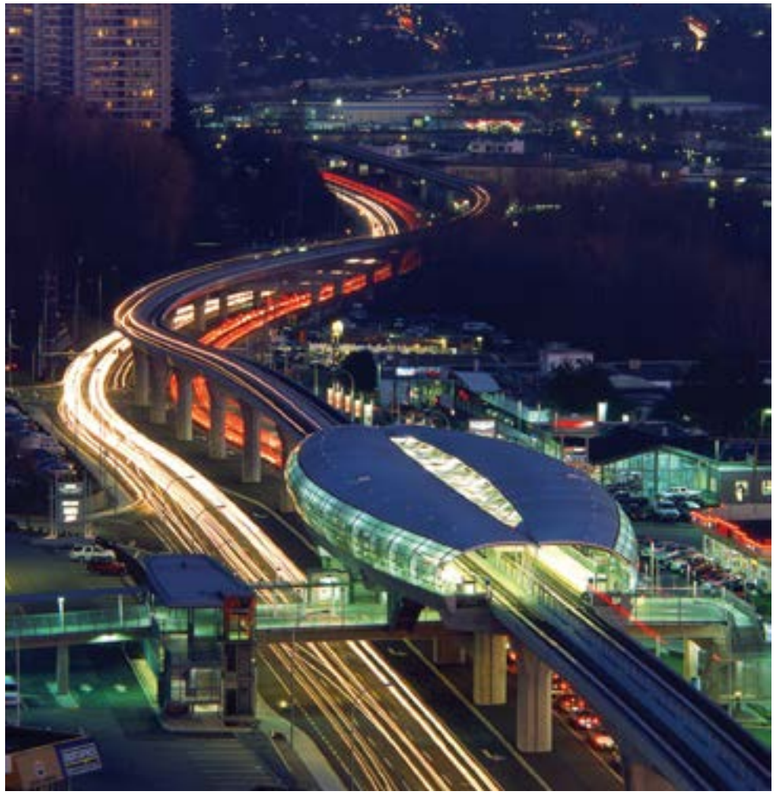


PROXIMITY OF TRANSIT HUBS TO SITE (FIGURE 4.1.1)

4.1 NEIGHBOURHOOD CONNECTIVITY

As Burnaby continues to evolve into a vibrant and prosperous city, providing multimodal transportation options to connect people, places, and goods is vital to sustaining the community's urban fabric. Reliable infrastructure and transportation services are essential to the city's economy, employment, housing, food, cultural, health, recreational, and educational sectors. As part of everyday life, transportation enables people to meet their daily needs while fully participating in city life.

The master plan site is located between two SkyTrain stations: Gilmore Station to the southwest and Brentwood Town Centre Station to the east. These transit hubs are each located within a 5-10 minute walk, and support walking and cycling by extending the distances a person can travel. The site is also within walking distance of Brentwood Mall. The two SkyTrain stations also serve as hubs for several bus loops. Several bus routes are within proximity to the site, and transit-supportive measures such as shelters and amenities near bus stops encourage public transit as primary transportation choice.



BRENTWOOD TOWN CENTRE STATION (FIGURE 4.1.2)

4.2 PARCELS AND OWNERSHIP

Seven parcels of different ownerships and sizes, comprise the master plan site, three east of the future Carleton Avenue extension, and four to the west of it. The parcels range in area from 40,515.3 to 101,487.4 square feet (3,763.0 to 9,428.4 square meters), as the table and plan show.

LOUGHEED AND MADISON MASTER DATA SHEET

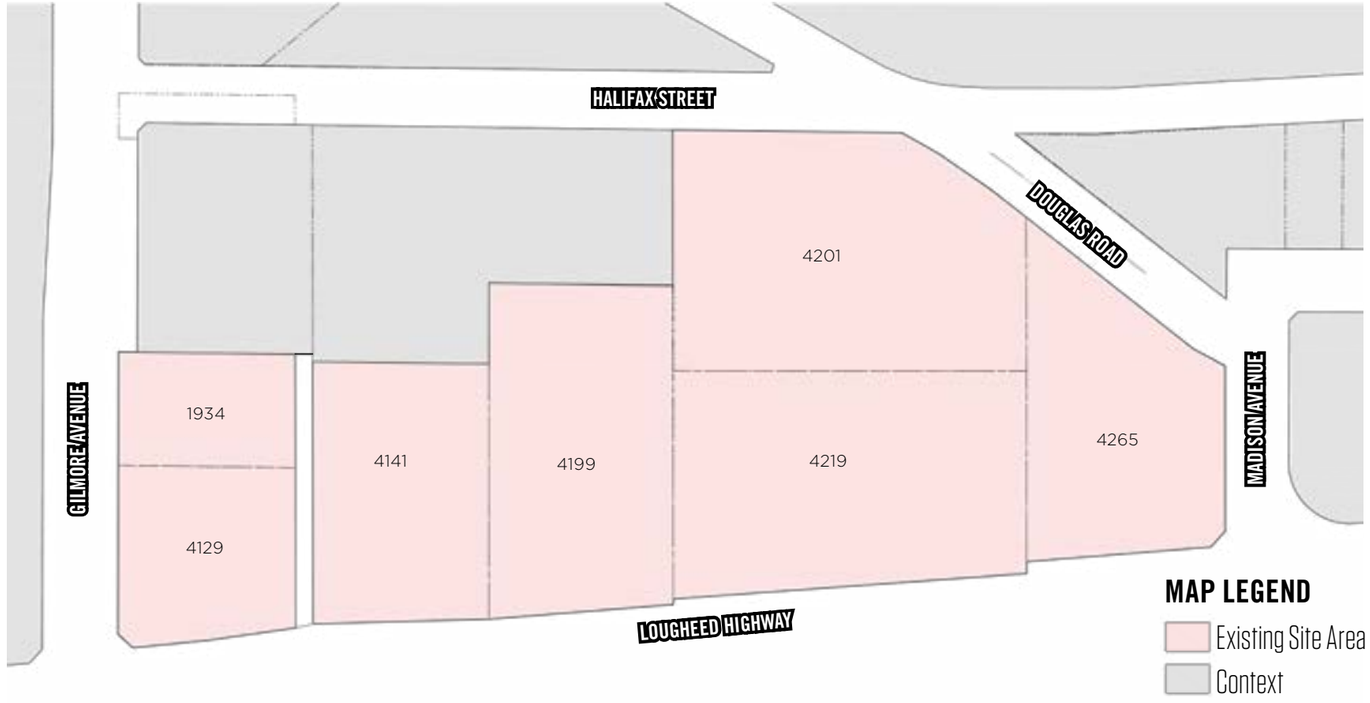
A. Project Description

Amend CD Comprehensive Development District

B. Civic Address(es) and Alias:	C. Zoning Current Zone	Existing Community Plan Zoning Designation	Proposed Community Plan Zoning Designation
4265 Lougheed Highway	C4	CD/C3	RM5s-RM5r-C3
4216 Lougheed Highway	C4	CD/C3	RM5s-RM5r-C3
4201 Lougheed Highway	C4	CD/C3	RM5s-RM5r-C3
4199 Lougheed Highway	C4	CD/C3	RM5s-RM5r-C3
4141 Lougheed Highway	M1	CD/RM5s-RM5r	RM5s-RM5r-C3
4129 Lougheed Highway	M1	CD/RM5s-RM5r	RM5s-RM5r-C3
1934 Gilmore Avenue	M1	CD/RM5s-RM5r	RM5s-RM5r-C3

OVERALL SITE AREA

	4265 LOUGHEED	4219 LOUGHEED	4201 LOUGHEED	4199 LOUGHEED	4141 LOUGHEED	4129 LOUGHEED	1934 GILMORE	TOTAL
Gross Site Area Meter	6,083.0	9,020.0	9,428.5	7,153.0	5,382.0	3,764.0	2,383.0	
Gross Site Area Feet	65,476.8	97,090.4	101,487.4	76,994.2	57,931.3	40,515.3	25,650.4	
Site Area for Calculation of Density	65,476.8	97,090.4	101,487.4	76,994.2	57,931.3	40,515.3	25,650.4	465,146 sq.ft.



EXISTING SITE LEGAL

(FIGURE 4.2.1)

AERIAL VIEW OF SURROUNDINGS (FIGURE 4.3.1)

SITE 4265 VIEW FROM DRIVEWAY LOOKING EAST (FIGURE 4.3.2)

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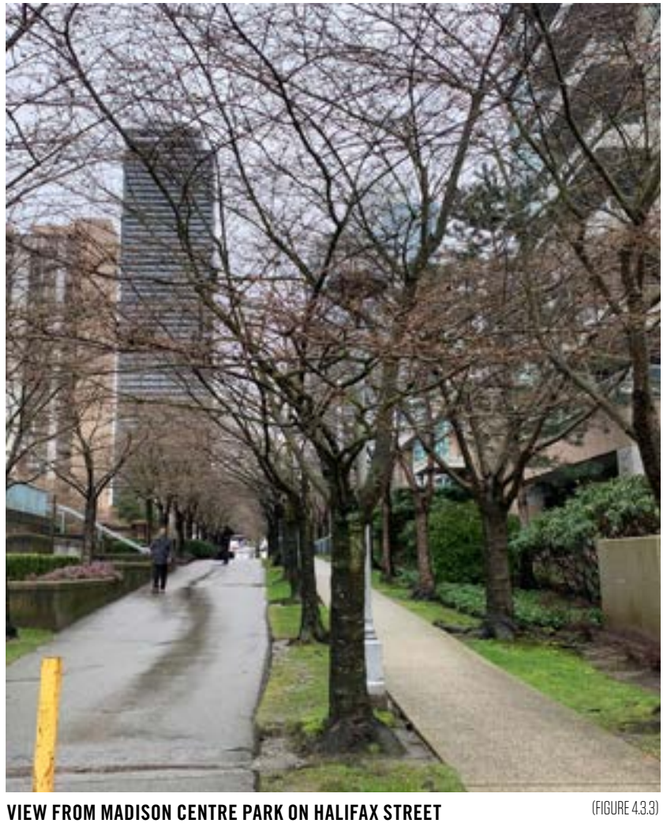


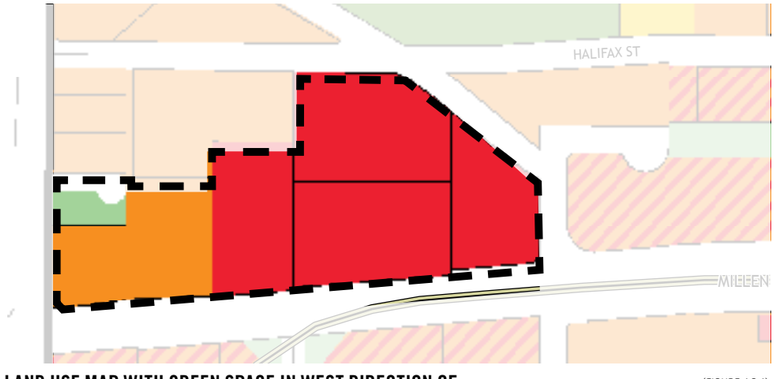
VIEW FROM MADISON CENTRE PARK ON HALIFAX STREET LOOKING TOWARDS BRENTWOOD (FIGURE 4.3.3)

4.3 EXISTING SURROUNDINGS AND PARKS

There are multiple existing parks within proximity to the site. Directly north of the subject site is Willingdon Heights Park which is bounded by 1st Avenue, Carleton Avenue, William Street, and Gilmore Avenue. To the northeast of the site are a series of three green spaces including Pacific Heritage Cemetery, Brent Gardens, and Beth Israel memorial Park which are bounded by Douglas Road, Halifax Street, Willingdon Avenue, Graveley Street, and Carleton Avenue. Two blocks in the southeast direction is Jim Lorimer Park as a linear strip between British Columbia Highway 7 and Gilmore Avenue. To the east of the site is the Cherry Blossom Garden between Buchanan Street and Rosser Avenue.

The Brentwood Town Centre General Land Use Map envisions a cul de sac and small park at the Gilmore Avenue frontage of the site. Adjustments will be required to the specific boundaries of these two spaces in order to accommodate the private east - west road through the entire site.

Through discussions with City staff, a dedicated northern extension of Carleton Avenue is proposed for the master plan site, connecting Halifax Street at the north to the Gilmore Station precinct and Dawson Street to the south. Similarly, a private east-west road will extend Buchanan Street through the site, providing access from Gilmore Avenue to the west to Madison Avenue and Douglas Road at the eastern edge of the site.

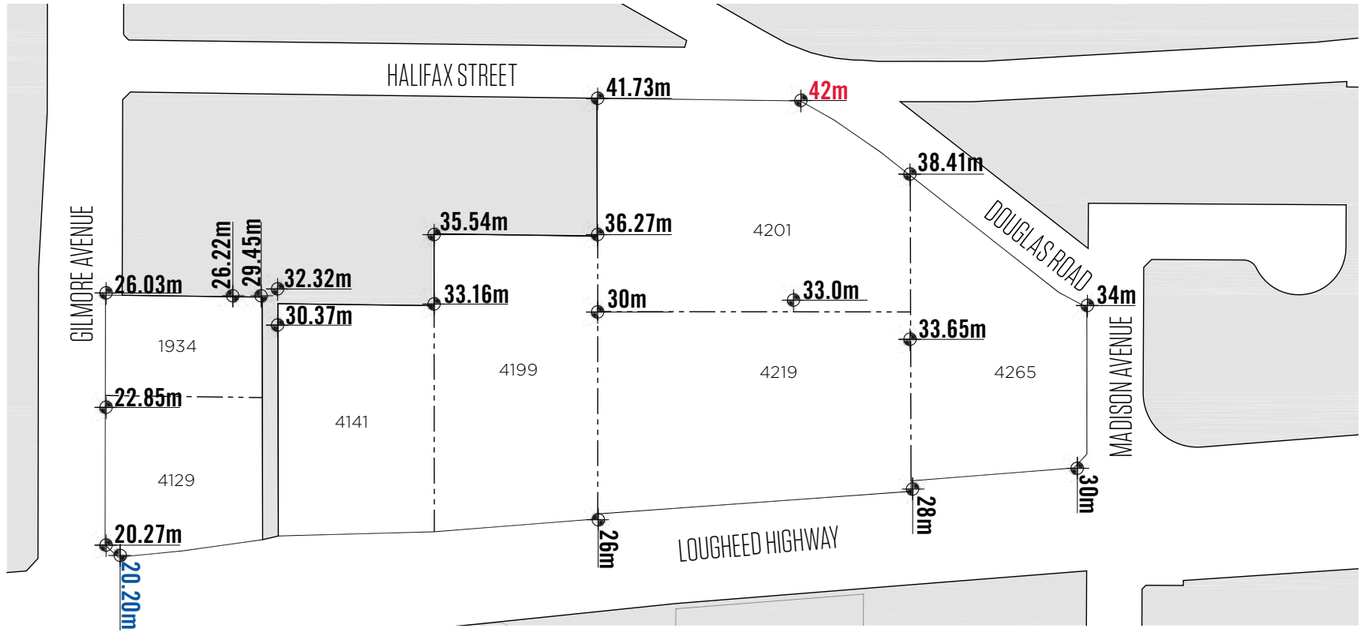


LAND USE MAP WITH GREEN SPACE IN WEST DIRECTION OF PROPOSED COMMUNITY PLAN AMENDMENT AREA (FIGURE 4.3.4)

4.4 SITE TOPOGRAPHY

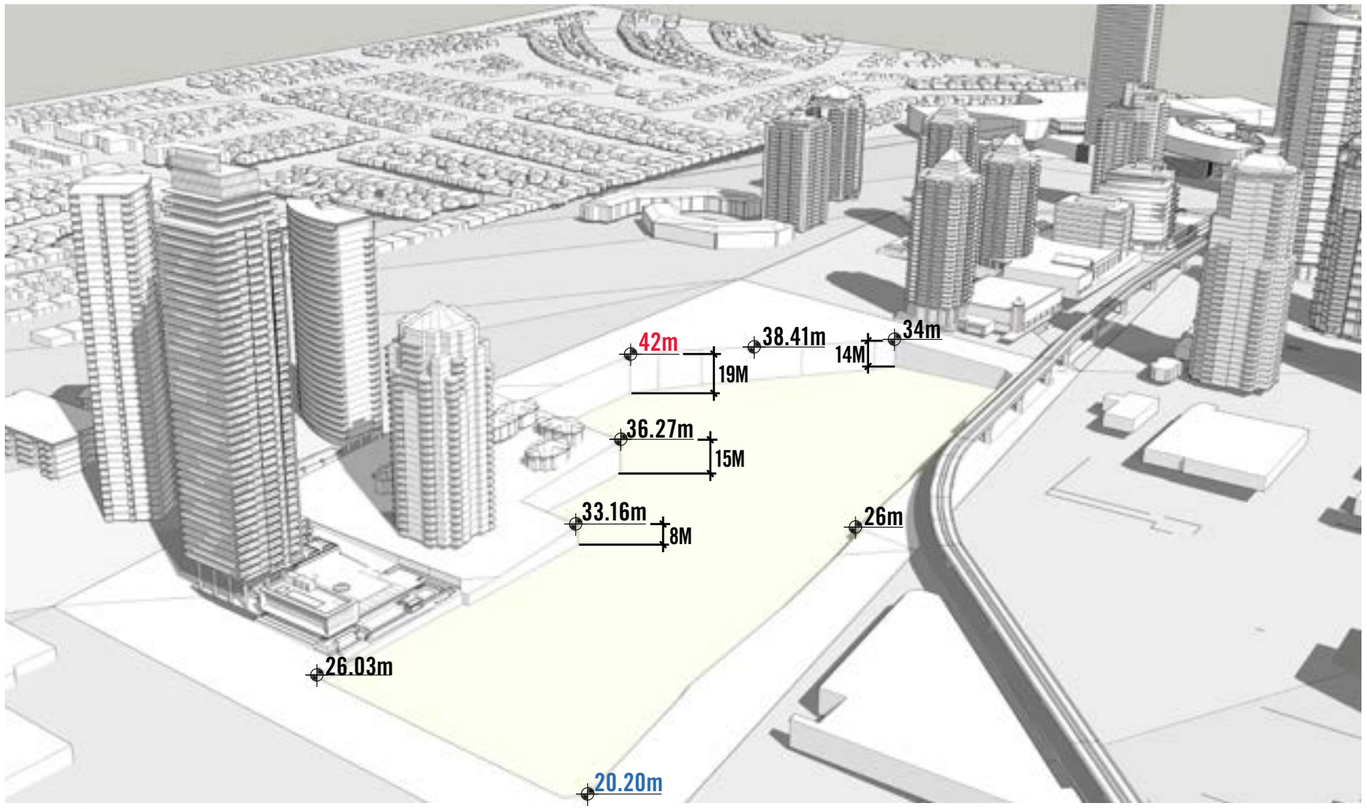
Topography is a fundamental consideration for planning and development, affecting everything from site drainage and vehicular access to the placement of floor levels, lobbies and building entries to usable open spaces. Slope can also affect land use, insofar as pedestrian-oriented shops and services depend level terrain. Means of slope retention, landscaping, and retaining walls may be required across the site. The size and appearance of these walls will be an important factor in the future visual character. The master plan will seek a consistent approach across property lines to ensure a coherent look and feel.

The drawing below shows a 22 meters (72 feet) difference from the highest elevation to the lowest point, in the northeast and southwest corners, respectively.



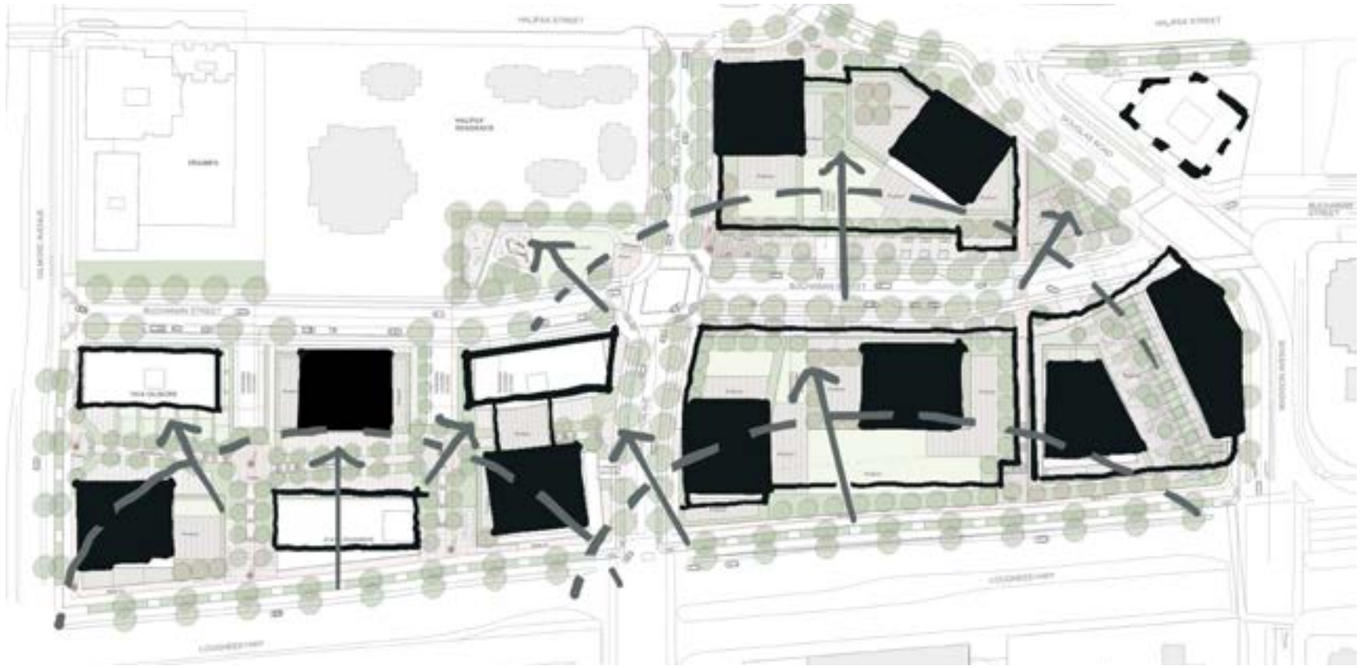
EXISTING SPOT ELEVATIONS

(FIGURE 4.4.1)



EXISTING SITE GRADING

(FIGURE 4.4.2)



SOLAR ORIENTATION DIAGRAM OF SITE (FIGURE 4.5.1)

LOOKING WEST ON LOUGHEED HIGHWAY AND WILLINGDON AVENUE (FIGURE 4.5.2)

4.5 SOLAR ORIENTATION

RESPOND TO SOLAR ORIENTATION: ARRANGE HIGHER AND LOWER BUILDINGS TO CREATE SUN TRAPS

The east-west orientation of the master plan site allows for optimizing southerly solar orientation for all properties. This is further reinforced by the arrangement and interplay of higher and lower building forms and podiums as well as streets and the open space network.

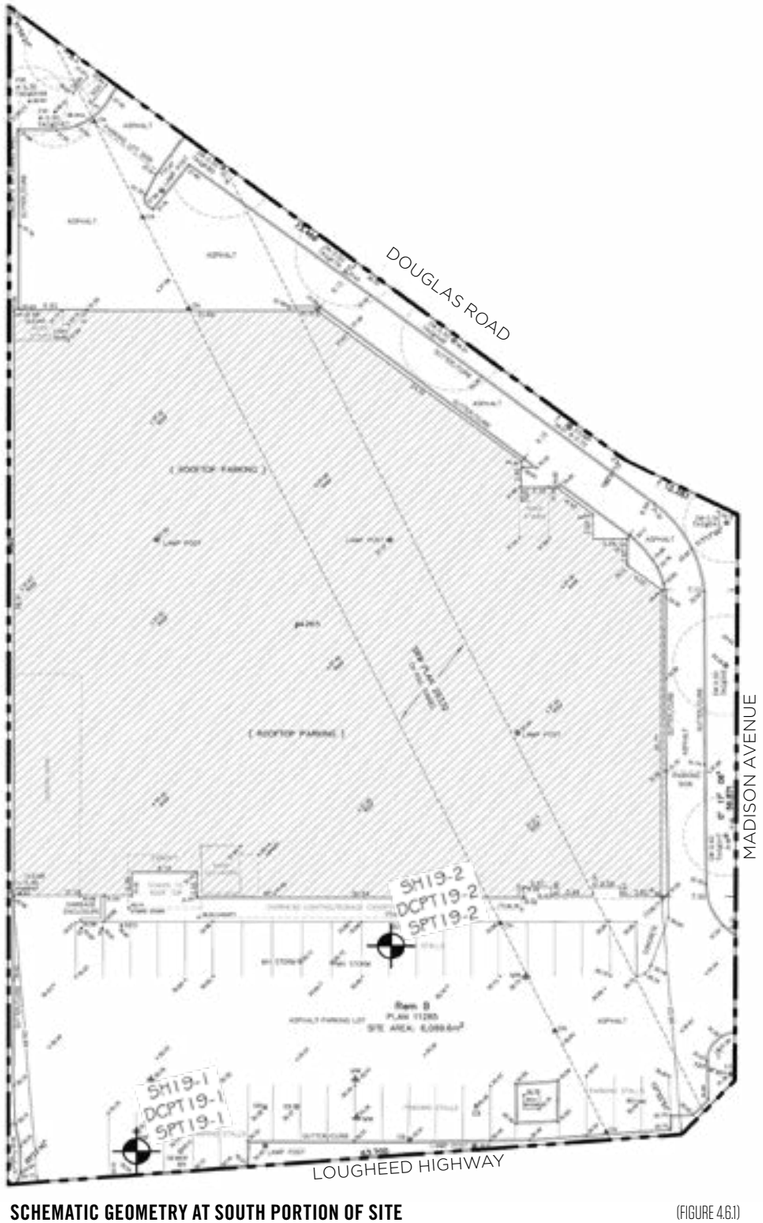
Sunlight penetration to the public realm is provided by the spacing between towers, and the generally square floor plates of the hypothetical towers ensures daylight access to the majority of units and balconies.

Transitional lower building heights in the majority of the southwest quadrant help to protect daylight access to existing residential developments to the north.

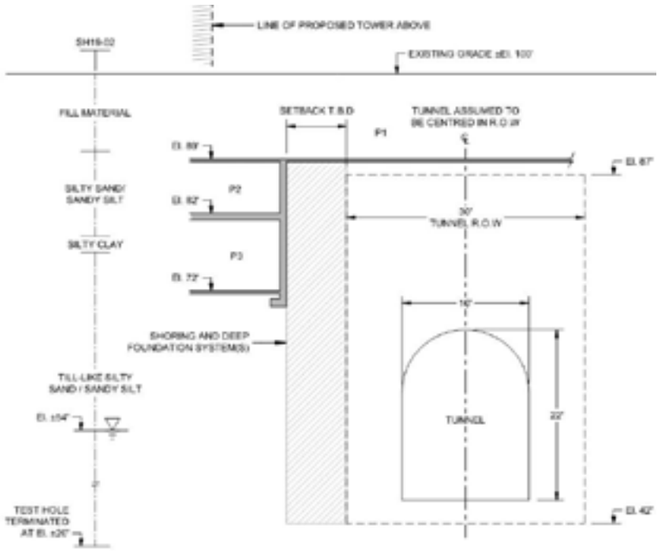
LOOKING EAST ON LOUGHEED HIGHWAY AND WILLINGDON AVENUE (FIGURE 4.5.3)

4.6 THE THORNTON TUNNEL

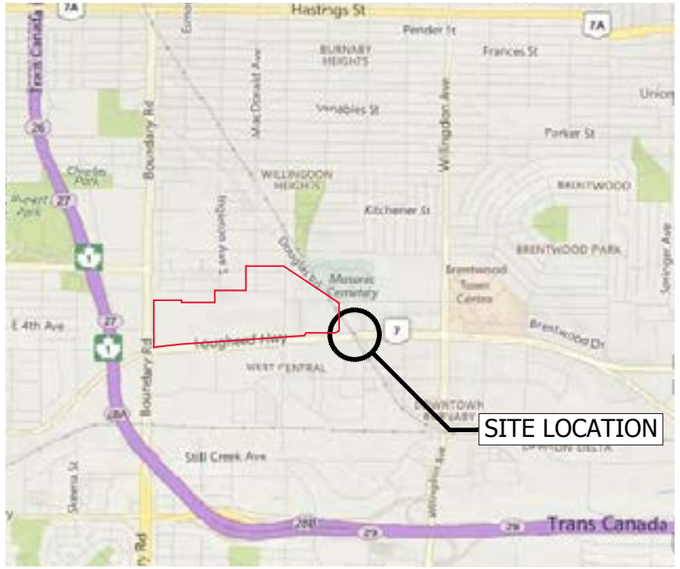
The CN train tunnel bifurcates the Staples site diagonally into two unequal parts, which creates an important site planning, access and construction challenge. The tunnel itself was built in 1969 to link the North Shore to the main CN line near Willingdon Avenue.



SCHEMATIC GEOMETRY AT SOUTH PORTION OF SITE (FIGURE 4.6.1)

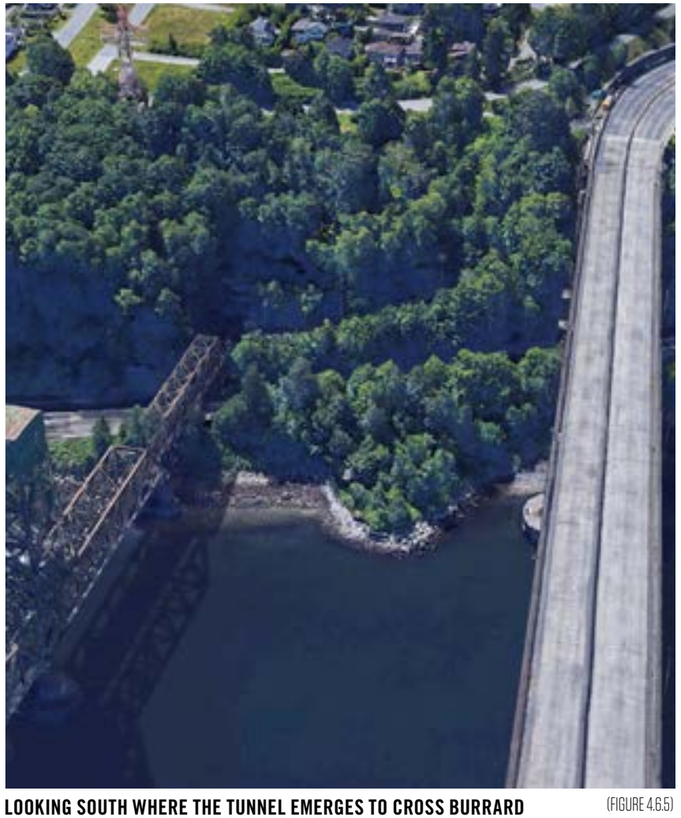


SCHEMATIC GEOMETRY AT SOUTH PORTION OF SITE (FIGURE 4.6.2)



PLAN WITH TUNNEL INDICATED (FIGURE 4.6.3)

LOOKING NORTH AT WILLINGDON AVENUE NEAR HIGHWAY 1. (SOURCE: GOOGLE EARTH) (FIGURE 4.6.4)



LOOKING SOUTH WHERE THE TUNNEL EMERGES TO CROSS BURRARD INLET TO THE NORTH SHORE WATERFRONT ON A RAIL BRIDGE AT THE SECOND NARROWS (LEFT). THE IRONWORKERS MEMORIAL BRIDGE, RIGHT, WAS BUILT A YEAR EARLIER THAN THE TUNNEL, IN 1968. (FIGURE 4.6.5)

THORNTON TUNNEL (FIGURE 4.7.1)

THORNTON TUNNEL ENTRANCE AT DAWSON STREET (FIGURE 4.7.2)

INSTREAM CONSTRUCTION OF GILMORE PLACE DEVELOPMENT (FIGURE 4.7.3)

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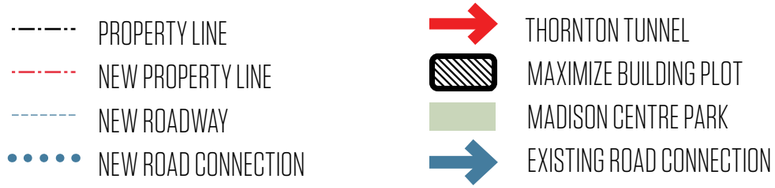
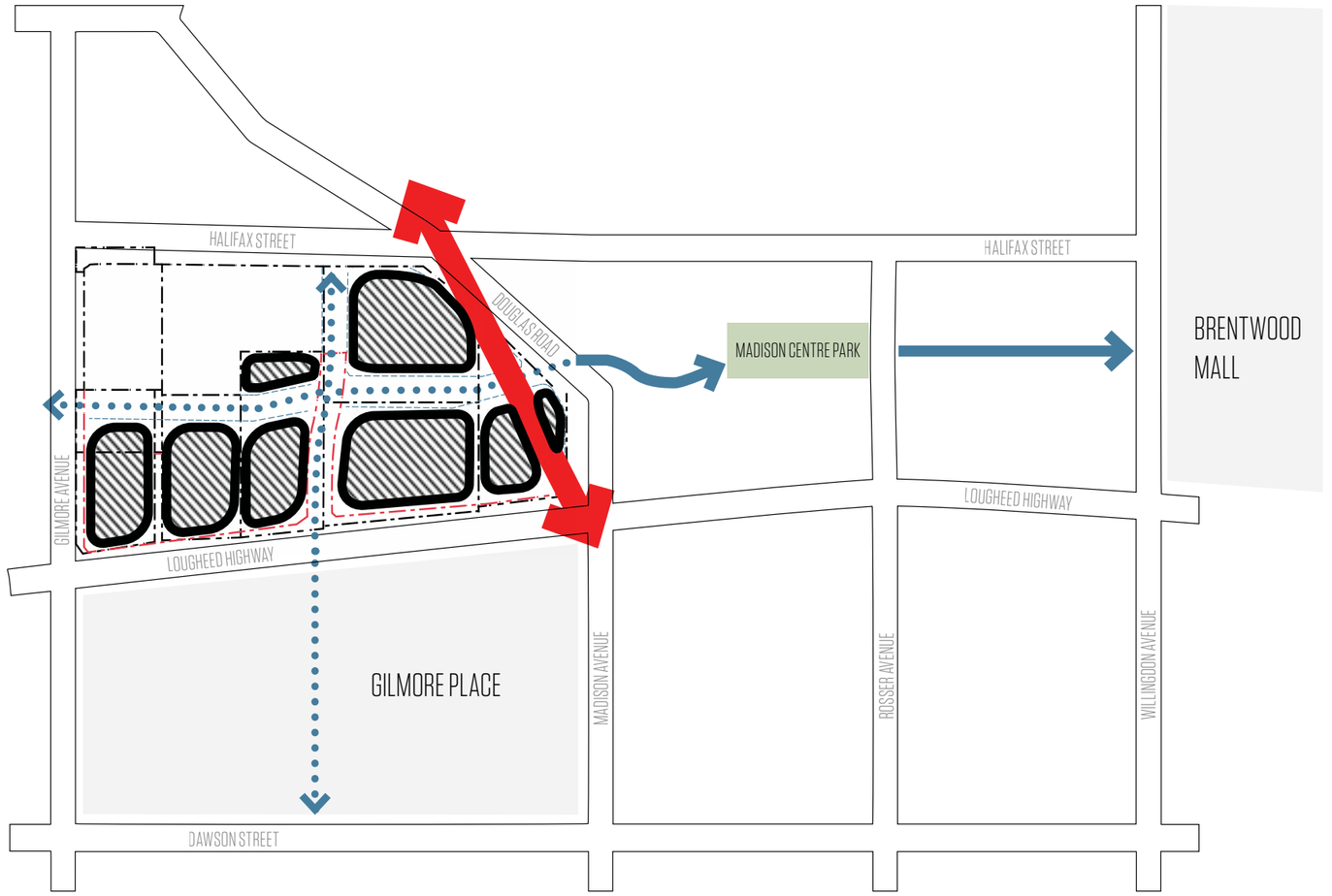
AERIAL VIEW OF THORNTON TUNNEL DESCENDING UNDERGROUND (FIGURE 4.7.4)

4.7 OPPORTUNITIES AND CONSTRAINTS

Site analysis reveals a series of opportunities and challenges for the master plan site. One challenge is the Thronton Tunnel, which creates a major influence in overall planning. The tunnel's diagonal position on 4265 Lougheed Highway affects the building footprints and the location of a future road location. The second challenge is the proposed Carleton Avenue extension which is determined by the Gilmore Place development to the south. The steep incline in the north-south direction influences planning solutions, especially on the eastern part of the master plan site.





SUMMARY OF OPPORTUNITIES AND CONSTRAINTS IN SITE ANALYSIS (FIGURE 4.7.5)

BUCHANAN CUL-DE-SAC (FIGURE 4.7.6)

MADISON CENTRE PARK (FIGURE 4.7.7)

MADISON CENTRE PARK (FIGURE 4.7.8)

05 URBAN DESIGN PRINCIPLES AND GUIDELINES

1. Master Plan Vision Statement and Summary
2. Design Rationale and Big Moves
3. Urban Design Principles
4. Urban Design Guidelines
5. Precedent Photos
6. Views

01 NEIGHBORING SOLO DISTRICT (FIGURE 5.1.1)

02 AKIMBO LIVING RENDERING (FIGURE 5.1.2)

03 WILLINGDON LINEAR STREET PARK LOOKING SOUTH (FIGURE 5.1.3)

04 BRENTWOOD STATION (FIGURE 5.1.4)

05 BERESFORD STREET ART WALK (FIGURE 5.1.5)

06 VIEW TOWARDS BRENTWOOD FROM MADISON AVE (FIGURE 5.1.6)

5.1 MASTER PLAN VISION STATEMENT AND SUMMARY

The vision for the Buchanan West master plan site is founded upon applicable Brentwood Town Centre policies, equitable treatment of the different property owners' development opportunities, best practices, and public feedback. This site uniquely challenging in the Brentwood Town Centre is that it is not under sole ownership but is composed of different ownerships, each of which will have their own corporate objectives. As such, there may not be an overarching and coherent development objective. Nonetheless, it is essential that all owners share a broad vision for the long range realization of development over an unknown time horizon. Therefore, basic principles of equity, neighbourliness, liveability, permeability, and resilience of hypothetical development have guided the preparation of this master plan.

CONTEXT

Situated across Lougheed Highway from the Gilmore Station and its planned "Gateway" development, the master plan envisions a dynamic, transit-oriented mixed-use and walkable community that is supportive of and complementary to Gilmore Station and Brentwood Mall, which together will provide an abundance of employment, shopping and entertainment destinations in the Brentwood Town Centre.

LAND USE

Active uses like retail, building lobbies and amenity areas will animate grade levels of most perimeter buildings, with a podium of office uses and highrise residential above. Lowrise frame residential buildings will add to the residential mix. The office components will be dispersed across the site rather concentrated into one large building, thus bringing employment incrementally into the mix over time as the market demand allows.

