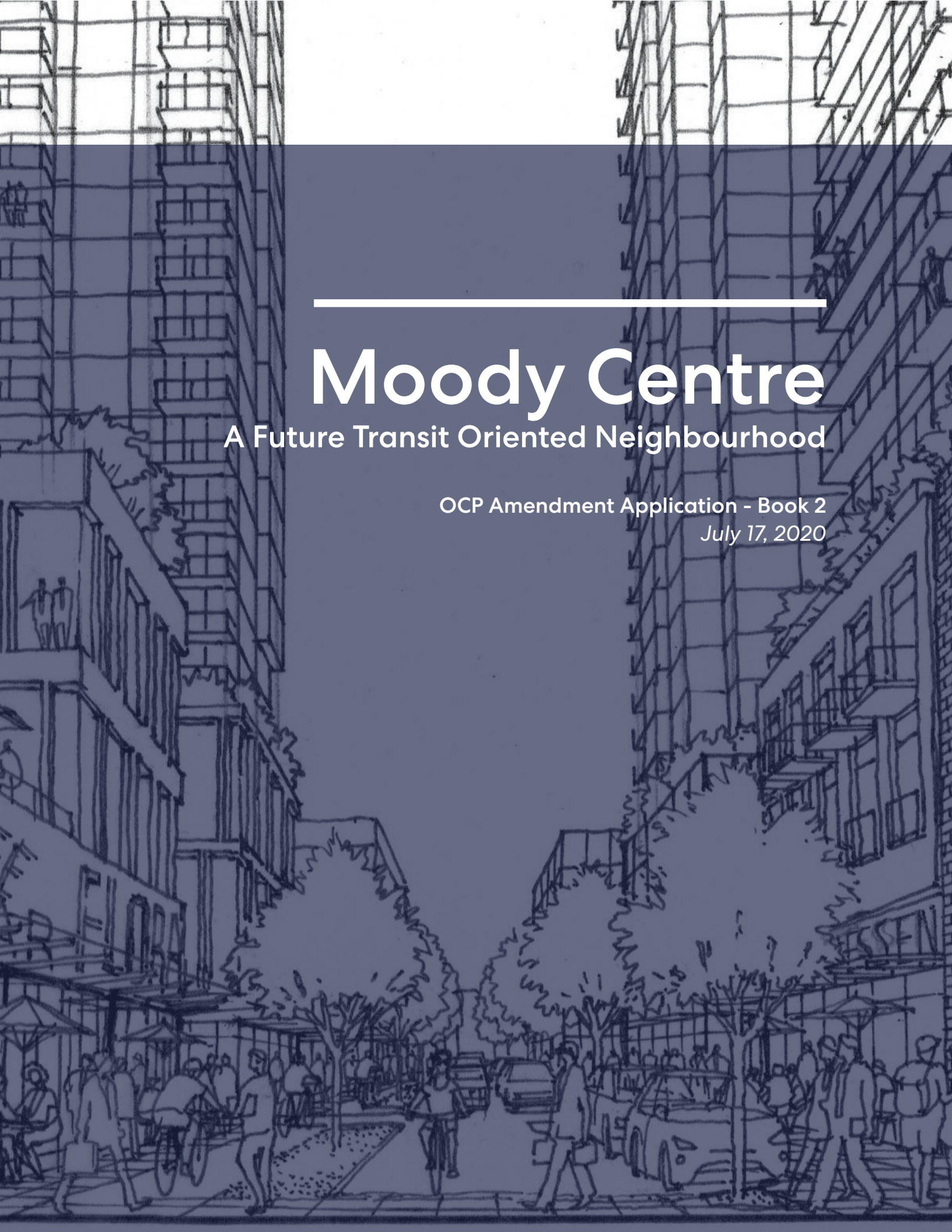


Moody Centre

A Future Transit Oriented Neighbourhood

OCP Amendment Application - Book 2

July 17, 2020

Acknowledgments

Application on behalf of the Landowner Moody Centre TOD Area Master Planning Group. The planning group is comprised of a collective of public and private owners:

Anthem Properties Group

Beedie Living

British Columbia Transportation Financing Authority

Bombelli Family

PCI Developments

Stevens Family

South Coast BC Transportation Authority (DBA TransLink)

Wildman Family

Woodbridge Homes

Prepared by:

Perkins and Will (Architecture and Urban Design)

with

Bunt and Associates (Transportation)

Butler Sundvick (Legal Survey)

Diamond Head Consulting (Arborist)

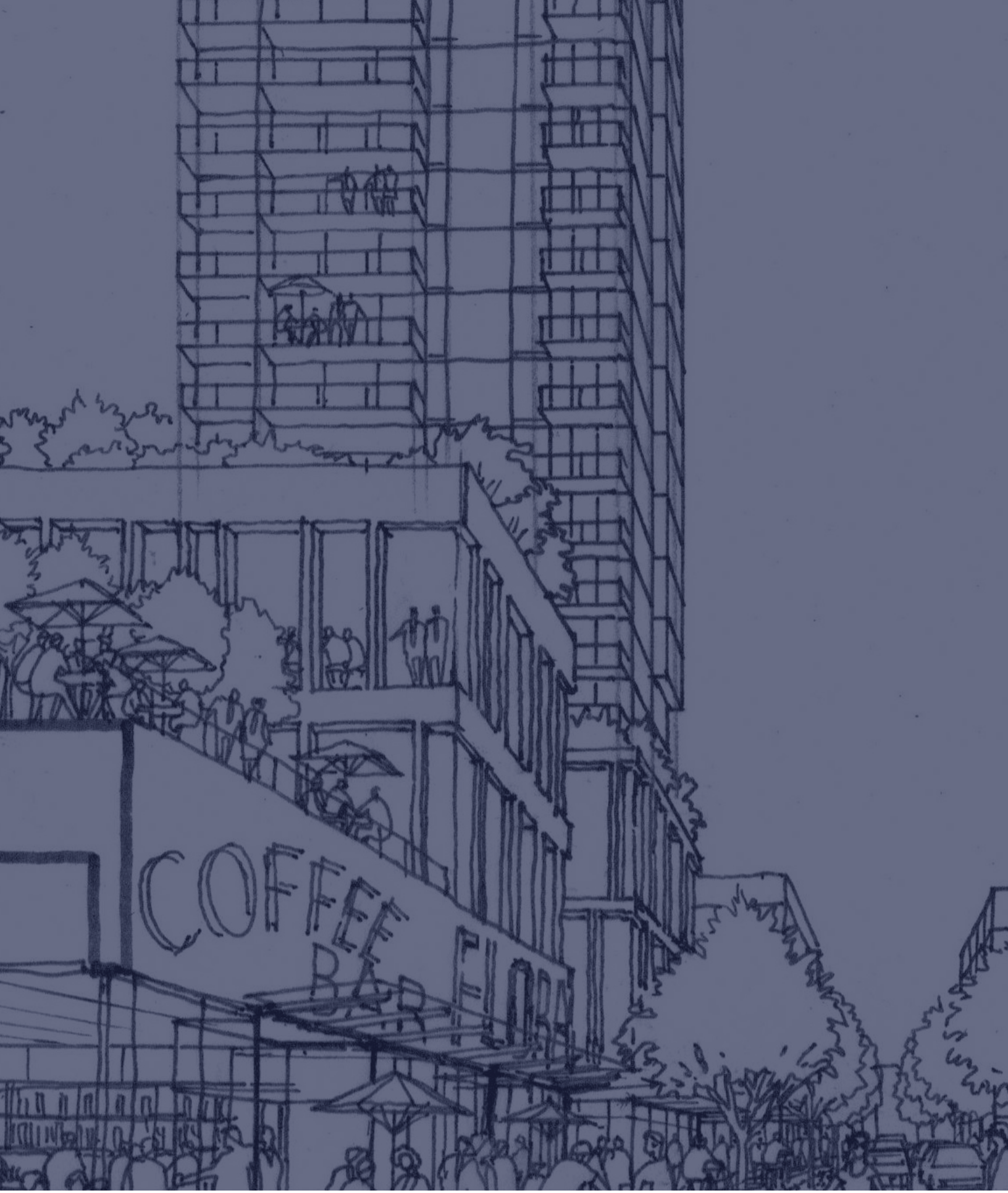
Pottinger Bird (Community Engagement)

R.F. Binnie (Civil Engineering)

Keystone Environmental (Environment)

MOODY CENTRE | TOD

Contents


COFFEE
BAR

1.0 Engagement Process

Preliminary Public Engagement Program Overview

Following 18 months of working with design experts at Perkins and Will and the City of Port Moody's Planning Department ("City Staff"), the Master Planning Group[1], with support from City Staff, began a process to engage the community and receive early input on a preliminary masterplan concept for the Moody Centre TOD Station Area. As part of the ongoing discussion, Pottinger Bird Community Relations ("Pottinger Bird") were engaged to facilitate a **Preliminary Public Engagement Program** with the Port Moody community on the future of this important neighbourhood. Port Moody's Mayor, Council and Senior City Staff were formally notified of the commencement of the Public Engagement Program detailed below.

As part of the initial phase of the Preliminary Public Engagement Program which commenced in September 2019, the Master Planning Group, with the assistance of Pottinger Bird and Perkins and Will, hosted a series of six invitational, **Stakeholder Discussion Groups** with representation from local community organizations. The Discussion Groups were focused around six important themes to help focus preliminary feedback for the Master Planning Group's consideration. The themes included:

- Environmental Interest;
- Transportation, Circulation and Public Realm;
- Housing;
- Economic Development;
- Community Associations; and
- Non-Profit and Arts Organizations.

38 members of the community participated over the course of three evenings.

Later in October 2019, the Tri Cities Chamber of Commerce hosted an event where the Master Planning Group provided a **presentation to the Tri Cities Chamber of Commerce Young Professionals Group** ("TCYP") and facilitated conversation about the future of Moody Centre. 13 members of the TCYP Group joined the presentation and provided their input on the future of this important Port Moody area.