LINKAGES AND CONNECTIVITY

The existing superblock will be divided into four quadrants by a new east-west local street and a north-south local street. These two new streets, extensions of Carleton Avenue and Buchanan Street, respectively will be built incrementally over time as the affected property owners seek rezoning. The resulting permeability and connectedness of the site will facilitate enhanced off-arterial mobility in the Brentwood Town Centre for both pedestrians and cyclists consistent with City objectives.

THE PUBLIC REALM

The public realm will provide the "glue" to link and unite the various properties. The master plan's public realm concept will consist of the two pedestrian-friendly and animated internal streets; an east-west pedestrian greenway will provide a quiet internal route for residents and visitors just north of Lougheed Highway; two north-south "green links" will provide pedestrian connections between Lougheed Highway and Buchanan Street in the southwest quadrant. There is an opportunity for a central plaza in the heart of the new development supported by a cafe or coffee shop. Opposite the plaza to the west a neighbourhood open space is proposed, ideal for passive recreation for local residents and employees. This space will also provide a buffer to the existing residential properties to the north. Both intensive and extensive green roofs will be created on the roofs of the larger floor plate commercial podiums for the passive and visual enjoyment of residents.

ARCHITECTURAL DESIGN

The guiding architectural philosophy is to strive for excellence of contemporary architectural expression that is composed of a related but not identical "family of forms". Since all of the properties are proposed to include two or more buildings, it is important that there is a coherent identity within each parcel. Together, the architectural forms will reinforce the aspiration of a regionally significant town centre and its emerging skyline. Corner sites along Lougheed Highway at the intersections of Gilmore Avenue, Carleton Avenue and Madison Avenue offer special opportunities for high-profile and exceptional design, potentially including landmark building heights. Design guidelines are provided to ensure compatible development of the various parcels.

ARTISTIC CONCEPT RENDERING LOOKING EAST

(FIGURE 5.1.7)
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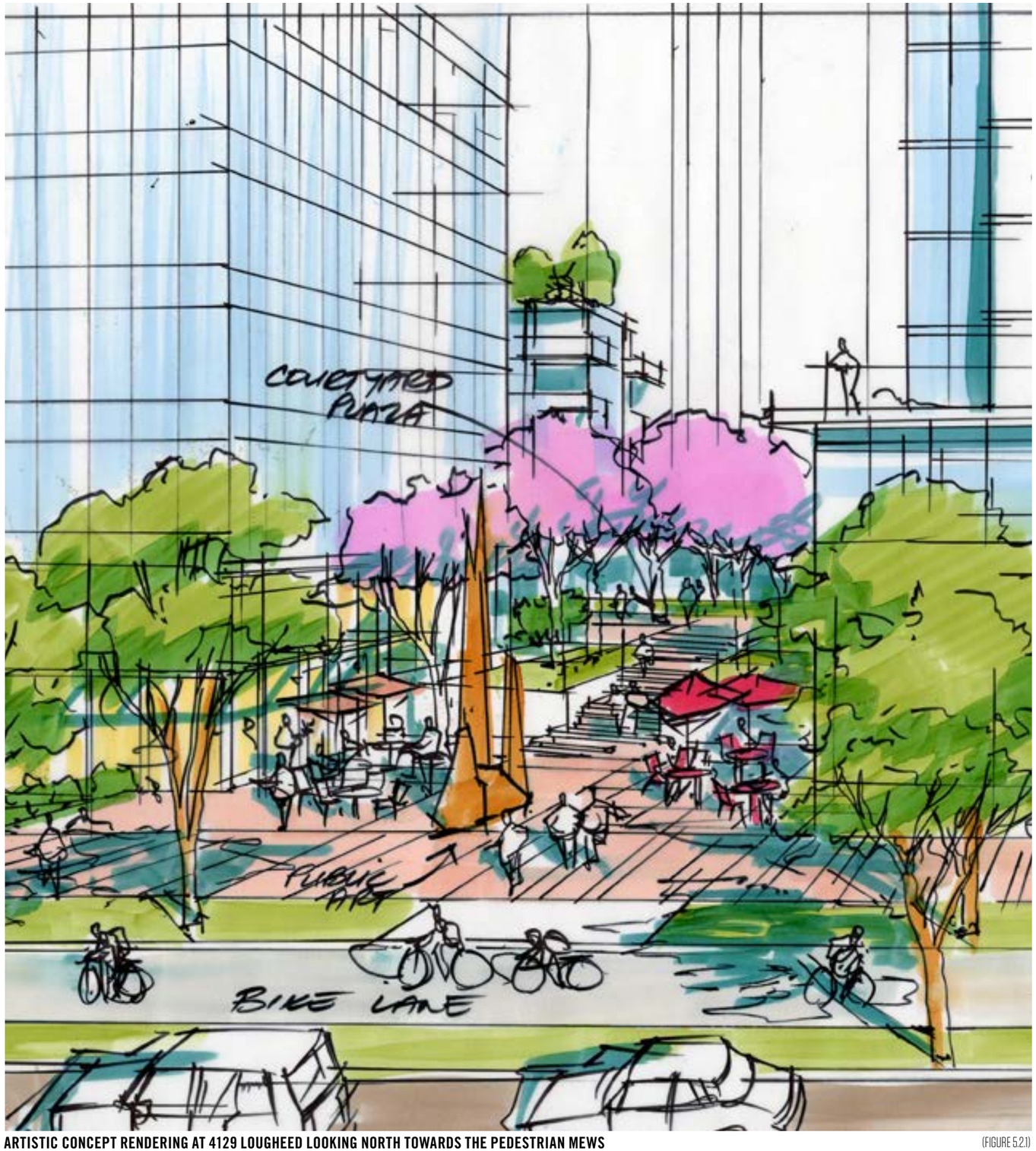


ARTISTIC CONCEPT RENDERING AT 4129 LOUGHEED LOOKING NORTH TOWARDS THE PEDESTRIAN MEWS (FIGURE 5.2.1)

Lougheed + Madison I Concept Book

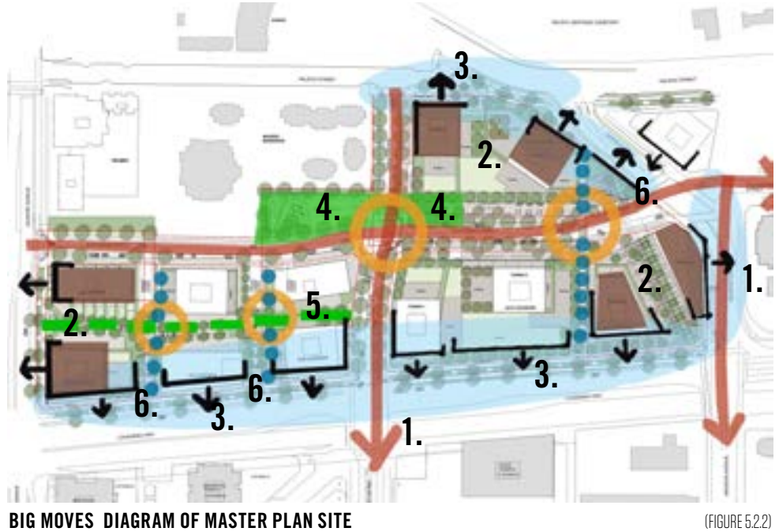
5.2 DESIGN RATIONALE AND BIG MOVES

Six "big moves" form the underlying basis for the design rationale of the master plan. Taken together and along with the Urban Design Principles and Design Guidelines that follow, the goal is to create an integrated and vibrant mixed use and walkable community that helps complete and anchor the northwest quadrant of the Brentwood Town Centre, along with and complementing the approved Gilmore Place development across Lougheed Highway to the south.

Additional drivers of the Design Rationale include equitable density and form of development for all six parcels, and achieving targets set out in the City of Burnaby's Environmental, Social and Economic Sustainability and Rental Housing policies. These will be achieved over time through individual site rezonings in terms of land use, built form, housing form and tenure, employment opportunities, public realm design and storm water management.

BIG MOVES

1. Connect to the emerging street grid for all modes.
2. Two buildings per site.
3. Orient buildings to fronting streets.
4. Create a community "heart" at the crossroads.
5. Create an east-west mid-block linear pedestrian link.
6. Create a series of north-south mid-block pedestrian links, located across adjacent property lines.



BIG MOVES DIAGRAM OF MASTER PLAN SITE (FIGURE 5.2.2)

5.3 URBAN DESIGN PRINCIPLES

The design of the Community Plan Amendment is informed by three distinct design principles which address the City of Burnaby's planning policies and objectives, relate to the existing built form in the surrounding area and maximize the potential presented by the sites central location within the core area of the Brentwood Town Centre. These principles guide the design of the public realm and the buildings to achieve the desired vision for the project.

The three key principles that were used to guide and inform the design are:

BUILDING COMMUNITY

The Community Plan Amendment will be part of the broader neighbourhood. The combination of vibrant commercial and a mix of housing types and tenures will contribute towards an architecturally sensitive and socially inclusive community.

INTEGRATED DEVELOPMENT

The Community Plan Amendment will be integrated into the broader Brentwood Town Centre Area by a robust mobility network. The relationship between pedestrians, cyclists, and private vehicles will be made safer with the implementation of the new Town Centre Standards surrounding the site.

ANIMATED PUBLIC REALM

The Community Plan Amendment will be an experience for residents and the neighbourhood community. Engaging land uses and architecture will reinforce the public realm with the proposed land uses creating an exciting addition to the Brentwood Town Centre Area.

The following steps were established as prerequisites for the final master plan design:

5.3.1 OWNERSHIP

Servicing and phasing of the master plan area must allow for separate development timing of different ownership and parcels as much as possible.

(FIGURE 5.3.1)

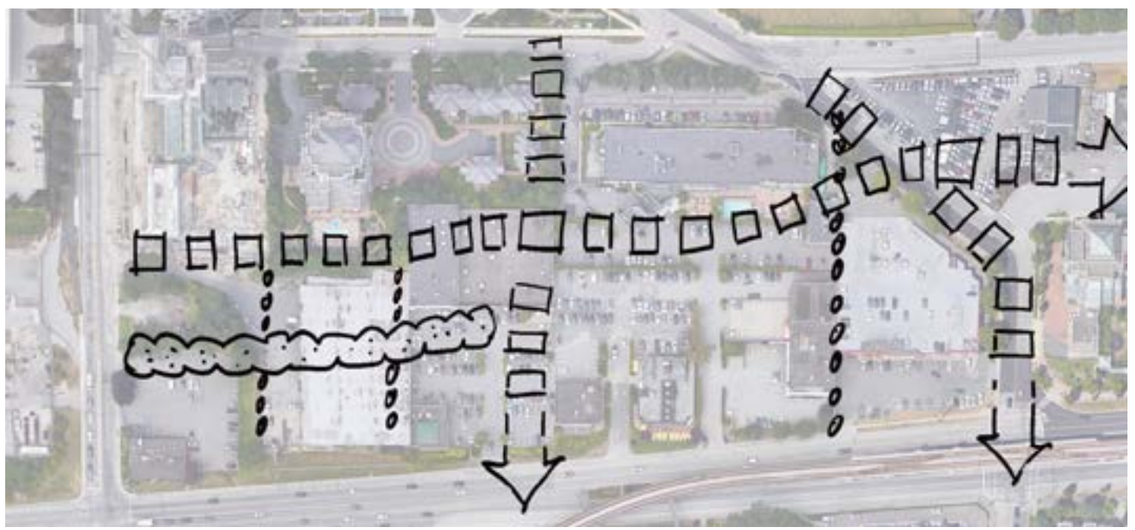
5.3.2 MASTER PLAN BOUNDARIES

Irregular property lines define the northwesternly edge and require neighbourly interface.

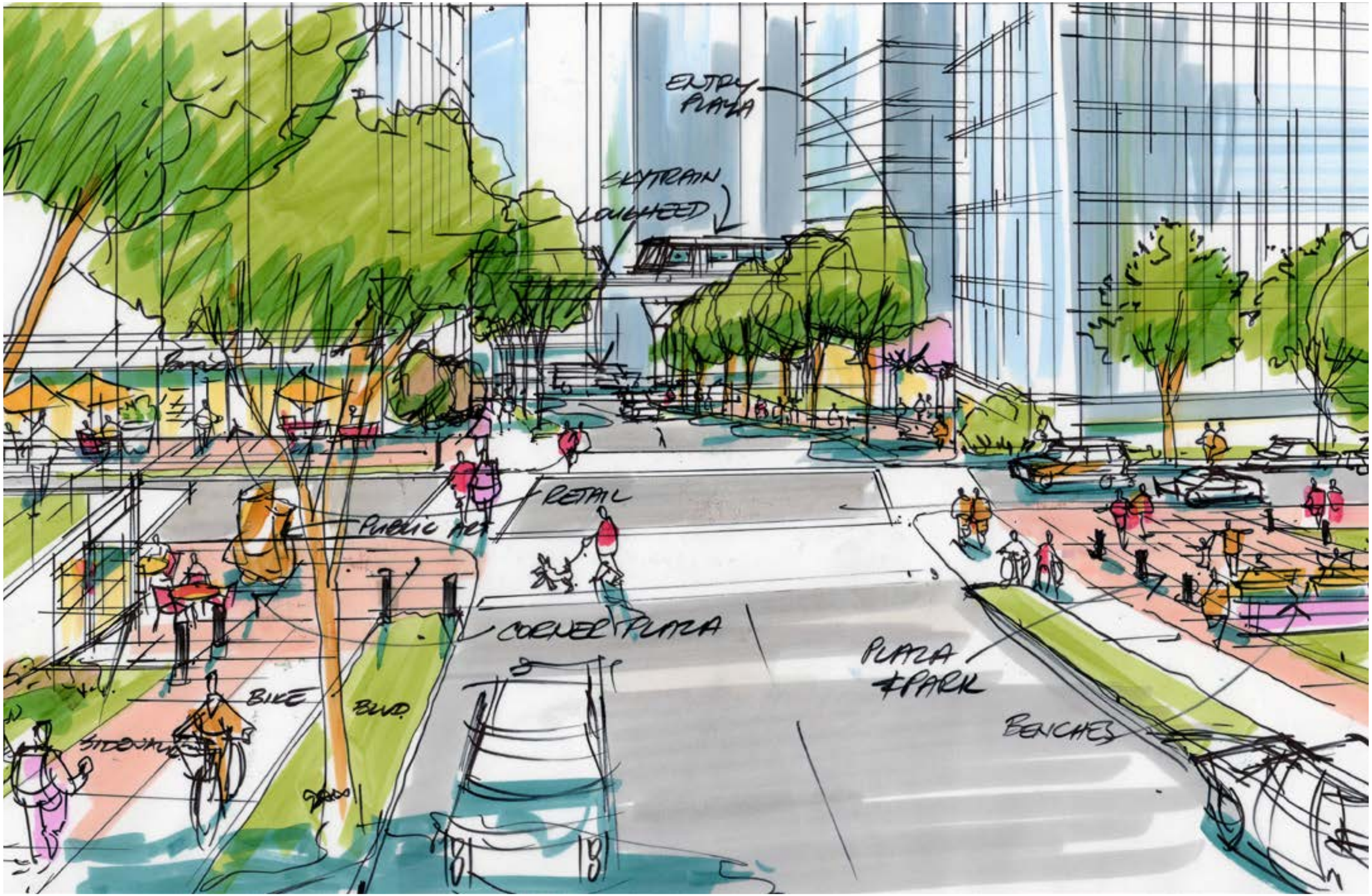
(FIGURE 5.3.2)

5.3.3 LINKAGE AND PERMEABILITY

Break down the superblock and connect to the existing street network for all modes.



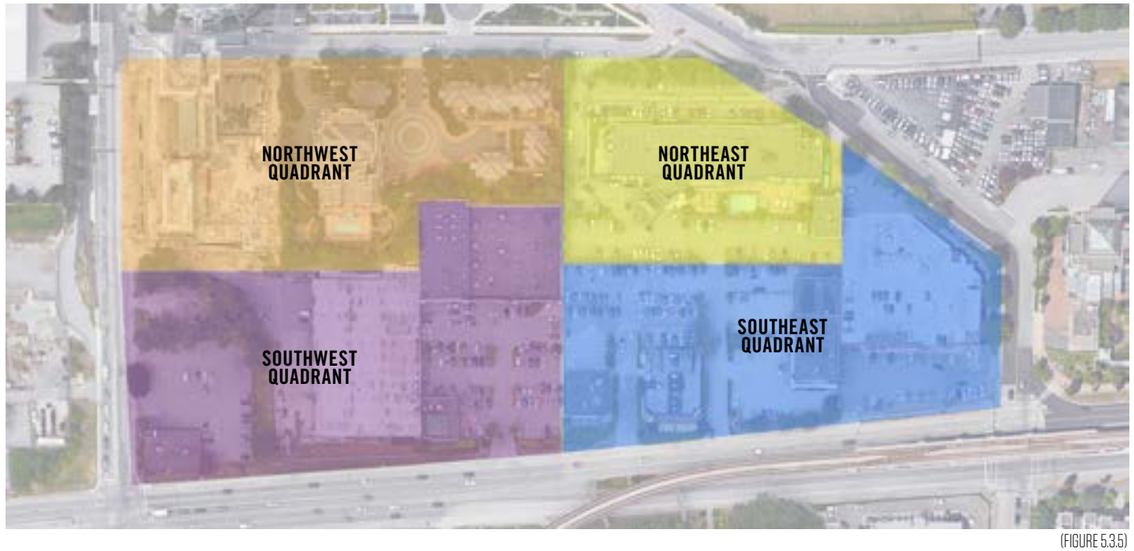
(FIGURE 5.3.3)



ARTISTIC CONCEPT RENDERING AT CARLETON AND BUCHANAN INTERSECTION LOOKING SOUTH TOWARDS LOUGHEED HIGHWAY (FIGURE 5.3.4)

5.3.4 QUADRANTS

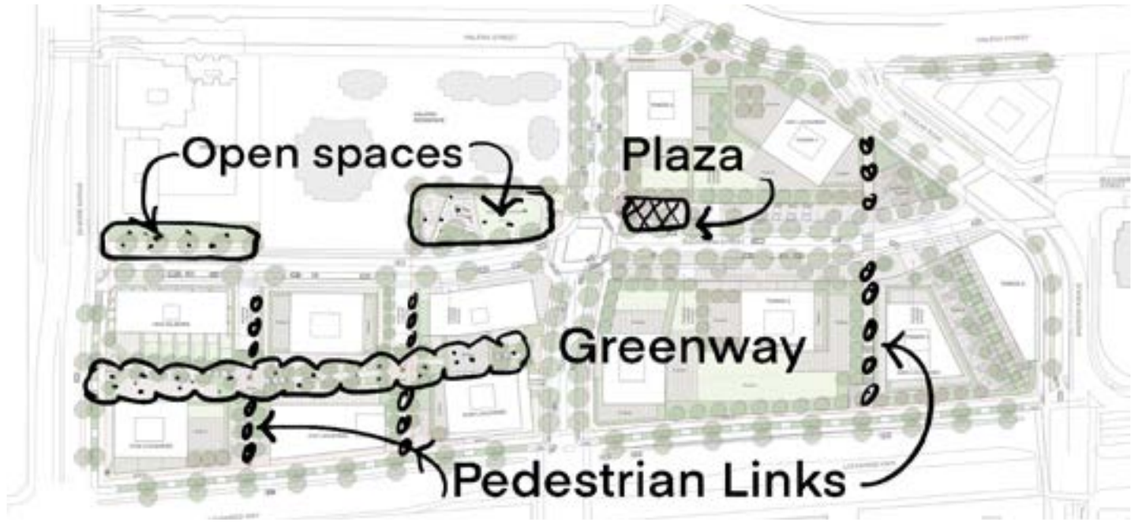
The new internal streets create four quadrants or sub-areas that each should have cohesive character and relationships.



(FIGURE 5.3.5)

5.3.5 OPEN SPACE OPPORTUNITIES

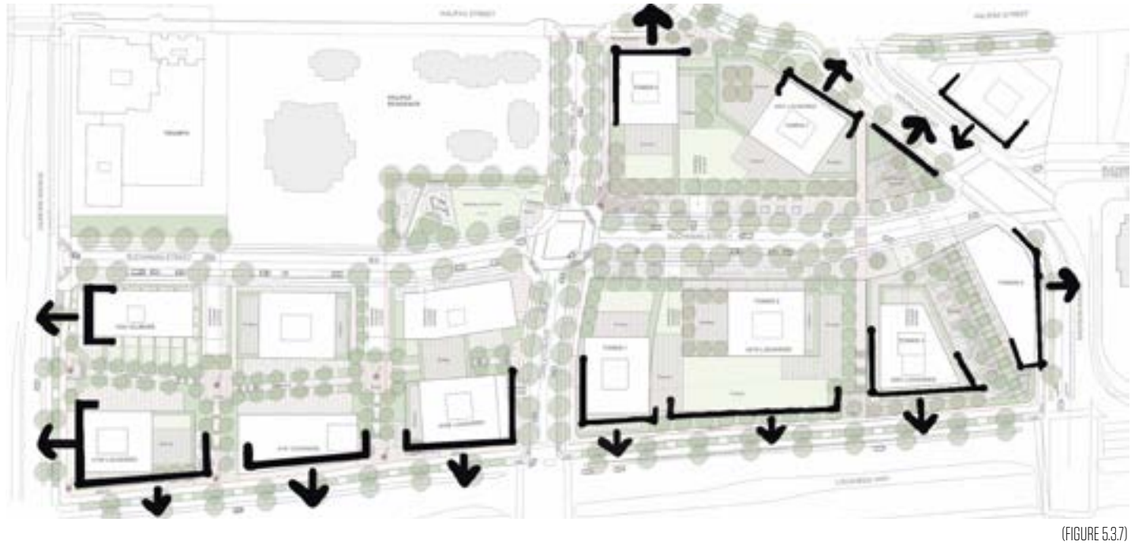
There are three types of open space proposed in the master plan - open spaces and plaza, greenways, and pedestrian links. The three types of open space must be maintained.



(FIGURE 5.3.6)

5.3.6 BUILDING ORIENTED TO STREETS

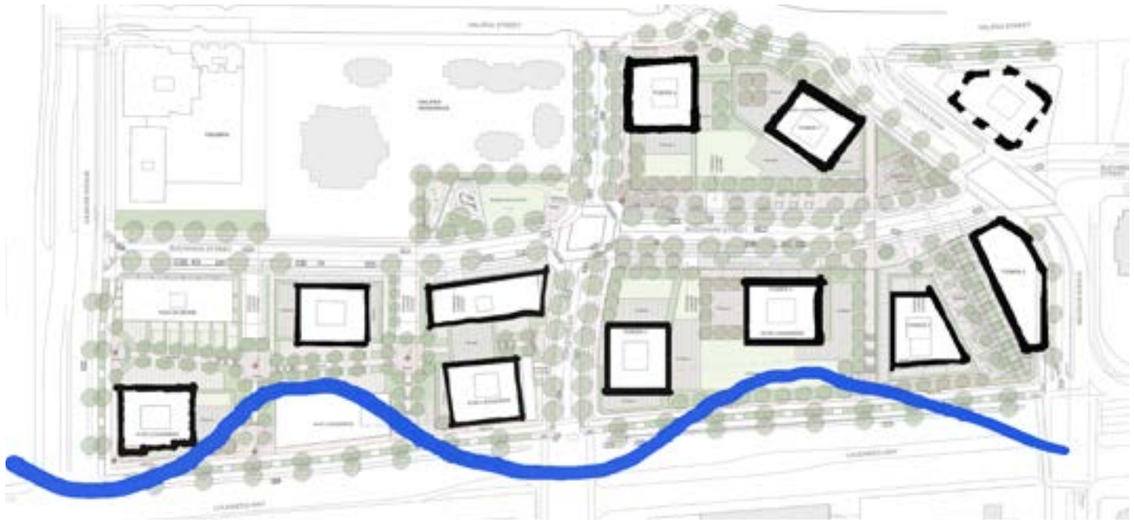
Podium and tower facades should frame and animate existing and future perimeter streets.



(FIGURE 5.3.7)

5.3.7 TOWER LOCATIONS

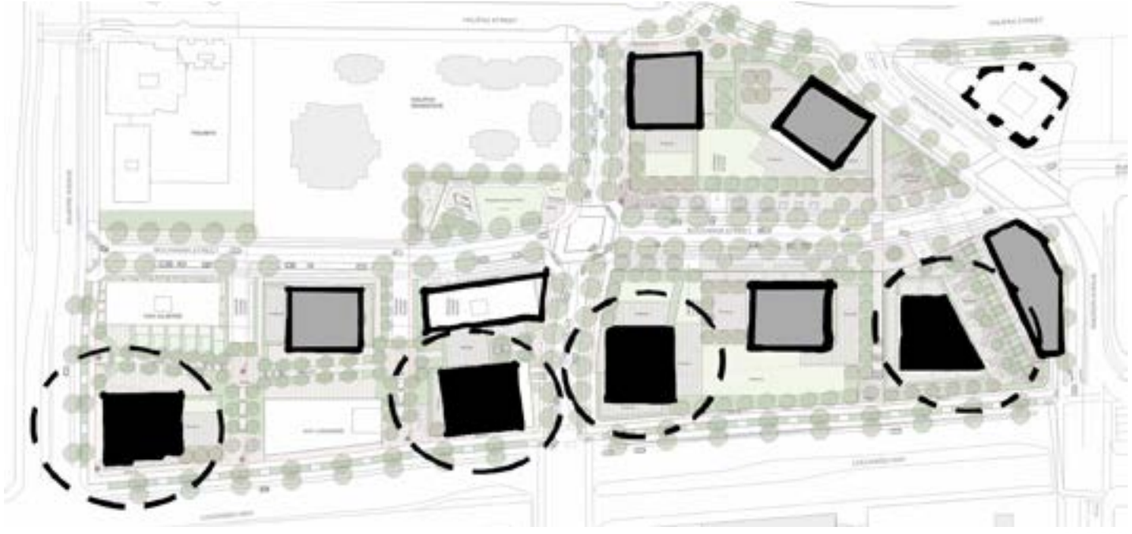
Tower locations and expression to contribute to emerging town centre image including a varied rhythm along Lougheed Highway.



(FIGURE 5.3.8)

5.3.8 PROMINENT CORNERS

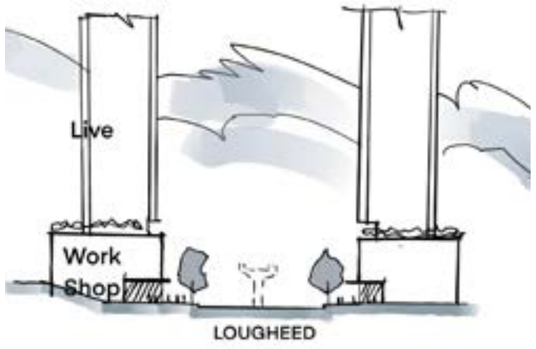
These corner locations on Lougheed Highway provide opportunities for special architectural expression.



(FIGURE 5.3.9)

5.3.10 DEFINE AND ANIMATE

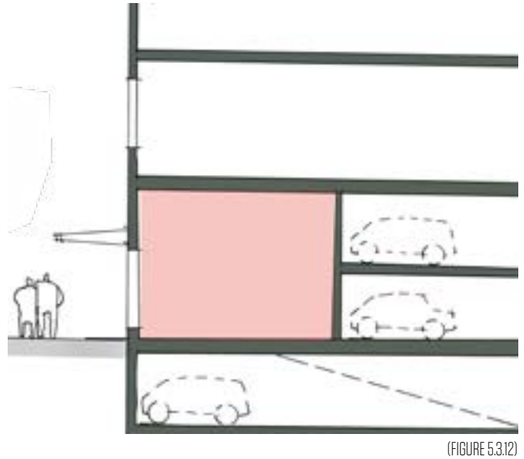
On Lougheed boulevard with layered mied uses



(FIGURE 5.3.11)

5.3.11 OFF-STREET STRUCTURED PARKING

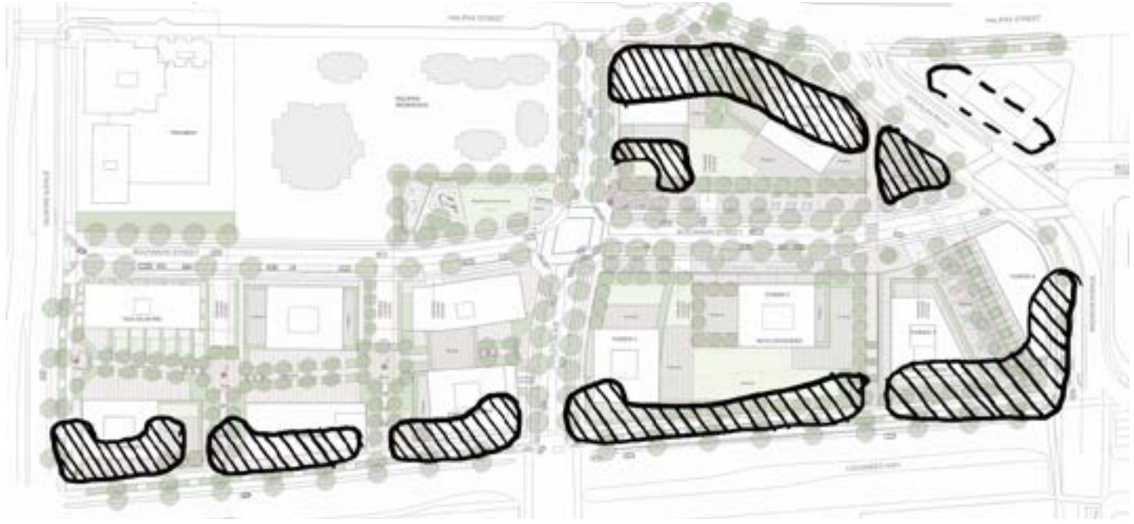
Facilities at and above grade should be concealed behind commercial and other active uses when adjacent to streets and other public spaces



(FIGURE 5.3.12)

5.3.9 ACTIVE FRONTAGES

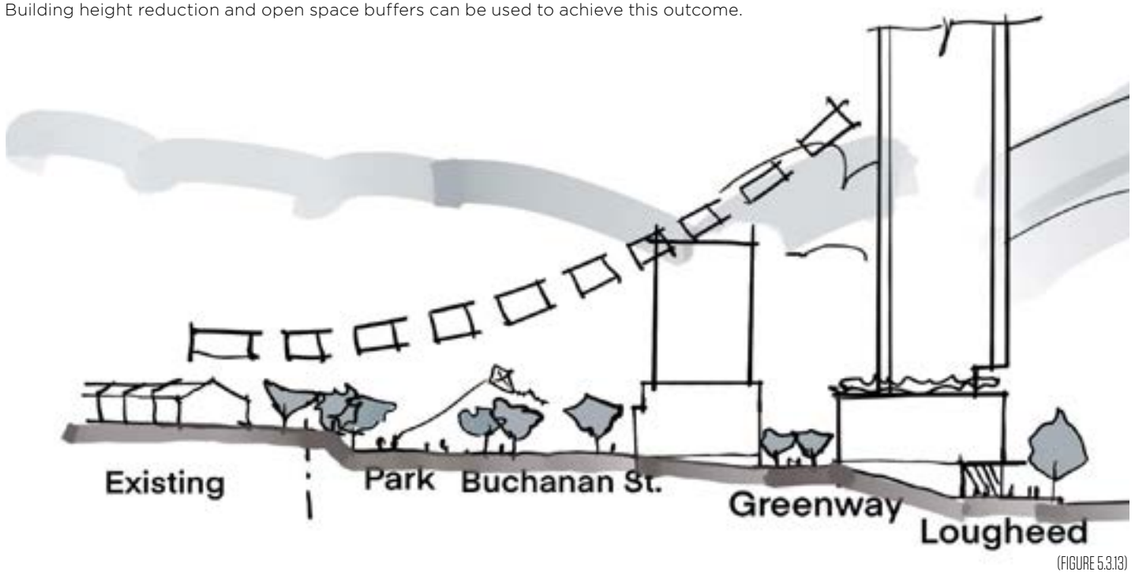
Animate the pedestrian experience on perimeter streets with retail, services, building entries, and amenities where feasible. The central plaza should also be enlivened with a cafe or coffee shop.



(FIGURE 5.3.10)

5.3.12 TRANSITIONAL SCALE TO EXISTING CONTEXT

Sensitive attention to the existing residential properties in the northwest quadrant is required. Building height reduction and open space buffers can be used to achieve this outcome.



(FIGURE 5.3.13)

5.4 URBAN DESIGN GUIDELINES

The design and development of individual sites will need to follow consistent design guidelines to maintain compatible individual sites need to follow uniformed design guidelines to maintain consistent architectural expression and character throughout master plan site.

ARCHITECTURAL EXPRESSION AND CHARACTER

- Buildings should be oriented to adjacent streets and help to clearly define and animate the public realm.
- Podium and tower facades should frame and animate existing and future perimeter streets.
- Strive for design excellence by employing contemporary architectural expression, with a family of varied yet related forms.
- Roof forms of high-rise buildings should contribute to a distinctive skyline for the emerging Brentwood Town Centre.
- Facade treatments should respond to solar orientation.
- Embrace the existing topography to create multiple levels of building access, where vehicle access could be separated from pedestrian access.
- Entrances to all lobbies should be directly accessible from the adjacent sidewalk and provide for universal access.
- If balconies are to be provided, solar controls, overhangs, roof decks, rooftop appurtenances and other architectural elements should be integral aspects of building design.
- All dwelling units should have access to usable private space, in the form of patios, balconies, terraces or roof decks.
- Solid and/or glazed balcony rails and deck landscaping are encouraged to help mitigate noise.
- Townhouse-like expression of at-grade units in low-rise buildings should contribute to unit identity and neighbourhood vitality.
- Retail store fronts should reflect a rhythm of small increments with multiple entries
- Parking facilities at and above grade should be concealed behind commercial and other active uses when adjacent to streets and other public spaces

PUBLIC REALM AND LANDSCAPE

- There should be a clear demarcation between the public realm and private and semi-private spaces.
- Pedestrian links and greenways will be paved and landscaped according to the directions of the landscape plan framework.
- Green roofs on concrete buildings should provide opportunities to contribute to the social life of residents for passive enjoyment.
- Raised garden beds on rooftops are encouraged to help promote social interaction and cohesion among residents.
- Street lighting, retaining walls, and other elements in the public realm will also need to be consistent

EXTERIOR MATERIALS AND COLOUR

- Durable and regionally available exterior materials should be used to the extent possible.
- Treatment of soffits and the underside of overhangs and similar projections should create a visually appealing look and feel when viewed from below.
- Durable and distinctive weather protection should be provided at retail frontages and office and residential lobbies. Fabric awnings are discouraged.

(FIGURE 5.4.1)
Lougheed + Madison I Concept Book

01
THE AMAZING BRENTWOOD (FIGURE 5.5.1)

02
SOLO DISTRICT (FIGURE 5.5.2)
Lougheed + Madison I Concept Book

5.5 PRECEDENT PHOTOS

The overall urban design philosophy is to strive for excellence of contemporary architectural expression that is composed of a related by not identical family of forms. Since all of the properties are proposed to include two or more buildings, it is important that there is a coherent internal identity on each parcel and respect for the immediate neighbours. Together, the forms will reinforce the aspiration of a regionally significant town centre and its emerging skyline. Corner sites along Lougheed Highway at the intersections of Gilmore Avenue, Carleton Avenue, and Madison Avenue offer special opportunities for high-profile and exceptional design, potentially including landmark building heights. Design guidelines are provided to ensure compatible development of the various parcels.

03
GILMORE PLACE RENDERING (FIGURE 5.5.3)

04
SOLO DISTRICT AT ROSSER AVENUE (FIGURE 5.5.4)

05
GILMORE PLACE RENDERING (FIGURE 5.5.5)

5.6 VIEWS

There are two locations where public views south to the Metrotown skyline can be protected or created upon development. A view through the existing northwest quadrant and planned southwest quadrant is provided through separations between buildings. The future Carleton Avenue extension will provide public view opportunity to Metrotown .

Private urban views will be afforded from towers to the wider Brentwood Town Centre, the nearby cemeteries, and beyond to Downtown Vancouver and the North Shore Mountains. Green roofs on podium roofs will provide enhance nearby view opportunities from adjacent towers as well.

SOUTH FACING VIEWS AT PROPOSED SITE (FIGURE 5.6.1)

VIEWS LOOKING WEST (FIGURE 5.6.2)

VIEWS LOOKING NORTHWEST (FIGURE 5.6.3)

VIEWS LOOKING NORTHEAST (FIGURE 5.6.4)

06 COMPOSITE MASTER PLAN

1. Land Use and Site Zoning
2. Master Plan Concept
3. Parcelization
4. Vehicular, Pedestrian, and Cycling Circulation
5. Site Plan
6. Parking and Loading Access
7. Tower Floor Plate Size
8. Distribution of Density
9. Tower Separations
10. Building Orientations
11. Site Grading
12. Open Space
13. Shadow Studies
14. Elevations

EXISTING LAND USE MAP (FIGURE 6.1.1)

PROPOSED LAND USE MAP (FIGURE 6.1.2)

D. OVERALL SITE AREA:

	4265 LOUGHEED HWY	4219 LOUGHEED HWY	4201 LOUGHEED HWY	4199 LOUGHEED HWY	4141 LOUGHEED HWY	4129 LOUGHEED HWY	1934 GILMORE AVE	TOTAL:
Gross Site Area Meter	6,083.0	9,020.0	9,428.5	7,153.0	5,382.0	3,764.0	2,383.0	43,213.5
Gross Site Area Feet	65,476.8	97,090.4	101,487.4	76,994.2	57,931.3	40,515.3	25,650.4	465,146
Site Area for Calculation of Density:	65,476.8	97,090.4	101,487.4	76,994.2	57,931.3	40,515.3	25,650.4	465,145.8

6.1 LAND USE AND SITE ZONING

The required process to transform the land use designations for this site was described in the initial staff planning report as follows.

"The Brentwood Town Centre Development Plan adopted by council in 1996, designated the four subject sites closest to Madison Avenue for commercial developments under the CD Comprehensive Development District (utilizing the C3 General Commercial District as guidelines), and the three subject sites closest to Gilmore Ave for residential development the CD Comprehensive Development District (utilizing the RM5s and RM5r Multiple Family Residential District as guidelines). Subsequently, through a combination of master plans and / or community plan amendments, adjacent sites have been designated and developed as high-density mixed use to reflect the transit-oriented nature of the Brentwood Town Centre. The City identified that the remaining commercial and transitional / industrial sites be brought forward in future Community Plan Amendments to designate them to for high-density mixed-use, which would bring all of the sites with the quadrant into a conformity with the surrounding core area of the plan."

Following the RM5s/ RM5r and C3 zone guidelines, the proposed master plan aims to provide a high-density mixed-use built environment with integrated building forms and uses. The site density targeted a 9.5 FAR for each parcel with a potential for density increase to 10 FAR for the larger parcels, although the sites may be developed up to 14.3 FAR through site specific rezoning applications.