The early input received at the abovementioned forums helped to both reaffirm the community's priorities for the Moody Centre TOD Area as identified in the Official Community Plan ("OCP"), as well as better understand the potential challenges and opportunities for this unique neighbourhood.

In October and November 2019, the Master Planning Group hosted **two Community Open Houses** to share the preliminary concept with the broader community and garner further feedback and ideas. The notification and execution of the Community Open Houses adhered to the City of Port Moody's requirements for Public Information Meetings. The intention of the Community Open Houses was to introduce the preliminary concept to Port Moody as a community. To encourage as many locals to get involved, the Master Planning Group notified all residents and businesses within a 2km radius of the TOD Area (totalling 8,209 addresses) and published two advertisements in the Tri Cities News.

Alongside this, a **project website was launched** to ensure all information being presented to the community could be accessed by those unable to attend the advertised Community Open Houses.

The Master Planning Group saw 317 people attend the two Community Open Houses to learn about and discuss the preliminary concept with representatives from each of the landowners that make up the Master Planning Group. Over the duration of the two-week comment period that followed, 141 comment forms were received on the proposal and provided further insights as to how participants wanted to be engaged on the project moving forward.

To build on the public engagement work completed in the initial phase of the Public Engagement Program, the Master Planning Group, with the assistance of Perkins and Will reviewed all feedback received in an effort to further evolve the preliminary master plan concept.

In line with this, Pottinger Bird reviewed the community's feedback on how they would like to be engaged moving forward, and a **secondary engagement phase was initiated**.

Following the first round of Community Open Houses, it was evident that there were three key topics that warranted further focused discussion. These included:

- Urban Architecture & Design;
- Public Realm & Art; and
- Transportation & Circulation.

Based on feedback on how the community wanted to be engaged, Pottinger Bird hosted a series of three invitational **Stakeholder Discussion Roundtables** in December 2019 to further these conversations. 24 members of the community participated.

As part of the secondary phase, the Master Planning Group also reached out to the **Moody Centre Community Association** in an effort to provide a presentation and facilitate a focused discussion with this important stakeholder group.

In January and February 2020, the Master Planning Group hosted a **second round of Community Open Houses** to share the evolving concept with the broader community. The Open Houses sought to again gather feedback on the revised scheme prior to a formal OCP Amendment submission and confirm the planning evolution was moving in the right direction. The notification and execution of the Community Open Houses adhered to the City of Port Moody's requirements and was consistent with that undertaken for Phase One. The second round of Community Open Houses saw 204 people attend and garnered 92 comment forms over a two-week comment period.

To conclude the Preliminary Pre-Application Public Engagement Program, the Master Planning Group reached out to three additional organizations who were identified as key stakeholder groups in the community & whose specific feedback was deemed critial prior to a formal OCP Amendment Application. These organizations included: **The Port Moody Stream Keepers (environmental interest), The Port Moody Friendship Society (accessibility interest), and the Simon Fraser University Student Society Board (student/ U35 interest).** A presentation and roundtable discussion were had with each group to gather focused input on the preliminary master plan concept.

[1] *The Moody Centre TOD Area Master Planning Group ("the Master Planning Group") is made up of eight local landowners who have collectively owned property within the Moody Centre Station TOD Area for several years. The Master Planning Group consists of Anthem, Beedie Living, the Bombelli Family, PCI Developments, the Steven's Family, TransLink, the Wildman Family and Woodbridge Homes.*

POTTINGER BIRD

COMMUNITY RELATIONS

Public Engagement Program
Phase One Summary Report

Moody Centre TOD Area Master Plan

Final Version Date: 4 December 2019

Executive Summary

The goal of Transit-Oriented Development, also referred to as "TOD", is to focus development in areas with transit, in order to create compact, walkable, and healthier communities. The *Port Moody Official Community Plan 2017* ("OCP") identifies the area surrounding the Moody Centre SkyTrain Station as the "Moody Centre Station TOD".

The Moody Centre TOD Area Master Planning Group ("the Master Planning Group") is made up of eight local landowners who have collectively owned property within the Moody Centre Station TOD Area for several years. The Master Planning Group consists of Anthem, Beedie Living, the Bombelli Family, PCI Developments, the Steven's Family, TransLink, the Wildman Family and Woodbridge Homes.

Following 18 months of working with design experts at Perkins and Will and the City of Port Moody Planning Department, the Master Planning Group, with support from City Staff, began a process to engage the community and receive early input on the preliminary masterplan concept for the Moody Centre TOD Station area. As part of the ongoing discussion, Pottinger Bird Community Relations ("Pottinger Bird") were engaged to facilitate a Preliminary Public Engagement Program with the Port Moody community on the future of this important neighbourhood.

The preliminary master plan concept envisions a complete renewal of the 23-acre site to deliver a number of land uses and public amenities for the Port Moody community. These land uses and public amenities include: housing that ranges in form, tenure and size; mixed uses including office, retail, and employment; community amenities including a large public transit plaza, additional internal plaza/ pocket park, public art, pedestrian and cyclist links; the daylighting of Dallas/Slaughterhouse Creek; a pedestrian/ bicycle overpass connecting the area to Rocky Point Park and the creation of a new Spring Street promenade.

As the initial phase of public engagement on this masterplan, the Master Planning Group, with the assistance of Pottinger Bird and Perkins and Will, hosted a series of six invitational, Stakeholder Discussion Groups with representation from local community organizations. In addition to the Stakeholder Discussion Groups, the Master Planning Group provided a presentation to the Tri Cities Chamber of Commerce Young Professionals Network to solicit early feedback on the preliminary concept.

In October and November 2019, the Master Planning Group hosted two Community Open Houses to share the preliminary concept with the broader community and gather further feedback. The notification and execution of the Community Open Houses adhered to the City of Port Moody's requirements and directives.

Port Moody's Mayor, Council and Senior City Staff were notified of the commencement of Public Engagement Program. Further details are attached herein.

STAKEHOLDER DISCUSSION GROUPS (SEPTEMBER 2019)

As the initial phase of public engagement, the Master Planning Group, in partnership with Pottinger Bird and Perkins and Will, hosted a series of six (6) invitational, themed Stakeholder Discussion Groups with representation from local community organizations, to:

- Re-confirm or renew the community's priorities for the Moody Centre TOD Area as identified in the OCP, and
- Share high-level ideas, development objectives, potential challenges and opportunities for this unique area of Port Moody and solicit early input.

Mayor, Council and Senior City Staff were notified of the commencement of public engagement, including the initial Discussion Groups, via a letter dated August 20, 2019 (**Appendix A**).

The six Stakeholder Discussion Groups were held during the week of September 23, 2019 in the categories of:

1.	Environmental Interest	September 23, 2019
2.	Transportation, Circulation and Public Realm	September 23, 2019
3.	Housing	September 25, 2019
4.	Economic Development	September 25, 2019
5.	Community Associations	September 26, 2019
6.	Non-Profit and Arts Organizations	September 26, 2019

Attendees

The format of the Stakeholder Discussion Groups was an invitational roundtable designed as the first step in a broader stakeholder engagement process. To ensure a broad cross section of community interests were represented at the table, Pottinger Bird reached out to members of various Community Committees, Board of Directors and senior staff of prominent Port Moody organizations.

A list of the organizations and community groups invited to participate, and those that attended is attached (**Appendix B**).

Format and Feedback

Each Stakeholder Discussion Group followed the same format and provided a PowerPoint presentation on the preliminary master plan concept for focused discussion. Participants feedback was recorded on large flip chart notes (**Appendix C**), and later summarized into Stakeholder Discussion Group Summary Memos (**Appendix D**) and shared with those who attended for confirmation. Discussion was focused around three key questions:

1. How do you envision Moody Centre in the next 5-10 years?
2. Is current policy still relevant, what's missing?
3. What aspects of the preliminary plan do you like, and what do you think could be improved?

The feedback received at the Stakeholder Discussion Groups was presented to the broader community at the Community Open Houses (October and November 2019) for further input and is summarised below:

1. Variety of Retail and Commercial Opportunities that Compliment Existing
    - restaurants, market / local grocer, medical space, social services, not-for-profit space, wine bar, live/ work, small scale – neighbourhood serving).

2. Connection to Nature
    - Incorporate greenery and sustainability measures wherever possible (public spaces, green roofs, urban gardens, solar adaptation, stewardship groups).
    - Celebration of the shoreline and of Dallas/Slaughterhouse Creek (daylighting the creek and appreciation through design, and stormwater management measures).

3. Innovative TOD Parking and Traffic Solutions
    - Innovative parking and traffic management solutions suitable for a TOD area (reduction of parking, move parking underground, inclusion of a Park n Ride at station, flexibility to convert roads to pedestrian only areas at certain times, car share, incentives toward alternative means of transport, accessible for all).

4. Thoughtful Building Design
    - Considered and thoughtful approach to building design and architectural features (focus on eye-level built form, preserve view corridors, stagger buildings, consider separation between buildings, mitigate potential wind tunnel effect, weather protected, Port Moody unique design).
    - Apprehension toward extreme building heights.

5. Pedestrian Friendly and Accessibility
    - Pedestrian focused (pedestrian safety, walkability, eye-level experience, welcoming spaces, lighting, consider spaces between buildings).
    - Consider way to assist/ mitigate those with mobility limitations through design (pedestrian friendly, accessibility friendly).

6. Encouragement of Multi Modal Transportation
    - Encourage alternatives to motor vehicle use (cycling facilities, car share, incentives for residents to use public transit, connection of cycling routes to other parts of Port Moody).

7. Moody Centre as a Destination
    - Potential to become a community and reginal destination (naturally draw people to the area, opportunities for live, work and play, opportunities for social gathering and entertainment, place of vibrancy).

8. Urban Spaces for Everyone
    - Range of urban spaces for different activities (entertainment, quiet reflection, social gathering and interaction, pet friendly).

9. Diverse Housing for Everyone
    - Need for diverse range of housing options (market housing, market rental, below market rental)

- Explore creative housing opportunities (rent to own, live/work, housing partnerships, artist housing and employee housing).