All parcels were proposed to be mixed-use with retail levels along the major street frontages, and commercial, office, or institutional uses above. The commercial uses were expressed in a form of a podium creating a tower base for most of the residential uses. The residential uses, which included both market and rental units, were allocated per the RM5s and RM5r densities in forms of residential high-rise and mid-rise buildings.

BUCHANAN WEST MASTER DATA SHEET

A. PROJECT DESCRIPTION: Note: The following FAR figures are modified for traffic study

Amend CD Comprehensive Development District

B. CIVIC ADDRESS(ES) AND ALIAS:	C. ZONING: CURRENT ZONE	EXISTING COMMUNITY PLAN ZONING DESIGNATION	PROPOSED COMMUNITY PLAN ZONING DESIGNATION
4265 Lougheed Highway	C4	CD/C3	RM5s-RM5r-C3
4219 Lougheed Highway	C4	CD/C3	RM5s-RM5r-C3
4201 Lougheed Highway	C4	CD/C3	RM5s-RM5r-C3
4199 Lougheed Highway	C4	CD/C3	RM5s-RM5r-C3
4141 Lougheed Highway	M1	CD/RM5s-RM5r	RM5s-RM5r-C3
4129 Lougheed Highway	M1	CD/RM5s-RM5r	RM5s-RM5r-C3
1934 Gilmore Avenue	M1	CD/RM5s-RM5r	RM5s-RM5r-C3

6.2 MASTER PLAN CONCEPT

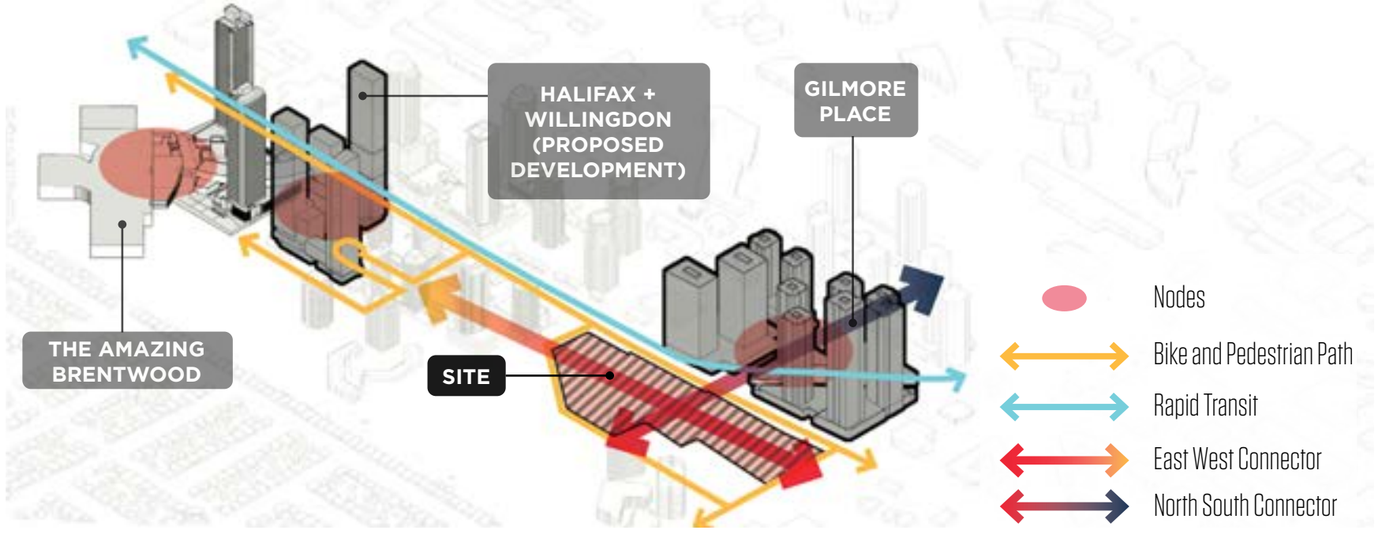
The project team collaborated with City staff to establish planning and design parameters, including land uses, density and connectivity. The master plan concept is initiated by road design and site access requirements. A fundamental requirement is to reduce the existing superblock size in order to improve neighbourhood connectivity, as well as to provide off-arterial access to individual parcels.

The east west connector takes into consideration many factors, including City of Burnaby transportation standards, planning department directions, site grading, parcel development potential, and adjacent developments and driveways.

The location of the existing Buchanan Street, on the east side of Madison Avenue, set the access point to the east-west connector on the east side of the subject site. On the Gilmore Avenue side, and due to the limited parcel depth, locating the east-west connector on the north side of the westerly parcels maintained a larger development area on the south side of the connector.

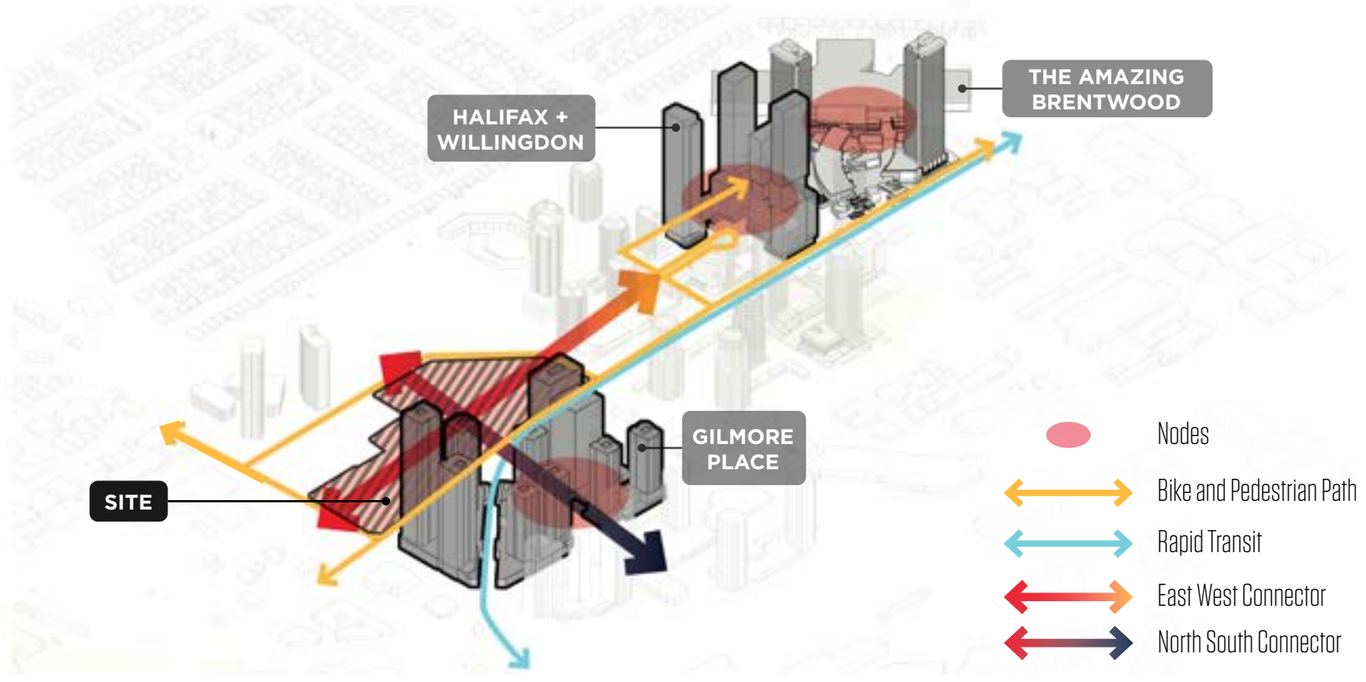
A north south extension through the subject site is planned as part of the Gilmore Place master plan study on the south side of Lougheed Highway. This north south extension, known as Carleton Avenue, is designed to connect Dawson Street to Halifax Street, intersecting with Lougheed Highway at middle of the master plan site.

For the design process, and after establishing the location and geometrics for the proposed roads, land development areas within each parcel were defined with clear boundaries. The master plan concept and the density distribution exercise were shifted from the overall super block to the newly created smaller blocks. Each one of these blocks were studied for density distribution, building forms, tower separation, access, and open space. At this phase, the number of towers and location of towers for each block were studied to confirm adequate separation between all the new proposed towers, as well as between what is proposed and what is existing.



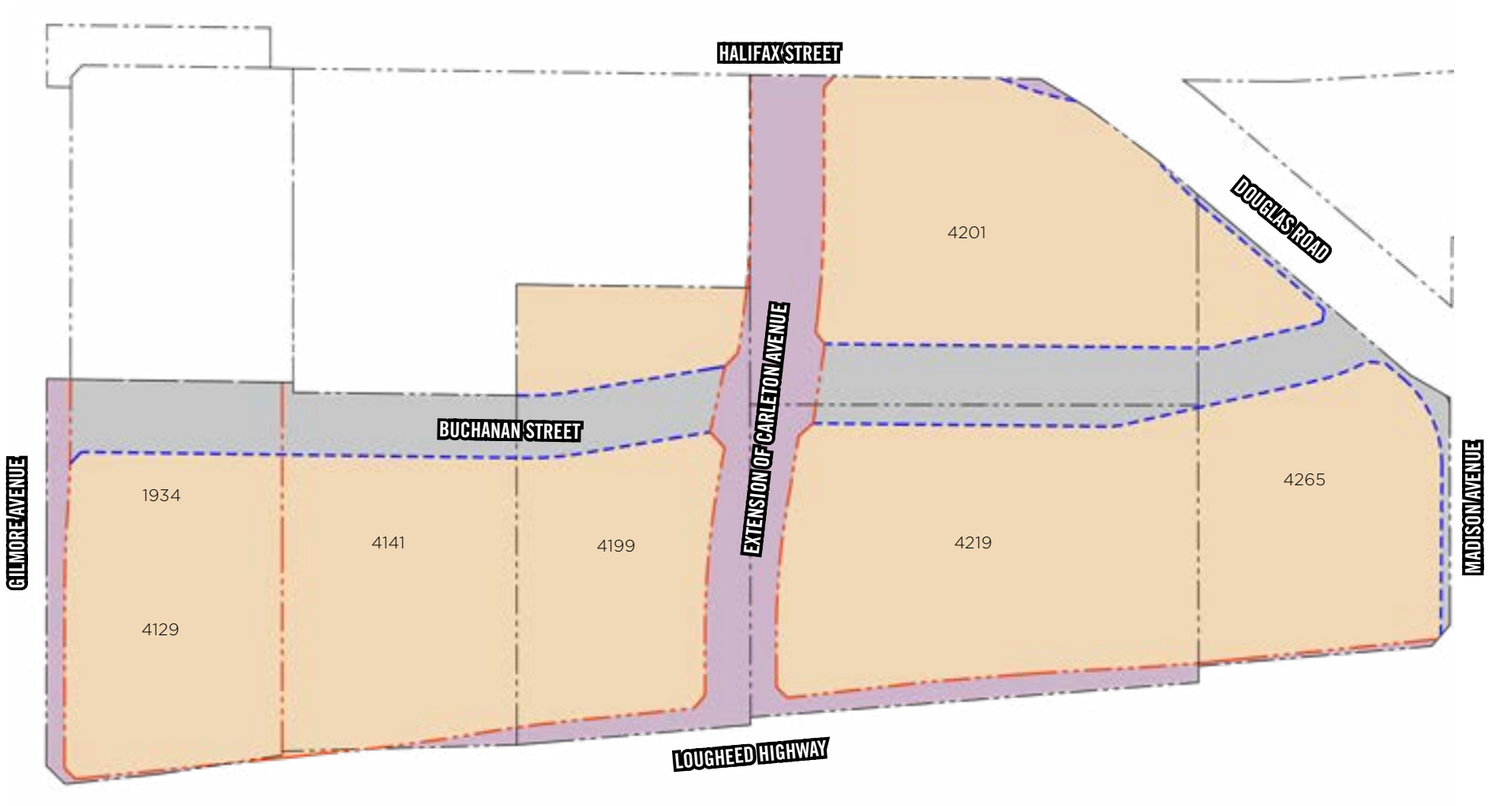
CONNECTION AND CIRCULATION LOOKING SOUTHEAST

(FIGURE 6.2.1)



CONNECTION AND CIRCULATION LOOKING NORTHEAST

(FIGURE 6.2.2)



PROPOSED PARCELIZATION MAP

6.3 PARCELIZATION

Figure 6.3.1 reflects the adjusted parcelization created by the two new streets through the site. Due to irregular existing parcel shapes and typography the proposed road allowances for the new streets are not shared equally between adjacent properties. With the anticipated future consolidations of 1934 Gilmore Avenue and 4129 Lougheed Highway, the City lane will close. It is anticipated that half the lane will be sold to that consolidations, of 1934 Gilmore Avenue and 4129 Lougheed Highway, and the other half sold to 4141 Lougheed Highway.

PROPOSED PARCELIZATION MAP LEGEND

- Development Site Area
- Right of Way Area
- Dedication Area
- New SRoW
- New Property Line
- Existing Property Line

(FIGURE 6.3.1)

6.4 VEHICULAR, PEDESTRIAN, AND CYCLING CIRCULATION

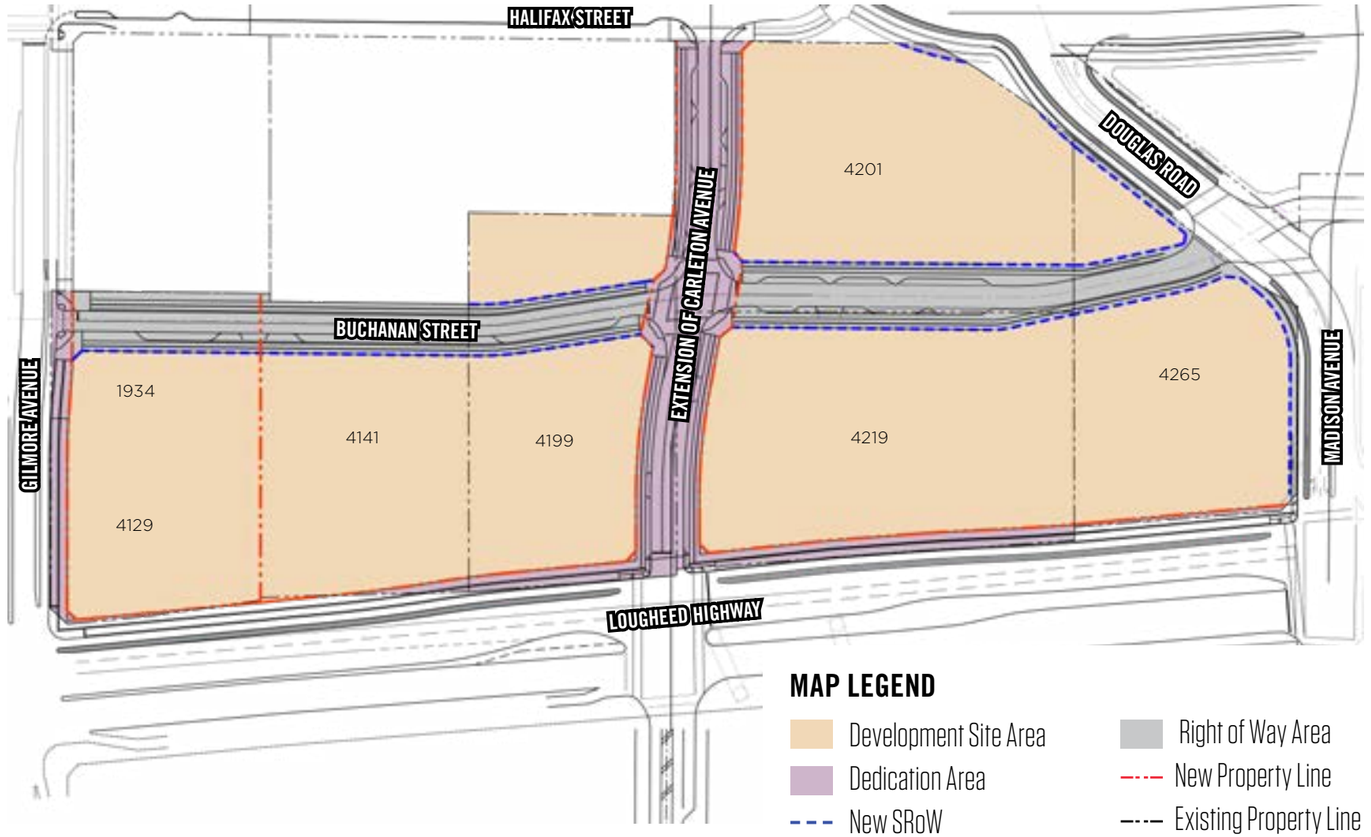
As described in the master plan concept and noted in previous chapters, vehicular, pedestrian and cycling patterns are located to achieve the following:

1. Divide the existing super block to provided access for future developments,
2. Connect with existing pedestrian and cycling patterns, including the existing mid-block connection to the Brentwood Mall to the east,
3. Align proposed streets with adjacent developments and their future access points to maintain flow of traffic though the area.
4. Propose a new mid-block pedestrian connection on the south-west quadrant of the site to allow for a car-free outdoor environment.

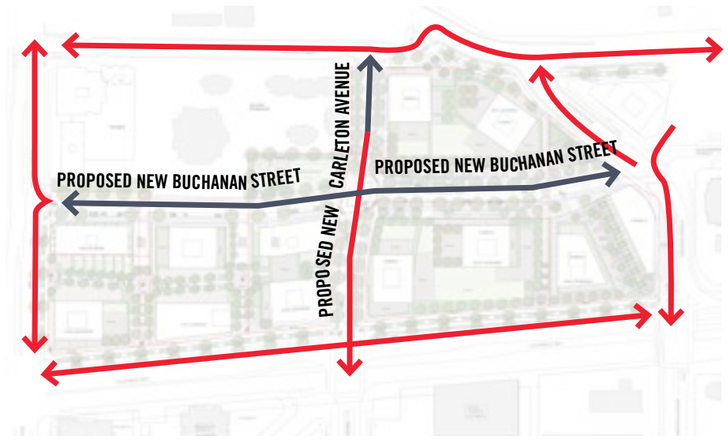
Pedestrian walking patterns and connectivity are intended to create safe and vibrant urban spaces and to supprot retail and gathering activities on Lougheed and the proposed street extensions. Small plazas located at key intersections and retail spaces are positioned to frame most open spaces.

LEGEND

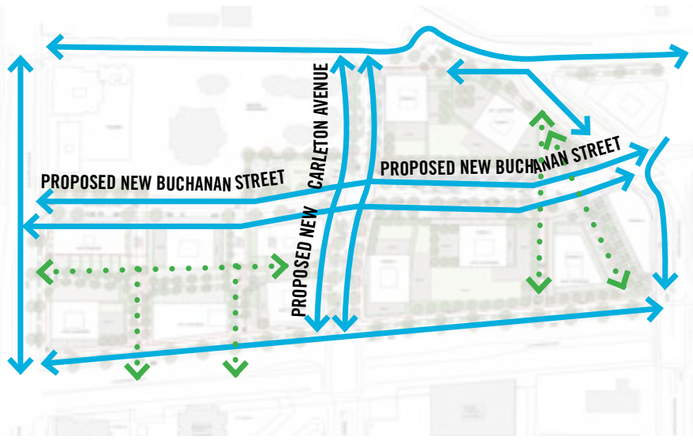
- SRoW
- Dedicated City Street Vehicular Access Points
- Road Pedestrian Circulation
- Internal Pedestrian Circulation
- Site Cycling Circulation



(FIGURE 6.4.1)



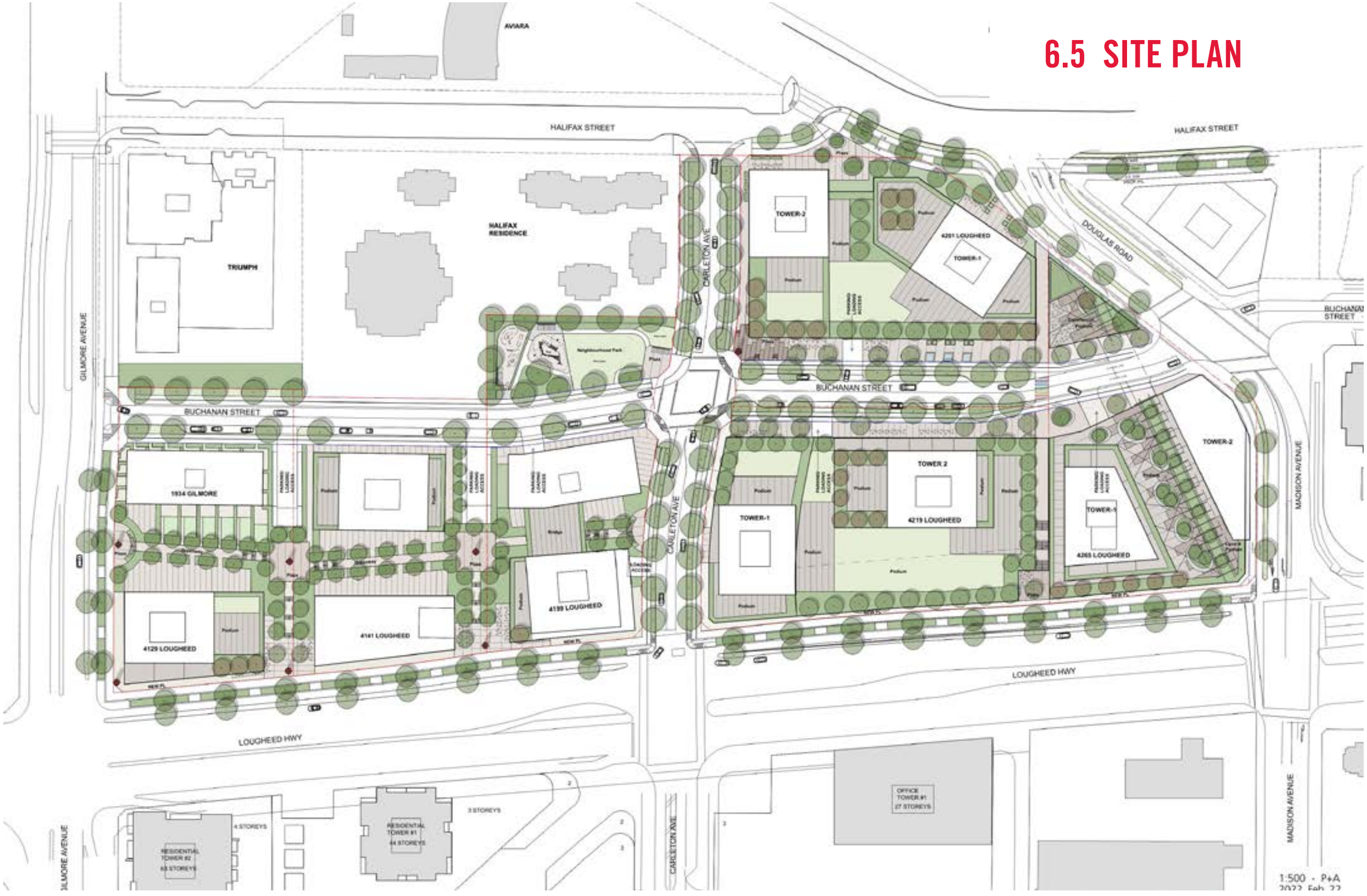
VEHICULAR CIRCULATION (FIGURE 6.4.2)



PEDESTRIAN CIRCULATION (FIGURE 6.4.3)

CYCLING CIRCULATION (FIGURE 6.4.4)

6.5 SITE PLAN



(FIGURE 6.5.1)

6.6 PARKING AND LOADING ACCESS

Parking for each parcel will be located within their respective on-site parking facilities. Parking access is shown from Buchanan Street and Carleton Avenue for all parcels. In addition, 4265 Lougheed Highway will need loading access from Madison Avenue, and 4201 Lougheed Highway will require loading and parking access from Buchanan Street. All loading movements will occur within each private parcel and exit on to public roads in a forward motion as per City of Burnaby standards.

4265 LOUGHEED HIGHWAY
A total of three entry points are provided to the site, as determined by the railway tunnel. With two parking entries, and one loading access located on Buchanan Street. One additional loading entry is located on Madison Avenue.

4201 LOUGHEED HIGHWAY
Two entry points via the south of the site, both located on Buchanan Street

4219 LOUGHEED HIGHWAY
One entry points from the north of the site on Buchanan Street, and the second entry point on Carleton Avenue.

4199 LOUGHEED HIGHWAY
One entry point from Carleton Avenue, and a second entry point via Buchanan Street.

4141 LOUGHEED HIGHWAY
One entry point from Buchanan Street

4129 LOUGHEED HIGHWAY + 1934 LOUGHEED HIGHWAY
One entry point from Buchanan Street

6.7 TOWER FLOOR PLATE SIZE

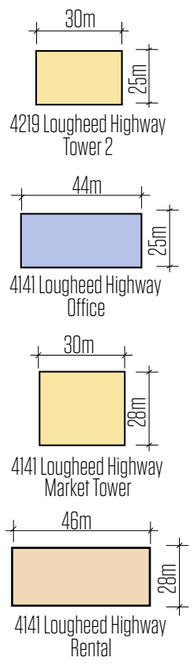
The master plan envisions a few building forms and types including residential point towers, residential building blocks, and commercial podiums.

Most residential point towers with central cores are based on a floor plate of 780 square meters (8,396 square feet). Residential building floorplates with split exit stairs are increased to 1,200 square meters (12,917 square feet) to allow for more units within each floor. Commercial, institutional, or hotel uses are limited to a 1,600 square meters (17,222 square feet) floor plates.

Residential point towers dimensions in each direction are 30 meters (98 feet), not including balconies and other projections. Residential building lenghts are limited to 55 meters (180 feet). Commercial podium sizes are less than 65 meters (213 feet) in length for the larger parcels.

Although there is no maximum height limitation required by the zoning by-laws in this area, tower podiums for commercial uses are analysed to be below 45 metres (148 feet) in height. This is to reduce the shadow impact of these large podiums on the adjacent sites. For residential towers, height and number of floors are limited by elevator travel time and the required number of elevators. 50-55 storeys are considered as the maximum number of residential floor within a point tower. Changes to floor plate size, and building orientation may result in the potential for two towers to be achieved on each site while respecting City tower separation guidelines.

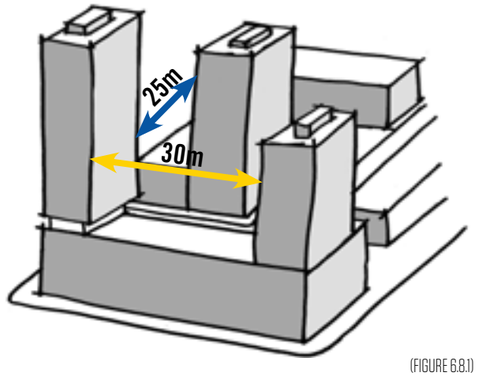
PROPOSED PARKING AND LOADING ACCESS (FIGURE 6.6.1)
Loading will be determined at site specific rezoning



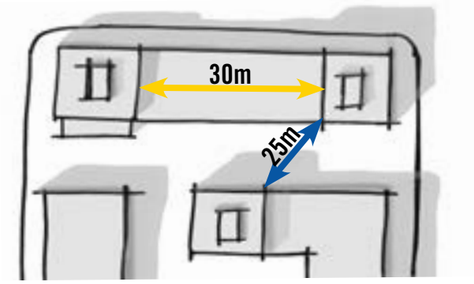
FIRST CAPITAL SITE AT 4265 LOUGHEED HIGHWAY (FIGURE 6.7.1)

MASTER PLAN TOTAL MARKET RESIDENTIAL:	2,828,192 S.F.	6.1
MASTER PLAN TOTAL AFFORDABLE RENTAL:	532,695 S.F.	1.15
MASTER PLAN TOTAL MARKET RENTAL:	51,900 S.F.	0.11
MASTER PLAN TOTAL RETAIL:	177,568 S.F.	0.38
MASTER PLAN TOTAL COMM. OFFICE/INSTIT.:	823,314 S.F.	1.77

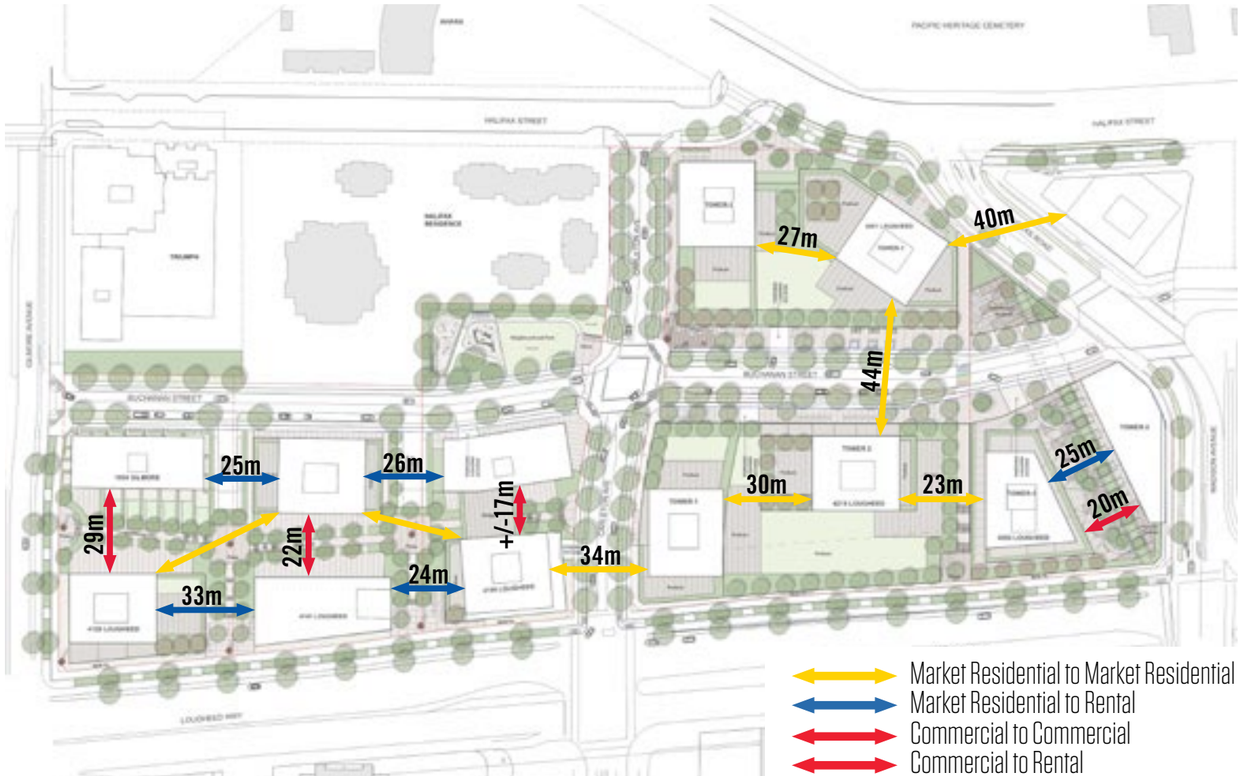
TOTAL MARKET UNIT COUNT:	3,465 Units
TOTAL AFFORDABLE RENTAL UNIT COUNT:	562 Units
TOTAL RESIDENTIAL UNIT COUNT:	4,087 Units
MASTER PLAN TOTAL GFA:	4,413,672 S.F.
AVERAGE FAR:	9.5



(FIGURE 6.8.1)



(FIGURE 6.8.2)



TOWER SEPARATIONS OF MASTER PLAN
Lougheed + Madison | Concept Book

(FIGURE 6.9.1)

6.8 DISTRIBUTION OF DENSITY

As noted earlier, the main goal for this study is to propose vibrant mixed-use developments on the site following the RM5s/ RM5r and C3 zone guidelines. One of the main components of these guidelines is to determine the overall FAR allowed for the subject site based on combining the FAR allowed under these three zones with the permitted density offset.

Under the RM5s zone, 5.0 FAR is available for market residential use for each parcel, the RM5r zone allows for 2.2 FAR for rental residential use, including both affordable rental and market rental units. In addition, the C3 zone allows up to 6.0 FAR of commercial uses including retail, office, institutional, hospitality, and residential rental uses.

Under the Rental Use Zoning Policy, all new market residential developments are required to provide affordable rental units. The minimum number of the required affordable rental units is 20 percent of the proposed residential market unit count. As an incentive to owners and developers to build the mandated affordable rental units, a density off-set of up to 1.1 FAR of market residential is granted and to be added to the 5.0 market residential FAR. The final FAR figure available under the three zones plus the density offset is 14.3 FAR, available for each parcel, within the overall master plan site.

A massing study for the subject site with densities of 14.3 FAR for all parcels, revealed significant challenges with traffic, services, day light, shadows, building access, and liveability. Plus, and due to limited development footprints, most proposed towers are to exceed the sixty-storey height to accommodate the available FAR. Further consultation with city staff and the development industry indicates there is less demand for commercial spaces than what is permitted. The 6.0 FAR available under the C3 zone is significantly higher than market demand, especially when it is applied to all parcels over the entire master plan site. A more reasonable 2.4 FAR has been considered for the purpose of the master plan study, understanding certain parcels may vary this figure through a rezoning process. After multiple meetings, and work shops, its been collectively decided for the purpose of this study to use an average of 9.5 FAR. This figure represents 5.0 market residential + 1 affordable rental + 1.1 density off set + 2.4 C3.

6.9 TOWER SEPARATIONS

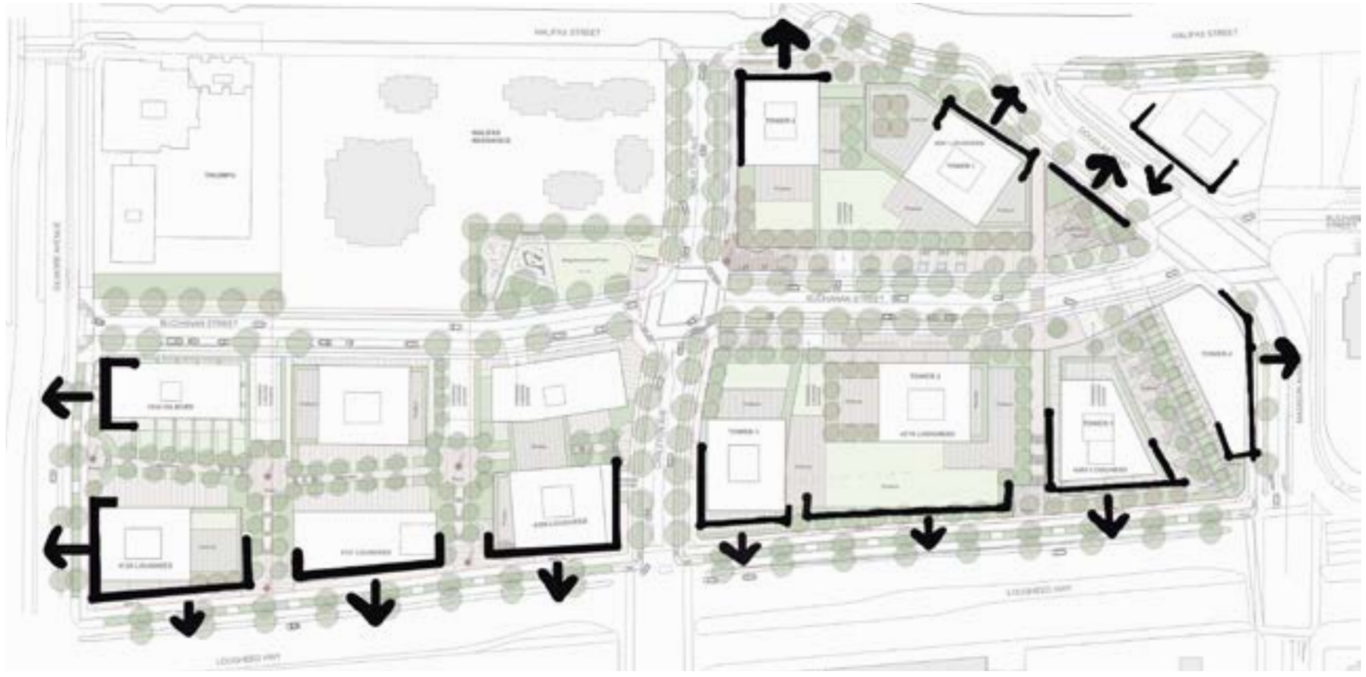
The proposed master plan follows the City of Burnaby planning guidelines for tower separations. Residential towers are located based on a 30 meter (98 feet) separation for a face to face tower relationship, and a 25 meter (82 feet) separation for a corner to corner arrangement as a diagonal distance. Building separation between commercial uses are proposed to be around 20 meters (66 feet).

For tower forms, the residential towers are sculpted at the top and above the commercial podium to reduce shadowing and maximize views. The sculpted floors are envisioned to be occupied by amenity uses.

6.10 BUILDING ORIENTATIONS

The site's wider frontage along Lougheed Highway has a south facing exposure. Towers with higher residential densities are strategically positioned to maximize solar exposure, while balancing the need for natural light penetration to developments and public spaces to the north. For parcels with limited south facing exposure, such as 4141 Lougheed Highway, the lower building is located on the south side to maintain an open exposure and view in front of the taller tower.

Other parcels on the north side of the site are located in a staggered pattern to maintain view corridors between the towers. Taller buildings have be strategically positioned to maximize solar exposure, while balancing the need for natural light penetration to developments and public spaces to the north.

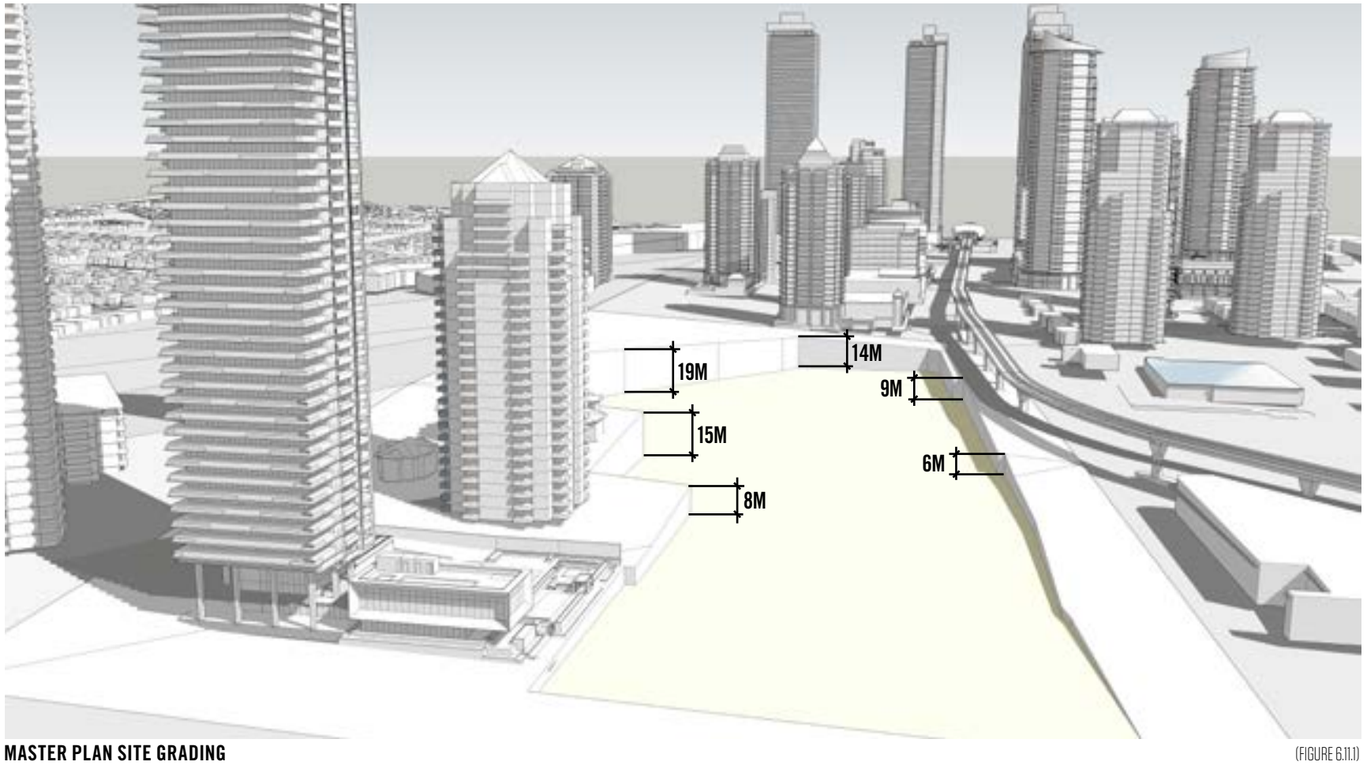


MASTER PLAN BUILDING ORIENTATION (FIGURE 6.10.1)

6.11 SITE GRADING

As noted in chapter four, the site topography influenced the overall road alignment and building massing for each parcel. The existing grades show a drop of 22 meters (72 feet) diagonally between the northeast corner at Douglas Road and Halifax Street to the south west corner at Lougheed Highway and Gilmore Avenue.

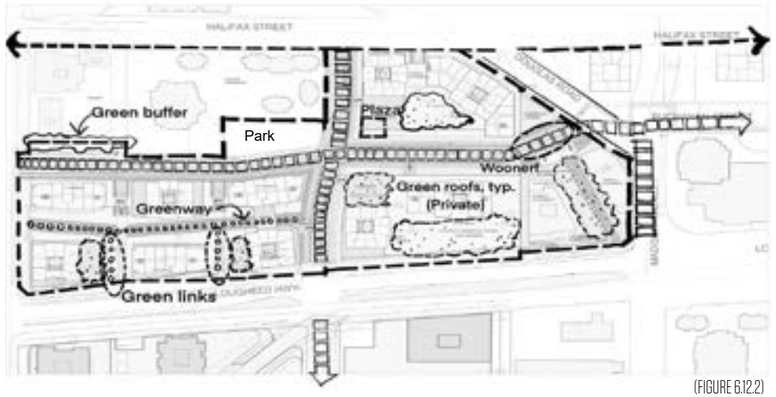
To address the grading challenges, parkade podiums are envisioned for all parcels to create stepped platforms along street frontages at grade. Most podiums will have two to three parking levels with active uses on the above grade side of the podiums. Retail spaces and building lobbies are proposed as active uses along street frontages.



MASTER PLAN SITE GRADING (FIGURE 6.11.1)


4199 LOUGHEED HIGHWAY (TOWER 1)
4129 LOUGHEED HIGHWAY
4141 LOUGHEED HIGHWAY (TOWER 1)
4219 LOUGHEED HIGHWAY (TOWER 1)
4219 LOUGHEED HIGHWAY (TOWER 2)
4201 LOUGHEED HIGHWAY (TOWER 2)
4265 LOUGHEED HIGHWAY (TOWER 1)
4201 LOUGHEED HIGHWAY (TOWER 1)
4265 LOUGHEED HIGHWAY (TOWER 2)

(FIGURE 6.12.1)



(FIGURE 6.12.2)

6.12 OPEN SPACE

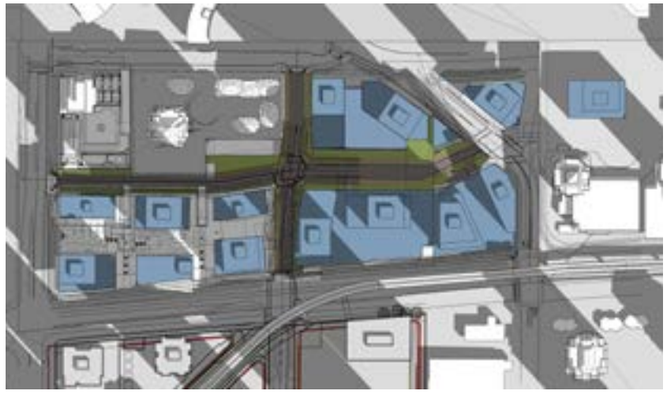
The master plan provides a series of open spaces including passive green parks, pedestrian greenways, public plazas, and large private landscape decks within each parcel.

A park is located to the northwest side of the new Carleton Avenue and Buchanan Street intersection. These green spaces will also provide buffers between the proposed developments and the existing buildings on the north side.

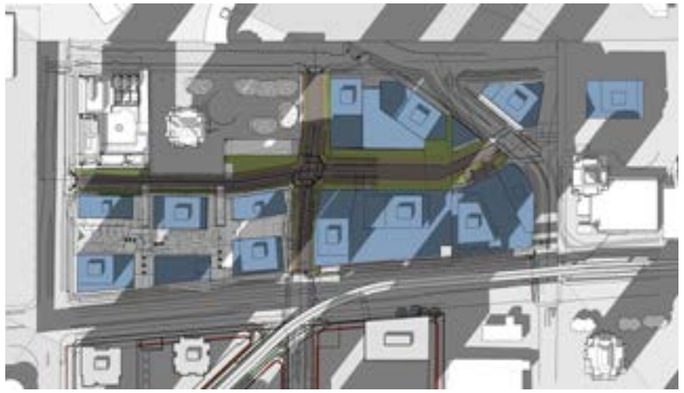
An east-west pedestrian greenway is shown within the southwest quadrant of the site between commercial podiums and residential uses. This greenway will connect Carleton Avenue to Gilmore Avenue with public plazas at each end. Retail uses along the Lougheed Highway frontage are proposed to have a second access from the greenway with potential patios on the south side of the greenway. Additional plazas at the northeast side of the Carleton Avenue and Buchanan Street intersection and between retail uses on Lougheed Highway.

6.13 SHADOW STUDIES

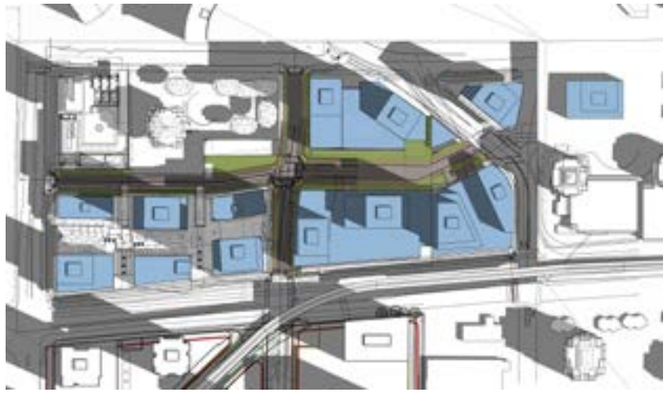
The shadow diagrams show the towers on the development site across Lougheed Highway will cast shadow on the subject site for most of the year. The lower portions of the westerly parcels will be in shadow for much of the fall and spring equinox. While the residential floors for these parcels will receive daylight, the adjacent building shadows will be mostly cast on the lower landscape decks. Meanwhile the summer solstice diagram shows daylight conditions for the westerly parcels during the summer season. For the three easterly parcels of the site, the shadow diagrams show more daylight at the landscape decks for most of the year. Particularly for 4219 Lougheed Highway and 4265 Lougheed Highway in the southeast quadrant. These two parcels will have less shadows cast on outdoor areas for most of the seasons. Shadow studies will be updated through the site specific rezoning application, once a built form is determined for each site.



MARCH SHADOW DIAGRAM AT 10:00 AM (FIGURE 6.13.1)

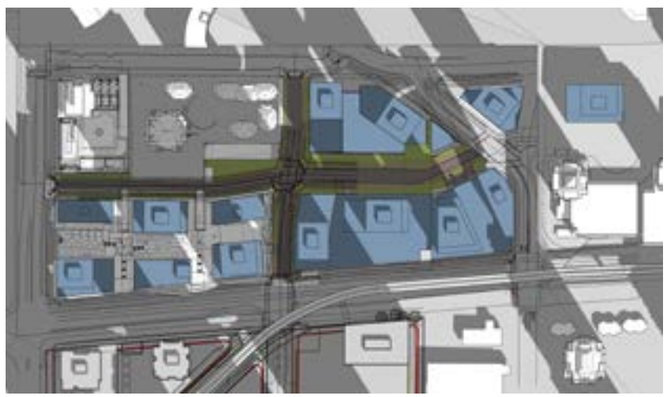


MARCH SHADOW DIAGRAM AT 2:00 PM (FIGURE 6.13.2)



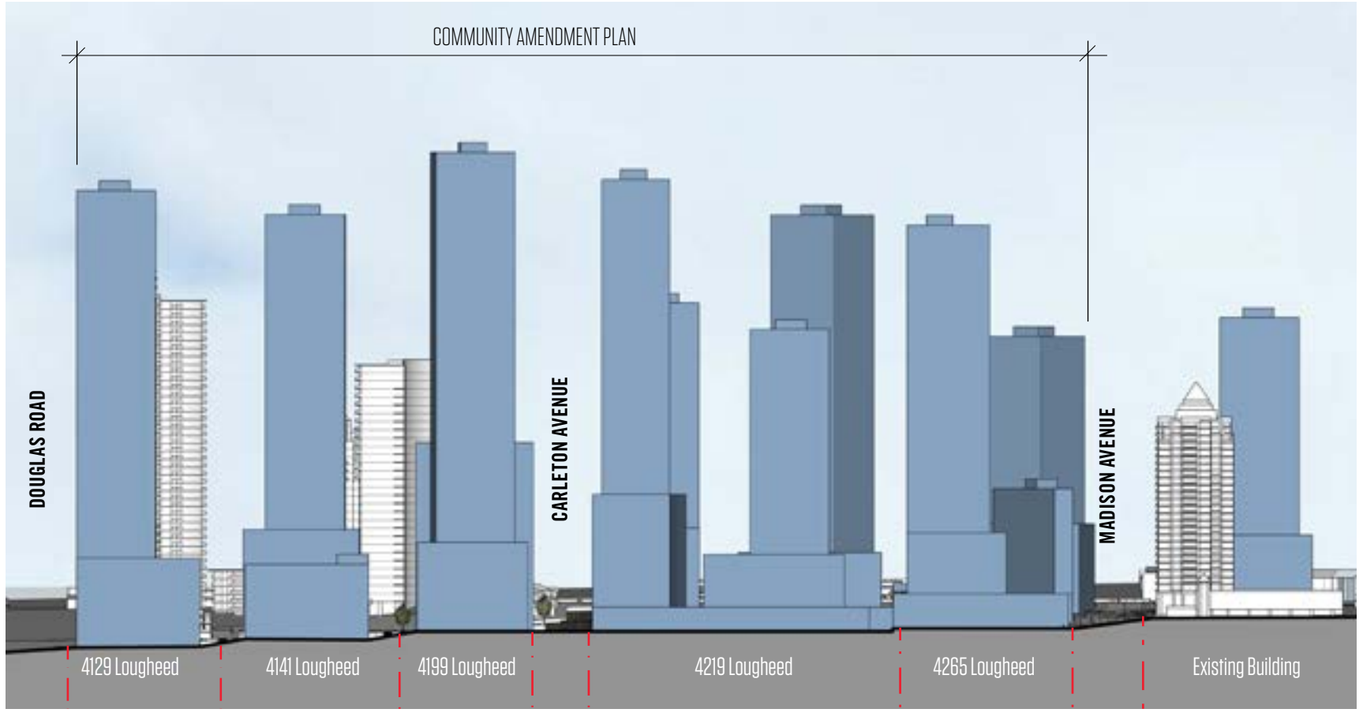
JUNE SHADOW DIAGRAM AT 10:00 AM (FIGURE 6.13.3)

JUNE SHADOW DIAGRAM AT 2:00 PM (FIGURE 6.13.4)



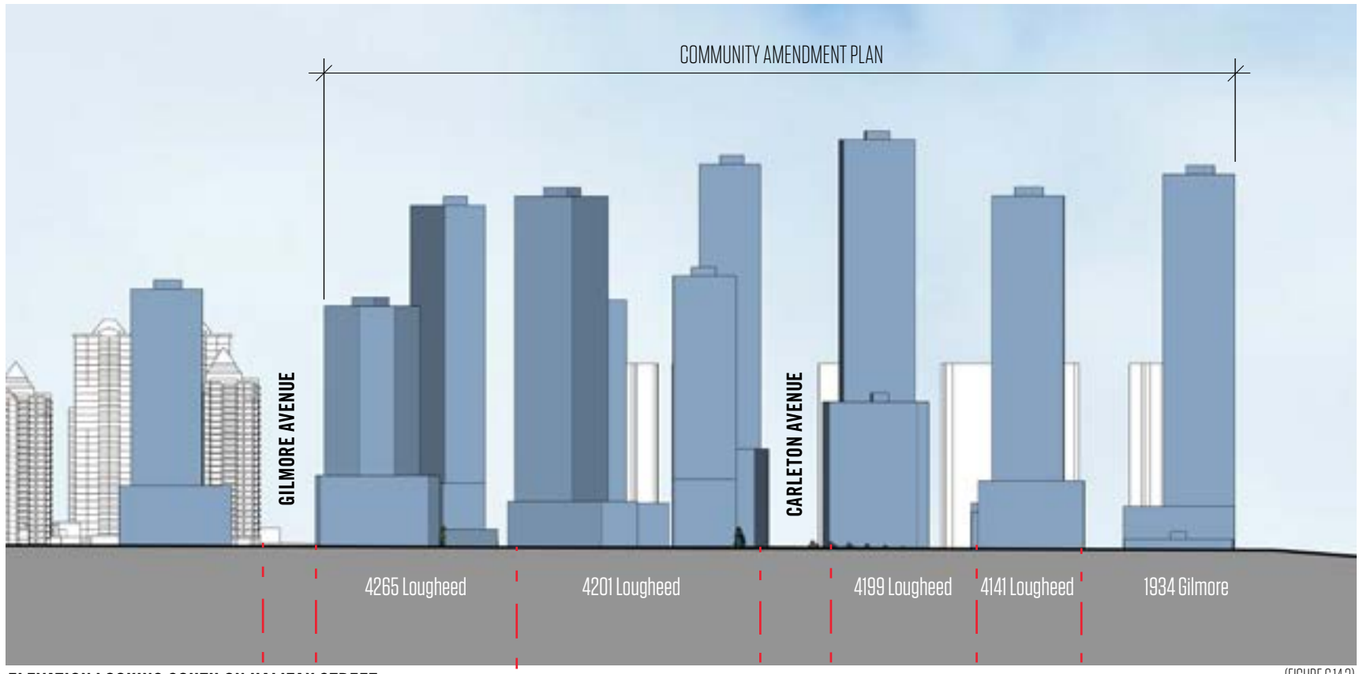
OCTOBER SHADOW DIAGRAM AT 10:00 AM (FIGURE 6.13.5)

OCTOBER SHADOW DIAGRAM AT 2:00 PM (FIGURE 6.13.6)



ELEVATION LOOKING NORTH ON LOUGHEED HIGHWAY

(FIGURE 6.14.1)



ELEVATION LOOKING SOUTH ON HALIFAX STREET

(FIGURE 6.14.3)

6.14 ELEVATIONS

6.14.1 BUILDING ELEVATIONS AT LOUGHEED HIGHWAY

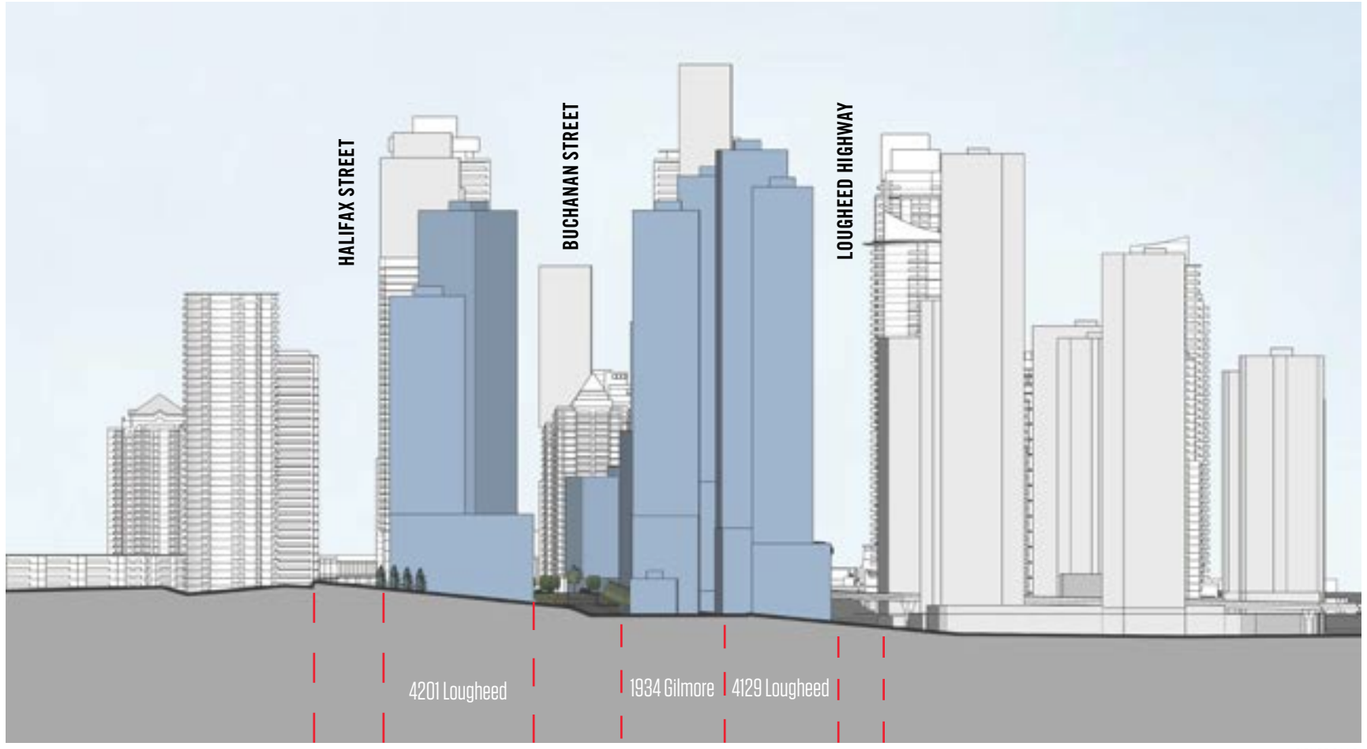
(FIGURE 6.14.2)

6.14.2 BUILDING ELEVATIONS AT HALIFAX STREET

(FIGURE 6.14.4)

6.14.4 BUILDING ELEVATIONS AT GILMORE AVENUE

(FIGURE 6.14.5)

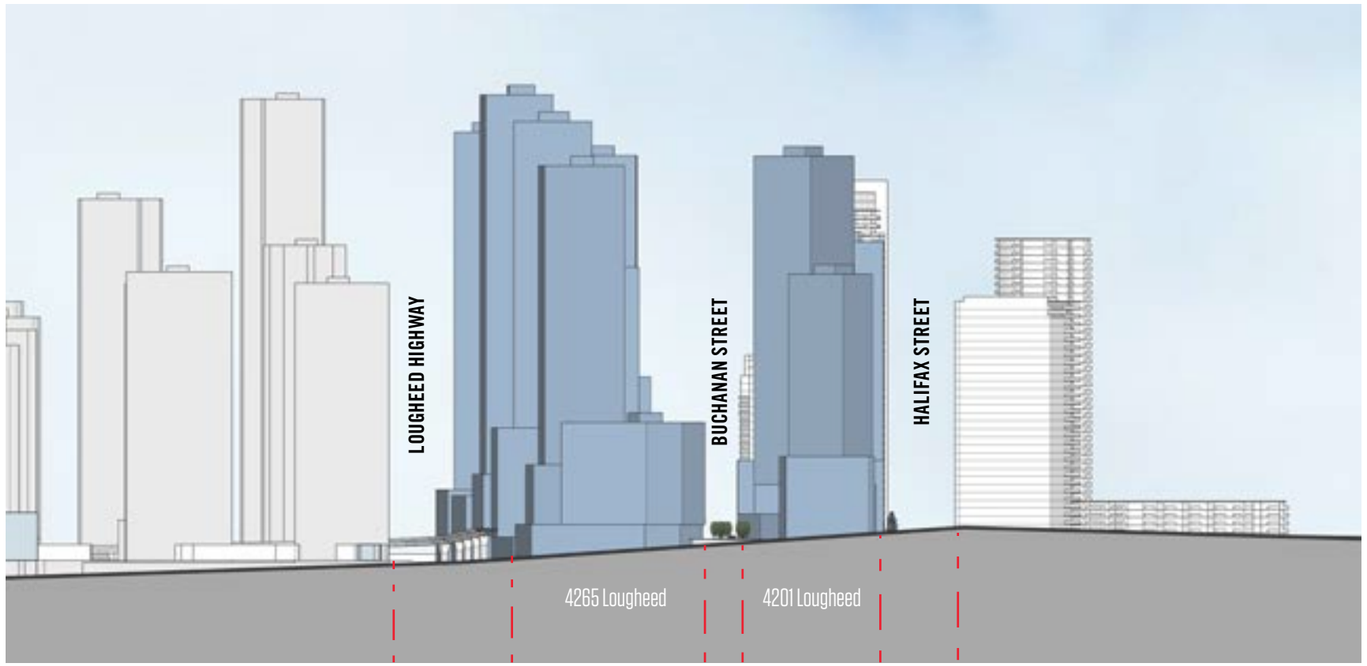


ELEVATION LOOKING EAST ON GILMORE AVENUE

(FIGURE 6.14.6)

6.14.3 BUILDING ELEVATIONS AT MADISON AVENUE

(FIGURE 6.14.7)

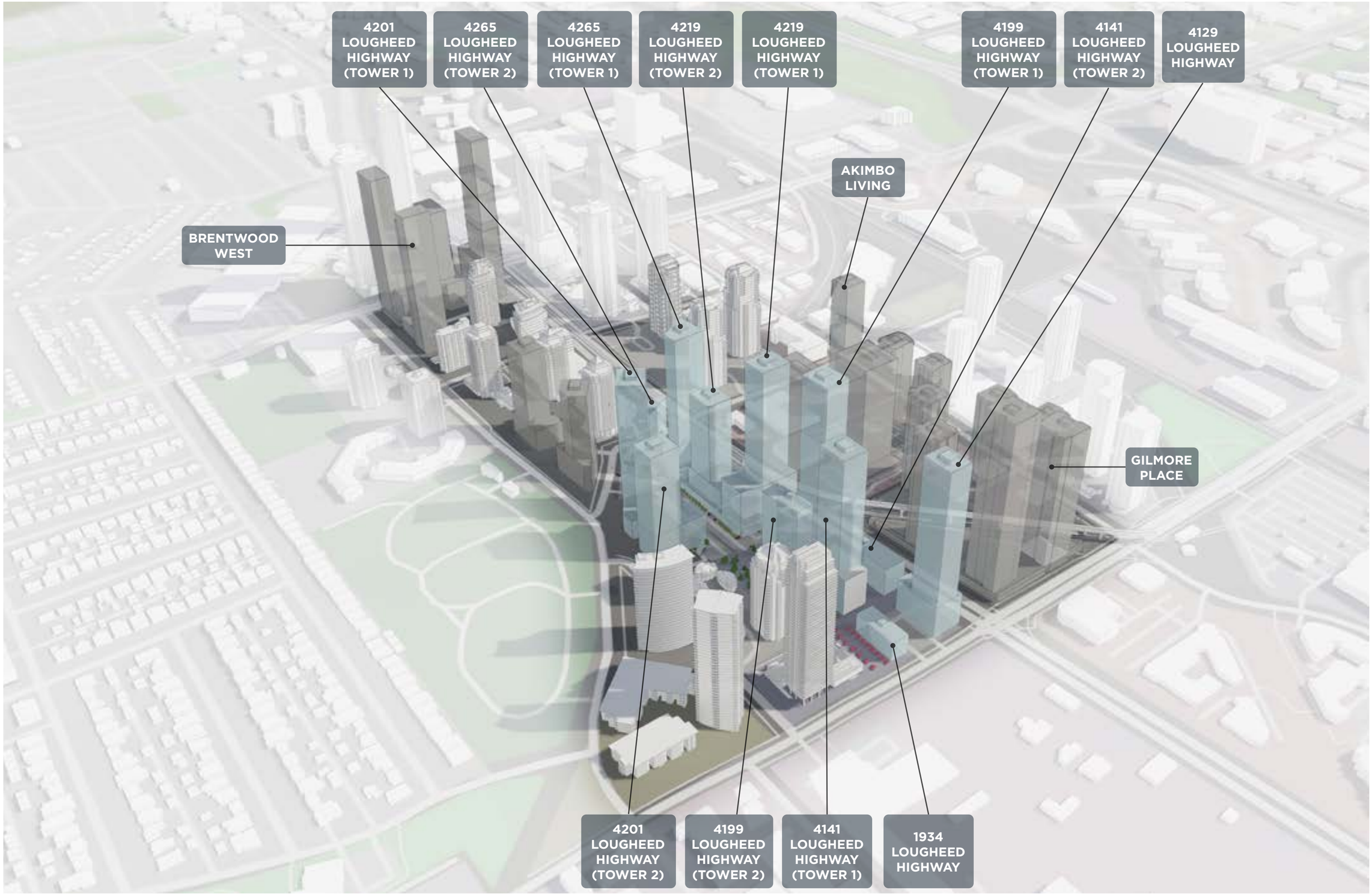


ELEVATION LOOKING WEST ON MADISON AVENUE

(FIGURE 6.14.8)

AERIAL IMAGE OF EXISTING SITE OF MASTER PLAN SURROUNDINGS
Lougheed + Madison | Concept Book

(FIGURE 6.1.4.9)



AERIAL IMAGE OF MASTER PLAN SURROUNDINGS

(FIGURE 6.14.10)

07 LANDSCAPE AND PUBLIC REALM CONCEPT

1. Design Rationale
2. Precedent Photos
3. Precedent Streetscapes
4. Landscape Concept Plan
5. Gathering Places
6. Street Sections

01
STAIR CONNECTION WITH LIGHTING (FIGURE 7.1.1)

02
BENCH SEATING (FIGURE 7.1.2)

03
STAIR WITH PLANTING (FIGURE 7.1.3)

04
STAIR AND SEATING (FIGURE 7.1.4)

05
STEPPING WATER FEATURE (FIGURE 7.1.5)

06
STRAMP WITH PLANTING (FIGURE 7.1.6)

7.1 DESIGN RATIONALE

The overall landscape plan for the public realm corresponds to the structure established through the mobility network and the allocation of the building forms and density across the site. The design intent for the neighbourhood is to create a vibrant, connected, accessible and environmentally sustainable public realm where residents and visitors are provided a safe and richly designed public realm offering a diversity of experiences.

The public realm expression within the site is closely influenced by two major networks. The first of these networks is linked to site circulation including the vehicular, cycling, pedestrian and transit related travel routes. This structure is aligned with the larger urban context of the municipality to ensure connectivity and continuity of access to and throughout the site.

The second network relates to the distribution of open space created in response to the distribution of buildings and densities across the site. A variety of large and small spaces are intended to provide a variety of urban experiences and a secondary level of pedestrian connectivity throughout the site.

Along Lougheed Highway the intent is to provide an active and vibrant articulated urban edge with retail uses at grade and punctuated with urban plazas providing opportunities for retail animation and social engagement. The transit, vehicular and cyclist circulation is separated from the pedestrian and retail realm by a City of Burnaby streetscape design standard incorporating rain gardens for storm water management, a double row of street trees and site furnishings for lighting, seating and other uses. The plazas will also serve to provide for pedestrian connectivity into the quieter public realm areas north of Lougheed Highway.

The plan proposes an extension of Buchanan Street from Madison Avenue to Gilmore Avenue allowing for connectivity of vehicular, cyclist and pedestrian movement. This street will be articulated to meet The City of Burnaby's standards and will provide street trees, boulevard, street parking and site furnishing to create an activated urban environment. There will be some retail uses along this street at key points but it is seen as primarily a residential environment. A small urban park is proposed for the northwest corner of Buchanan Street and Carleton Avenue and supported by retail uses that would occur at the northeast corner. This park functions as the hub of the community and is envisioned to be a small urban park providing both active and passive uses for the neighbourhood community.

A feature element of the proposed public realm is a secondary east west pedestrian corridor mid block between Lougheed Highway and Buchanan Street and extending from Gilmore Avenue to Carleton Avenue. This pedestrian mews is envisioned to provide safe access to residential and commercial uses with lighting and site furnishings, textured and patterned paving treatment and a layered landscape of trees and shrubs to buffer views to the adjacent development sites. Small urban nodes located along this pedestrian corridor provide opportunities for rest, social engagement and pedestrian linkages to the retail plazas along Lougheed Highway. These nodes, situated between the buildings, are able to take advantage of views south over Lougheed Highway.

Public art is envisioned to be an important component of the plan and a number of potential sites have been identified. It is envisioned that the public art component would be used to accentuate key spaces around the perimeter and through the interior of the site to engage with the community through a range of artistic mediums and expressions and to help define an overall identity for the precinct.

7.2 PRECEDENT PHOTOS

SITE FURNITURE, MATERIALS, AND GRADE TRANSITION

07 **STAIRS WITH TREES AND PUBLIC ART** (FIGURE 7.1.7)

08 **BIKE LANE AND RAIN GARDEN** (FIGURE 7.1.8)

09 **BIKE LANE AND STAIR CONNECTION** (FIGURE 7.1.9)

10 **SIDEWALK FURNITURE** (FIGURE 7.1.10)

11 **CUSTOM SITE FURNITURE** (FIGURE 7.1.11)

12 **ENTRANCE PLAZA WITH SEATING** (FIGURE 7.1.12)

13 **BENCH SEATING** (FIGURE 7.1.13)

14 **SEATING PLATFORM** (FIGURE 7.1.14)

15 **BIKE RACKS** (FIGURE 7.1.15)

16 **SITE FURNITURE** (FIGURE 7.1.16)

17 **STAIR CONNECTION WITH GREEN WALL** (FIGURE 7.1.17)

7.3 PRECEDENT STREETSCAPES

STREETSCAPES AND PUBLIC REALM

01 CORNER PLAZA WITH SEATING NODE (FIGURE 7.3.1)

02 PLAZA WITH GRADE TRANSITION (FIGURE 7.3.2)

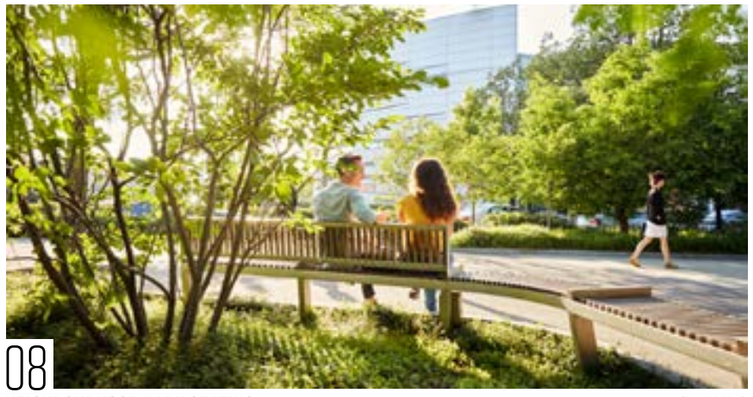
03 GENEROUS SIDEWALK (FIGURE 7.3.3)

04 COMMERCIAL FRONTAGE (FIGURE 7.3.4)

05 PEDESTRIAN MEWS (FIGURE 7.3.5)

06 RESIDENTIAL CORNER PLAZA (FIGURE 7.3.6)

07 GREENWAYS (FIGURE 7.3.7)



08 NEIGHBOURHOOD PARK SEATING (FIGURE 7.3.8)

09 OFFICE PLAZA (FIGURE 7.3.9)

7.4 LANDSCAPE CONCEPT PLAN

The landscape concept aims to create a vibrant public realm that is well integrated into the greater urban context of the site. A well connected, convenient and safe network of pedestrian and bicycle routes strengthens the transit oriented character of the location in close proximity to the Gilmore SkyTrain station. A variety of outdoor spaces throughout the site offers opportunities for urban sidewalk patios, street corner and building entry plazas, greenways, pedestrian mews, seating nodes and a neighbourhood park.

In addition, significant outdoor amenities are proposed for building podium levels for residential, office and hotel uses anticipated for this site. The generous podium landscapes are intended to offer access to green space, play, gathering, outdoor exercise and flexible work spaces.

A cohesive, contemporary landscape design language is proposed to serve as a connective tissue throughout the site by sharing common materials, site furniture and design elements. Within this connective tissue there are however opportunities for individual expressions to reflect different site characteristics.

The easternmost lot (4265 Lougheed Highway) is located above The Thornton Tunnel, a 3.4km long freight railway connection connected to the Second Narrows Bridge. The landscape concept proposes to express and highlight this interesting relationship within the design of the podiums and landscape at grade. A convenient pedestrian link is created west of this lot to connect Lougheed Highway to the proposed Douglas Road greenway.

The 4201 and 4219 Lougheed Highway lots offer generous building setbacks towards Buchanan Street, creating opportunities for building entrance and corner plazas as well as cafe seating, public art and tree planting on private property.

For the lots west of Carleton Avenue. (4129, 4141, 4199 Lougheed Highway) the landscape concept proposes an elevated pedestrian mews that runs parallel to Lougheed Highway and is connected to several building amenity podiums. This mews offers additional pedestrian circulation routes as well as quieter seating nodes and gathering spaces as an alternative to the busier, urban nodes along the Lougheed Highway frontage. The concept plan anticipates different landscape character expressions in relation to residential and commercial uses within this area of the site.

A neighbourhood park is proposed at the northwest corner of Buchanan Street and Carleton Avenue. This park could accommodate seating areas, flex lawn areas, children's play or a dog run, creating a central open and social space for the site.

Refer to the attached landscape plan for the location of the sub areas of the plan elaborated on;

(FIGURE 7.4.1)

1. PUBLIC REALM IMPROVEMENTS

The plan incorporates proposed improvements to the public realm including; the north side of Lougheed between Gilmore and Madison, the east side Gilmore from Lougheed north to Buchanan, Buchanan from Gilmore to Douglas Road, Carleton Avenue from Lougheed to Halifax, the west side of Douglas Road and Madison Avenue from Halifax to Lougheed Avenue. Landscape improvements in the public realm would adhere to the Burnaby Town Centre Standards for all hard and soft landscape improvements.

2. THE EAST WEST MEWS

For the lots fronting Lougheed highway between Gilmore and Carleton Avenues (4129, 4141, 4199 Lougheed) a pedestrian mews is proposed to run parallel to Lougheed Highway and connected via stairs/elevator to plaza's located between the buildings retail frontage along Lougheed. This mews offers additional pedestrian circulation routes as well as quieter seating nodes and gathering spaces as an alternative to the busier, urban nodes along the Lougheed frontage. The landscape treatment should include larger format concrete pavers 300mm x 600mm (12" x 24") in the larger plaza and node areas alternating with a smaller format 150mm x 300mm (6" x 12") for the connecting walkways. Site furnishings are to be contemporary in expression with metal in powdercoat silver finish. Lighting elements are to utilize low post top luminaires with a black powder coat finish. Landscape plantings are to be layered with a combination of groundcovers, shrubs and trees with an equal mix of native and adaptive plantings appropriate for there setting.

3. NORTHERN EDGE OF BUCHANAN EAST OF GILMORE

This section of the plan functions as one of the gateways into and out of the precinct. There is opportunity along the north edge adjacent Gilmore to add soft landscape improvements to provide interest through the seasons, habitat and forage for birds, and opportunities for seating/rest for residents. The retaining wall, required along part of this section to mitigate the grade change between the new and existing development to the north, provides an opportunity to incorporate an ashlar salt and pepper granite facing, one of the historic material used in this area of Burnaby. Additionally this wall and section of Buchanan provides opportunities for incorporation of public art to engage residents and convey the history of the site.