10. Consider Changing Demographics & Future Populations
    - Consider the housing needs of future demographics (influx of young families in need of larger homes, aging population in need of opportunities to downsize).
    - Diverse and inclusive community spaces for all (community spaces and amenities for children, families, seniors and everyone in between).
    - Consider flexible multi generations gathering spaces conducive to all mobility levels and encouraging of social interaction.
    - Need to include younger demographics in the conversation of shaping Moody Centre

11. Employment Generation for Port Moody's Future
    - Need for increased & diverse employment opportunities (increase opportunities for residents to live, work and play over a range of sectors, in Port Moody).
    - Find suitable balance between employment generating uses and appropriate density of housing to support each other.

12. City of the Arts
    - Inclusion of public art and arts celebration wherever possible and throughout the entire TOD Area
    - Consider innovative ways to long-term arts commitment (e.g. endowment fund, collaboration between property owners, flexible and changing, reflection through architecture).
    - Create spaces flexible for community events to celebrate the arts.

13. Connecting Communities
    - Need to connect Moody Centre with surrounding areas and communities (Khalanie, Suter Brook, Newport, Westport, Rocky Point Park) while creating its own identify in the City.
    - Find ways to bring Rocky Point Park into Moody Centre (connecting the two spaces & drawing people between the two easily, pedestrian overpass).
    - Consideration toward existing communities (concentrate density in one place) and existing businesses (connecting existing and new businesses to compliment each other).

14. Spring Street Promenade
    - Create flexibility for both calm traffic flow and pedestrian friendly on Spring Street (flexibility to convert to pedestrian only areas at certain times, discouragement for "rat running", primarily pedestrian focused, limit street parking).

15. Community Amenities
    - Diverse range of community amenities for all ages groups (day care, community space/ library, senior amenities).

16. Climate Change Response

- Considered climate change response through master planned design (consider growth constraints, disincentivizing traffic, sustainable building design, stormwater management practises).

17. Better Utilization of Site

- Expressed need for a better utilization of Moody Centre (do not want to see what's currently on site, need to increase livability of the area, vibrancy, unique opportunity for the City).

TRI CITIES CHAMBER OF COMMERCE YOUNG PROFESSIONALS -- COCKTAILS & CONVOS: THE FUTURE OF MOODY CENTRE PRESENTATION (OCTOBER 2019)

On October 17, 2019, the Tri Cities Chamber of Commerce hosted an event called "Cocktails and Convos: The Future of Moody Centre". At the event, the Master Planning Group provided a presentation to the Tri Cities Young Professional (TCYP) Group and facilitated conversation about the future of Moody Centre. The event sought to:

- Reaffirm the community's priorities for the Moody Centre TOD Area as identified in the Official Community Plan;
- Better understand potential challenges and opportunities for this unique area of Port Moody, through the lens of the local, young professionals' community.

The event was advertised via the Tri Cities Chamber of Commerce website 10 days in advance of the event (**Appendix E**) and was free to attend and open to all TCYP members to attend.

TCYP Event Overview

Date	October 17, 2019
Location	Tri-Cities Chamber #205 - 2773 Barnet Hwy Coquitlam
Hours	6:00 pm – 7:30 pm
Registered Attendees	13 people

Format and Feedback

Feedback from those that participated was recorded and is summarized below:

- **Attraction & Retention:** Moody Centre should be designed to attract and retain new businesses and residents to Port Moody.
- **Housing Diversity:** Residents would like to see a range of housing options offered at Moody Centre, including affordable, family-oriented, live/work and "rent to own" housing alternatives.
- **Car-Free Lifestyle:** Moody Centre should be designed to reduce car dependency and thus traffic impacts by adopting features such as a car share hub, bicycle stations and bike storage.
- **"City of the Arts":** The Master Planning Group should consider opportunities to engage local artists in the planning process.
- **Design Framework:** The design for Moody Centre should consider input from the community on the building height, setbacks and community amenities.

Following the presentation, the above summary of feedback was circulated to those that attended along with an invitation to the Community Open Houses (October and November 2019) (**Appendix F**).

COMMUNITY OPEN HOUSES (OCTOBER AND NOVEMBER 2019)

Following the September Stakeholder Discussion Groups, the Master Planning Group, in partnership with Pottinger Bird and Perkins and Will, hosted two Community Open Houses for the broader community to:

- Introduce the local landowners who make up the Master Planning Group;
- Share preliminary ideas for the Moody Centre TOD Area based on established community priorities identified in the OCP 2017;
- Share the feedback received to date (including that of the Stakeholder Discussion Groups); and
- Solicit feedback from the community and neighbours.

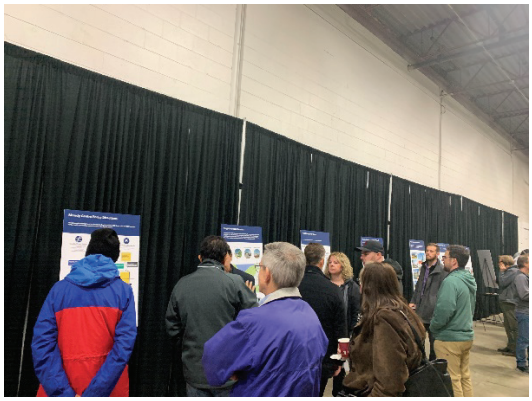
Community Notification

Two weeks prior to the first event, an official letter of notification (**Appendix G**) was mailed to residents and businesses location within a 2km+ radius of the Moody Centre TOD Area (**Appendix H**) totalling 8,209 addresses. In addition, two advertisements were published in the Tri Cities News on October 17, 2019 and October 31, 2019 (**Appendix I**).

Open House Overviews

	Community Open House #1	Community Open House #2
Date	October 30, 2019	November 2, 2019
Location	3020 Spring Street, Port Moody (Vacant Commercial Unit)	2717 St Johns St, Port Moody (Moody Elementary)
Hours	4:00 pm – 7:00 pm	11:00 am – 2:00 pm
Registered Attendees	98 people	148 people
Unregistered Attendees	11 people	60 people
Comment forms submitted at Open House	49 comment forms	88 comment forms
Comments submitted following the Open House	6 comment forms	2 comment forms
OVERVIEW		
Total Number of Attendees	317 people	
Total Number of Comments	141 comment forms	

Community Open House #1



Community Open House #2

Format and Feedback

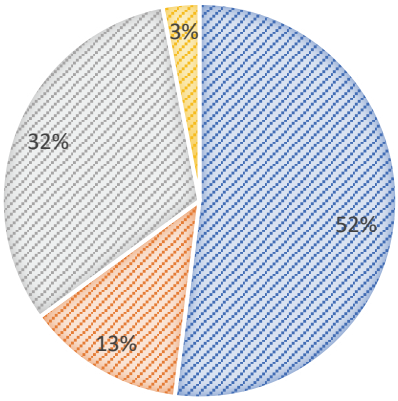
Both Community Open Houses followed the same format with 23 project boards on display (**Appendix J**), and the Master Planning Group present to answer questions. No formal presentation was made.

Comment sheets were available for participants to privately record their feedback. All comment forms received at and after the Community Open Houses have been scanned and attached to this report (with personal information redacted) (**Appendix K**).

Comment Sheet Results and Quantitative Analysis

Of the 141 comments received, we have determined that:

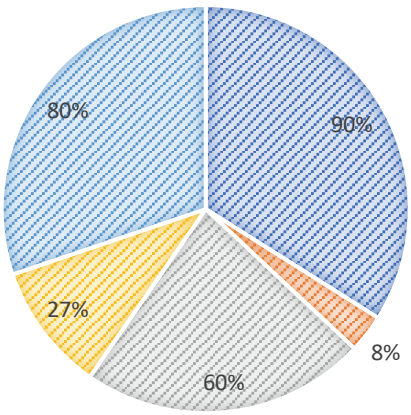
- 52% (74 respondents) voiced support for the preliminary concept
- 32% (44 respondents) voiced neutral/ mixed comments toward the project
- 13% (18 respondents) voiced opposition for the preliminary concept
- 3% (6 respondents) voiced comments that were categorized as 'other'



Of the 141 comments received, we have determined that:

Please note, some respondents identified with more than one option.

- 126 respondents (90%) people identified with "I live in the area"
- 8 respondents (6%) people identified with "I rent my home"
- 85 respondents (60%) people identified with "I frequent activities and services in the area"
- 38 respondents (27%) people identify with "I work in the area"
- 113 respondents (80%) people identified with "I own my home"



Attendees of the Community Open Houses were asked to place a pin on the map provided to indicate where in Port Moody they live. Below provides a photo of the map from each Community Open House.

Community Open House #1

Community Open House #2

Areas of Support:

Please note, comments in bold were raised by more than 5% of the total respondents.

Urban Transit Plaza, Public Realm & Connectivity	*Commercial / Retail*
• **Transit plaza and proposed public spaces (45)** • **Pedestrian focused concept (28)** • **Inclusion of a pedestrian overpass (27)** • **Improvements to Spring Street (10)** • Incorporation of bike pathways (6) • Consideration toward seniors (2)	• **Proposed mix of retail and commercial spaces (33)** • Likes the inclusion of a grocery store (7) • Increased economic benefit to Port Moody (2) • Eliminating light industrial at this location (1)
General Process	*Design*
• **Acknowledgement for the general need for revitalization at this location (26)** • **Recognition as a good opportunity for future generations (11)** • Appreciation for a consolidated plan between developers (7) • Moody Centre as a destination (2) • Likes presented development principles (1)	• **Proposed mix of uses (24)** • **"live/work/play" focused (10)** • Proposed "urban feel" (2) • Proposed design (2)

Environment/ Sustainability	*Height and Density*
• **Daylighting Dallas/ Slaughterhouse Creek (25)** • **Consideration toward nature and sustainability (9)**	• **Proposed mix of density (18)** • **Consideration of views/shadow impacts (7)** • Likes how the density steps down across the site (2) • Tower layout and separations (1)
Housing	*Public Art*
• **Proposed housing diversity (11)** • Inclusion of below market housing (2) • Inclusion of family housing (1)	• Celebration of the arts (4)
Traffic, Parking & Multi Modal Transportation	*Community Amenities*
• Underground parking (4) • Proposed multi modal transit approach (2)	• Proposed community amenities (2)

Areas for Improvement and Suggestions:

Please note, comments in bold were raised by more than 5% of the total respondents.