4. THE PARK

At the heart of the neighbourhood , this site offers the opportunity for a small urban park as a destination for residents or a casual stop along the way. Located adjacent retail opportunities and tucked away from the busier streets of the neighbourhood the park offers residents opportunity for social engagement, children's play and rest. Grade changes will need to be managed through stepped landscape walls integrated with usable open spaces for passive and active uses. Landscape treatment for both hard and soft landscape should adhere to the Burnaby Town Centre Standards to maintain continuity with the off site treatment for paving, site furnishing and lighting

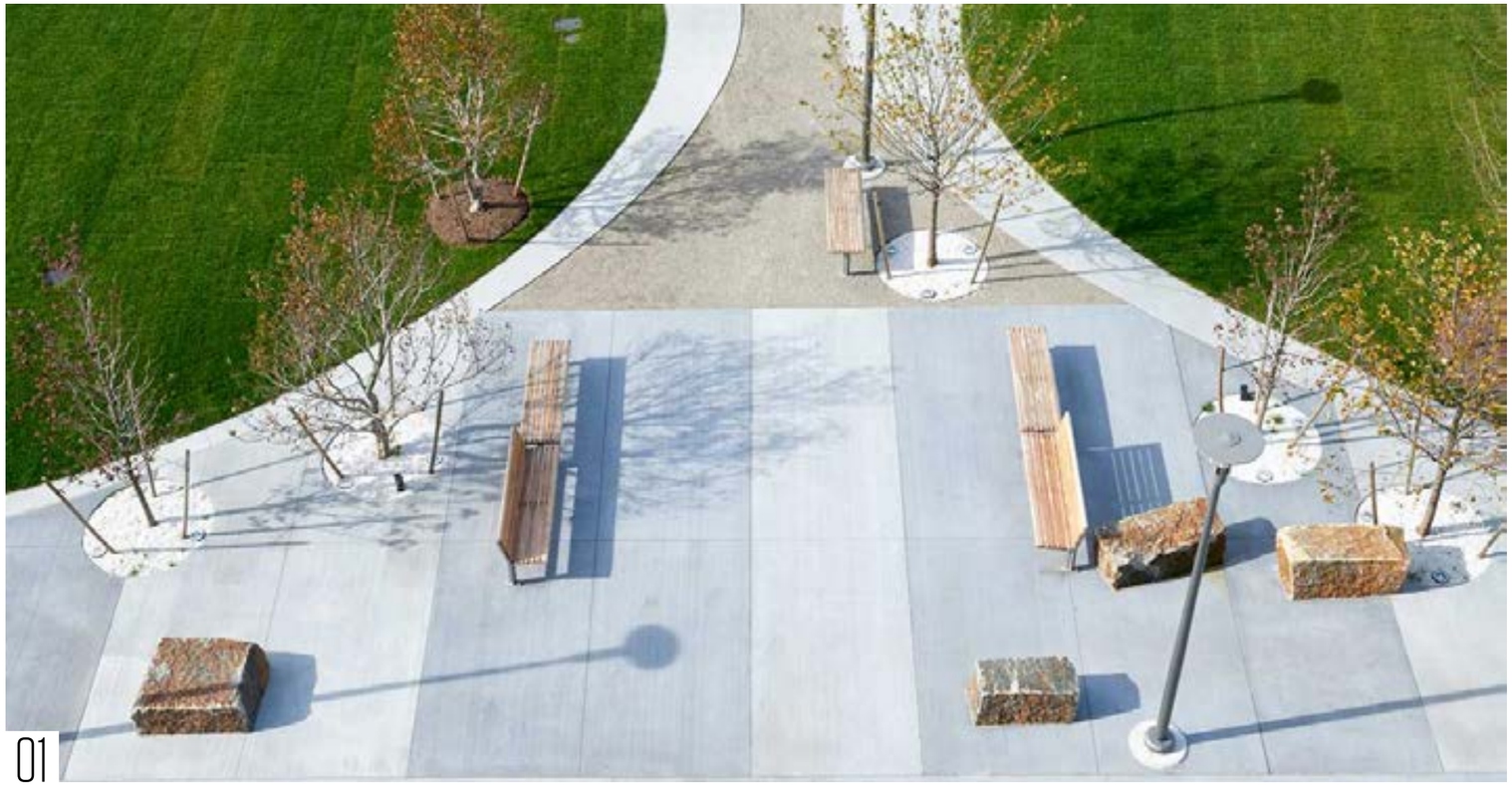
5. BUCHANAN PLAZA

The buildings facing the north edge of Buchanan between Carleton and Madison Avenues are set back from the street providing an urban plaza to complement the retail uses at the street. A water feature is envisioned in this plaza to provide animation at the street level and to help separate the plaza from the public realm. Opportunities for seating should be incorporate in grade changes between the public realm and the plaza. Lighting is to be a feature of this plaza to create space, ensure security and add to the animation of the street and neighbourhood in the evening. Premium landscape materials are to be used to provide a clean and contemporary appearance.

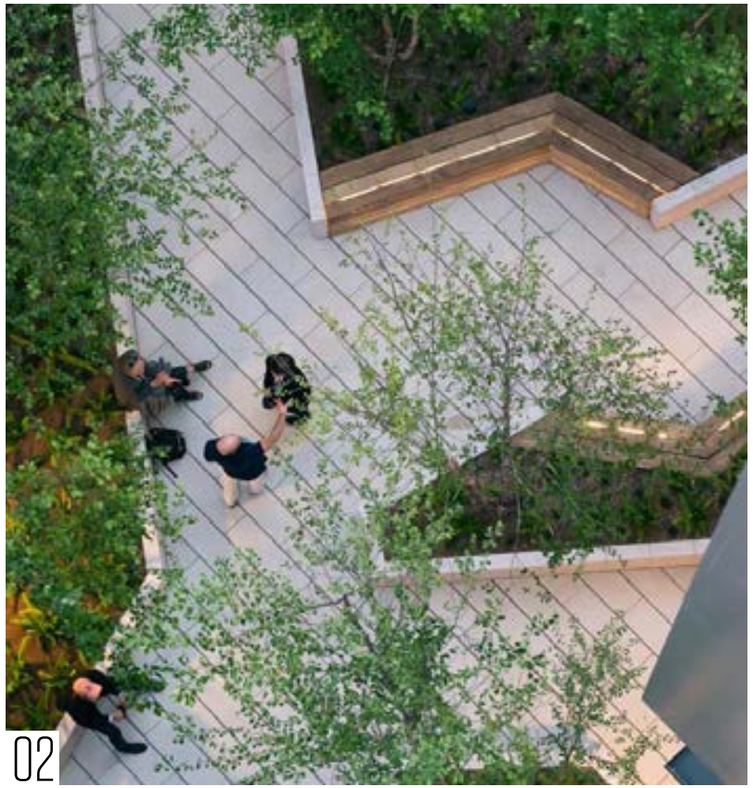
6. THE RAIL LINE

The 5265 Lougheed site, currently occupied by Staples, is located over an underground rail line that runs north south under the site. Future development of the landscape design for this site should explore opportunities to express the underground rail line at the surface. This expression could be through the articulation of the landscape design at street and podium levels and public art integrated into the Buchanan public realm and signage. Materials on the ground plane and podium levels are to have a contemporary expression and the hidden nature of the rail line cleverly revealed through public art and signage.

7.5 GATHERING PLACES



01
PARK SEATING NODE (FIGURE 7.5.1)



02
PEDESTRIAN MEWS SEATING NODE (FIGURE 7.5.2)

03
COMMERCIAL CORNER PLAZA (FIGURE 7.5.3)
Lougheed + Madison I Concept Book

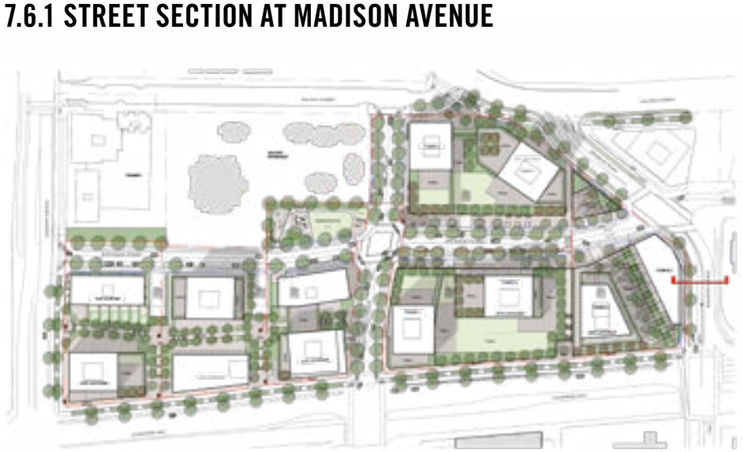
04
SEATING NODE WITH CATENARY LIGHTING (FIGURE 7.5.4)

05
NEIGHBOURHOOD PARK WITH PLAYGROUND AND SEATING OPPORTUNITIES (FIGURE 7.5.5)

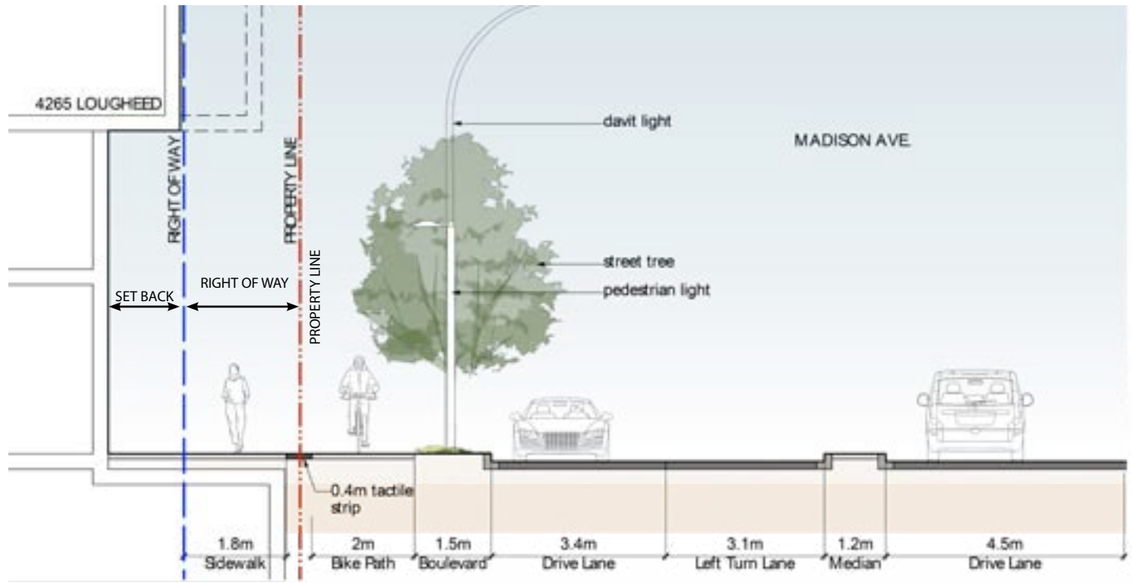
7.6 STREET SECTIONS

Note: Street design may be subject to change and will be finalized at the site specific rezoning stage.

7.6.1 STREET SECTION AT MADISON AVENUE



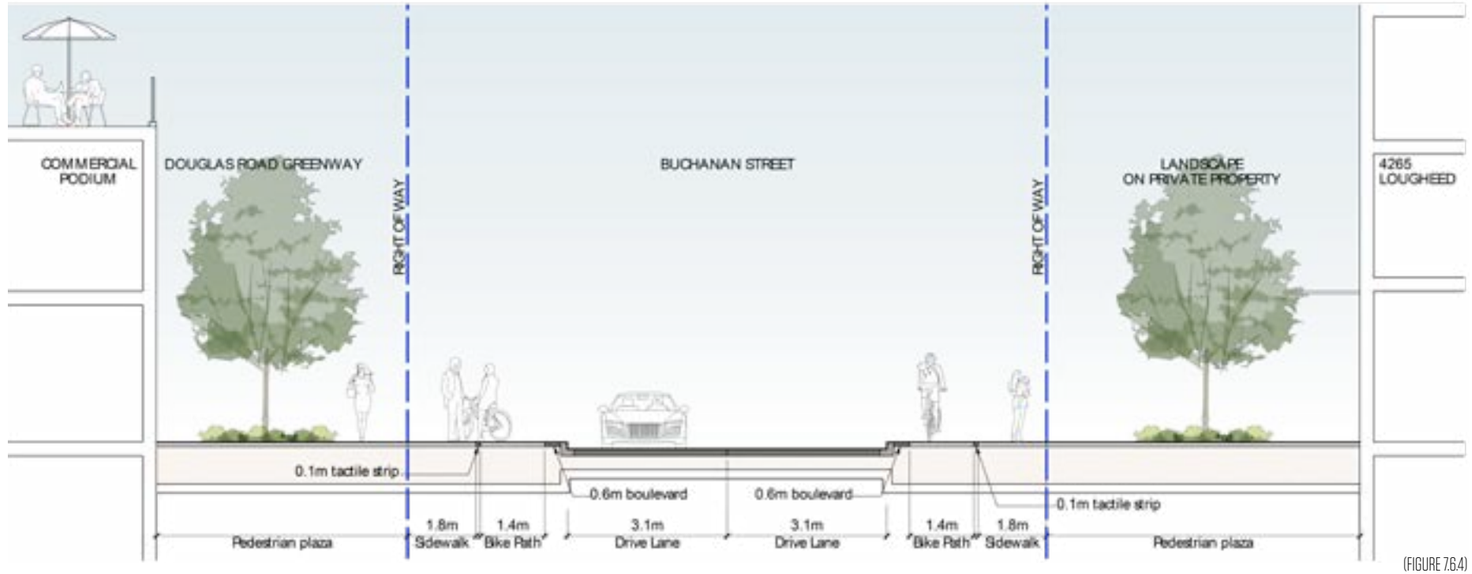
(FIGURE 7.6.1)



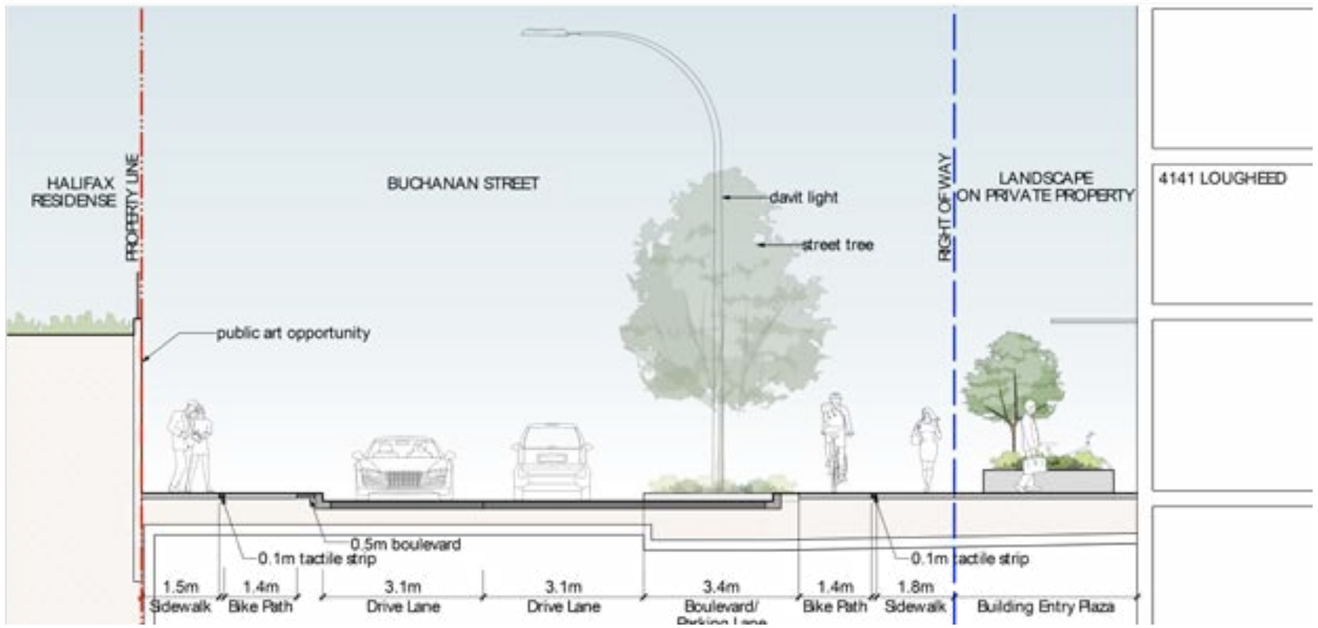
(FIGURE 7.6.2)

7.6.2 STREET SECTION AT BUCHANAN STREET

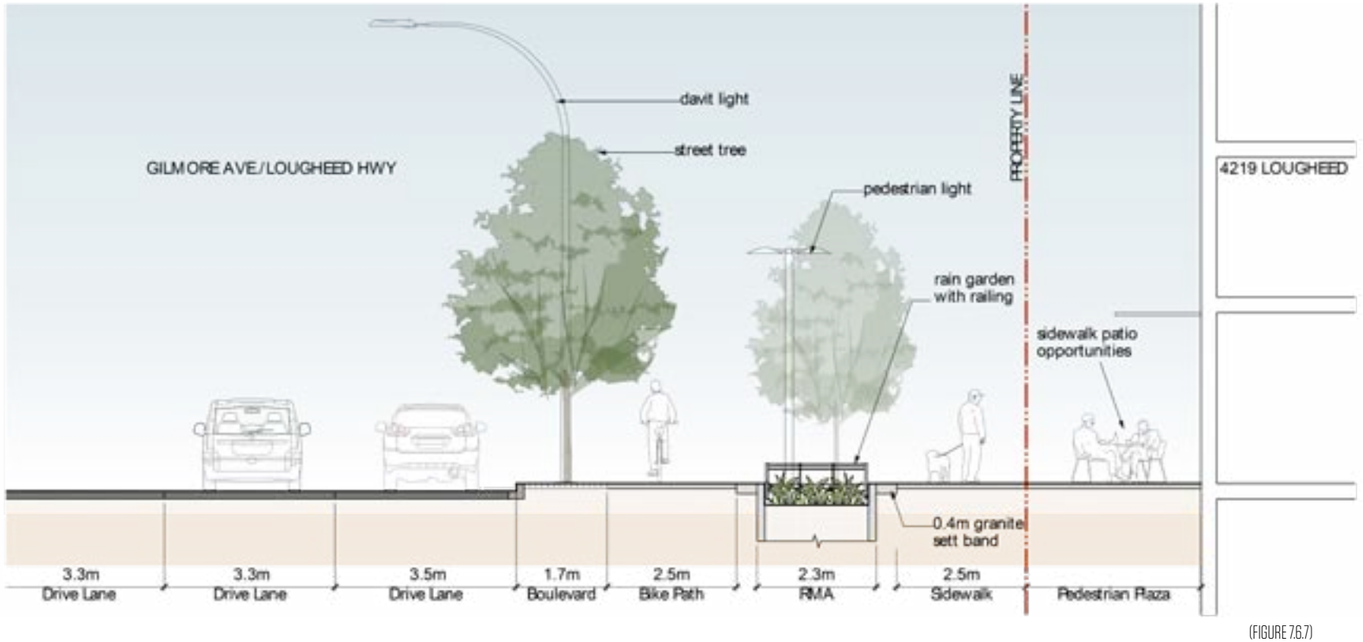
(FIGURE 7.6.3)



(FIGURE 7.6.4)

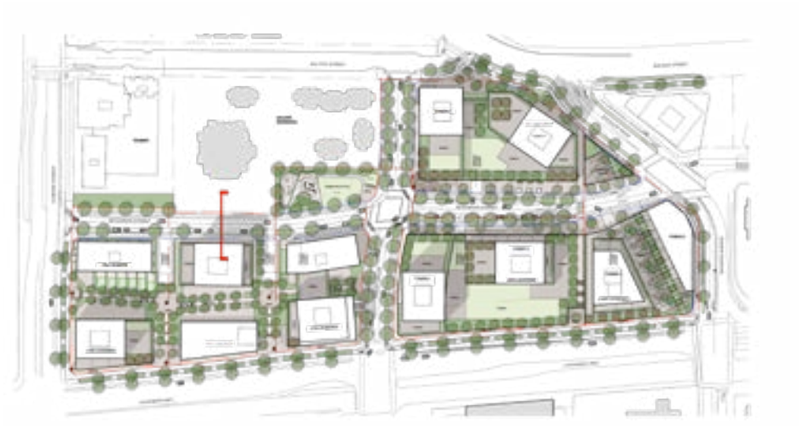


(FIGURE 7.6.5)



(FIGURE 7.6.7)

7.6.3 STREET SECTION AT BUCHANAN STREET



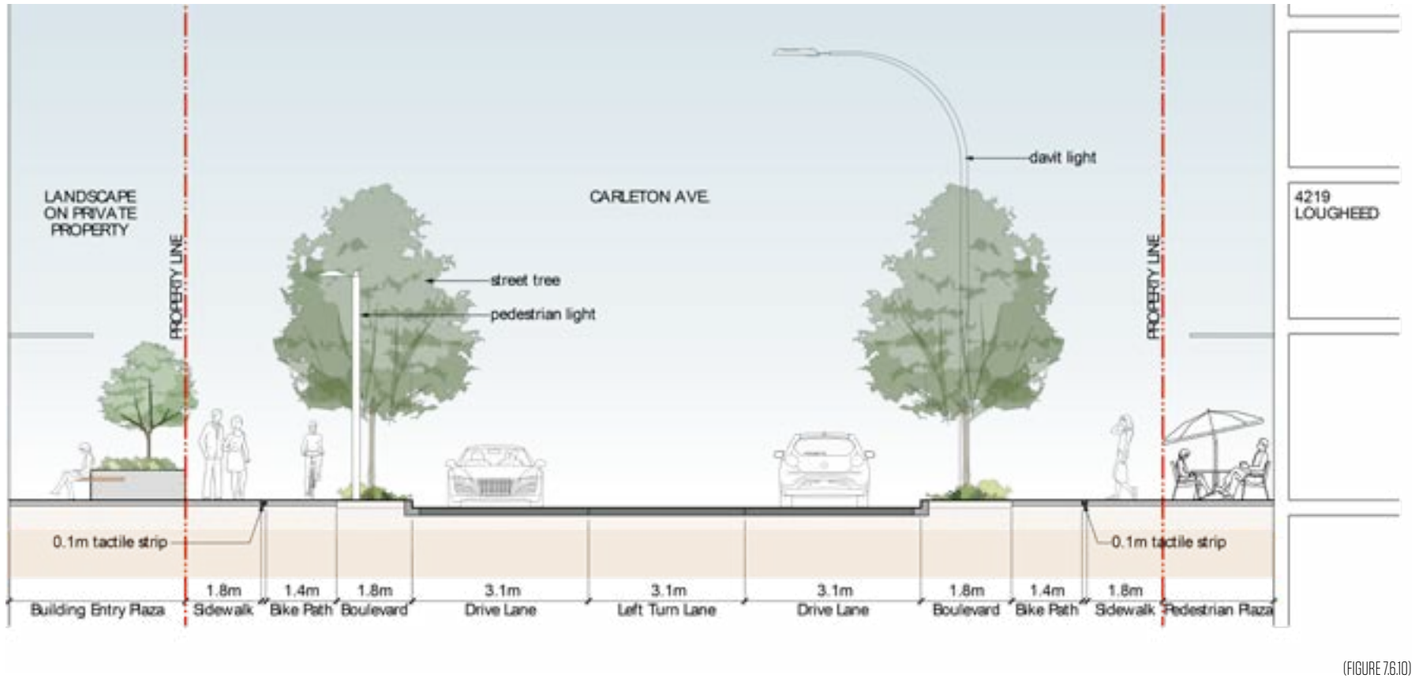
(FIGURE 7.6.6)

7.6.4 STREET SECTION AT LOUGHEED HIGHWAY & GILMORE AVENUE

(FIGURE 7.6.8)

7.6.5 STREET SECTION AT CARLETON STREET

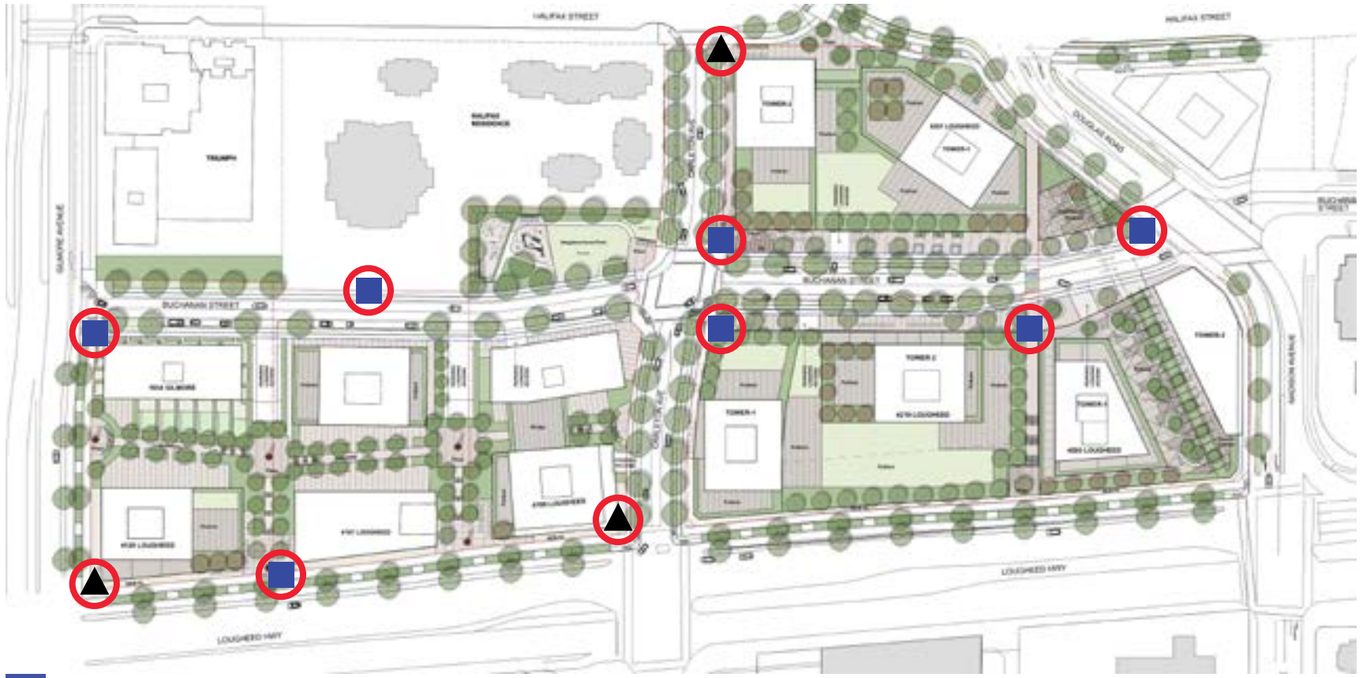
(FIGURE 7.6.9)



(FIGURE 7.6.10)

08 PUBLIC ART STRATEGY

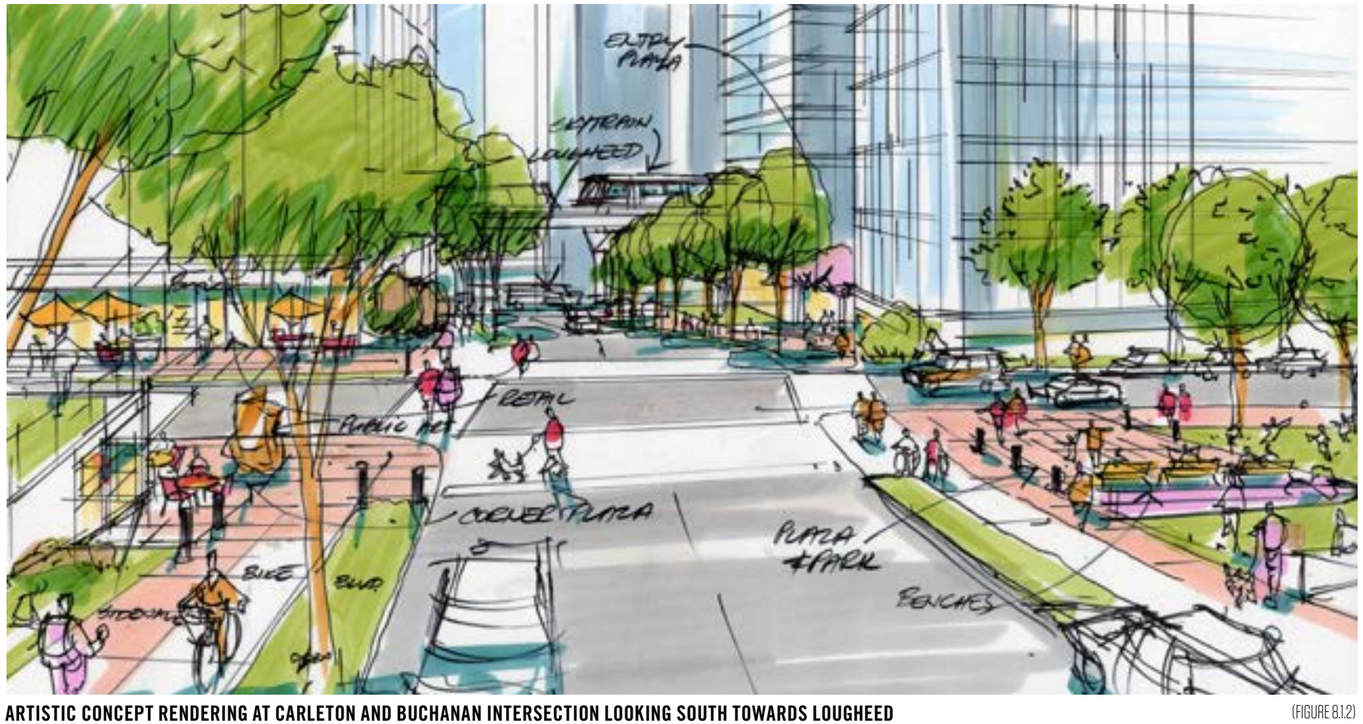
1. Public Art Opportunities
2. Public Art Funding
3. Public Art Context Map
4. Public Art Precedent Photos



Sculptural, Integrated, or Functional

Sculptural

(FIGURE 8.1.1)



ARTISTIC CONCEPT RENDERING AT CARLETON AND BUCHANAN INTERSECTION LOOKING SOUTH TOWARDS LOUGHEED
Lougheed + Madison | Concept Book

(FIGURE 8.1.2)

8.1 PUBLIC ART OPPORTUNITIES

The master plan public art strategy is based on 5 guiding principles:

- Thoughtfully consider the distinct historic, social and cultural context of the site and neighbourhood.
- Reflect the vision and spirit of the proposed development and endeavour to develop each art piece as part of the larger expression of art across the six development parcels.
- Provide appealing art work that is dynamic and engaging, in accordance with the City of Burnaby's Public Art plan Guidelines.
- Offer maximum public accessibility and visibility, creating an enjoyable experience for residents, visitors and passers-by.
- Strive for the highest quality of artistic expression and standards.

As food for thought, Figure 8.1.1 illustrates potential locations for public art at key entry and gathering points for all sites. Preliminary thinking for each site is provided below.

4265 LOUGHEED HIGHWAY: The design intent for the public art component on the 4265 Lougheed Highway site is to express and make visible the hidden underground railway corridor that traverses the site and impacts the allocation of the tower massing above grade. It is envisioned that the public art element would a fully integrated expression of art, landscape and architecture articulated and visible at the Lougheed Highway podium and parapet. This railway informed art element could be further expressed at grade level along the Buchanan Street retail frontage.

4219 LOUGHEED HIGHWAY: The intent for the public art component for the 4219 Lougheed Highway site is to situate the art along the Buchanan Street frontage to provide animation and interest to this quieter north facing street frontage. These pieces can be stand alone or fully integrated with the building and or landscape elements and utilize a variety of media.

4201 LOUGHEED HIGHWAY: It is anticipated that the public art opportunities for the 4201 Lougheed Highway site would occur along the new Carleton Avenue frontage anchoring the two corners at Buchanan Street and Halifax Street's. The location at Halifax Street and Buchanan Street establishes a gateway into the site from the north. The art piece could be a stand alone piece or fully integrated gateway piece. The location at the corner of Buchanan Street and Carleton Avenue provides an opportunity to animate a retail plaza area and directly engage with the community through story telling and humour.

4199 LOUGHEED HIGHWAY: The 4199 Lougheed Highway site provides an opportunity for a gateway element at the corner of Lougheed Highway, and Carleton Avenue. These pieces can be stand alone or fully integrated with the building and or landscape elements and utilize a variety of media to convey the theme.

4141 LOUGHEED HIGHWAY: The 4141 Lougheed Highway site provides an opportunity for the public art to be visible to the Lougheed Highway transit corridor and to engage with the community in the retail oriented plaza. These pieces can be stand alone or fully integrated with the building and or landscape elements and utilize a variety of media.

4129 LOUGHEED HIGHWAY: It is envisioned that the public art opportunities for the 4129 Lougheed Highway site would occur in two locations. The corner of Gilmore Avenue and Lougheed Highway presents as a primary gateway for the district and it is envisioned that the public art piece would be fully integrated with the building and at a scale to be clearly visible from the vehicular and pedestrian realms. The location at the entrance to the mews off Gilmore Avenue provides an opportunity for a stand along or integrated public art piece to engage with pedestrians at a more intimate scale.

8.2 PUBLIC ART FUNDING

Each of the six properties included in the master plan area will have its own separate public art process that will engage at the rezoning stage for each property. The total budget for the public art for each individual property will be 1% of the total construction cost for the development on that property (affordable rental density is excluded). Each property will work with City of Burnaby Planning Staff to manage the artist selection criteria and process.

Each site specific rezoning will require the provision of a minimum of one public art installation. The artwork budget when produced will include the artist fee, artwork, fabrication, storage, (if required), delivery, installation, engineering certificates, Public Art Consultants fees, construction coordination and site preparation, lighting and insurance.

There is an established public art process for multiple-family and mixed use development sites. The process is typically coordinated by a Public Art Consultant, and the Burnaby Art Gallery leads our Public Art Process for the City. Applicants are requested to proceed through a juried artist selection process following a standardized process including the following:

- Submission of a Preliminary Pubic Art Plan and Budget – 1% of construction hard costs (Prior to Third Reading)
- Establishment of art selection panel (jury) made up of a representative from the Art Gallery, Representative from the Planning Department, Representative from the Developer/Property Owner, Representative from the Architectural Consultant, Representative from the art community (selected by the City)
- Preparation of an artist long list with submissions by jury members (5 each)
- Meeting to select short list
- Contact Artists to present proposals
- Artist Presentation and Selection
- Finalized Public Art Plan (prior to Final Adoption) and bonding for public art budget
- Contract administration by public art consultant during construction
- Art installation (prior to occupancy)
- Final documentation on Public Art
- Art unveiling

ARTISTIC CONCEPT RENDERING LOOKING NORTH TOWARDS THE PEDESTRIAN MEWS (FIGURE 8.2.1)

PUBLIC ART AT AVIARA (FIGURE 8.2.2)

PUBLIC ART AT SOLO DISTRICT (FIGURE 8.2.3)

#	Artwork Title	Year	Artist
1	Heech Lovers	2020	Parvis Tanavoli
2	Time Carriage	2010	Bruce Voyce
3	Earthgrove	2015	Clark Wiegman
4	Vantage	2012	Marie Khouri
5	Bumble bee & Magnolia	2006	Doug Taylor
6	Current	2019	Ruth Beer
7	Lightness of Being	2019	Jacqueline Metz & Nancy Chew
8	Salmon Fountain	2010	Jody Broomfield
9	Cawcuss of Crows	2012	Sandra Bilawich
10	Rite of Passage	2018	Jennifer Marman
11	Charms	est: 2020	Douglas Coupland
12	The Singing Frog	2001	George Pratt

#	Artwork Title	Year	Artist
13	Elements	est: 2021	Gunilla Klingberg
14	Otters	est: 2020	Eric Robertson
15	Cross Colours	est: 2020	Julian Hou
16	Tick	est: 2020	Reece Terris
17	TBD	TBD	Aoyuan Developments
18	Wind Veil	est: 2021	Catherine Widgery
19	Still Flowing	est: 2020	Germaine Koh
20	Ornamentum	est: 2020	James Nizam
21	TBD	est: 2022	Concord Pacific
22	Untitled	est: 2020	Damian Moppett
23	TBD	est: 2022	Boffo Developments
24	TBD	TBD	Bosa Development

PUBLIC ART CONTEXT MAP
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(FIGURE 8.3.2)

8.3 PUBLIC ART CONTEXT MAP

01
HEECH LOVERS - TRIOMPHE DEVELOPMENT

(FIGURE 8.3.1)

8.4 PUBLIC ART PRECEDENT PHOTOS

02
TIME CARRIAGE - COMMERCE AT CITI (FIGURE 8.3.3)

03
EARTHGROVE - SOLO DISTRICT (STRAUTUS) (FIGURE 8.3.4)

04
VANTAGE - VANTAGE DEVELOPMENT (FIGURE 8.3.5)

05
BUMBLE BEE AND MAGNOLIA - RENAISSANCE TOWERS DEVELOPMENT (FIGURE 8.3.6)

06
CURRENT - ESCALA DEVELOPMENT (FIGURE 8.3.7)

07
LIGHTNESS OF BEING - MILANO DEVELOPMENT (FIGURE 8.3.8)

08
SALMON FOUNTAIN - PERSPECTIVES DEVELOPMENT (FIGURE 8.3.9)

09
CAWCUSS OF CROWS - AFFINITY TOWERS (FIGURE 8.3.10)

10
RITE OF PASSAGE - WILLINGDON LINEAR PARK (FIGURE 8.3.11)

09 SUSTAINABILITY STRATEGY

1. Environmental Sustainability Checklist
2. Social Sustainability Checklist
3. Economic Sustainability Checklist

	Approved Plan Elements with Relevance to Development*				Development Checklist
GOAL	**ESS STRATEGY**	**ESS SUGGESTED ACTIONS**	**CEEP STRATEGY**	**CEEP SUGGESTED ACTIONS**	**OPPROTUNITES FOR DEVELOPMENT**
GREEN: HEALTHY AND RESILIENT ECOSYSTEMS	**1.2. PROTECT AND ENHANCE HABITAT ON PUBLIC AND PRIVATE LANDS.**	a) Consider opportunities to identify and legally protect additional key habitat areas (also see Green, Strategy 1.1.). c) Encourage and look for opportunities to include more native plants in landscaping on public and private lands. f) Continue to implement existing regulations and policies for tree protection on private and public lands, and consider future policies for urban forest management.			● Undertake analysis of historical and existing ecology of site and surrounding context to inform design. ● Protect existing sensitive habitat and significant trees (e.g. park dedication, tree/SPEA covenants, etc.). ● Restore degraded ecosystems on site. ● Include native plants & trees in landscaping and features (e.g. green roofs); specific targets are encouraged. ● Design landscaping/green roofs for native insects, pollinators and birds. ● Include "micro-site" habitat features (e.g. coarse wood, rock) for biodiversity. ● Integrate ecosystems and green infrastructure with climate mitigation and adaptation.
	1.3. CONNECT EXISTING HIGH VALUE HABITAT WITH HABITAT CORRIDORS.	a) Consider planting more native vegetation on public and private land, including areas next to existing and new cycling and walking trails, and along designated habitat corridors.			● Look for opportunities to provide habitat connectivity through site to adjacent/nearby habitat areas (e.g. for birds/small mammals/insects). For example, incorporate habitat in active transportation corridors; provide "stepping stone" habitats to facilitate wildlife movement such as biodiverse green roofs.
	1.4. ENCOURAGE DEVELOPMENT AND BEHAVIOUR THAT RESPECTS AND REDUCES THE IMPACT TO OUR ECOSYSTEMS AND WILDLIFE.	a) Consider developing 'dark sky' (light pollution reduction) policies and programs as a way to reduce unnecessary night-time lighting that can disturb wildlife, reduce night sky viewing and disturb neighbours. b) Explore policy approaches to protect birds from harm due to human-related activities, like predation by cats and collisions with buildings.			● Implement Dark Sky compliant outdoor lighting. ● Consider approaches to limit bird collisions with buildings (e.g. façade design, glass treatment, placement of windows with respect to adjacent vegetation). City of Vancouver Bird Friendly Design Guidelines can be consulted for further specific examples. ● Include wildlife features in landscape/building/ infrastructure design (e.g. bat, bird nesting boxes).
	1.5. PROMOTE THE VALUE OF ECOSYSTEMS TO HUMAN WELL-BEING.	b) Explore ways to communicate the significant financial benefits that natural systems provide to people. c) Continue to recognize the value ecosystems contribute as infrastructure in City planning, management and decision making.			● Include interpretive signage near/within restored or protected ecosystems. ● Consider other opportunities for quantification and public communication of benefits of natural environment as part of project.
	1.6. REDUCE THE ENVIRONMENTAL AND ECONOMIC IMPACTS OF INVASIVE SPECIES.	a) Consider opportunities to expand current efforts to inform City staff and the public about the impacts of invasive species, and how to prevent and control their spread.			● Include comprehensive management plans for removing and managing invasive species, as part of on-site ecosystem restoration.
	1.7. ENSURE SPECIES AND ECOSYSTEMS AT RISK (SEAR) ARE CONSIDERED IN PLANNING, DEVELOPMENT AND HABITAT ENHANCEMENT, ON PUBLIC AND PRIVATE LANDS.	a) Investigate opportunities to monitor, map and develop management plans, and apply best management practices for protecting species and ecosystems at risk, including for City works and infrastructure, development approvals and habitat enhancement.			● Evalutate potential presence of species and ecosystems at risk as part of ecological assessment of environmentaly sensitive sites. ● Include habitat features for SEAR in landscaping and restoration projects as appropriate for site.
FLOW: HEALTHY RESILIENT WATERSHEDS.	**2.1. MANAGE RAINWATER TO RESTORE AND MIMIC NATURAL FLOWS AND QUALITY. BMIP**	a) Investigate ways to update and improve the City's existing rainwater management policies and regulations. b) Encourage and promote on-site rainwater management by developing guides, education resources and exploring the role of incentives. c) Look for opportunities to reduce the volume and clean the water flowing off roofs, roads and paved areas directly into storm sewers by using systems like rain gardens and permeable pavement.			● Implement leading and innovative stormwater management (exceeding City's typical minimum stormwater requirements is encouraged), with preference for biologically based systems that provide multiple benefits (e.g. rain-gardens, green roofs). ● Consider opportunities for water re-use, including rainwater harvesting and waste-water treatment for non-potable uses.

9.1 ENVIRONMENTAL SUSTAINABILITY CHECKLIST

Burnaby's Environmental Sustainability Strategy (ESS) was adopted by Council on November, 2016. The Environmental Sustainability Strategy is a plan for Burnaby's "green" future. Together with the Social and Economic Sustainability Strategies, it will help to define how the City can evolve and build on its strengths to become an even more vibrant, resilient and sustainable community, integrated with healthy ecosystems. The ESS is organized into a framework of 10 themes with distinct goals, strategies and suggested actions based on public, stakeholder, and Steering Committee input for each. The following themes are of particular relevance to this project in particular: • Green: Healthy and resilient ecosystems • Flow: Healthy and resilient watersheds • Breathe: A community resilient to climate change, with clean air and low carbon emission • Live: A network of compact and Complete Communities, within a fabric of healthy ecosystems • Move: A walkable, bikeable and transit-supported city that supports a healthy community and environment • Build: Buildings and infrastructure that have a positive impact on the environment • Prosper: A prosperous economy that supports a healthy environment • Nourish: A food system that supports healthy community and a healthy environment • Conserve: World-leading waste reduction, diversion and management • Manage: Environmentally aware and engaged community working together to improve Burnaby's environmental performance The Community Energy and Emissions Plan (CEEP) was developed in support of the ESS. The CEEP focuses on reducing community greenhouse gas (GHG) emissions and energy use to help address climate change, save money and to support community health and liveability. Together, the ESS and CEEP will provide the necessary framework for a more environmentally sustainable Burnaby.

(FIGURE 9.1.1)
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	Approved Plan Elements with Relevance to Development*				Development Checklist
GOAL	**ESS STRATEGY**	**ESS SUGGESTED ACTIONS**	**CEEP STRATEGY**	**CEEP SUGGESTED ACTIONS**	**OPPROTUNITES FOR DEVELOPMENT**
FLOW: HEALTHY AND RESILIENT WATERSHEDS.	**2.2. PROTECT, RESTORE AND IMPROVE AQUATIC ECOSYSTEMS LIKE PONDS, LAKES, STREAMS, WETLANDS AND MARINE AREAS.**	b) Consider opportunities to restore, enhance and daylight streams when public and private lands are being developed.			• Daylight streams on site where opportunities exist and feasible. • Restore and create new streams, streamside areas, wetlands and other ecologically functional water features.
	2.3. PROTECT AND IMPROVE WATER QUALITY IN AQUATIC ECOSYSTEMS LIKE PONDS, LAKES, STREAMS, WETLANDS AND MARINE AREAS.	b) Consider opportunities to further avoid or reduce the use of chemicals such as pesticides and fertilizers on public and private lands. d) Investigate ways to reduce the amount of harmful substances entering creeks from storm drains by providing information about proper disposal.			• Design low-maintenance landscaping to avoid/minimize need for fertilizers/pesticides. • Design stormwater management and aesthetic water features that also incorporate vegetation and/or otherwise improve downstream water quality (e.g. bioswales, constructed wetlands, permeable pavement).
	2.4. CONSERVE WATER IN THE HOME, GARDEN, WORKPLACE AND COMMUNITY. BMIP	b) Encourage the installation of water-saving fixtures like faucets, toilets, showers and dishwashers in new buildings, and lead by example in City projects. d) Allow water recycling and re-use for purposes such as irrigation and toilet flushing by considering policies, regulations, and the role of incentives. e) Look for opportunities to plant drought resistant landscaping in appropriate urban locations on private and public lands.			• Develop water conservation targets and plans for the site/building(s), which may include rainwater harvesting/re-use, drought tolerant landscaping (low-flow fixtures should be included as standard practice).
BREATHE: A COMMUNITY RESILIENT TO CLIMATE CHANGE, WITH CLEAN AIR AND LOW CARBON EMISSIONS.	**3.2. IMPROVE RESILIENCE TO CLIMATE CHANGE EFFECTS BY ASSESSING RISKS AND SEEKING AND ACTING ON OPPORTUNITIES TO PROTECT THE COMMUNITY AND ECOSYSTEMS FROM ANTICIPATED IMPACTS. NEW BM**	a) Consider developing a climate change adaptation strategy to improve the community's resilience. b) Assess risks including sea level rise, extreme rainfall, storm events and flooding, shifts in plant and animal habitats and agricultural zones, drinking water supply, heat emergencies, and to the urban heat island effect. c) Explore opportunities to reduce risks through land use, building design, using natural systems (for shoreline protection, rainwater management, cooling), landscape and urban forest planning, crop and pest management, water conservation, and emergency planning especially for vulnerable citizens (also see Green, Strategies 1.1 and 1.2).			• Develop a climate resilience strategy for the site/building(s) that addresses the following. • Consider architectural, landscape and public realm design with climate change adaptation in mind, and provide summary of approaches. • Consider provision of (low-carbon) cooling (passive and mechanical) anticipating hotter summers; air filtration for wildfire smoke events; green infrastructure to reduce (and/or tolerate) flooding; include climate adaptive plants in landscaping; green roofs and other features to reduce urban heat island; amenity areas that can function as clean air and cooling centres and refuges in emergencies/power outage.
	3.4. REDUCE DEPENDENCE ON FOSSIL FUELS SUCH AS OIL AND GAS.	a) Encourage behaviour and investments supporting a "low carbon community".			• Prioritize zero-carbon or near-zero-carbon building energy systems. • Design transportation infrastructure to support low-carbon transition.
LIVE: A NETWORK OF COMPACT AND COMPLETE COMMUNITIES, WITHIN A FABRIC OF HEALTHY ECOSYSTEMS.	**4.2. STRENGTHEN THE NETWORK OF COMPLETE, COMPACT, AND WALKABLE NEIGHBOURHOODS SERVED BY TRANSIT.**	a) Continue to concentrate new development in Town Centres and Urban Villages well served by transit service to avoid "sprawl". b) Explore creating cultural places within walking distance for people to shop, gather, socialize and enjoy culture without needing to drive. This could include small shops, theatres, art galleries, libraries, pubs, cafes, and other cultural places.	**C1.1. CONTINUE PLANNING AND DEVELOPING COMPLETE COMMUNITIES AND TRANSIT-ORIENTED DEVELOPMENT.**	a) Encourage new developments to use building siting and design to maximize energy efficiency gains. b) Consider opportunities to incorporate more diverse housing choices, such as family-sized units, and amenities in Town Centres and Urban Villages.	• Summarize design approaches (refer to specifics in other documents as appropriate).
	4.3. CREATE ACCESSIBLE OUTSTANDING OUTDOOR PUBLIC SPACES THAT ENCOURAGE ACTIVE TRANSPORTATION, SOCIALIZING AND INTERACTING WITH NATURE. BMIP	a) Investigate projects and funding sources to further enhance public spaces and provide for more natural areas and features in urban areas of the city. b) Encourage more community events such as block parties, farmers' markets, festivals. c) Seek to provide more public amenities in outdoor spaces, including benches, water fountains and public washrooms. d) Investigate opportunities to make streets and other public places more vibrant and ecologically healthy - places to meet neighbours, shop, enjoy nature.	**C1.2. CREATE ACCESSIBLE OUTSTANDING OUTDOOR PUBLIC SPACES THAT ENCOURAGE ACTIVE TRANSPORTATION, SOCIALIZING AND INTERACTING WITH NATURE. BMIP**	See suggested actions under ESS Live 4.3	• Include natural features and native plant landscaping in outdoor gathering spaces. • Design streets and outdoor areas to accommodate a range of public uses. • Provide amenities in public outdoor areas, such as those listed.

	Approved Plan Elements with Relevance to Development*				Development Checklist
GOAL	**ESS STRATEGY**	**ESS SUGGESTED ACTIONS**	**CEEP STRATEGY**	**CEEP SUGGESTED ACTIONS**	**OPPROTUNITES FOR DEVELOPMENT**
MOVE: A WALKABLE, BIKEABLE AND TRANSIT-SUPPORTED CITY THAT SUPPORTS A HEALTHY COMMUNITY AND ENVIRONMENT.	**5.2. MAKE WALKING AND CYCLING EASIER, SAFER AND MORE COMFORTABLE.**	a) Investigate opportunities to expand and improve pedestrian and cycling routes and infrastructure (routes, separated paths, bike facilities), especially north-south connections. b) Investigate ways to make it easier to find your way around by bike, using better signs, maps and navigation tools like apps.	**C2.2. MAKE WALKING AND CYCLING EASIER, SAFER AND MORE COMFORTABLE.**	a) Improve and expand pedestrian and cycling infrastructure to enhance safety, accessibility, connectivity and usability. b) Explore developing a comprehensive plan and programs to accelerate construction and improvements to the city's cycling network, including improving safety and connecting gaps. c) Consider improving usability of existing cycling networks with enhanced wayfinding such as additional signage, maps and navigation apps.	● Design & build cycling paths within and adjacent to site. ● Provide bike parking and end of trip facilities to encourage cycling and walking. ● provide charging for e-bikes and electric scooters.
	5.3. IMPROVE PUBLIC TRANSIT.	a) Advocate for better levels of affordable transit service including more frequent bus service on select routes in Burnaby, especially north-south connections. b) Consider accelerating improvements to bus stops, for example providing more amenities like shelters and making them wheelchair accessible.	**C2.4. IMPROVE TRANSIT EXPERIENCE IN BURNABY.**	a) Continue to improve bus stops for safety and comfort, including adding shelters and improving accessibility. b) Consider opportunities to implement more bus priority signals.	● Create/improve transit infrastructure on site or nearby. ● Work with TransLink to enhance transit service for site.
	5.4. PROVIDE PROGRAMS TO ENCOURAGE AND REWARD A SHIFT TOWARDS WALKING, CYCLING, AND TRANSIT.	b) Continue working with developers to create policies and incentives to encourage walking, cycling and transit use by residents of new development. c) Foster a culture of "car free living" through marketing and branding. d) Promote cycling, to the public and city staff, as a normal everyday activity for all ages by encouraging "cycle-chic", upright bikes, cargo-bikes, kids participation, and other programs, through marketing and partnerships with others. e) Investigate ways to work with health authorities and schools to promote benefits of walking/cycling.	**C2.3. FOSTER AND SUPPORT A CULTURE OF WALKING, CYCLING AND TAKING TRANSIT THROUGHOUT ALL PARTS OF THE CITY.**	b) Encourage businesses and other organizations to provide programs and infrastructure to encourage fewer car trips to work, like bike lockers, showers, discount employee transit fares, modified work schedules, pricing parking, and programs to encourage carpooling.	● Create car-free or car-light streets, public spaces, and buildings. ● Provide discounted transit passes to residents.
	5.5. REDUCE IMPACTS OF VEHICLES ON ENVIRONMENTAL HEALTH, PERSONAL SAFETY AND LIVABLE NEIGHBOURHOODS.	a) Explore ways to design more local residential roads to slow vehicle speeds and discourage motorized vehicles from short-cutting through neighbourhoods. b) Encourage more "Woonerf" of living streets which double as park or plaza with attractive features to restrict vehicle speeds to that all users can safely share the space.			● Incorporate 'Woonerf', mewes and car-free or car-light street features into site development.
	5.6. TRANSITION TO MORE EFFICIENT (INCLUDING ZERO-EMISSION) VEHICLES AND MORE EFFICIENT USE OF VEHICLES. CEEP NEW BM	a) Consider developing policy to strategically support and encourage the use of electric vehicles, including charging infrastructure in new developments and publicly accessible areas. b) Support and encourage car-sharing and bike-sharing. c) Consider developing a parking policy to encourage fewer automobile trips, and prioritize more efficient and low-emissions vehicles like priority parking for carpool/vanpool, electric vehicles, and car-share vehicles.	**C2.5. TRANSITION TO MORE EFFICIENT (INCLUDING ZERO-EMISSION) VEHICLES AND MORE EFFICIENT USE OF VEHICLES. CEEP NEW BM**	a) Consider developing policy to strategically support deployment of electric vehicles, including appropriate types and density of charging infrastructure in new development and publicly accessible areas, and consideration for public fast-charge station(s). c) Encourage and develop partnerships to expand car-sharing and consider bike-sharing opportunities in new development. d) Support car- and bike-share research to evaluate demand and new opportunities in Burnaby, and consider developing new supportive City policies.	● Comply with EV charging bylaw for residential and non-residential parking. ● Consider DC Fast Charging as appropriate for the site and nearby community. ● Work with car-share company to provide parking spaces, with preference for on-street (community use) and EVs. ● Consider providing bike-share program for site occupants, and/or integrating with a broader program once established. ● Consider future-proofing parking structures for re-purposing in future (as car ownership and need for parking declines).

	Approved Plan Elements with Relevance to Development*				Development Checklist
GOAL	**ESS STRATEGY**	**ESS SUGGESTED ACTIONS**	**CEEP STRATEGY**	**CEEP SUGGESTED ACTIONS**	**OPPROTUNITES FOR DEVELOPMENT**
BUILD: BUILDINGS AND INFRASTRUCTURE THAT HAVE A POSITIVE IMPACT ON THE ENVIRONMENT.	**6.2. IMPROVE BUILDING DESIGN CONSTRUCTION TO MEET HIGHER STANDARDS OF ENVIRONMENTAL PERFORMANCE. NEW BM**	a) Promote and celebrate buildings that demonstrate leadership in conserving energy and water, reducing emissions and waste, and enhancing ecosystems. b) Consider developing grograms to further encourage and reward builders of highly energy efficient homes. c) Explore developing 'green building' policies and programs for new developments, exceeding minimum regulatory requirements, including energy and emissions reduction, water conservation, waste reduction, ecosystem enhancement and occupant health.	**C3.2. IMPROVE BUILDING DESIGN AND CONSTRUCTION TO MEET HIGHER STANDARDS OF ENVIRONMENTAL PERFORMANCE. NEW BM**	a) Consider policy approaches to encourage higher levels of energy efficiency than required in the BC Building Code, and reduced GHG emissions, in new larger (Part 3 BCBC) buildings, including: ● alignment with the provincial Building Act and Step Code. ● integration with existing City development application policy; ● incentives such as grants for innovative projects. b) Consider policy approaches to encourage higher levels of energy efficiency than required in the BC Building Code, and reduced GHG emissions, in new smaller (Part 9 BCBC) buildings...	● Comply with City green building policy and plan for anticipated future updates. ● Larger sites will be encouraged to exceed minimum policy requirements, with priority for zero-carbon or near-zero-carbon buildings. ● Consider targeting leading standards such as Living Building Challenge, Passive House, Net Zero Carbon, Net Zero Energy. ● Develop criteria or apply appropriate LEED credits for materials to address indoor air quality, reduced lifecycle emissions.
			C3.3. DEVELOP POLICIES AND PROGRAMS TO MEASURE AND COMMUNICATE HOW MUCH ENERGY A BUILDING USES, FOR EXAMPLE USING ENERGY AUDITS AND ENERGUIDE LABELS AND/OR BUILDING BENCHMARKING.	a) Explore requiring energy audits and reporting, for example EnerGuide labels, as part of permitting process for new houses and smaller buildings (Part 9 BCBC). c) Consider developing policy to encourage energy benchmarking (measuring and comparing energy performance) for new and existing commercial and institutional buildings.	● Implement energy benchmarking with Energy Star Portfolio Manager (for Part 3 buildings), as per approved green building policy. ● Implement building energy labeling (for Part 9 developments) through ERS.
	6.4. REDUCE BUILDING DEMOLITION AND CONSTRUCTION WASTE.	b) Investigate policy approaches to encourage more adaptation of existing buildings for new uses, and/or re-using and recycling the materials at the end of their useful life.			● Develop a plan with targets for construction and demolition waste diversion.
	6.5. SHARE AND/OR RE-USE ENERGY AND WATER BETWEEN BUILDINGS WHERE POSSIBLE.	a) Investigate policy approaches to encourage district energy systems within large site developments. b) Encourage recovering and reusing waste heat from sources such as buildings, industrial plants, and sewers. c) Explore opportunities for water re-use and recycling within large site developments. d) Consider developing 'green neighbourhood' policies, and facilitate business leadership, to improve sustainability and encourage resource sharing within neighbourhoods (see also Live, Strategy 4.1).	**C3.5. INVESTIGATE DISTRICT ENERGY AND ENERGY SHARING OPPORTUNITIES AND ENCOURAGE THEIR DEVELOPMENT IN APPROPRIATE LOCATIONS.**	a) Explore developing policies to encourage or require investigation and development, where appropriate, of District Energy systems in new developments. b) Explore opportunities to use existing waste heat sources for District Energy systems. c) Consider policy approaches to require or encourage heating/cooling systems in new developments that allow for connection with an existing or future approved District Energy system.	● Investigate energy sharing and/or district energy as part of a Low Carbon Energy System Approach.
	6.6. ENCOURAGE A SHIFT TO RENEWABLE ENERGY FOR BUILDINGS WHERE POSSIBLE.	a) Encourage the use of renewable energy on large site developments as a component of a green energy opportunities review. b) Consider developing policies to encourage renewable energy use in buildings such as solar hot water systems (also see Breathe, Strategies 3.1. and 3.4.).	**C3.6. ENCOURAGE USING RENEWABLE ENERGY IN BUILDINGS, LIKE SOLAR POWER/HEAT, GEO-EXCHANGE (HEAT FROM THE GROUND), AND RE-USING WASTE HEAT FROM NEARBY SOURCES.**	a) Consider developing policies and incentives, and supporting research, to encourage renewable energy. b) Encourage and support leading practices in buildings, like Living Building Challenge, passive house and net zero energy.	● No gas connection - zero carbon buildings, in support of climate emergency declaration.
PROSPER: A PROSPEROUS ECONOMY THAT SUPPORTS A HEALTHY ENVIRONMENT.	**7.1. WORK WITH THE BURNABY BOARD OF TRADE, POST-SECONDARY INSTITUTIONS AND OTHER ORGANIZATIONS TO EXPAND BURNABY'S GREEN ECONOMIC SECTOR AND IMPROVE ENVIRONMENTAL PERFORMANCE OF BUSINESSES. FUTURE BM**	a) Encourage more green businesses to locate in Burnaby. c) Investigate the role incentives could have in encouraging innovating green business practices. d) Encourage research and development of green technologies. e) Support green social enterprises by promoting and partnering with non-profit groups with an environmental focus.			● Encourage green technology sectors as part of development planning. ● Refer to Economic Development Strategy.

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GOAL	**ESS STRATEGY**	**ESS SUGGESTED ACTIONS**	**CEEP STRATEGY**	**CEEP SUGGESTED ACTIONS**	**OPPROTUNITES FOR DEVELOPMENT**
PROSPER: A PROSPEROUS ECONOMY THAT SUPPORTS A HEALTHY ENVIRONMENT.	**7.1. WORK WITH THE BURNABY BOARD OF TRADE, POST-SECONDARY INSTITUTIONS AND OTHER ORGANIZATIONS TO EXPAND BURNABY'S GREEN ECONOMIC SECTOR AND IMPROVE ENVIRONMENTAL PERFORMANCE OF BUSINESSES. FUTURE BM**	a) Encourage more green businesses to locate in Burnaby. c) Investigate the role incentives could have in encouraging innovating green business practices. d) Encourage research and development of green technologies. e) Support green social enterprises by promoting and partnering with non-profit groups with an environmental focus.			● Encourage green technology sectors as part of development planning. ● Refer to Economic Development Strategy.
NOURISH: A FOOD SYSTEM THAT SUPPORTS HEALTHY PEOPLE, A HEALTHY COMMUNITY AND A HEALTHY ENVIRONMENT.	**8.1. IMPROVE FOOD SYSTEM SUSTAINABILITY AND SECURITY TO SUPPORT LOCAL FOOD PRODUCTION, DISTRIBUTION AND CONSUMPTION. BMIP**	a) Investigate ways to better protect Agricultural Land Reserve and City zoned agricultural lands using zoning, land use planning and other tools (also see Live, strategy 4.1.). b) Look for ways to further reduce regulatory barriers for small-scale farms and food producers. e) Support and promote Farmers' Markets in the City, particularly in convenient walkable locations within Town Centres.			● Protect agricultural land and agricultural uses through development in these zones. ● Encourage development that has a local food production/distribution focus.
	8.3. ENCOURAGE CITIZENS TO GROW AND PROCESS FOOD WITHIN THE CITY.	b) Support citizen-led initiatives to create new community gardens on suitable sites in the City. c) Encourage including food gardens in new development. f) Support efforts to provide useful information to the public about local, organic and healthy food.			● Include community gardens in new development. ● Partner with broader community/neighbourhood (access to others not residing within site). ● Include facilities and building features that could be used for community food processing.
CONSERVE: WORLD-LEADING WASTE REDUCTION, DIVERSION AND MANAGEMENT.	**9.2. STRENGTHEN THE SHARING ECONOMY TO USE EXISTING MATERIALS AND RESOURCES MORE EFFICIENTLY.**	a) Consider developing policies to encourage sharing and collaboration, for example, space (such as gardens or workspace), vehicles, bikes, food, books, tools, repair cares, clothing and others. b) Support opportunities for businesses and individuals to share or exchange materials and other resources, such as with online tools.			● Consider including communal facilities/space to encourage resource sharing opportunities.
	9.3. EXPAND AND IMPROVE WASTE REDUCTION, RECYCLING AND FOOD SCRAPS PROGRAMS. BMIP	a) Promote recycling. b) Investigate ways to expand the City's food scraps collection programs. c) Look for opportunities to use more recycled materials in all construction and landscaping projects. f) Promote responsible purchasing and sharing to reduce waste.	**C4.1. EXPAND AND IMPROVE WASTE REDUCTION, RECYCLING AND FOOD SCRAPS PROGRAMS. BMIP**	b) Continue to explore new opportunities to reduce waste, and recycle and re-use materials, including those actions listed in the Conserve section of the ESS.	● Comply with City requirements for recycling, food scraps and waste collection.
			C4.2. ENCOURAGE MORE RE-USE AND RECYCLING OF BUILDING MATERIALS WHEN A BUILDING IS BEING TORN DOWN.	a) Review City opportunities and work with Metro Vancouver to consider policies to encourage or require re-use and recycling of materials resulting from demolition, land clearing and construction.	● Develop a plan with targets for construction and demolition waste diversion. ● Include recycled materials in building design.
MANAGE: ENVIRONMENTALLY AWARE AND ENGAGED COMMUNITY WORKING TOGETHER TO IMPROVE BURNABY'S ENVIRONMENTAL PERFORMANCE.	**10.1. EDUCATE CITIZENS ABOUT ECOLOGY AND SUSTAINABILITY.**	a) Consider working with schools and universities to engage youth in stewardship and incorporate local ecology and sustainability into curricula. b) Investigate ways to develop and promote education programs to encourage eco-friendly practices at home and in the community.			● Design facilities and site with youth in mind. ● Include ecological and sustainability education features in building and landscape. ● Work with partners to offer tours of leading projects. ● Include education/communication for property owners about building and site features.
	10.6. DEVELOP AND NURTURE COMMUNITY PARTNERSHIPS.	a) Explore ways to develop and nurture partnerships with neighbouring municipalities, other levels of government (regional, provincial, federal, First Nations), community groups, industry and businesses. d) Consider partnering with community groups and schools to assess and monitor local ecology and restore ecosystems. For example: ● Review and where possible enhance city-supported coordination of environmental community groups. ● Support university-led ecology research in Burnaby.	**C5.3. CONTINUE TO DEVELOP PARTNERSHIPS WITH COMMUNITY-BASED ORGANIZATIONS, BUSINESSES, DEVELOPERS, PUBLIC AGENCIES, UTILITIES, AND INSTITUTIONS TO ADVANCE ACTION ON COMMUNITY ENERGY.**	a) Look for opportunities to partner with others in programs to reduce emissions and energy in the community, for example including BBOT, SFU, BCIT, SD41, developers, utilities HUB, car-share providers.	● Work with community groups such as streamkeepers ● Contribute to watershed restoration initiatives

*Note: only those strategies and actions with potential relevance for development have been included here. Full suite can be found in 2019-01 version of spreadsheet at:
P:\Environmental Sustainability Strategy\IMPLEMENTATION (ESS+CEEP)\ESS-CEEP Implementation general + planning\development criteria

STRATEGY PRIORITY	GOAL	DESIGN STRATEGY
HOUSING	PROVIDE A MIX OF HOUSING TYPES AND TENURES	• Provide a range of housing tenures, including private ownership (strata), purpose-built market and affordable rental.
	PROVIDE AFFORDABLE HOUSING OPTIONS	• Develop a range of housing unit sizes to attract a mix of residents with varying income levels. • Include housing designed for families - larger 2 and 3 bedroom units
	INCLUDE ADAPTABLE HOUSING UNITS IN ALL TENURES TO MEET THE NEEDS OF ALL AGES AND ABILITIES	• Design 20% of the housing units as adaptable to meet the needs of all ages and abilities.
MOBILITY	FOCUS PRIORITY ON WALKING AND CYCLING WITHIN AND AROUND THE SITE	• Provide improved cycling and pedestrian access upgrades. • Use barrier-free design throughout the site (e.g. consider slopes for people who use mobility aids and appropriate placement of stairs, automatic door openers, designated parking stalls) • The Buchanan Street / Willingdon Avenue road closure will traffic calm Buchanan Street while creating a new urban plaza for the community to experience. • Provide connections to destinations inside and outside the development, which connect through the site.
	PROVIDE IMPROVED ACCESS TO TRANSIT	• Encourage active transportation modes (walking, cycling, public transit) that include wider sidewalks and paths, benches, street lighting, bike racks, bike paths, bus shelters. • Consider providing bike-share program for site occupants, and/or integrating with a broader program once established. • Provide clearly visible wayfinding information (signage).
	PROVIDE A PEDESTRIAN-ORIENTED COMMERCIAL ZONE	• Buildings are proposed around the perimeter edges of the site with commercial bases that interact with the public realm. • Proposed mid-block connection allows for increased porosity through the site while providing additional pedestrian-oriented commercial connections. • Design commercial areas adjacent to public spaces in a way that promotes uses to naturally spill into the external environment.
EQUITY & WELL BEING	DESIGN AN ANIMATED PUBLIC REALM THAT PROMOTES SOCIAL INTERACTION	• Design Buchanan plaza to provide activities day and night, all seasons, and varying weather conditions. • Provide outdoor, informal community gathering spaces (e.g. plazas, seating areas (benches), multi-purpose space including small quiet spaces; incorporate weather protection where appropriate). • Integrate natural and unstructured play areas for children into public and common spaces; incorporate multifunctional landscape design elements that provide opportunities for play and rest. • Provide engaging urban design to create a sense of place for the pedestrian environment (e.g. public art, interesting sidewalk patterns and materials, community bulletin boards).
	CREATE STRONG LINKAGES WITH SURROUNDING NEIGHBOURHOOD	• Provide a great sense of arrival from lobbies and points of public interaction by orientating lobbies toward prime streets. • Townhouses are proposed along Buchanan Street to frame the street and provide a more pedestrian scale. • Create a highly distinctive design that differentiates from proposed and built towers while still being complimentary to the surrounding neighbourhood. • Buchanan Plaza will add to the existing green nodes and enrich the public realm in the Brentwood Town Centre.
	PROVIDE ACCESS TO A BROAD RANGE OF SERVICES AND AMENITIES	• Provide a diverse range in size of commercial spaces to accommodate different types of businesses, including office, retail and restaurants. • Design indoor and outdoor communal amenity spaces for residents of residential buildings to meet their neighbours; locate indoor communal space adjacent to outdoor space. • Provide raised garden beds for residents to allow for food gardening. Consider pollinator friendly and edible landscaping.
	ENSURE ENHANCED SAFETY AND SECURITY MEASURES CPTED (CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN) PRINCIPLES ARE INCORPORATED	• Use CPTED (Crime Prevention through Environmental Design) principles in urban design • Buildings are proposed around the perimeter edges of the site to allow for natural surveillance. • Upgrade surrounding streets with new Town Centre standards to increase pedestrian activity.

9.2 SOCIAL SUSTAINABILITY CHECKLIST

Burnaby's Social Sustainability Strategy focuses on seven strategic priorities to achieve its vision of creating a more inclusive, liveable, and resilient community:

Meeting Basic Needs,

Celebrating Diversity and Culture,

Getting Involved,

Learning for Life,

Enhancing Neighbourhoods,

Getting Around, and

Protecting our Community.

The Strategy will continue to guide Burnaby's plans and resources allocations in the social realm in the present and beyond. Along with the Economic Development Strategy and the Environmental Sustainability Strategy, the Social Sustainability Strategy will provide the foundation for the continued strengthening of Burnaby's overall well-being. The Community Plan Amendment focuses on Social Sustainability through three specific design criteria: Housing, Mobility, Equity and Well Being. The following three community-wide strategies are of particular relevance to community development in general and this project in particular:

9.3 ECONOMIC SUSTAINABILITY CHECKLIST

The goals of the EDS are to: maintain and increase the diversity of the local economy; increase the total number of jobs and total investment in Burnaby; increase the quality and sophistication of the local economy; and influence growth and change in the local economy. The EDS contains 11 overarching community wide strategies intended to make Burnaby a preferred location for business growth by helping to strengthen the community and in doing so improve the platform on which the economic development occurs.

The City's economic goals, as outlined in Burnaby's Economic Development Strategy (EDS), are to: maintain and increase the diversity of the local economy; increase the total number of jobs and total investment in Burnaby; increase the quality and sophistication of the local economy; and, influence growth and change in the local economy. There are also 11 sector focused strategies that are aimed at building synergies and strengthening these sectors of the local economy. Specific considerations included within the Sector Specific Strategies that relate to the proposed mix-use within this rezoning have also been included in the EDS Checklist for consideration and discussion.

STATEGY			THIS PROJECT	ACTIONS	PROJECT RESPONSE(S)
G1	BUILDING A STRONG, LIVEABLE, HEALTHY COMMUNITY				
	3. Community Facilities		✓	Continue to invest in parks, community facilities, recreation facilities, and arts/culture.	Parks and open green spaces are proposed.
	4. Housing		✓	Use the tools available to local government to achieve diversity and affordability in the housing stock, within the limits imposed by Burnaby's attractive location in a strong	A variety of housing types are proposed including affordable rentals.
		a) High Density Housing	✓	Continue planning for high density neighbourhoods in appropriate locations, as higher density housing tends to be more affordable and more likely to appeal to a wide variety of	The area is proposing one of the highest density master plans in the City of Burnaby.
		c) Transit Oriented Housing	✓	Continue locating high density housing at transit stations...	The site locates the main towers along Lougheed Highway in close proximity to 2 SkyTrain stations: Brentwood and Gilmore
		d) Senior Government Assistan	✓	Look for opportunities to work with the Provincial and Federal governments to make programs and resources available for affordable housing projects.	Item to be addressed during site-specific rezoning phase.
G3	CREATING URBAN CHARACTER				
	5. Amenities		✓	Continue to add to the amenity base so that Burnaby continues to be an attractive place to live and an attractive place to locate a business.	A park and open green space that is parallel to Buchanan Street is proposed.
	6. Beautification		✓	Consider putting a higher priority on beautification of the public realm, especially on major roads, and through high density residential and employment districts.	Public art is proposed in multiple locations for the beautificatior of the public realm. Please refer to landscape drawings.
	7. Guidelines and Regulations		City	Consider reviewing existing design guidelines and regulations that govern new developments to find ways to make them more urban, possibly including:	
			✓	a) Stronger relationships between new buildings and the street, instead of large front setbacks which produce a campus image.	Setbacks are limited on major streets such as Lougheed Highway.
			✓	b) Greater variety in architectural character.	Variety in architectural expression is encouraged and will be further explored during the site-specific rezoning stage.
			✓	c) Less (or at least less prominent) surface car parking.	Underground parking is proposed and limited areas for street parking are proposed.
	9. Urban Design		✓	Consider ensuring a strong urban design presence (expertise and resources) is maintained within the Planning Department to focus on these issues and implement the Burnaby Beautification Strategy currently being developed.	The study reviewed and followed urban design principles from the Brentwood and Gilmore Place master plans.
S2	BIOTECHNOLOGY, HEALTH, LIFE SCIENCE				
	Short-Term				
		Seniors-Oriented Housing	✓	Continue to provide for the development of seniors-oriented housing in appropriate locations. Actively identify and market the areas chosen. Tie this into establishing Burnaby as "senior" friendly.	Affordable housing is provided and can be utilized as senior housing. This item will be further addressed during the site specific rezoning stage.
S6	TOURISM, SPORT/TOURNAMENTS, ARTS/CULTURE, RETAIL				
	Arts/Culture				
		Gathering Places	✓	Explore supporting the mixing of arts/culture (e.g., art galleries, street parties, plaza gathering places) with retail areas to further humanize these places (i.e., introduce more opportunities for intimate situations).	Internal plazas and several retail uses are proposed on the western side of the master plan to encourage and facilitate social interaction.
S8	LIGHT INDUSTRY, WAREHOUSING/DISTRIBUTION				
	Medium-Term				
		Affordable Housing	✓	Look for opportunities to maintain a diverse resident workforce. Burnaby will have to work hard at providing the right proportion of affordable housing.	Live-work is encouraged and 20% of residential units are proposed to be affordable, providing opportunities for diverse residents.
S11	SOCIAL INTEGRATION, NOT-FOR-PROFIT				
	Short-Term				
		Land Use	✓	Look for opportunities to recognize the impact that land use decisions have on the social fabric of the community and ensure that such decisions maintain or enhance social integration.	Mixed land uses are proposed to enhance and provide diversit and integration in the social fabric of the community.
	On-Ongoing				
		City Owned Space	✓	Consider increasing the inventory of affordable City-owned office space and program space offered to nonprofit organizations on a rent-free or low-rent basis. This could be done by: considering the development of a long-range plan for providing office and programming space for nonprofit organizations. One key element of the plan should be replacement of office and programming space at Burnaby Heights Community Resource Centre; considering more frequent selection of non-profit office space as the community benefit to be achieved through the Density Bonus Program; and considering application for Federal funding for City infrastructure.	The master plan scheme followed the City of Burnaby's requirements for affordable housing, part of which can be allocated to nonprofit organizations at a site-specific level.
		Affordable Housing	✓	Continue to use the City's authority to assist in increasing the range and quantity of affordable housing and suitability for all (including "at promise" groups): consider facilitating secondary suites; consider providing City land at below market rates for non-market housing and other innovative affordable housing forms; and consider supporting the development of a barrier-free shelter for homeless people.	Non-market housing is provided and mandated at a 20% ratio.
		Childcare	✓	Continue to support childcare as an essential community service.	Item to be addressed at the site-specific rezoning stage.

10 APPENDIX A

1. Community Plan Amendment (CPA) Transportation Assessment

November 15, 2021
04-19-0478

Joshua Butcher, Director of Development
First Capital Asset Management LP
85 Hanna Avenue, Suite 400
Toronto, Ontario, M6K 3S3

VIA EMAIL: joshua.butcher@fcr.ca

Dear Joshua:

Re: **4265 Lougheed Highway Rezoning, Burnaby, BC**
Community Plan Amendment (CPA) – Transportation Assessment

Bunt & Associates Engineering Ltd. (Bunt) has completed the following Community Plan Amendment (CPA) traffic report on behalf of First Capital Asset Management LP's (First Capital) proposed Rezoning at 4265 Lougheed Highway. The project is located in the Brentwood Town Centre (BTC) neighbourhood area in Burnaby, BC.

This report has been updated to address all City comments to-date, which focused on future road network operations. This has been an iterative process with collaborative workshops between the City and project team, which has resulted in a preferred future road network that is presented and analyzed in this report. **Appendix A** includes all City comments to-date (email correspondence) for completeness; it is noted that some comments were preliminary and associated with previous reporting and road network layouts, therefore these are considered superseded.

Please do not hesitate to contact either of us should you have any questions.

Yours truly,
Bunt & Associates

Kyle Brandstaetter, MCIP, RPP
Senior Transportation Planner

George Liou, EIT
Transportation Analyst

Reviewed By: Daniel Fung M.Sc., P.Eng.

Bunt & Associates Engineering Ltd.
Suite 1550 – 1050 West Pender Street, Vancouver, BC V6E 3S7 **Tel** 604 685 6427 **Fax** 604 685 6579
Vancouver Victoria Calgary Edmonton **www.bunteng.com**

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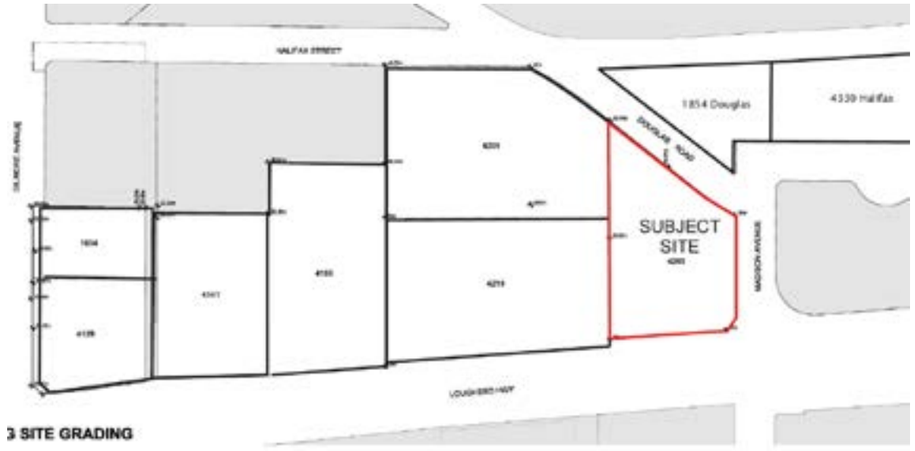
1. INTRODUCTION

First Capital Asset Management LP (FC) is proposing to rezone (REZ19-35) the 4265 Lougheed Highway site from CD-C4 zone to CD-C3/RM5s/RM5r. The site is on the northwest corner of Madison Ave & Lougheed Hwy (approx. site area – 6,085m²) and currently has a Staples Store, Church's Chicken fast food restaurant, and Sushi Garden. The proposal is for a mixed-use development: strata/rental multi-family residential, office, and commercial retail uses.