Traffic, Parking & Multi Modal Transportation	*Height and Density*
• **Concern for increased traffic congestion (within and surrounding the master plan area) (26)** • **Include pick up/ drop off zones for cars, car/bike share, ride share/hailing (12)** • **Make Spring Street a Car Free Zone (8)** • Need to improve cycling infrastructure (5) • Need for traffic calming measures on Spring Street & throughout the site (4) • Concern for increased parking (4) • Include EV charging stations (3) • Need to be less car focused (4)	• **Proposed towers are too high (21)** • **Proposal is too dense (19)** • **Concern for loss of views and corridor corridors (12)** • Keep tower heights to 26 stories as per the OCP (3) • Increase the number of towers (2) • Concern for impact on sunlight (2) • Group towers closer together (2) • Make buildings denser/ shorter to maximise open space (1) • Include more mid-rise buildings (1) • Consider increasing the density (1)
Commercial / Retail	*Urban Transit Plaza, Public Realm & Connectivity*
• **Increase amount of retail and commercial spaces (15)** • Small scale retail (5) • Less housing focused, more employment based (4) • Consider incentives to attract new businesses (3) • Consider educational anchor tenants (3) • Keep some affordable light industrial spaces (2) • Consider including a hotel (2) • Focus on eco-friendly businesses (1) • Not a suitable location for a tech-hub (1) • Ensure there is a diversity of jobs (1)	• **Increase the amount of useable public spaces and green space (13)** • **Include pet friendly spaces (10)** • Ensure there are weather protected spaces for year-round use (5) • Include children play spaces (3) • Consider adding another overpass (3) • Improved intergenerational spaces (2) • Increase bike and walking trails (2) • Ensure there is adequate lighting (2) • Increased connection to Rocky Point Park (1) • Include large sidewalks throughout site (1) • Explore different flooring for plaza (i.e. not just pavement) (1)

• Ensure there is a diversity of uses (1) • Encourage water sport and recreational uses (1) • Ensure flexibility through zoning for a diverse range of businesses (1) • Include a community police station (1) • Include artist working spaces (1) • Increase the ratio of live/work to Newport Village (1)	• Include lots of benches (1) • Include an elevator at the pedestrian overpass (1) • Increase the amount of social spaces (1) • Increase site permeability (1) • Include pedestrian access to the station from Moody Street (1) • Want to see inclusion of First People's art and culture (1) • Increase opportunity for "vibrant streets" (1) • Consider "First Peoples Principals of Learning" (1) • Consider an overpass across St Johns Street (1) • Consider adding another overpass (1)
General Process	*Public Art*
• **Encouragement to "get a move on" (9)** • **Encouragement for Council to work with landowners throughout process (7)**	• **Increased meaningful art reflection (12)** • Want to see inclusion of First People's art and culture (2)
Design	*Environment/ Sustainability*
• **Need for innovative designs (sustainable, high quality, creative, unique) (8)** • Keep the character of Port Moody in mind (7) • Consider wind tunnel effect in design (1) • Consider underground power lines (1) • Preserved waterfront (1)	• Need for a climate change response (5) • Improved connection to nature (3) • Include more trees (2) • Consider noise pollution (2) • Increased environmental benchmarks (1) • Less open spaces (1) • Daylighting Dallas/Slaughterhouse Creek will be unattractive (1) • Change the name of Dallas/Slaughterhouse Creek (1)
Housing	*Considerations*
• Increase the amount of below market housing (5) • Increase the amount of purpose-built rental homes (4) • Include ground-oriented townhomes (3) • Make sure housing is affordable (1) • Consider co-op housing (1) • Need to incentivize rental housing (1) • Need to make adaptable housing a priority (1)	• Consider potential impacts on Rocky Point Park (6) • Port Moody is becoming overpopulated (6) • Consideration toward Port Moody's existing waste infrastructure (3) • Consider Port Moody's aging population (2) • Make Moody Centre a destination (2) • Port Moody is becoming over developed (2) • Port Moody's growth targets are low (1) • Consider expanding the master plan area (1) • Consider boat launch needs (1) • Consider school capacities and future population of children (1)

Transit Comments	*Community Amenities*
• Increase the number of cars on the Evergreen line train (2) • Improved bus services (1) • Consider adding a ferry to Deep Cove (1) • Consider developing a plan that will bridge the railway entirely (1)	• Need to incentivize day care (3) • Include free community amenities (community centre, library etc.) (2)
Presented Open House Information	

• Show surrounding developments on materials in future (2)
• Present more cost analysis information on the project (2)
  ○ Businesses gained vs. businesses lost
  ○ Explanation of where the proposed job numbers came from
• Consider public education of concept stage & density = amenities (1)
• More information on timing for current tenants (1)
• More detailed information is required (1)
• More information on how the park and ride and bus loop will work together (1)	

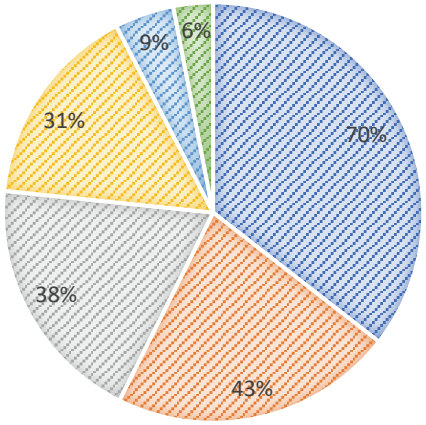
Appendix K provides a scanned copy of the comment forms received.

Future Engagement

As part of the initial phase of public engagement, we asked participants at the Community Open Houses how they would like to be engaged in the future redevelopment of the Moody Centre TOD Area. The feedback received is outlined below and will inform the next phase of engagement with the community.

Of the 139 comment forms received, it was determined that the community would like to be engaged in the following ways:

- 70% (98 people) - Community Open Houses
- 43% (60 people) - Online Surveys
- 38% (53 people) - Small Roundtable Discussions
- 31% (42 people) - Walking Tour of the Site
- 9% (13 people) - Phone Canvass
- 6% (8 people) – Other (*including: emails/mailing list, one on one meeting, phone calls, snail mail, via the City's website, online discussions)*

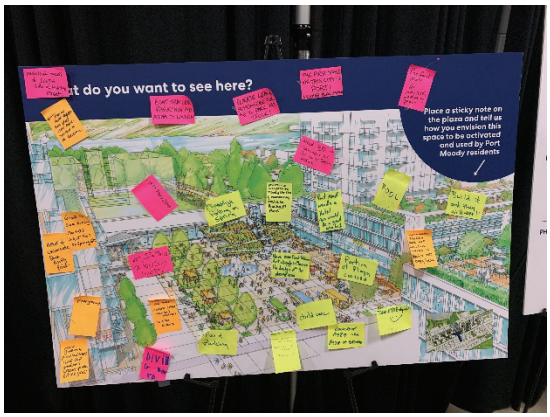


Please note, some respondents identified with more than one option.

Future Transit Plaza Activity

The proposed future transit plaza is envisioned to be animated all hours of the day through diverse retail and inclusive public spaces designed to accommodate all ages and mobilities with a new connection to Rocky Point Park. Participants of the Community Open Houses were asked to place a sticky note on the plaza and tell us how they envision the space to be activated (Appendix L).

Community Open House #1



Community Open House #2

A summary of what we heard is below:

- Desire for pedestrian overpass to Rocky Point Park;
- Comments on parking management within the TOD Area;
- Comments on proposed heights fronting the Transit Plaza;
- Covered spaces for rain protection;
- Meaningful & interactive public art display and artist spaces;
- Sunlight, gardens, trees and roof top gardens;
- Ideas for community amenities / uses at the Transit Plaza *(i.e. health services, seniors' space, urgent care centre, recreation centre, library, grocery store, childcare, café, hotel, restaurants/ bars, pet store, post secondary education facilities);* and
- Ideas for community activities at the Transit Plaza *(i.e. farmers markets, community festivals, playground, public stage, dog friendly spaces, lots of benches).*

WEBSITE LAUNCH (NOVEMBER 2019)

On November 3, 2019 the Master Planning Group launched an informational website about the Moody Centre TOD Area and their preliminary master plan concept. The website aims to serve as a hub of information, including the relevant policies, engagement to date, and the preliminary concepts for this unique area. The website domain is www.moodycentretod.ca and will be updated as consultation and the vision progress.

PUBLIC ENGAGEMENT PROCESS - PHASE TWO (NOVEMBER 2019 – JANUARY 2020)

Based on feedback received from the community on both the preliminary master plan concept, and on how the community would like to be engaged, Pottinger Bird will commence Phase Two of the Public Engagement Program as summarized below.

Focus Groups

Phase One of the Public Engagement Program has indicated that many in the community are interested in participating in more focused discussions around certain aspects of the preliminary master plan. Based on conversations and feedback received to date, we have determined these focus areas to include:

1. Transportation & Circulation;
2. Urban and Architectural Design; and
3. Public Realm and Art

Walking Tours

Phase One of the Public Engagement Program has indicated that many in the community are interested in participating in walking tours of the TOD and Master Plan Area, intended to help members of the community better visualize the preliminary concept and better inform their feedback.

Moody Centre Community Association (MCCA)

The MCCA is the local Community Association whose boundaries roughly encompass Albert and Barnet Streets to the west, Moray to the east, and north to south from the Burrard Inlet to the Chines Hillside. As the Moody Centre TOD Area falls within the MCCA catchment, the Master Planning Group would like to offer a presentation to the MCCA to:

- Introduce the local landowners who make up the Master Planning Group;
- Share ideas for the Moody Centre TOD Area based on established community priorities identified in the OCP 2017;
- Share the feedback received to date; and
- Receive feedback from the MCCA specifically.