The site is approximately 500 metres walking distance to the Gilmore Skytrain Station and 600 metres walking distance to the Brentwood Town Centre Skytrain station. The site is within walking distance of a wide array of local amenities; as the neighbourhood redevelops, walking and cycling accessibility will be greatly improved through increased route options and enhanced infrastructure supporting these travel modes. The development site is in an ideal location in terms of accessibility and promoting sustainable modes of travel.

As part of the Rezoning process, the City of Burnaby (CoB) requires a Community Plan Amendment (CPA) for the area bound by Madison Avenue, Douglas Road, Gilmore Avenue, and Lougheed Highway, shown in the **Figure 1.1**.

Figure 1.1: Site Location & Surrounding Development Area



3 SITE GRADING

The following provides the addresses of the adjacent properties included in this review, none of which have a current Rezoning application:

- 1934 Gilmore Avenue,
- 4129 Lougheed Highway,
- 4141 Lougheed Highway,

- 4199 Lougheed Highway,
- 4219 Lougheed Highway,
- 4201 Lougheed Highway,
- 1854 Douglas Road, and
- 4330 Halifax Street.

1.1 Study Purpose, Future Road Network & Study Area

The purpose of this work is to forecast future traffic volumes and to test the new linkages and laning of the proposed road network as part of the Community Plan Amendment process. As part of this scope, the study presents anticipated future traffic operations and offer potential mitigation options to improve future operations – with a focus on road network intersection vehicle capacity, delay, and queuing.

The proposed future road network (with new linkages) and study intersections included in this analysis are presented in **Exhibit 1.1**. This road network is the result of various iterations and City workshops to-date, and specifically the road alignment and changes for the Madison Ave & Buchanan St intersection to Halifax Street based on feedback from the City have been incorporated. As such, the previous sensitivity analysis and comparison of Madison Avenue re-alignment options is superseded and have been removed in from the current version of this report.

The future vehicle road network would introduce:

- a new full movement signal at Lougheed Hwy & Carleton Ave, extending Carleton Avenue north to Halifax Street (it is understood that the signal would be subject to TransLink approval – as Lougheed is part of their "Major Road Network" or MRN);
- a new unsignalized T-intersection (all-movement) at Halifax St & Carleton Ave;
- the extension of Buchanan Street between Madison Avenue and Gilmore Avenue, providing vehicle access for the neighbouring properties fronting Lougheed Highway, Gilmore Avenue, and Buchanan Street;
- a new 4-legged intersection (pedestrian-activated signal, with minor stop control on east and west legs) at Madison Ave & Buchanan St and its redesign, and proposed changes to the Douglas Road alignment between Buchanan Street and Halifax Street;
- a new unsignalized T-intersection at Buchanan St & Gilmore Ave (Buchannan Street: NB right-in, WB right-out, SB left-in).

Furthermore, with the build out of the area it is assumed that Lougheed Highway will be widened to accommodate six (6) travel lanes, as per the CoB Town Centre standards.

From an active mode perspective, the plan will extend the City's Town Centre bi-directional cycle track network along the north side of Lougheed Highway and will also provide a new extension of Buchannan Street (east of Madison Avenue) west all the way to Gilmore Avenue. This multi-use, east-west connection would extend east to Willingdon Avenue.

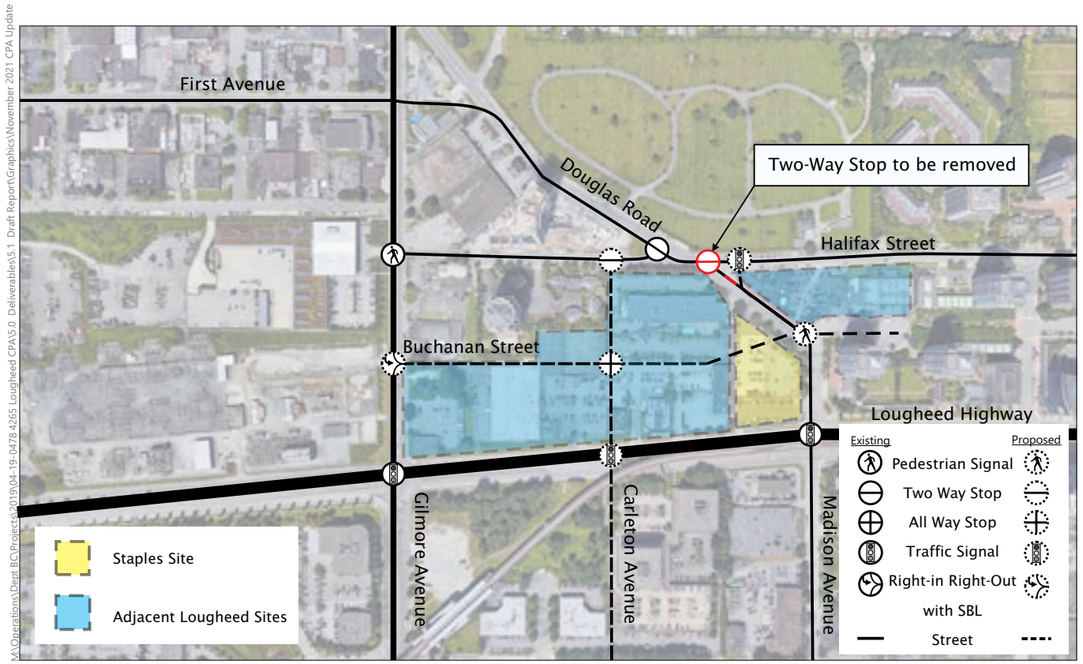


Exhibit 1.1
Study Intersections & Road Network

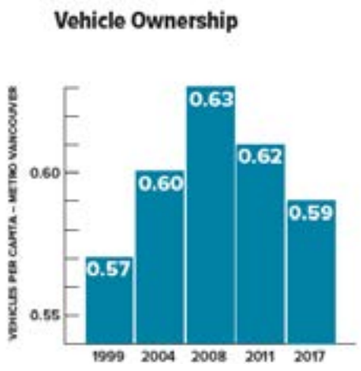
04-19-0478 4265 Lougheed Highway November 2021

1.2 Policy Context

CoB has recently issued (January 2021) a Draft *Burnaby Transportation Plan Update*, which is in Phase 2 of development. The Plan sets a future 2050 target mode split of 75% active modes and transit, across the City. Therefore, a further shift for Town Centre communities adjacent to transit can be expected if these targets are to be achieved. Given the location of the First Capital site in the Town Centre context, and its proximity to rapid transit, a further shift away from private automobile use can be assumed (i.e. 80% transit and active modes) by 2050.

The following graph, extracted from the Burnaby Transportation Plan Update, has been included in **Figure 1.2** and presents vehicle ownership trends in Metro Vancouver up to 2017. The data is confirming a 6-7% drop in vehicle ownership levels between 2008 and 2017, after a peak in 2008.

Figure 1.2: Metro Vancouver Vehicle Ownership



Source: Burnaby Transportation Plan Update

These targets correspond with the City's desire to achieve 'carbon-neutrality' by 2050, which was publicly announced in September 2019 as part of the City's declaration of a Climate Emergency. Besides the City's task to implement major improvements to active mode and transit networks and to encourage and foster mixed-use dense urban communities located around rapid transit, this 2050 target will also be achieved by reducing current parking supply requirements for new developments and looking for new projects to commit to enhanced Transportation Demand Management (TDM) strategies - as will be the case with the subject site, and with the entire CPA area.

From a regional perspective, the Burnaby Transportation Plan Update included the following (see **Figure 1.3**) overarching goals related to promoting sustainable travel and reducing single-occupant vehicle dependency.

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Figure 1.3: Burnaby Transportation Plan Update Big Moves

In this way, future mode split targets have a direct impact on this work in terms of forecasting future traffic volumes and site trip generation for both the subject site and the surrounding lands included in this community-level analysis - more details on this are provided in Section 3.

1.3 Proposed Development & Access – 4265 Lougheed Highway

The development at 4265 Lougheed Highway proposes to convert the existing Staples and other small commercial retail units to a two-tower residential development and commercial office podium, with approximately:

- 612 multi-family dwelling units;
- 88,215 sq-ft office (GFA);
- 21,485 sq-ft retail (GFA).

The proposed site plan is shown in **Exhibit 1.2**. The development densities add up to 8.8 FAR and was confirmed to be constrained in the number of parking levels that could be constructed, as a result of the existing underground CN rail tunnel running through the site. Vehicle access to the site is proposed along the Buchanan Street frontage (full movement) and from the Madison Avenue frontage (right-in, right-out).

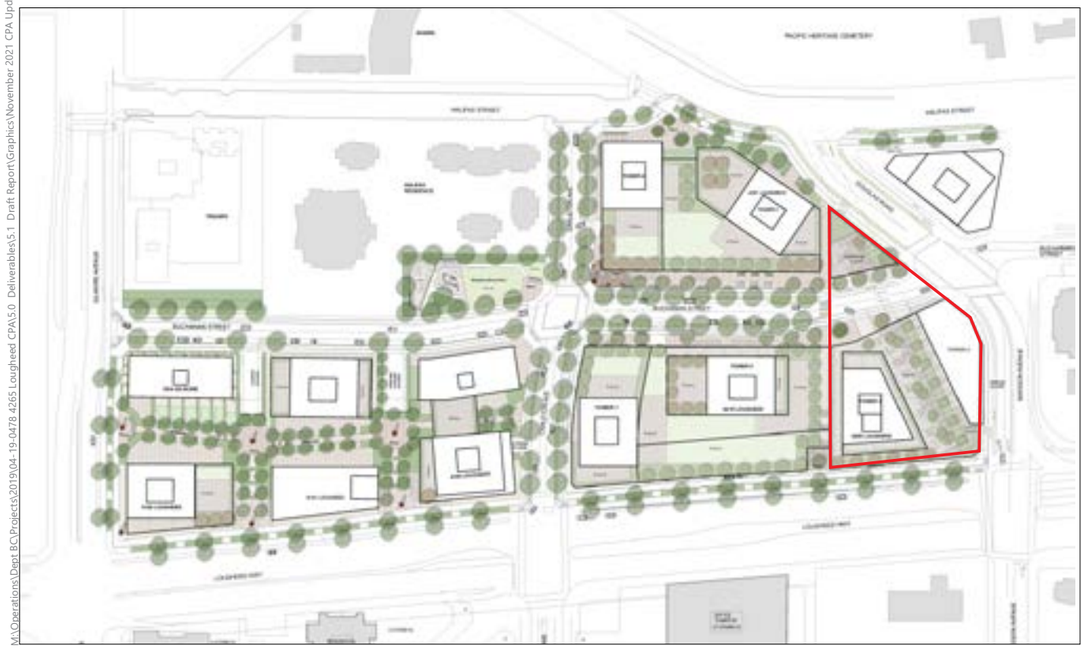

Exhibit 1.2
Proposed Site Plan

4265 Lougheed Highway
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1.4 Off-Street Parking & TDM Discussion

While development plan is in preliminary stages, it is our understanding that the project will be seeking lower-than Town Centre Bylaw rates, supported by a comprehensive Transportation Demand Management (TDM) package. TDM is defined as the "application of strategies and policies to reduce travel demand (specifically that of single-occupancy private vehicles), or to redistribute this demand in space or in time"[1]. A successful TDM program can influence travel behaviour away from Single Occupant Vehicle (SOV) travel towards more sustainable modes such as High Occupancy Vehicle (HOV) travel, transit, cycling or walking.

The following list presents some TDM ideas for discussion purposes only. A community-level TDM plan may include some of these items and potentially others, and would be submitted as part of site-specific rezoning applications:

Built In TDM:

- Access to rapid transit;
- Mix-use dense urban form;
- Reduced parking supply;
- Non-auto infrastructure improvements, including transit station upgrades.

Emissions Targets:

- All stalls wired with Level 2 EV charging capability;
- Incentives for electric vehicle purchase;

TDM – For Consideration:

- Marketing & Promotion (i.e. target demographic with car-free lifestyle);
- Two bicycle storage lockers per unit;
- Increased transit pass subsidy (fund) above and beyond minimum (residential);
- Employee transit pass subsidy (or fund) (non-residential);
- Public car share vehicles and spaces on-site;
- Future monitoring and TDM coordinator for each site;
- Car Share membership subsidy (residential);
- Automated bike storage;
- Bike maintenance facilities;
- Enhanced End of Trip Facilities with showers and storage (non-residential);
- E-Bike Share, including cargo bikes (residential);
- E-Scooter Share, like 'Bunny Scooters' (residential – http://bunnyscooters.com/);
- Support for potential public bike share;
- Real-time digital information display - transit, car-share, and active modes;

[1] http://ops.fhwa.dot.gov/tdm/index.html - FHWA Travel Demand Management home page

- Smartphone mobility app of the area, incentivising non-auto travel, educating future residents on the options, and potential collecting travel behavior data;
- Un-bundled parking; and,
- Paid Parking.

1.5 Adjacent Future Development Assumptions

As described above, part of this CPA study will be to layer on future development of lands adjacent to the subject site, bound by Lougheed Highway (South), Halifax Street (north), Gilmore Avenue (west), and Madison Avenue (northeast). The development densities for these parcels have been drafted through the early stages of the planning process with City of Burnaby Planning Department input. The densities have considered developable land and construction of the new roads and public Right-Of-Way.

Table 1.1 summarizes the development potential for these neighbouring properties, where an overall average Floor Area Ratio (FAR) of 9.5 has been assumed. This is later used for the traffic generation estimates for each parcel. **Exhibit 1.3** illustrates the assumed development densities for the other future development parcels included in this study.

Table 1.1: Adjacent Site Statistics (Estimates based on Average 9.5 FAR)

PARCEL	COMMERCIAL (SQ FT GFA)	RESIDENTIAL (DWELLING UNITS)
4201 Lougheed Highway	182,800	930
4219 Lougheed Highway	283,000	820
4199 Lougheed Highway	185,300	665
4141 Lougheed Highway	137,600	495
4129 Lougheed Highway /1934 Gilmore Avenue	155,000	565
1854 Douglas Road	43,400	280
4330 Halifax Street	125,200	335
TOTAL	1,112,300	4,090

In addition to these neighbouring developments, the following sites were also built into future traffic forecasts – these corresponded to previously completed or ongoing traffic studies in the area, and have been confirmed by the City:

- Brentwood Town Center 'Amazing Brentwood' Phase 1, Tower 3, and Phase 2;
- Escala (1728, 1768, 1788 Gilmore Avenue);
- Triomphe Residences (1880 Gilmore Avenue);
- Gilmore Avenue (Millennium) (1846,1876,1904 Gilmore Avenue);
- Woodlands Phase 1, 2, and 3 (Concord) (4756 Lougheed Highway);
- Olympic Tile (2350 Willingdon Avenue);
- Gilmore Place (Onni – *not Bunt study*) (Lougheed Hwy & Gilmore Ave);
- Bosa Halifax & Willingdon (1801 Willingdon Avenue);
- 1933 Willingdon Avenue; and,
- 1989 Willingdon Avenue.

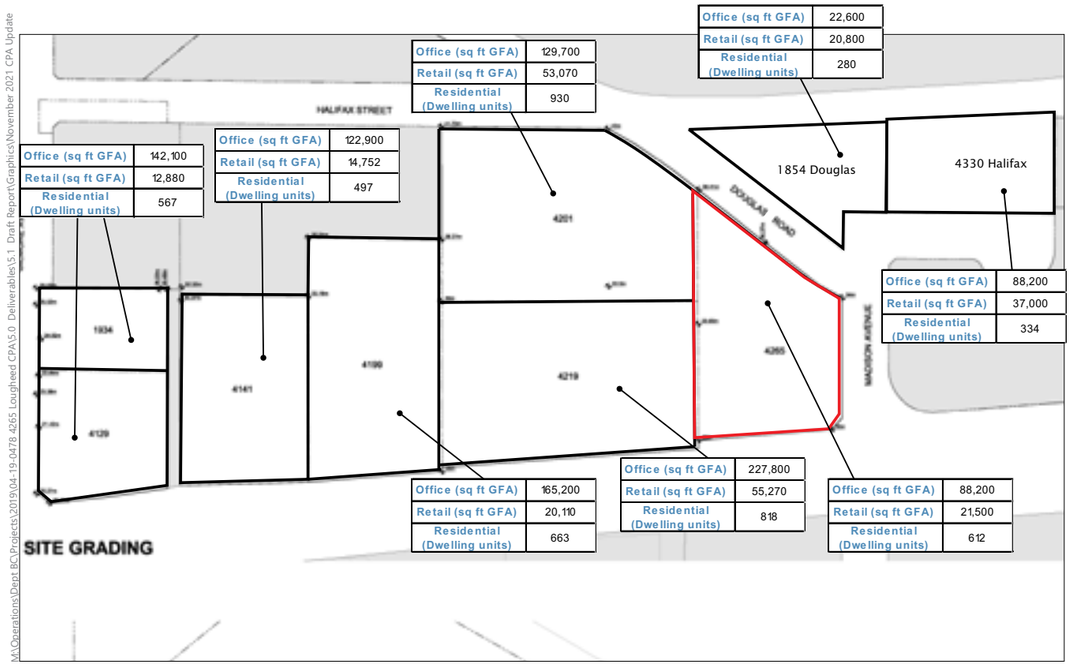

Exhibit 1.3
Assembled Development Based on 9.5 FAR

4265 Lougheed Highway
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2. EXISTING CONDITIONS

The following existing traffic operations analysis has been completed to provide further context to the assessment of future conditions later in the report.

2.1 Existing Peak Hour Volumes

Exhibit 2.1 presents the morning (AM) and afternoon (PM) peak hour volumes for the study area, these volumes are sourced from Bunt's in-house database and dated back to 2016 and 2018. However, due to major construction projects along Halifax Street, updated counts were not carried out at the outset of this project, as typical vehicle demands would be impacted by the road closures. **Exhibit 2.2** presents the study road network laning and intersection control.

Although not included in the study area, baseline (raw) count data did not include the completion of the Gilmore Ave & 1st St signal. Therefore, adjustments were made to turning movements to account for the recently completed 4-leg signal; these adjustments included re-allocating a proportion of turning movements at Halifax St & Gilmore Ave intersection, and where Douglas Road had previously connected to Gilmore Avenue, north of 1st Street.

Additionally, 2018 data (further east of the study area boundaries, at the Halifax St & Willingdon Ave intersection were used as a reference along Halifax Street, and engineering judgement was used to balance volumes to align with higher 2018 volumes. Background growth between 2018 and 2020 was not applied, to align with methodologies for future forecasts detailed later in the report. **Appendix B** includes raw unadjusted traffic count data and dates of surveys for completeness.

Table 2.1 summarizes the 2-way peak hour link flows in the study area and illustrates the high traffic demands along the Lougheed Highway and Gilmore Avenue corridors.

Table 2.1: Existing Peak Hour Link Volumes

LOCATION	PEAK HOUR LINK VOLUMES (VPH)	
	AM	PM
Lougheed Highway (west of Madison Avenue)	2,530	2,490
Madison Avenue (north of Lougheed Highway)	340	560
Gilmore Avenue (north of Lougheed Highway)	1,090	1,410
Halifax Street (east of Gilmore Avenue)	300	535
Douglas Road (north of Halifax Street)	475	620

Notes: traffic volumes rounded as appropriate.

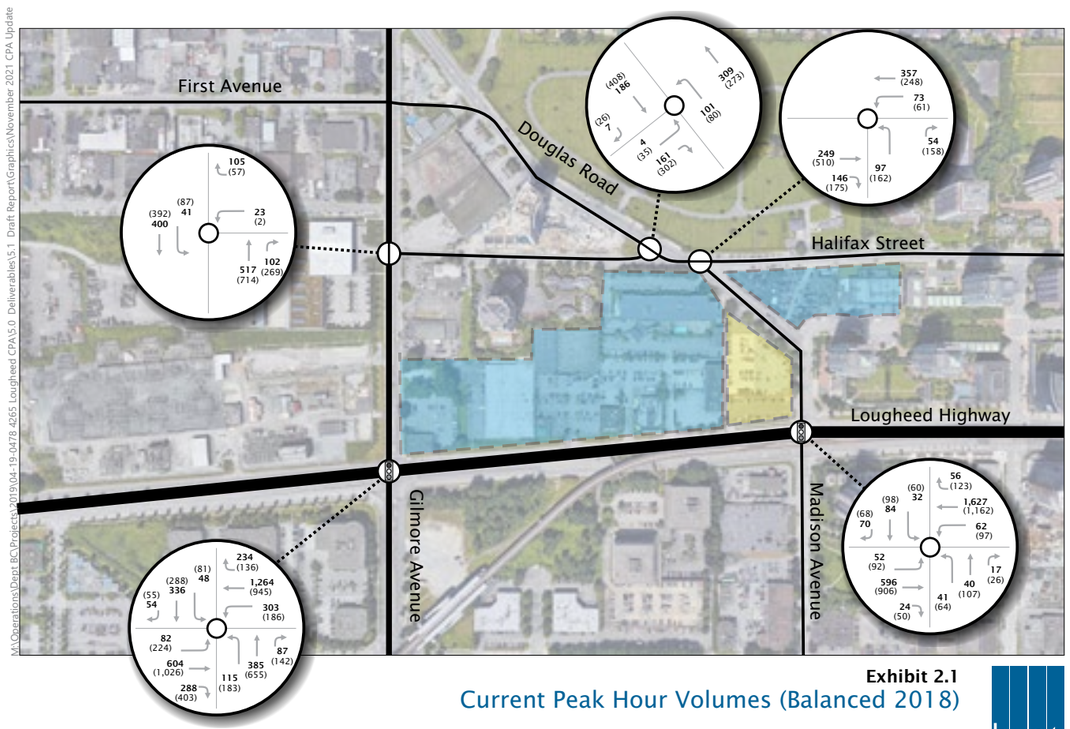

Exhibit 2.1
Current Peak Hour Volumes (Balanced 2018)

4265 Lougheed Highway
04-19-0478 November 2021

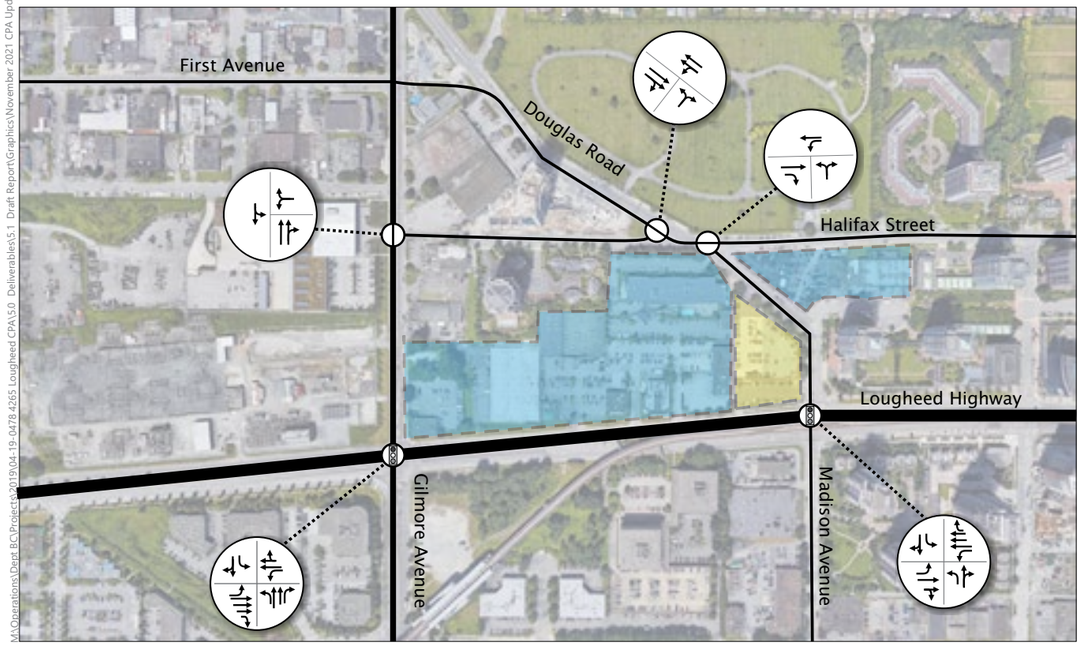

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Exhibit 2.2
Existing Laning and Intersection Control

04-19-0478 4265 Lougheed Highway November 2021

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2.2 Performance Thresholds

Existing (and future) operations of study area intersections were assessed using the methods outlined in the Highway Capacity Manual (HCM 2000), using the Synchro 9 (version 9.2 and build 915) analysis software. Traffic operations were assessed using the performance measures of Level of Service (LOS) and volume-to-capacity (V/C) ratio. SimTraffic modelling software was used for vehicle delays and queues at the unsignalized (minor stop control) intersections. Peak Hour Factor (PHF) and Heavy Vehicle percentages were calculated from observed counts with no adjustments required. LOS rating is based on average vehicle delay and ranges from "A" to "F" based on the quality of operation at the intersection. LOS "A" represents optimal, minimal delay conditions while a LOS "F" represents an over-capacity condition with considerable congestion and/or delay. Delay is calculated in seconds and is based on the average intersection delay per vehicle. **Table 2.2** summarizes LOS thresholds for the five Levels of Service.

Table 2.2: Unsignalized Intersection Level of Service Thresholds

LEVEL OF SERVICE	AVERAGE CONTROL DELAY PER VEHICLE (SECONDS)	
	SIGNALIZED	UNSIGNALIZED
A	≤10	≤10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	>80	>50

Source: Highway Capacity Manual

Volume to capacity (V/C) ratio of an intersection represents the ratio between the demand volume and the available capacity. A V/C ratio less than 0.85 indicate that there is sufficient capacity to accommodate demands and generally represents reasonable traffic conditions in suburban settings. City of Burnaby intersection performance thresholds are shown in **Figure 2.1**. Movements that fall short of these criteria are **bolded** in the following tables.

Figure 2.1: City of Burnaby Transportation Intersection Performance Criteria

Signalized Intersections	Unsignalized Intersections & Roundabouts
• Overall intersection Level of Service D or better; • Overall intersection V/C ratio of 0.85 or better; • Individual movement Level of Service E or better; • Individual movement V/C ratio of 0.90 or better; and • Sufficient storage for 95th percentile queues.	• Individual movement Level of Service E or better (Level of Service F may be acceptable where volumes are very low).

2.3 Existing Vehicle Operations

Table 2.3 below summarizes the current operations performance of the study intersections. Detailed outputs have been attached in **Appendix C**.

Table 2.3: Existing Operations (2018 Balanced)

INTERSECTION/ TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
Gilmore Ave & Halifax St *Minor Street Stop Controlled*	*OVERALL*	-	-	-	-	-	-
	WBLR	B	0.22	20	A	0.08	15
	NBT	A	0.20	5	A	0.28	5
	NBTR	A	0.16	5	A	0.30	5
	SBLT	A	0.04	30	C	0.11	80
Gilmore Ave & Lougheed Hwy *Signalized Intersection*	*OVERALL*	*D*	***0.92***	-	*D*	*0.84*	-
	EBL	**F**	**0.93**	55	**F**	0.88	105
	EBT	D	0.41	65	D	0.60	105
	EBR	D	0.18	25	C	0.30	35
	WBL	E	0.82	105	E	0.76	75
	WBTR	E	**0.95**	260	E	**0.93**	185
	NBL	D	0.60	35	D	0.69	60
	NBT	C	0.31	55	C	0.49	95
	NBR	C	0.06	5	C	0.09	15
	SBL	D	0.20	20	D	0.40	35
	SBTR	E	0.84	155	D	0.70	120
Douglas Rd & Halifax St (West) *Minor Street Stop Controlled*	*OVERALL*	-	-	-	-	-	-
	EBT	A	0.07	0	A	0.16	5
	EBR	A	0.04	0	A	0.10	*5*
	WBL	A	0.07	15	A	0.07	20
	WBT	A	0.12	15	A	0.11	20
	NBLR	B	0.18	15	C	0.49	60
Douglas Rd & Halifax St (East) *Minor Street Stop Controlled*	*OVERALL*	-	-	-	-	-	-
	EBT	A	0.15	5	A	0.30	5
	EBR	A	0.09	5	A	0.10	5
	WBL	A	0.06	15	A	0.07	15
	WBT	A	0.21	0	A	0.15	0
	NBLR	C	0.34	35	**F**	0.83	125
Madison Ave & Lougheed Hwy *Signalized Intersection*	*OVERALL*	*B*	*0.49*	-	*C*	*0.47*	-
	EBL	**F**	0.50	30	E	0.58	40
	EBTR	A	0.25	95	B	0.41	95
	WBL	E	0.55	30	E	0.60	45
	WBT	A	0.45	100	B	0.34	70
	WBR	A	0.04	5	A	0.09	15
	NBL	E	0.46	25	**F**	0.71	35
	NBTR	E	0.22	25	E	0.58	55
	SBL	E	0.21	20	E	0.51	30
	SBTR	E	0.66	55	E	0.69	60

The results confirm that:

- Gilmore Ave & Lougheed Hwy is showing capacity and operational issues currently and would benefit from additional capacity.
- Madison Ave & Lougheed Hwy has eastbound left and northbound left movements experiencing above-threshold delays presently at different peak hours, but overall intersection is operating with acceptable volume-to-capacity ratios.
- Douglas Rd & Halifax St (east) has overall intersection delay exceeding acceptable levels (PM peak hour) for northbound vehicles.

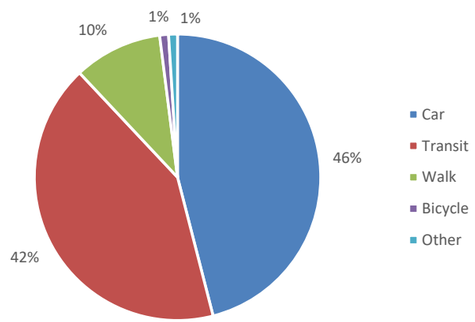
3. FUTURE TRIP GENERATION ESTIMATES

3.1 Methodology

Using a combination of current local mode splits and ITE peak hour person trip/vehicle trip rates (available in the most recent online trip generation manual, Edition 10), the following presents a summary of Bunt's methodology in deriving future vehicle trips that are consistent with the City's 2050 targets for the Community Plan Area (CPA). Following this, the results of this approach are presented:

- Employ dense multi-use urban person trip rates available from the ITE Trip Generation (10th Edition) for High-Rise Residential (ITE 222) and General Office (ITE 710), these uses have a reasonable sample size (>25 individual studies per time period);
- For the Retail component of the site (ITE Shopping Centre #820), the afternoon peak hour general urban/suburban person trip rates were used however as the AM person trip rate for this land use had a low sample size. Therefore, the ratio of AM vehicle trips to PM vehicle trips (approx. 1:4) was used as a scaling ratio of AM person trips to PM person trips; and,
- With total person trips calculated per land use, current mode splits were then applied to align with characteristics of a transit orientated site, or Town Centre in Burnaby. For this, the 2017 "Metrotown Downtown Plan" current mode splits were referenced, and was considered a reasonable approach to better represent local conditions while accounting for the site's proximity to transit (i.e. increasing the transit mode share and decreasing the driver/ passenger). The Metrotown mode split is illustrated in **Figure 3.1**.

Figure 3.1: Metrotown Downtown Plan (2017) Mode Split



- With current mode splits calculated, the mode split was further adjusted towards 2050 targets, assuming the total number of person trips remain constant, and this transit orientated site would have a lower (20%) driver/passenger mode share than the 25% in the draft City policy;
- Once this was completed, the number of vehicle trips was then calculated for current and future scenarios assuming a vehicle occupancy of 1.2 for all land uses, applied to the driver/passenger numbers. This vehicle occupancy rate was averaged over the different land uses and sourced from information available in Bunt's database of local survey work in Metro Vancouver and TransLink Trip Diary 2017; and,
- For simplicity, no internal trip capture or pass-by vehicle trips were estimated at this time as these are representative of urban, mixed-use rates.

Taking a linear approach, the volumes were then forecasted to an interim horizon year between the existing mode split and the 2050 City target mode split. For this study, the year 2035 was selected for the traffic analysis as it represents a middle point and is consistent with other transportation impact assessment studies completed by Bunt in the nearby area.

Importantly, this approach to estimate future vehicle CPA trips has a built-in assumption that all the measures described above, i.e. lower parking supply are being introduced, aggressive TDM measures at new development sites, and city-wide network improvements, will be in place and will be sufficient to achieve future mode split targets. It is Bunt's understanding the First Capital project will propose lower-than-Town Centre Bylaw parking rates, supported by a comprehensive TDM package, noting that at this time, the project is preliminary, and the details will be further refined and Master Plan Rezoning.

3.2 Person Trip & Vehicle Trip Estimates

Using the above methodology, the following tables present person trip and vehicle trip estimates (rounded to the nearest 5) for the build-out of the CPA.

- **Table 3.1** presents the ITE person trip rates used;
- **Table 3.2** and **Table 3.3** present the estimated total peak hour person trips and corresponding modal splits based on current day;
- **Table 3.4** shows the shift to 2050 mode split targets, and
- **Table 3.5** presents the corresponding peak hour vehicle trip estimates.
- **Table 3.6** provides a comparison to vehicle trips estimates assuming that they were calculated based on ITE vehicle trips rates (a more standard industry practice). Trip generation using rates extracted from Bunt's local trip database (for the appropriate land uses) has also been included in this table for comparison.

Table 3.1: ITE Person Trip Rates Per Weekday Peak Hour

LAND USE	INDEPENDENT VARIABLE	AM			PM		
		IN	OUT	2-WAY	IN	OUT	2-WAY
Retail – ITE Code 820	1,000 sq. ft.	1.19	0.73	1.91	3.88	3.88	7.75
Office – ITE Code 710	1,000 sq. ft.	1.09	0.16	1.25	0.30	1.05	1.35
MF Residential – ITE Code 222	Dwelling Units	0.15	0.58	0.73	0.35	0.25	0.60

Table 3.2: Est. Future Person Trips (Weekday Peak Hour) – Current Mode Splits

LAND USE	QUANTITY	AM			PM		
		IN	OUT	2-WAY	IN	OUT	2-WAY
Retail – ITE Code 820	235,408 sq.ft.	280	170	450	910	910	1,825
Office – ITE Code 710	986,594 sq.ft.	1075	160	1235	295	1,040	1,330
MF Residential – ITE Code 222	4,701 dwelling units	720	2,710	3,430	1,665	1,155	2,820
TOTAL	-	2,075	3,040	5,115	2,870	3,105	5,975

Table 3.3: Est. Future Mode Person Trips (peak hour) Combined Land Uses – Current Mode Splits

TRAVEL MODE	MODE SPLIT	AM			PM		
		IN	OUT	2-WAY	IN	OUT	2-WAY
Vehicle (Driver & Passenger)	45%	935	1,370	2,300	1,290	1,400	2,690
Active Modes & Transit	55%	1,140	1,670	2,810	1,580	1,705	3,285
TOTAL	100%	2,075	3,040	5,115	2,870	3,105	5,975

Table 3.4: Est. Future Mode Person Trips (peak hour) Combined Land Uses – 2050 Targets

TRAVEL MODE	MODE SPLIT	AM			PM		
		IN	OUT	2-WAY	IN	OUT	2-WAY
Vehicle (Driver & Passenger)	20%	415	610	1,025	575	620	1,195
Active Modes & Transit	80%	1,660	2,435	4,090	2,295	2,485	4,780
TOTAL	100%	2,075	3,040	5,115	2,870	3,105	5,975

Table 3.5: Corresponding Vehicle Trip (peak hour) Estimates

VEHICLE TRIPS [1]ASSUMED 1.2 VEHICLE OCCUPANCY RATE	AM			PM		
	IN	OUT	2-WAY	IN	OUT	2-WAY
Current Mode Splits	775	1,140	1,920	1,075	1,165	2,240
2050 Targets	345	505	855	480	520	995
Average (2035)	560	825	1,385	780	845	1,620

Table 3.6: ITE and Bunt Database Vehicle Trip (peak hour) Estimates - Comparison

SOURCE		AM			PM		
		IN	OUT	2-WAY	IN	OUT	2-WAY
ITE Vehicle Trip Rates (Dense Multi-Use Urban vehicle trips)		960	1,065	2,025	1,200	1,445	2,650
Bunt Database	*Residential Rate (per dwelling unit)*	*0.06*	*0.16*	*0.22*	*0.13*	*0.08*	*0.21*
	Office Rate (per 1,000 sf GFA)	*0.60*	*0.09*	*0.69*	*0.10*	*0.54*	*0.64*
	Retail Rate (per 1,000 sf GLA)	*0.72*	*0.43*	*1.15*	*2.02*	*2.06*	*4.09*
	EST. TOTAL TRIPS	1,040	940	1,985	1,185	1,395	2,580

As shown in Table 3.5, the future build out of the CPA is anticipated to generate approximately 1,920 - 2,240 two-way vehicle trips during the AM and PM peak hours, based on current mode splits. This is comparable to the ITE vehicle trip estimates shown in Table 3.6.

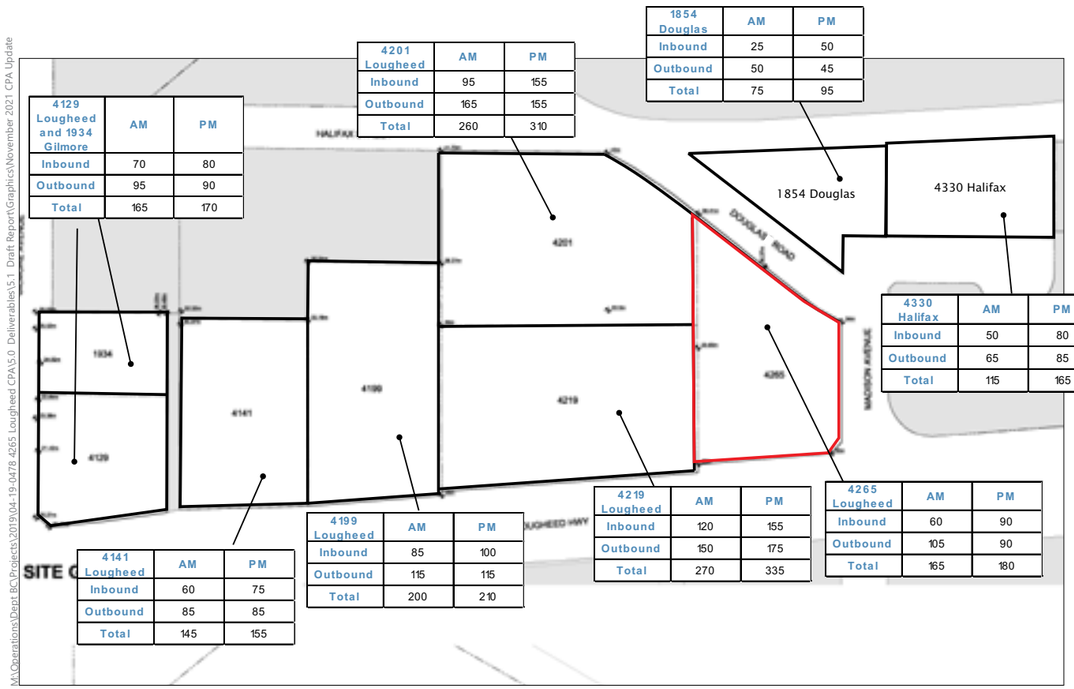
Bunt's trip generation database was also referenced for various sites around Metro Vancouver, with similar land-use and locations near to rapid transit and it was confirmed that Bunt's local trip rates are very similar to ITE and current mode splits, providing an additional proxy for the estimates.