The Master Planning Group have reached out to the MCCA Executive to request the opportunity to present at one of their upcoming meetings.

Breweries

As an immediate neighbour, the Master Planning Group wish to connect with representatives of Brewery Row on Murray Street to ensure they are involved in the evolution of the master plan concept. The Master Planning Group have reached out to Brewery Row representatives to host an information session with their stakeholder group. The information session is tentatively scheduled to take place in November/ December 2019.

Community Open Houses #3 and #4

Phase One of the Public Engagement Program has indicated that majority of those interested in remaining engaged in the master planning process would like to participate via Community Open House forums. As has always been the intention of the Master Planning Group, Phase Two of the Public Engagement Program will involve hosting another round of Community Open Houses, to:

1. Present a revised concept for the Moody Centre TOD Area (based on feedback received);
2. Share the feedback received to date; and
3. Solicit feedback from the community and neighbours.

The Community Open Houses will follow the same format as Phase One of the Public Engagement Program and will present the same information at both events.

APPENDIX:

A. Letter to Mr. Tim Savoie, Mayor and Council: Notification of Public Engagement Process
B. Stakeholder Discussion Group Guestlist and Attendees
C. Stakeholder Discussion Group Flip Chart Notes
D. Stakeholder Discussion Group Summaries
E. Tri Cities Chamber of Commerce Young Professionals Invite
F. Tri Cities Chamber of Commerce Young Professionals Summary
G. Community Open House Notification
H. Community Open House Notification Boundary
I. Community Open House Tri Cities News Advertisement
J. Community Open House Display Boards
K. Community Open House Comment Cards
L. Community Open House Future Transit Plaza Activity Scanned Copy

Appendices available upon request – please contact moodycentre@pottingerbird.com

POTTINGER BIRD

COMMUNITY RELATIONS

Public Engagement Program
Phase Two Summary Report

Moody Centre TOD Area Master Plan

Final Version Date: 14 February 2020

Executive Summary

The goal of Transit-Oriented Development, also referred to as "TOD", is to focus development in areas with transit, in order to create compact, walkable, and healthier communities. The *Port Moody Official Community Plan 2017* ("OCP") identifies the area surrounding the Moody Centre SkyTrain Station as the "Moody Centre Station TOD".

The Moody Centre TOD Area Master Planning Group ("the Master Planning Group") is made up of eight local landowners who have collectively owned property within the Moody Centre Station TOD Area for several years. The Master Planning Group consists of Anthem, Beedie Living, the Bombelli Family, PCI Developments, the Steven's Family, TransLink, the Wildman Family and Woodbridge Homes.

Following 18 months of working with design experts at Perkins and Will and the City of Port Moody Planning Department, the Master Planning Group, with support from City Staff, began a process to engage the community and receive early input on the preliminary masterplan concept for the Moody Centre TOD Station area. As part of the ongoing discussion, Pottinger Bird Community Relations ("Pottinger Bird") were engaged to facilitate a Preliminary Public Engagement Program with the Port Moody community on the future of this important neighbourhood.

The preliminary master plan concept envisions a complete renewal of the 23-acre site to deliver a number of land uses and public amenities for the Port Moody community. These land uses and public amenities include: housing that ranges in form, tenure and size; mixed uses including office, retail, and employment; community amenities including a large public transit plaza, additional internal plaza/ pocket park, public art, pedestrian and cyclist links; the daylighting of Dallas/Slaughterhouse Creek; a pedestrian/ bicycle overpass connecting the area to Rocky Point Park and the creation of a new Spring Street promenade.

To build on the public engagement work completed in Phase One[1], the Master Planning Group, with the assistance of Pottinger Bird and Perkins and Will, hosted a series of three invitational Stakeholder Discussion Roundtables in December 2019, with members of the community who expressed interest during Phase One.

In January and February 2020, the Master Planning Group hosted a second round of Community Open Houses to share the evolving concept with the broader community and gather further feedback. The notification and execution of the Community Open Houses adhered to the City of Port Moody's requirements and directives and were consistent with that undertaken for Phase One.

Port Moody's Mayor, Council and Senior City Staff were notified of the commencement of Phase Two of the Public Engagement Program. Further details are attached herein.

1. *Refer to "Final Public Engagement Program (Phase One) Summary Report"- Dec 4, 2019 for Phase One findings.*

COMMUNITY STAKEHOLDER GROUPS PRESENTATIONS

Following the initial phase of public engagement (Phase One), the Master Planning team reached out to two community stakeholder groups to offer an overview and more in-depth discussion on the preliminary concept for the Moody Centre TOD Area. These groups were:

- The Moody Centre Community Association (MCCA); and
- The Murray Street Brewery Ownership and Employee network.

No formal meetings were confirmed at the time of writing this report.

STAKEHOLDER DISCUSSION ROUNDTABLES (DECEMBER 2019)

The initial phase of public engagement (Phase One) consisted of a series of six themed stakeholder workshops, and two Community Open Houses (September – November 2019). These forums helped in the identification of three key areas for further exploration to help inform the next iteration of the Moody Centre TOD masterplan concept; these included:

1. Urban Architecture & Design
2. Public Realm & Art
3. Transportation & Circulation

With the assistance of Bunt & Associates, and Perkins and Will, Pottinger Bird hosted three invitational, themed discussion roundtables to further explore each of the above noted categories. Attendees were invited based on their response to a question asked during the first round of Community Open Houses – *"How would you like to be engaged in the future redevelopment of the Moody Centre TOD Area?".* Those who checked the box *"By participating in small roundtable discussions"* and provided their permission to be contacted, were invited to participate.

The three Stakeholder Discussion Roundtables were held in December 2019, in the categories of:

1. Urban and Architectural Design	December 2, 2019
2. Public Realm and the Arts	December 2, 2019
3. Transportation and Circulation	December 9, 2019

Attendees

The format of the Stakeholder Discussion Roundtables was an invitational roundtable. Attendees were invited based on their response to a question asked during the first round of Community Open Houses – *"How would you like to be engaged in the future redevelopment of the Moody Centre TOD Area?".* Those who checked the box *"By participating in small roundtable discussions"* and provided their permission to be contacted, were invited to participate.

Format and Feedback

Each Stakeholder Discussion Group followed the same format and provided a PowerPoint presentation on the evolved concept with specific focus on the individual discussion group category. Participants feedback was recorded on large flip chart notes (Appendix A), and later summarized into Stakeholder Discussion Roundtable Summary Memos (Appendix B) and shared with those who attended for confirmation.

COMMUNITY OPEN HOUSES (JANUARY AND FEBRUARY 2020)

Following the December Stakeholder Discussion Roundtables, the Master Planning Group, in partnership with Pottinger Bird and Perkins and Will, hosted the second round of Community Open Houses for the broader community to:

- Share our ideas for the Moody Centre TOD Area based on community feedback and established priorities identified in the OCP 2017.
- Share the feedback we've received to date.
- Receive further feedback from the community and our neighbours

Community Notification

Two weeks prior to the first open house, an official letter of notification (**Appendix C**) was mailed to residents and businesses location within a 2km+ radius of the Moody Centre TOD Area (**Appendix D**) totalling 8,188 addresses. In addition, two advertisements were published in the Tri Cities News on January 23, 2020 and January 30, 2020 (**Appendix E**).

Open House Overviews

	Community Open House #3	Community Open House #4
Date	January 28, 2020	February 1, 2020
Location	2715 Esplanade Ave, Port Moody (Old Mill Boathouse)	2717 St Johns St, Port Moody (Moody Elementary)
Hours	5:00 pm – 8:00 pm	11:00 am – 2:00 pm
Registered Attendees	60	124
Unregistered Attendees	3	17
Comment forms submitted at Open House	21	60
Comments submitted following the Open House	5	6
OVERVIEW		
Total Number of Attendees	204 people	
Total Number of Comments	92 comment cards	

Community Open House #3

Community Open House #4

Format and Feedback

Both Community Open Houses followed the same format with 35 project boards on display (**Appendix F**), and the Master Planning Group present to answer questions. No formal presentation was made.

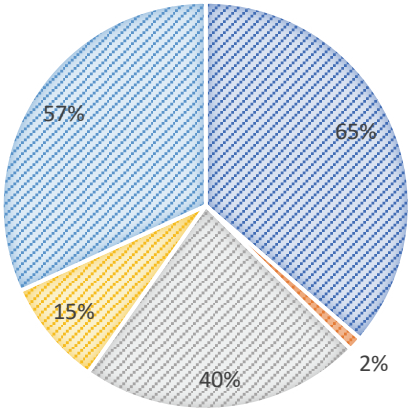
Comment sheets were available for participants to privately record their feedback. All comment forms received at and after the Community Open Houses have been scanned and attached to this report (with personal information redacted) (**Appendix G**).

Comment Sheet Results and Quantitative Analysis

Of the 92 comments received, we have determined that:

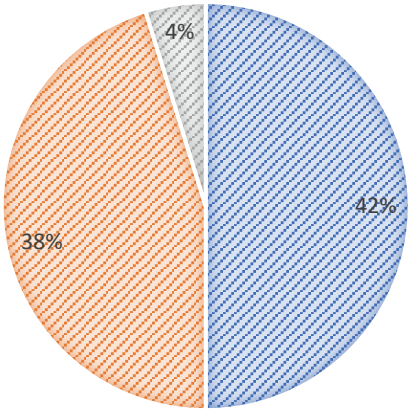
Please note, some respondents identified with more than one option.

- 71 respondents (65%) identified with "I live in the area"
- 2 respondents (2%) identified with "I rent my home"
- 44 respondents (40%) identified with "I frequent activities and services in the area"
- 16 respondents (15%) identify with "I work in the area"
- 62 respondents (57%) identified with "I own my home"



Of the 92 comments received, we have determined that:

- 46 respondents (42%) had attended our previous round of Community Open Houses in October and November 2019
- 42 respondents (38%) was attending one of our Community Open Houses for the first time
- 4 respondents (4%) did not answer

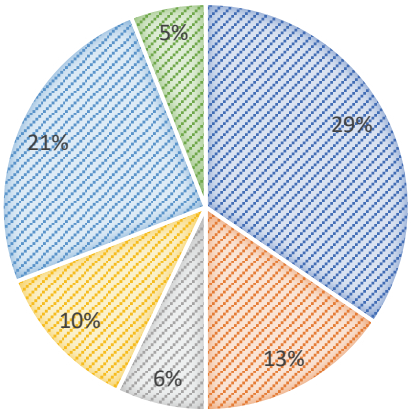


In response to the question:

"Are you in support of exploring tower height above 26 storeys, in select locations on the north side of Spring Street, to facilitate provision of all public amenities as identified in the OCP and Phase One of the TOD Master Planning Process?"

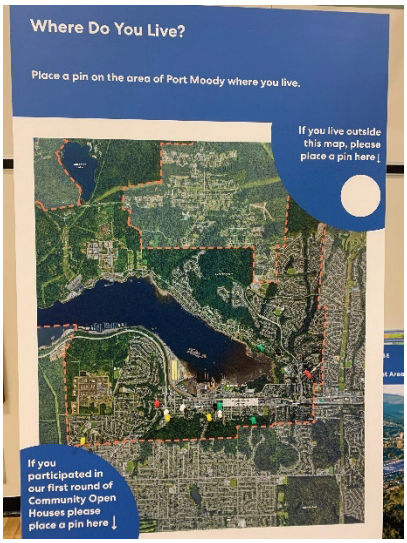
It was determined that:

- 32 respondents (29%) marked they were "Strongly in support"
- 14 respondents (13%) marked they were "More supportive than opposed"
- 7 respondents (6%) marked they were "Undecided"
- 11 respondents (10%) marked they were "More opposed than supportive"
- 23 respondents (21%) marked they were "Strongly opposed"
- 5 respondents (5%) did not answer

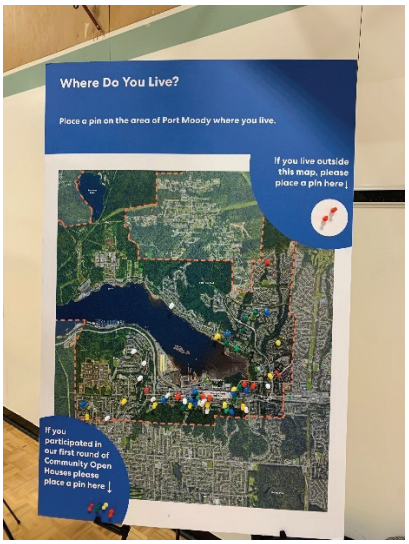


Attendees of the Community Open Houses were asked to place a pin on the map provided to indicate where in Port Moody they live. Below provides a photo of the map from each Community Open House.

Community Open House #3



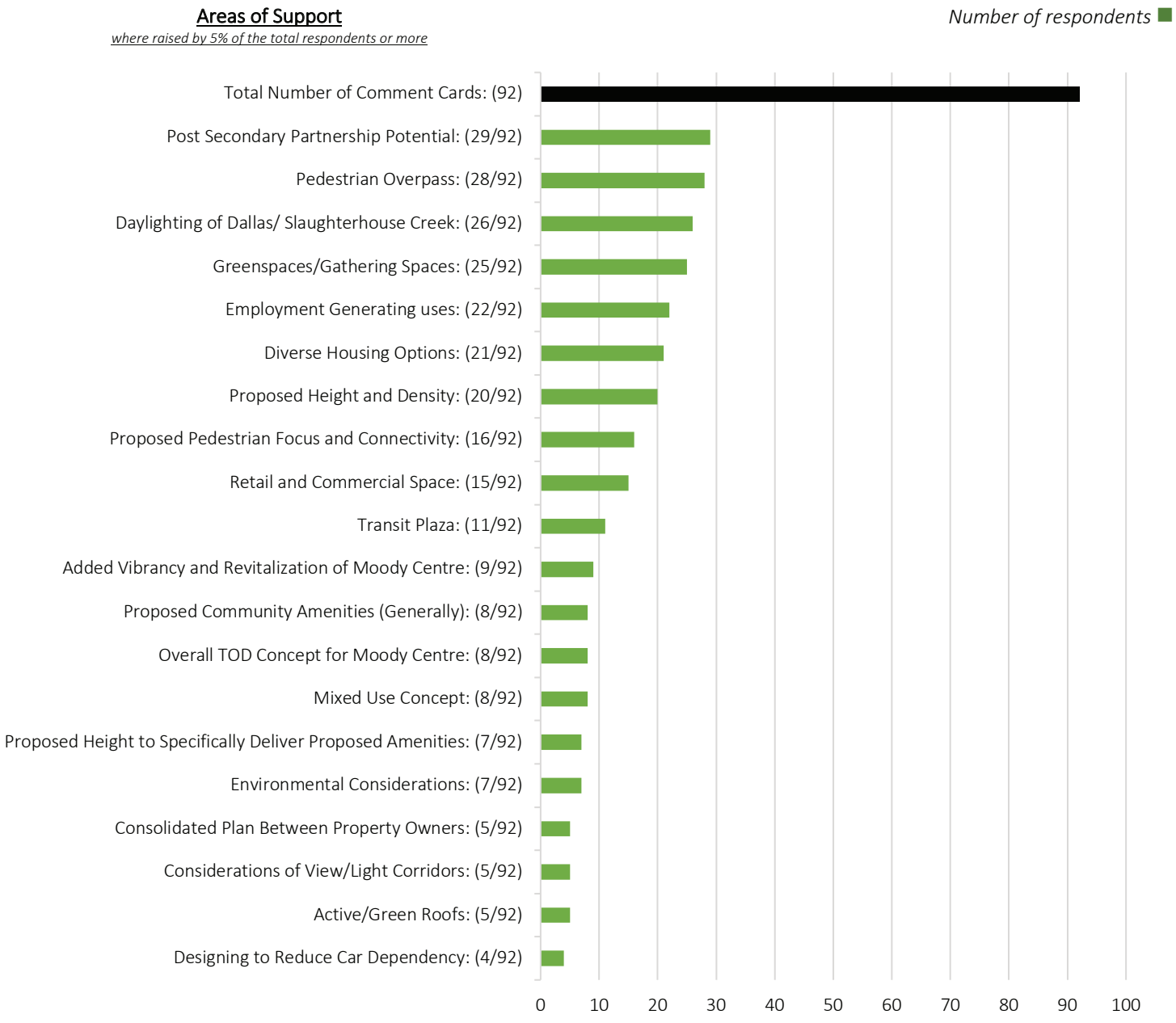
Community Open House #4



Areas of Support:

Below provides an overview of the feedback received in response to the question *(where raised by 5% of the total respondents (92) or more):*

"Are there elements of the evolved concept that you like? If so, what are they?"



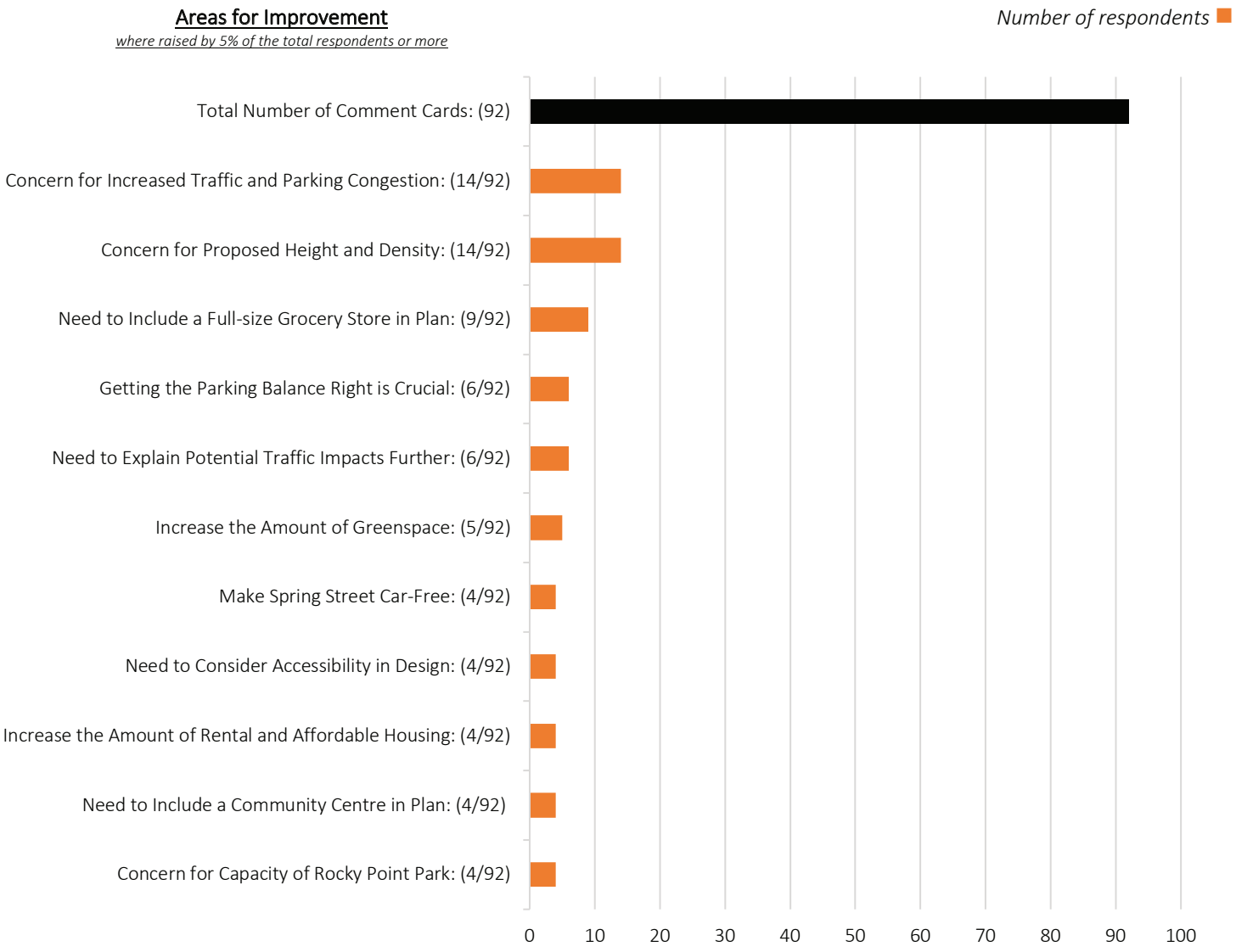
Appendix H provides an overview of the remaining feedback, where raised by less than 5% of the total respondents (92).