Applying the 2050 mode split targets results in a drop by just over half of current day. For modelling purposes, the average between 'current mode splits' and 2050 was taken to represent a 2035 horizon year, assuming the shift in mode splits occur incrementally each year – resulting in 1,385 – 1,620 two-way peak hour vehicle trips. This horizon year was confirmed with the City as part of the TOR.

As these volumes are tied to a significant shift in mode splits, it is recommended that future monitoring be carried out to confirm lower vehicle mode targets are on track to being achieved.

3.3 Vehicle Trip Estimates for Community Plan Area

Using the same methodology above, **Table 3.7** below presents breakdown of the 2035 vehicle trip generation estimates for each CPA development area, including the subject site. Accompanying this, **Exhibit 3.1** illustrates the two-way inbound and outbound trips during AM and PM peak hour periods, for each development area.



4129 Lougheed and 1934 Gilmore	AM	PM
Inbound	70	80
Outbound	95	90
Total	165	170

4201 Lougheed	AM	PM
Inbound	95	155
Outbound	165	155
Total	260	310

1854 Douglas	AM	PM
Inbound	25	50
Outbound	50	45
Total	75	95

4330 Halifax	AM	PM
Inbound	50	80
Outbound	65	85
Total	115	165

4141 Lougheed	AM	PM
Inbound	60	75
Outbound	85	85
Total	145	155

4199 Lougheed	AM	PM
Inbound	85	100
Outbound	115	115
Total	200	210

4219 Lougheed	AM	PM
Inbound	120	155
Outbound	150	175
Total	270	335

4265 Lougheed	AM	PM
Inbound	60	90
Outbound	105	90
Total	165	180

Exhibit 3.1
Estimated CPA Development Vehicle Volumes

4265 Lougheed Highway
04-19-0478 November 2021

Table 3.7: CPA Vehicle Peak Hour Trip Estimates (2035)

DEVELOPMENT	AM PEAK HOUR TRIPS (2-WAY)	PM PEAK HOUR TRIPS (2-WAY)
4201 Lougheed Highway	260	310
4219 Lougheed Highway	265	335
4199 Lougheed Highway	195	210
4141 Lougheed Highway	145	155
4129 Lougheed Highway /1934 Gilmore Avenue	165	170
1854 Douglas Road	75	95
4330 Halifax Street	115	165
4265 Lougheed Highway	165	180
TOTAL	1,385	1,620

From Table 3.7, the subject site (4265 Lougheed Highway) is expected to generate about 11% and 12% of the total CPA vehicle trips in the AM and PM peak period respectively.

4. FUTURE CONDITIONS

4.1 Future Network Assumptions

The proposed future road network, consisting of civil drawings prepared by Binnie, are presented in **Appendix D**, while **Figure 4.1** illustrates the road CPA area and proposed road network (prepared by CDA). The future CPA road layout is a result of traffic modelling studies and multiple iterations, City workshops, and feedback.

Figure 4.1: Proposed Future Road Network

Also included in Appendix D are future geometrics provided by the City from past studies in the area, showing Lougheed Hwy & Gilmore Ave and Halifax St & Gilmore Ave.

The future vehicle road network tested here includes:

- a new full movement signal at Lougheed Hwy & Carleton Ave, extending Carleton Avenue north to Halifax Street (it is understood that the signal would be subject to TransLink approval – as Lougheed Highway is part of their "Major Road Network" or MRN). The link distance along the new segment of Carleton Avenue (between Lougheed Highway and Buchanan Street) was measured at approximately 85m.

- a new unsignalized T-intersection (all-movement) at Halifax St & Carleton Ave. The position of this new intersection is approximately 30m west of the Halifax St & Douglas Rd (west) T-intersection;
- the extension of Buchanan Street between Madison Avenue and Gilmore Avenue, providing vehicle access for the neighbouring properties fronting Lougheed Highway;
- a new 4-legged intersection (pedestrian-activated signal, with minor stop control on east and west legs) at Madison Ave & Buchanan St and its subsequent redesign and proposed changes to the Douglas Road alignment between Buchanan Street and Halifax Street;
- a new unsignalized T-intersection at Buchanan St & Gilmore Ave (right-in, right-out, left-in);
- Lougheed Highway will be widened to accommodate six (6) travel lanes, as per the CoB Town Centre standards; and,
- Both Halifax Street and Douglas Road were modelled with two (2) travel lanes in each direction where the curbside lanes could be interchanged with street parking (off-peak).

All future background and site volumes were adjusted to account for the new connections through the area, including a shift of a proportion of through volumes from route Gilmore-Halifax-Douglas/Halifax to Gilmore-Buchanan-Madison-Halifax, where significant afternoon peak demands are currently travelling. This is to account for expected changes in travel behaviour with the new connections, diverting trips from existing routes.

Trip distributions were modelled based on existing traffic flows in the study intersections, and applied for all sites in the CPA study for each peak hour period.

For the future Synchro traffic base model, pedestrian and heavy vehicle movements were extrapolated from existing data and increased to account for the area build-out. Signals along Lougheed Highway are assumed to be coordinated in the east-west directions.

4.2 Future CPA Buildout Volume Forecasts (2035)

As noted above, 2035 was selected as the full-build horizon year as it represents a middle point between current day and 2050. No annual background growth rate was applied to existing volumes, as this would be counterintuitive based on CoB's future mode split targets and the shift away from private vehicle use.

The analysis took it one step further, based on discussions with CoB on other similar studies completed nearby in the recent past, and applied a reduction factor development site trips layered into the background forecasts at a rate of 30% reduction. The rate of 30% trip reduction was estimated based on a similar rate of reduction from the mode split estimates presented above between current mode splits and 2035 splits.

This assumes that although the parking supply may be meeting current Town Centre standards, there will be enough improvement to infrastructure and densification of the surrounding area to impact how residents of these sites will travel. There may also be a future decision these sites to consider re-

purposing un-used parking stalls to limit the available supply. This applies to following sites, included in this analysis:

- Brentwood Town Center 'Amazing Brentwood' Phase 1, Tower 3, and Phase 2;
- 4265 Lougheed,1934 Gilmore Avenue, 4129 Lougheed Highway, 4141 Lougheed Highway, 4199 Lougheed Highway, 4219 Lougheed Highway, 4201 Lougheed Highway, 1854 Douglas Road, 4330 Halifax Street;
- Escala (1728, 1768, 1788 Gilmore Avenue);
- Triomphe Residences (1880 Gilmore Avenue);
- Gilmore Avenue (Millennium) (1846,1876,1904 Gilmore Avenue);
- Woodlands Phase 1, 2, and 3 (Concord) (4756 Lougheed Highway);
- Olympic Tile (2350 Willingdon Avenue); and,
- Gilmore Place (Onni – *not Bunt study*) (Lougheed Highway & Gilmore Avenue).

Site trips for the following sites (more recent Bunt studies) were calculated using the mode split methodology:

- Bosa Halifax and Willingdon (1801 Willingdon Avenue);
- 1933 Willingdon Avenue; and,
- 1989 Willingdon Avenue.

Exhibit 4.1 to 4.3 show the background, Lougheed CPA site, and full-build out traffic volumes for horizon year 2035. This was estimated by layering baseline volumes (i.e. existing) adjusted with:

- future background development volumes (i.e. other recently completed studies – with 30% reduction applied + the 3 Willingdon developments); plus,
- CPA development trips.

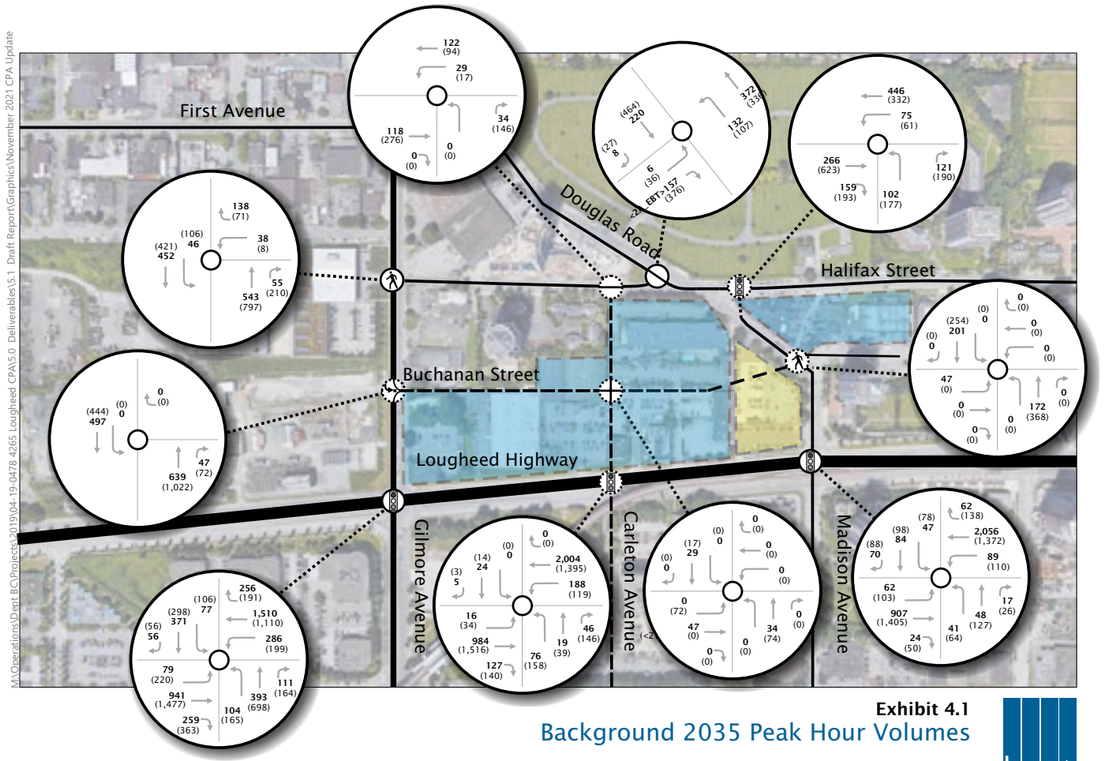


Exhibit 4.1
Background 2035 Peak Hour Volumes

4265 Lougheed Highway
04-19-0478 November 2021

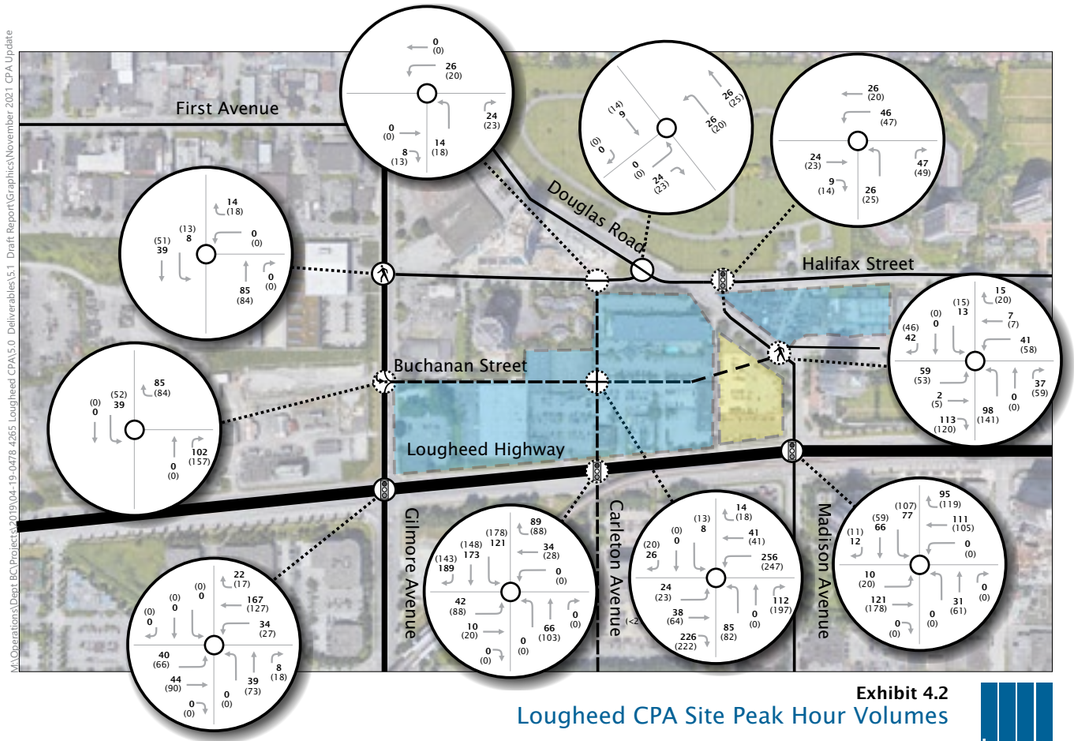


Exhibit 4.2
Lougheed CPA Site Peak Hour Volumes

4265 Lougheed Highway
04-19-0478 November 2021

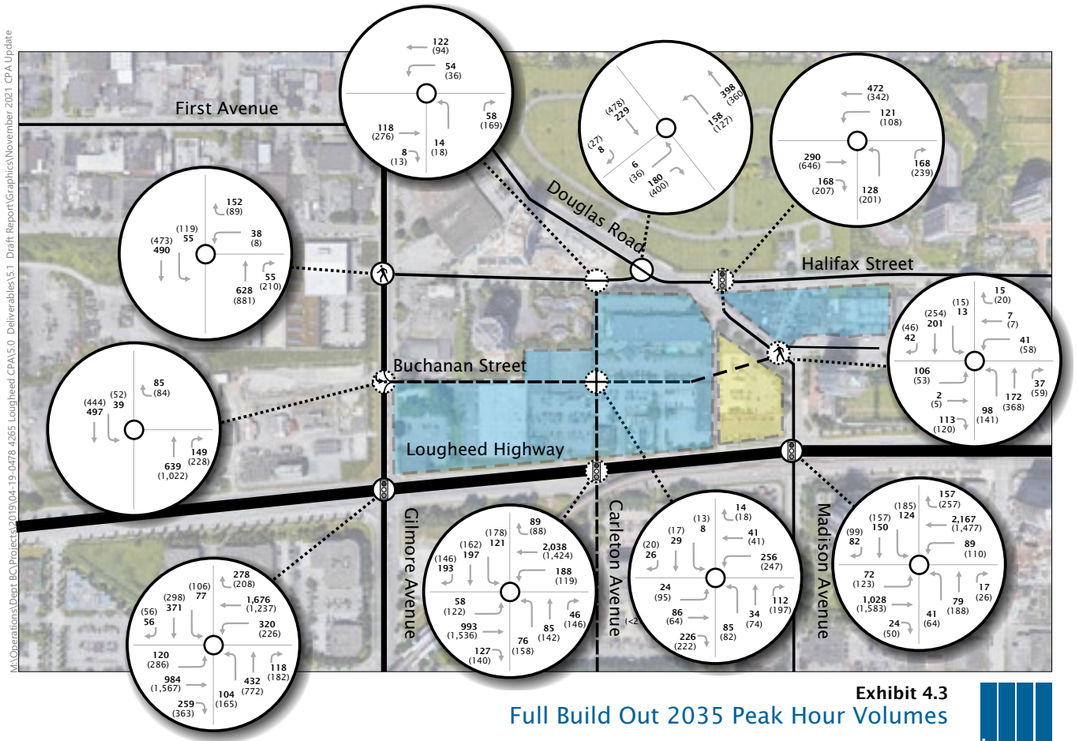


Exhibit 4.3
Full Build Out 2035 Peak Hour Volumes

4265 Lougheed Highway
04-19-0478 November 2021

4.3 Future 2035 Full Build Traffic Operations

Table 4.1 show the Synchro/SimTraffic results for the future 2035 operations. For reference, detailed outputs have also been attached to this report in **Appendix E,** which also include recommended signal timing plans.

Table 4.1: Future 2035 Horizon Operations

INTERSECTION/ TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
Gilmore Ave & Halifax St *Pedestrian Activated Signal*	*OVERALL*	*B*	*0.29*	-	*B*	*0.41*	-
	WBL	B	0.06	10	B	0.01	5
	WBR	B	0.10	10	B	0.07	10
	NBTR	B	0.42	35	B	0.65	60
	SBLT	B	0.40	30	B	0.88	40
Gilmore Ave & Buchanan St *Minor Street Stop Controlled*	*OVERALL*	*A*	-	-	*A*	-	-
	WBR	A	0.10	15	A	0.11	20
	NBT	A	0.27	5	A	0.44	10
	NBR	A	0.23	5	A	0.36	15
	SBL	A	0.05	20	C	0.09	40
	SBT	A	0.21	35	A	0.19	5
Gilmore Ave & Lougheed Hwy *Signalized Intersection*	*OVERALL*	*D*	***0.88***	-	***E***	***1.00***	-
	EBL	E	0.74	60	**F**	**1.12**	150
	EBT	D	0.61	105	D	0.85	170
	EBR	C	0.23	35	C	0.35	45
	WBL	E	0.89	115	**F**	**1.32**	140
	WBTR	D	**0.91**	150	C	**0.91**	110
	NBL	D	0.52	35	C	0.51	50
	NBTR	D	0.69	95	E	**0.96**	185
	SBL	D	0.45	30	**F**	0.87	50
	SBTR	D	0.57	75	D	0.43	60
Carleton Ave & Halifax St *Minor Street Stop Controlled*	*OVERALL*	*A*	-	-	*C*	-	-
	EBTR	A	0.08	15	B	0.18	60
	WBLT	A	0.04	15	A	0.03	10
	NBL	A	0.03	10	A	0.04	15
	NBR	A	0.07	15	E	0.25	55

Table 4.1: Future 2035 Horizon Operations (Cont…)

INTERSECTION/ TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
Carleton Ave & Buchanan St *All Way Stop Controlled*	*OVERALL*	***E***	-	-	*D*	-	-
	EBLTR	**F***	0.51	120	E	0.65	100
	WBLTR	E	0.52	75	E	0.57	65
	NBLTR	B	0.40	40	D	0.63	60
	SBLTR	C	0.12	20	B	0.10	10
Carleton Ave & Lougheed Hwy *Signalized Intersection*	*OVERALL*	*C*	*0.82*	-	*C*	*0.74*	-
	EBL	E	0.67	30	E	0.74	45
	EBTR	B	0.61	25	B	0.83	35
	WBL	D	0.64	70	E	0.60	60
	WBTR	B	0.88	30	B	0.70	20
	NBL	D	0.44	30	D	0.57	50
	NBTR	D	0.25	45	D	0.63	100
	SBL	C	0.31	40	D	0.62	55
	SBTR	E	0.78	150	E	0.70	115
Douglas Rd & Halifax St (west) *Minor Street Stop Controlled*	*OVERALL*	*A*	-	-	*A*	-	-
	EBT	A	0.10	0	A	0.20	10
	EBR	A	0.05	0	A	0.12	5
	WBL	A	0.13	40	A	0.14	45
	WBT	A	0.17	40	A	0.15	45
	NBLR	C	0.24	20	C	0.78	25
Madison Ave & Halifax St *Signalized Intersection*	*OVERALL*	*B*	*0.41*	-	*B*	*0.52*	-
	EBTR	B	0.31	25	B	0.60	60
	WBLT	B	0.50	35	A	0.39	25
	NBL	B	0.22	25	C	0.41	40
	NBR	B	0.12	10	D	0.25	20
Madison Ave & Buchanan St *Pedestrian-Activated Signalized Intersection*	*OVERALL*	*B*	*0.38*	-	B	*0.50*	-
	EBLTR	B	0.35	25	B	0.26	20
	WBLTR	B	0.12	10	B	0.22	15
	NBLT	B	0.41	35	B	0.61	60
	NBR	A	0.05	5	A	0.07	5
	SBLTR	B	0.31	30	A	0.32	25
Madison Ave & Lougheed Hwy *Signalized Intersection*	*OVERALL*	*C*	*0.76*	-	*C*	*0.74*	-
	EBL	E	0.54	35	D	0.69	40
	EBTR	A	0.39	25	A	0.69	110
	WBL	E	0.58	45	E	0.64	50
	WBT	C	0.78	235	C	0.61	140
	WBR	B	0.13	20	C	0.28	50
	NBL	D	0.33	20	D	0.33	25
	NBTR	D	0.32	35	E	0.68	80
	SBL	D	0.51	45	E	0.77	60
	SBTR	E	0.78	85	E	0.72	90

**LOS F result from SimTraffic. HCM2000 shows instead LOS B.*

The results of the future 2035 road network confirm the following:

- During the afternoon peak hour, the Gilmore Ave & Lougheed Hwy signal reported above-threshold volume to capacity (v/c) which resulted in significant delays on the east- and westbound left turn movements. High demands along Lougheed Highway contribute to reported congestion, which are linked to regional traffic already present on Lougheed. However, future density and growth in the Brentwood Town Centre Area will also add to these vehicle demands but through densification and urban redevelopment, may push regional demands to alternative E-W routes. Or more positively, change how people choose to commute.
- Both the Madison Avenue signal and (new) Carleton Avenue signal on Lougheed Highway were found to operate at a similar level of capacity and delay; both were confirmed to operate within acceptable levels of performance thresholds, save for some near capacity movements and overall v/c issues in the afternoon peak at the Madison Avenue signal.
- At the new internal Carleton Ave & Buchanan St intersection, the proposed all way stop (single lane approaches) has an eastbound approach with delays exceeding thresholds during the AM peak hour, due to heavy eastbound traffic travelling along Buchanan Street. On further review, HCM2000 results report instead a LOS B for the eastbound approach. The likely outcome is that delays will be somewhere in between – therefore is recommended that this intersection be monitored in the future as a potential candidate for signalization (I.e. should delays be excessive).
- Operations at the Madison Ave & Halifax St intersection confirmed the need for a signal. This was based on high delays for the northbound approach in the PM peak. With a signal, reported northbound left 95th percentile queues were found to be 40m.
- At the new proposed Madison Ave & Buchanan St pedestrian-activated signal (with single lane approaches, except for a small right turn lane on the NB approach to be designed with no curb bulge) operations were acceptable. Without pedestrian calls, this intersection will function as a minor street stop controlled for the east- and westbound approaches. However, pedestrian crossing volumes are expected to be significant for future horizon years as this are densifies which will in turn result in frequent pedestrian call activation (especially during peak hours). This will allow for movements on all approaches and ensure safe pedestrian/cyclist crossing of Madison.
- Operations at the new Gilmore Ave & Buchanan St intersection were found to operate within acceptable performance threshold, with no requirement for a separate southbound left turn lane.
- Queues at the Halifax St & Douglas Rd (west) minor stop-control intersection (shared northbound left-right movement onto Douglas Road in the PM peak hour) were found to improve compared to existing conditions, this can be attributed to the re-routing of through traffic onto Buchanan Street. Based on these results and the tight spacing between this intersection and the new Halifax St & Carleton Ave intersection, no operational issues are anticipated. However, a 'Do Not Block Intersection' signage should be installed at the Carleton Ave & Halifax St intersection to prevent blockage caused by eastbound queues if this occurs.
- The pedestrian signal and geometric at the Gilmore Ave & Halifax St intersection operates with acceptable performance thresholds, with no need for separate left turn lanes.

Table 4.2 summarizes the recommended intersection improvements based on the operations presented above, accompanying this **Exhibit 4.4** illustrates the future laning and assumed intersection control.

Table 4.2: Proposed Future Road Network Improvements (2035)

INTERSECTION	PROPOSED MEASURES
Gilmore Ave & Halifax St * *Pedestrian-Activated Signalized*	• Additional SBT lane • Separate WB approach with 15m storage length on the WBR lane
Gilmore Ave & Buchanan St *Minor Street Stop Controlled*	• New intersection • Right-in, Right-out Buchannan with a SBL movement from Gilmore Ave
Gilmore Ave & Lougheed Hwy * *Signalized*	• Additional WB and EB through lanes (CoB Town Centre Standard) • Convert SBTR lane to SBT • Add SBTR lane with 25m storage length • NB approach has 55m storage on NBL, NBT, and NBTR lane • Coordinated signal, protected EB-WB left turns, protected-permissive NB-SB left turns, cycle length 140 seconds in both peaks
Carleton Ave & Halifax St *Minor Street Stop Controlled*	• New unsignalized T-intersection • Stop sign on NB approach • Single lane on EBTR and WBLT approach • Separate NBL and NBR approach
Carleton Ave & Buchanan St *All Way Stop Controlled*	• New unsignalized intersection • All Way Stop Control (AWSC) • Single lane approaches
Carleton Ave & Lougheed Hwy *New Signalized*	• North and south leg, full movement signal • Three (3) WB and (3) EB through lanes (CoB Town Centre Standard) • SBL with 50m storage length, and SBTR lane • EBL with 35m storage length • WBL with 75m storage length • NB approach: NBL and NBTR with 25m storage length • Coordinated Signal, protected EB-WB left turns, cycle length 140 seconds in both peaks
Madison Ave & Halifax St *New Signalized*	• Signalized T-intersection with 70s cycle length • EB approach: EBT and EBTR • WB approach: WBLT and WBT (prot/perm) • Potential for off-peak street parking depending on direction • NB approach: NBL with 40m storage and NBR lane (70m link distance)
Madison Ave & Buchanan St *Pedestrian-Activated Signalized*	• New pedestrian activated intersection (or minor street stop controlled on eastbound and westbound approach) • Stop signs on east-west approaches, signals on north-south approaches • Single lane approaches, except for NB approach with extra width for NBR (no curb bulge)
Madison Ave & Lougheed Hwy *Signalized*	• Additional WB and EB through lanes (CoB Town Centre Standard) • Coordinated signal, protected EB-WB left turns, cycle length 140 seconds in both peaks

** Based on City geometric and previous traffic studies*

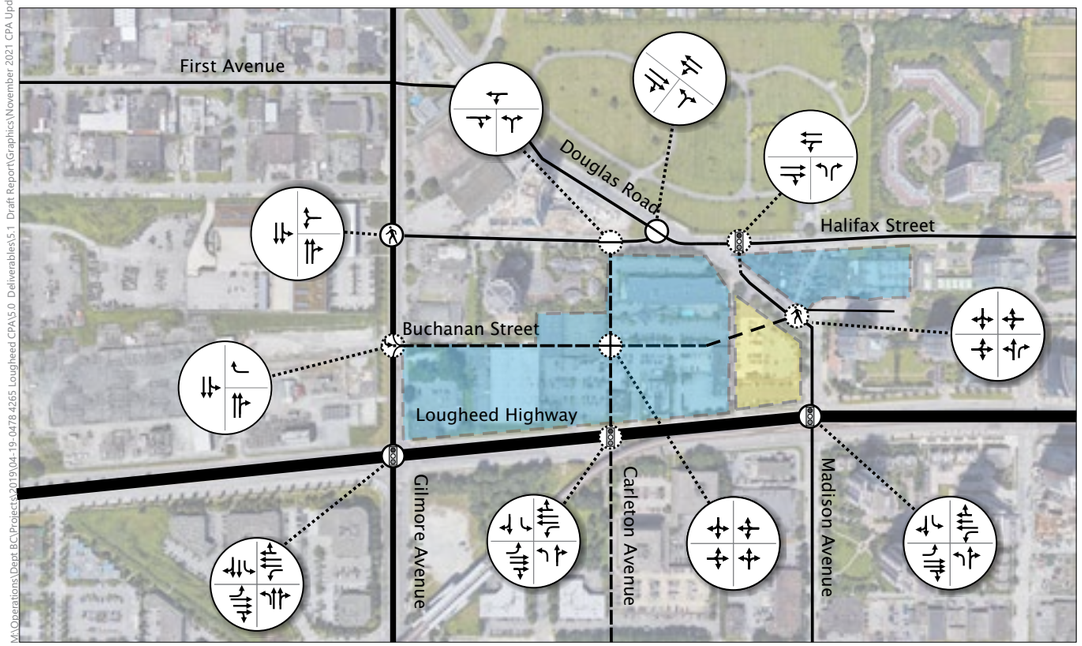


Exhibit 4.4
Proposed Future Laning and Intersection Control

4265 Lougheed Highway
04-19-0478 November 2021

bunt & associates

4.4 Lougheed On-Street Parking (Off-Peak) Sensitivity

Based on City comments, this study has included an operations test along Lougheed Highway where the EB curbside lane (southern curb edge) is used for street parking, between Gilmore Avenue and Madison Avenue, in the AM peak period when demands are lower. Similarly for the PM peak hour, the WB curbside lane (northern curb edge) was tested with street parking. At the intersections, it was assumed that a right-turn lane would be available (approx. 20m storage) as this could be managed with street parking signage. Results of this sensitivity review are summarized in **Table 4.3** and this information has been presented for discussion purposes.

Table 4.3a: Lougheed On-Street Parking (Off-Peak) Sensitivity Operations (Total 2035 AM)

INTERSECTION/ TRAFFIC CONTROL	MOVEMENT	SENSITIVITY - AM			BASELINE TOTAL 2035 AM		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
Gilmore Ave & Lougheed Hwy *Signalized Intersection*	*OVERALL*	*D*	***0.87***	-	*D*	***0.88***	-
	EBL	E	0.69	55	E	0.74	60
	EBT	E	**0.91**	220	D	0.61	105
	EBR	D	0.29	50	C	0.23	35
	WBL	**F**	0.83	115	E	0.89	115
	WBTR	C	**0.91**	190	D	**0.91**	150
	NBL	D	0.54	40	D	0.52	35
	NBTR	D	0.69	95	D	0.69	95
	SBL	D	0.47	30	D	0.45	30
	SBTR	D	0.57	75	D	0.57	75
Carleton Ave & Lougheed Hwy *Signalized Intersection*	*OVERALL*	*C*	*0.83*	-	*C*	*0.82*	-
	EBL	E	0.75	20	E	0.67	30
	EBT	C	0.71	75	B	0.61	25
	EBR	B	0.11	5	-	-	-
	WBL	D	0.74	70	D	0.64	70
	WBTR	B	0.85	50	B	0.88	30
	NBL	D	0.49	30	D	0.44	30
	NBTR	D	0.26	45	D	0.25	45
	SBL	D	0.33	40	C	0.31	40
	SBTR	E	0.80	150	E	0.78	150
Madison Ave & Lougheed Hwy *Signalized Intersection*	*OVERALL*	*C*	*0.76*	-	*C*	*0.76*	-
	EBL	E	0.54	30	E	0.54	35
	EBT	A	0.54	40	A	0.39	25
	EBR	B	0.02	0	-	-	-
	WBL	E	0.58	45	E	0.58	45
	WBT	C	0.78	235	C	0.78	235
	WBR	B	0.13	20	B	0.13	20
	NBL	D	0.33	20	D	0.33	20
	NBTR	D	0.32	35	D	0.32	35
	SBL	D	0.51	45	D	0.51	45
	SBTR	E	0.78	85	E	0.78	85

Table 4.3b: Lougheed On-Street Parking (Off-Peak) Sensitivity Operations (Total 2035 PM)

INTERSECTION/ TRAFFIC CONTROL	MOVEMENT	SENSITIVITY - PM			BASELINE TOTAL 2035 PM		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
Gilmore Ave & Lougheed Hwy *Signalized Intersection*	*OVERALL*	***E***	***1.07***	-	***E***	***1.00***	-
	EBL	**F**	**1.19**	155	**F**	**1.12**	150
	EBT	D	0.81	165	D	0.85	170
	EBR	C	0.38	60	C	0.35	45
	WBL	**F**	**1.11**	105	**F**	**1.32**	140
	WBT	D	**0.97**	230	C	**0.91**	110
	WBR	C	0.24	25	-	-	-
	NBL	D	0.61	55	C	0.51	50
	NBTR	**F**	**1.07**	200	E	**0.96**	185
	SBL	**F**	**0.97**	50	**F**	0.87	50
	SBTR	D	0.46	60	D	0.43	60
Carleton Ave & Lougheed Hwy *Signalized Intersection*	*OVERALL*	*C*	*0.81*	-	*C*	*0.74*	-
	EBL	E	0.85	45	E	0.74	45
	EBTR	B	0.75	30	B	0.83	35
	WBL	E	0.63	45	E	0.60	60
	WBT	B	0.85	25	B	0.70	20
	WBR	A	0.07	0	-	-	-
	NBL	D	0.70	55	D	0.57	50
	NBTR	E	0.70	105	D	0.63	100
	SBL	D	0.75	65	D	0.62	55
	SBTR	E	0.77	120	E	0.70	115
Madison Ave & Lougheed Hwy *Signalized Intersection*	*OVERALL*	*C*	*0.85*	-	*C*	*0.74*	-
	EBL	D	0.74	45	D	0.69	40
	EBTR	A	0.69	85	A	0.69	110
	WBL	E	0.64	50	E	0.64	50
	WBT	D	0.86	265	C	0.61	140
	WBR	C	0.27	50	C	0.28	50
	NBL	D	0.32	25	D	0.33	25
	NBTR	E	0.69	80	E	0.68	80
	SBL	E	0.76	70	E	0.77	60
	SBTR	E	0.72	100	E	0.72	90

4.5 Proposed Madison Avenue Extension to Halifax Street

Following email correspondence with City Engineering staff and a follow up phone call, the City requested that this study revise the proposed Madison Avenue re-alignment, as there are some concerns on the short link distance and grades of the new connection. After coordination with Vector Engineering, the latest alignment is shown in **Appendix F**.

5. CONCLUSIONS & RECOMMENDATIONS

Using a combination of current local mode splits and ITE peak hour person trip/vehicle trip rates, Bunt has devised a trip generation methodology that is consistent with the City's 2050 targets, which are aiming for a future mode split of 75% active modes and transit across the City. Given the location of the First Capital site in the Town Centre context and its proximity to rapid transit, a further shift away from private automobile use was assumed for the 2050 target (i.e. 80% transit and active modes).

This methodology was applied to all of the Community Plan Amendment (CPA) area sites included in the study area. **Table 5.1** presents the 2035 vehicle trip generation estimates for the CPA sites including the 4265 Lougheed Highway site.

Table 5.1: CPA Vehicle Peak Hour Trip Estimates (2035)

DEVELOPMENT	AM PEAK HOUR TRIPS (2-WAY)	PM PEAK HOUR TRIPS (2-WAY)
4201 Lougheed Highway	260	310
4219 Lougheed Highway	265	335
4199 Lougheed Highway	195	210
4141 Lougheed Highway	145	155
4129 Lougheed Highway /1934 Gilmore Avenue	165	170
1854 Douglas Road	75	95
4330 Halifax Street	115	165
4265 Lougheed Highway	165	180
TOTAL	1,385	1,620

4265 Lougheed Highway is expected to generate about 11% and 12% of the total CPA vehicle trips in the AM and PM peak period respectively.

The analysis focussed on a future horizon year of 2035 and presented analysis results for a future road network layout, which has evolved over various City workshops dating back to Spring 2020. The future road network included:

- a new full movement signal at Lougheed Hwy & Carleton Ave, extending Carleton Avenue north to Halifax Street (it is understood that the signal would be subject to TransLink approval – as Lougheed Highway is part of their "Major Road Network" or MRN). The link distance along the new segment of Carleton Avenue (between Lougheed Highway and Buchanan Street) was measured at approximately 85m.
- a new unsignalized T-intersection (all-movement) at Halifax St & Carleton Ave. The position of this new intersection is approximately 30m west of the Halifax St & Douglas Rd (west) T-intersection;
- the extension of Buchanan Street between Madison Avenue and Gilmore Avenue, providing vehicle access for the neighbouring properties fronting Lougheed Highway;
- a new 4-legged intersection (pedestrian-activated signal, with minor stop control on east and west legs) at Madison Ave & Buchanan St and its subsequent redesign and proposed changes to the Douglas Road alignment between Buchanan Street and Halifax Street;

- a new unsignalized T-intersection at Buchanan St & Gilmore Ave (right-in, right-out, left-in);
- Lougheed Highway will be widened to accommodate six (6) travel lanes, as per the CoB Town Centre standards; and,
- Both Halifax Street and Douglas Road were modelled with two (2) travel lanes in each direction where the curbside lanes could be interchanged with street parking (off-peak).

To accommodate future 2035 forecasted traffic volumes, a comprehensive road network improvement package was presented, and this has been included, again, here in **Table 5.2**.

Table 5.2: Proposed Future Road Network Improvements (2035)

INTERSECTION	PROPOSED \MEASURES
Gilmore Ave & Halifax St * *Pedestrian-Activated Signalized*	• Additional SBT lane • Separate WB approach with 15m storage length on the WBR lane
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Madison Ave & Lougheed Hwy *Signalized*	• Additional WB and EB through lanes (CoB Town Centre Standard)

	• Coordinated signal, protected EB-WB left turns, cycle length 140 seconds in both peaks

** Based on City geometric and previous traffic studies*

Overall, the findings of the future 2035 traffic operations analysis concluded that:

- During the afternoon peak hour, the Gilmore Ave & Lougheed Hwy signal reported above-threshold volume to capacity (v/c) which resulted in significant delays on the east- and westbound left turn movements. High demands along Lougheed Highway contribute to reported congestion, which are linked to regional traffic already present on Lougheed. However, future density and growth in the Brentwood Town Centre Area will also add to these vehicle demands but through densification and urban redevelopment, may push regional demands to alternative E-W routes. Or more positively, change how people choose to commute.
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- Operations at the new Gilmore Ave & Buchanan St intersection were found to operate within acceptable performance threshold, with no requirement for a separate southbound left turn lane.
- Queues at the Halifax St & Douglas Rd (west) minor stop-control intersection (shared northbound left-right movement onto Douglas Road in the PM peak hour) were found to improve compared to

existing conditions, based on the re-routing of through traffic onto Buchanan Street. Based on these results, the tight spacing between this intersection and the new Halifax St & Carleton Ave intersection is not anticipated to be an issue. In any case, 'Do Not Block Intersection' signage should be installed at the Carleton Ave & Halifax St intersection to prevent blockage caused by eastbound queues if this occurs.

- The pedestrian signal and geometric at the Gilmore Ave & Halifax St intersection operates with acceptable performance thresholds, with no need for separate left turn lanes.

TRANSPORTATION PLANNERS AND ENGINEERS
bunt & associates

Bunt & Associates Engineering Ltd.
Suite 1550 – 1050 West Pender Street, Vancouver, BC V6E 3S7 **Tel** 604 685 6427 **Fax** 604 685 6579
Vancouver Victoria Calgary Edmonton **www.bunteng.com**

10 APPENDIX A

CHRIS DIKEAKOS
ARCHITECTS INC.

1635 W Broadway
Vancouver, BC V6J 1W9

dikeakos.com