Appendix G provides a scanned copy of the comment forms received.

Areas for Improvement:

Below provides an overview of the feedback received in response to the question *(where raised by 5% of the total respondents (92) or more):*

"Are there elements of the evolved concept that you believe could be improved? If so, how might they be improved?"



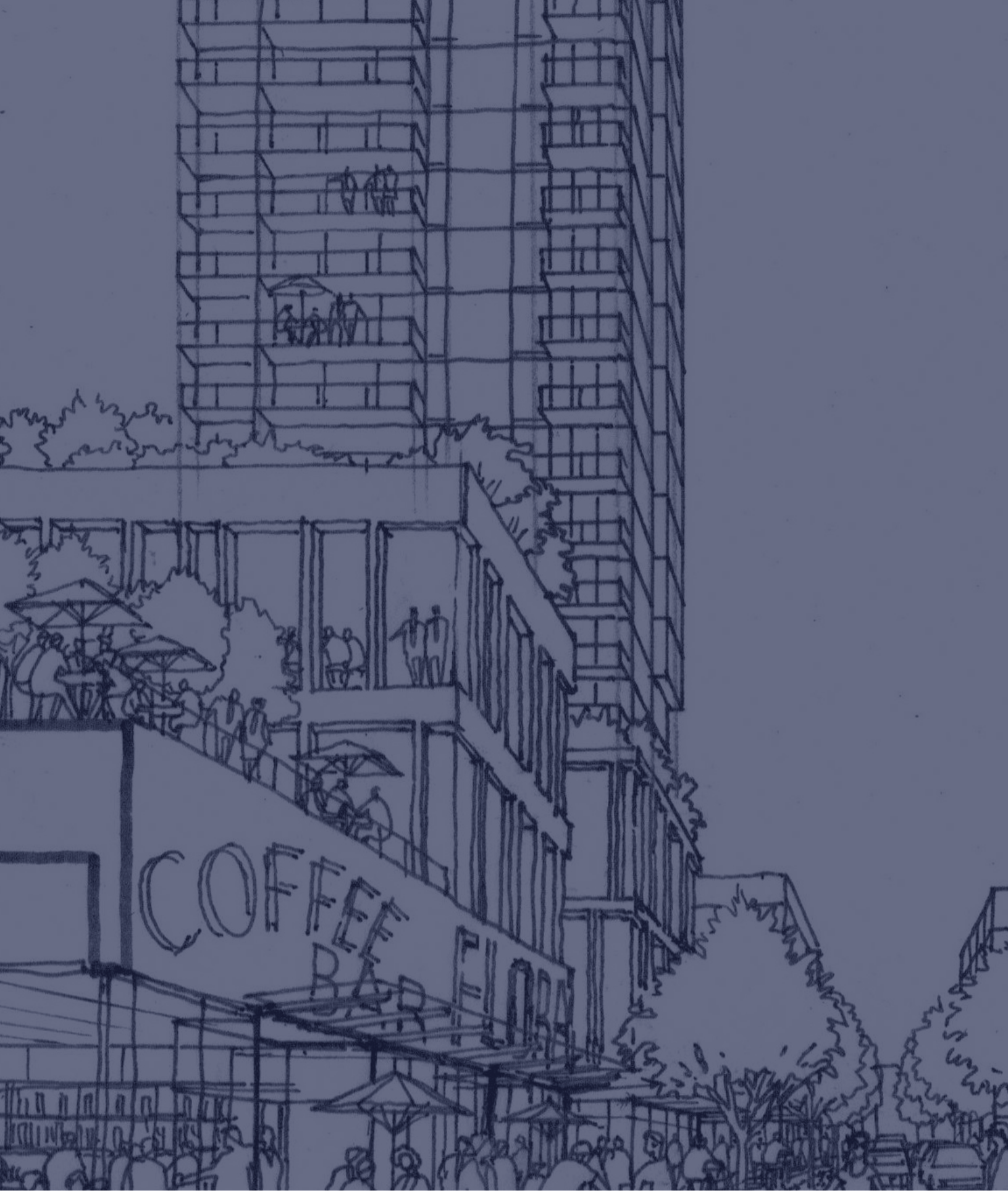
Appendix H provides an overview of the remaining feedback, where raised by less than 5% of the total respondents (92).

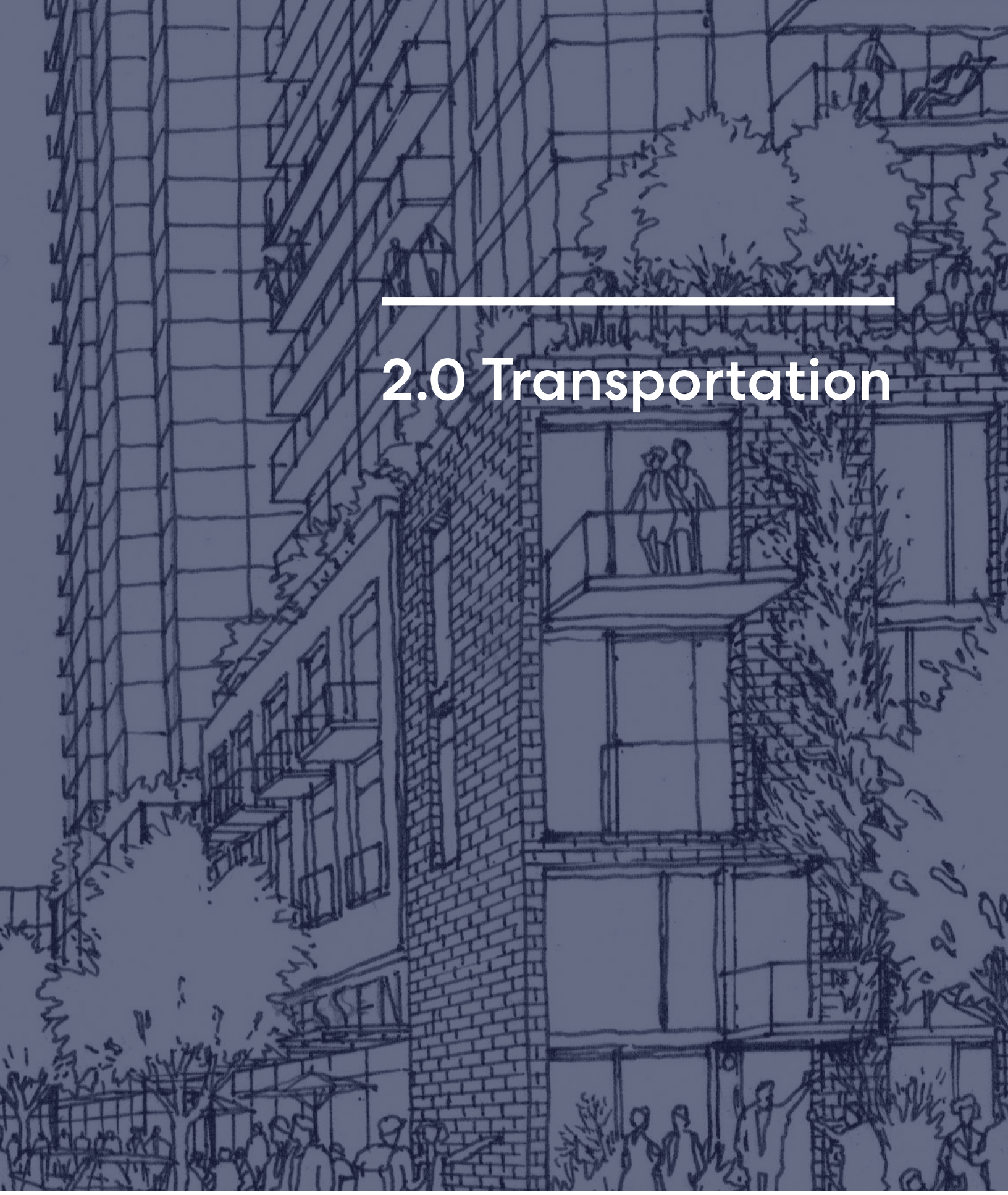
Appendix G provides a scanned copy of the comment forms received.

APPENDIX:

Appendix A - Discussion Roundtable Flip Chart Notes
Appendix B - Discussion Roundtable Summary Memos
Appendix C - Round Two Community Open House Notification
Appendix D - Round Two Community Open House Notification Radius Map
Appendix E - Round Two Community Open House Notification Tri Cities News
Appendix F - Round Two Community Open House Display Boards
Appendix G - Round Two Community Open House Scanned Comment Cards
Appendix H - Round Two Community Open House Additional Comments

Appendices available upon request – please contact moodycentre@pottingerbird.com


COFFEE
BAR



2.0 Transportation

May 5, 2020
04-18-0289

Moody Centre TOD Planning Group
c/o Brad Howard
Senior Development Manager
PCI Developments
300 – 1030 West Georgia Street
Vancouver, BC
V6E 2Y3

VIA E-MAIL: bhoward@pci-group.com

Dear Brad:

Re: Moody Centre Station Master Plan – DRAFT V1
Visum Modelling Exercise

As requested, Bunt & Associates has completed a Visum modelling exercise looking at the transportation impact of redeveloping the area around Moody Centre Station in Port Moody, BC. Included in this letter is a description of the methodology used to carry out the modelling, results of the model, and a number of conclusions highlighting the benefits that a project of this scale can have for the City of Port Moody.

We trust the results will help in discussing with the City and moving the project towards the Master Planning stage. Please do not hesitate to contact us if you have any further questions.

Yours truly,
Bunt & Associates

Nicolas Moss, EIT
Transportation Analyst

Yulia Liem, P.Eng., PTOE
Senior Transportation Engineer

cc. Katie Maslechko, Beedie
Jeff Moi, City of Port Moody
Stephen Judd, City of Port Moody

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

1. INTRODUCTION

The City of Port Moody, as part of their Master Transportation Plan, has set a mode split target of having 40% of all trips by non-auto modes by 2040. However, in response to the recent climate emergency declaration, achievement of this target has been advanced to 2030. To help reduce the reliance on cars and achieve a lower auto mode split than the overall City target, high-density developments are being planned near rapid transit stations with good connectivity to local amenities.

Like most major corridors around the region, major corridors in Port Moody, namely St. Johns Street and Clarke Street / Murray Street, are approaching or at capacity during the weekday peak periods. These roads carry external traffic through Port Moody from the eastern municipalities of Coquitlam, Port Coquitlam, Pitt Meadows, and Maple Ridge. With the densification planned in City Centre and along the rapid transit corridor, projecting the trips generated by new developments for each mode is an important step in understanding the impact on the road network and determining whether any improvements are required or not.

Port Moody is served by two rapid transit lines, West Coast Express (WCE) commuter rail and the SkyTrain's Millennium Line. Currently, Moody Centre Station is the only station in the City that serves both WCE and SkyTrain, along with its associated bus exchange. Farther east, Inlet Centre Station only serves the SkyTrain, and an additional new SkyTrain station may be built to the west to support future densification in the area.

As recent amendments to the Official Community Plan that have been approved or are being considered could increase growth beyond that considered in Port Moody's Master Transportation Plan, City staff and council would like more robust assurance that a proposed transit-oriented development at Moody Centre Station will not significantly increase the vehicle trips, bring the already congested corridors to failing conditions, or cause the need for major infrastructure improvements. Similarly, the sustainable transport system, particularly transit, will need to be able to support trips from the planned densification in order to support a non-auto mode split greater than the overall City target of 40%.

Bunt & Associates (Bunt) was retained by PCI on behalf of the developers near Moody Centre Station – Anthem, Beedie, and Woodbridge – to assist with the above noted tasks. In collaboration with City of Port Moody Engineering staff, Bunt developed an analysis methodology using TransLink's Regional Travel Model (RTM) 3.3 and Visum macro-modelling software developed by PTV. This letter outlines the modelling methodology as accepted by City of Port Moody Engineering staff, key analysis assumptions, results of model testing, and Bunt's conclusions.

2. MODELLING METHODOLOGY

2.1 Overview

The modelling methodology followed the below steps:

i. Define the study area network that covers the Moody Centre area from Barnet Highway in the west to Ioco Road in the east;

ii. Create a subarea model of TransLink's Regional Travel Model (RTM) 3.3 for the study area using Emme software;

iii. Break down RTM Transportation Analysis Zones (TAZ) into smaller zones for analysis using the Visum software, and determine how to proportion the residents and employment from each TAZ into its constituent Visum zones;

iv. Import the RTM's origin/destination (O/D) data into Visum from Emme, and disaggregate the data to produce full O/D matrices for the Visum zones;

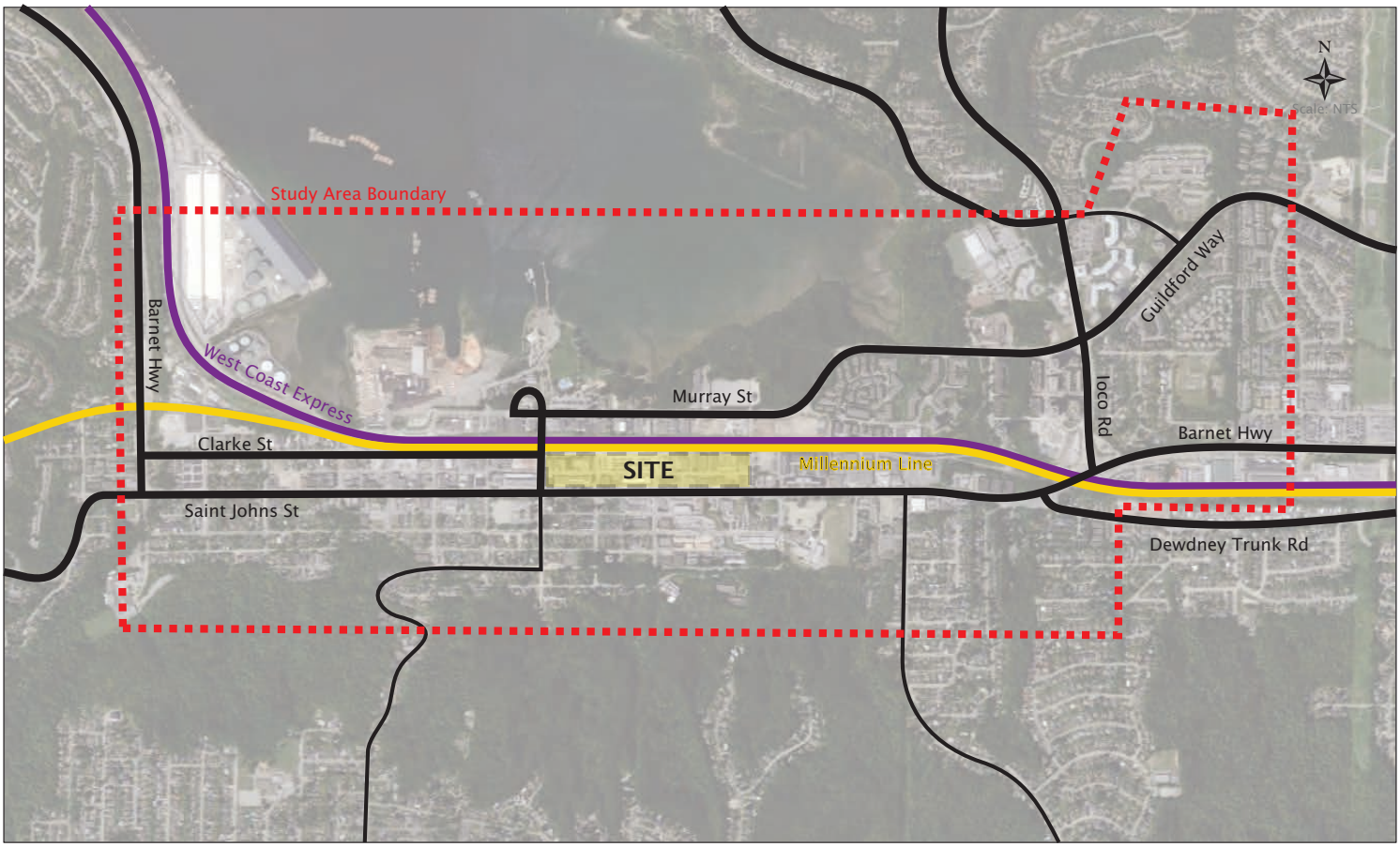
v. Calibrate RTM 2017 data in Visum to better match traffic count data at major intersections within the study area;

vi. Run the Visum model for future horizon using 2050 data, and compare to 2017 results.

2.2 Base Export from Emme

Much of the base data for this exercise comes from TransLink's Regional Travel Model (RTM), version 3.3. This model breaks down regionwide travel patterns across all modes into 1741 Transportation Analysis Zones (TAZ) based on current (2017) and forecasted (2035 & 2050) population and employment. In order to use this data to analyze future changes specific to the Moody Centre area, the subarea tool in Emme was used to extract a section of the regional data based on this project's study area, as shown in **Exhibit 2.1**. This way, traffic exiting or entering the study area can be aggregated into a much smaller number of data points rather than keeping the data of the thousands of possible destinations for travellers outside of the study area.

As a complete list of assumptions used by TransLink modellers to make the RTM was not available at the time of this exercise, a number of checks were carried out by Bunt to (i) confirm validity of the Emme data, and (ii) determine if certain major development projects were included in the RTM future scenarios. These reviews are discussed in the following sections.



S:\PROJECTS\YL\04-18-0289 Pt Moody Stn MP\5.0 Deliverables\Visum\Graphics

Exhibit 2.1
Study Area

Moody Centre Station Master Plan
04-18-0289 May 2020

bunt & associates

2.3 Disaggregation in Visum

The entire study area accounts for approximately 10 TAZ in the Emme RTM. To provide more accuracy on the city block level, the Emme TAZ were broken down into a more refined zone system in Visum. A map of the RTM TAZ and their disaggregated Visum zones is shown in **Exhibit 2.2**.

The population and employment in each TAZ were proportioned to their constituent Visum zones based on a rough inventory of housing and places of employment using Google Satellite and StreetView. The matrix disaggregation tool in Visum was then used to separate the origin/destination matrices related to the RTM TAZ into much larger O/D matrices representing the Visum zones. As no trips internal to a TAZ were modelled in the RTM, any pair of Visum zones that were originally part of the same TAZ would not have any travel demand between them.

2.4 Calibration to Existing Conditions

The assignment of the RTM's 2017 demand onto the road network can be directly compared to real-world traffic data collected in 2017 or adjacent years. Bunt collected intersection traffic volumes for several major intersections within the study area in 2017-2018, and these counts are supplemented by intersection counts provided in Port Moody's Master Transportation Plan where necessary. Therefore, the model was calibrated to the count volumes at the link (street) level. Calibration was carried out separately for the AM and PM peak hours and was based solely on the sum of vehicles entering the study area.

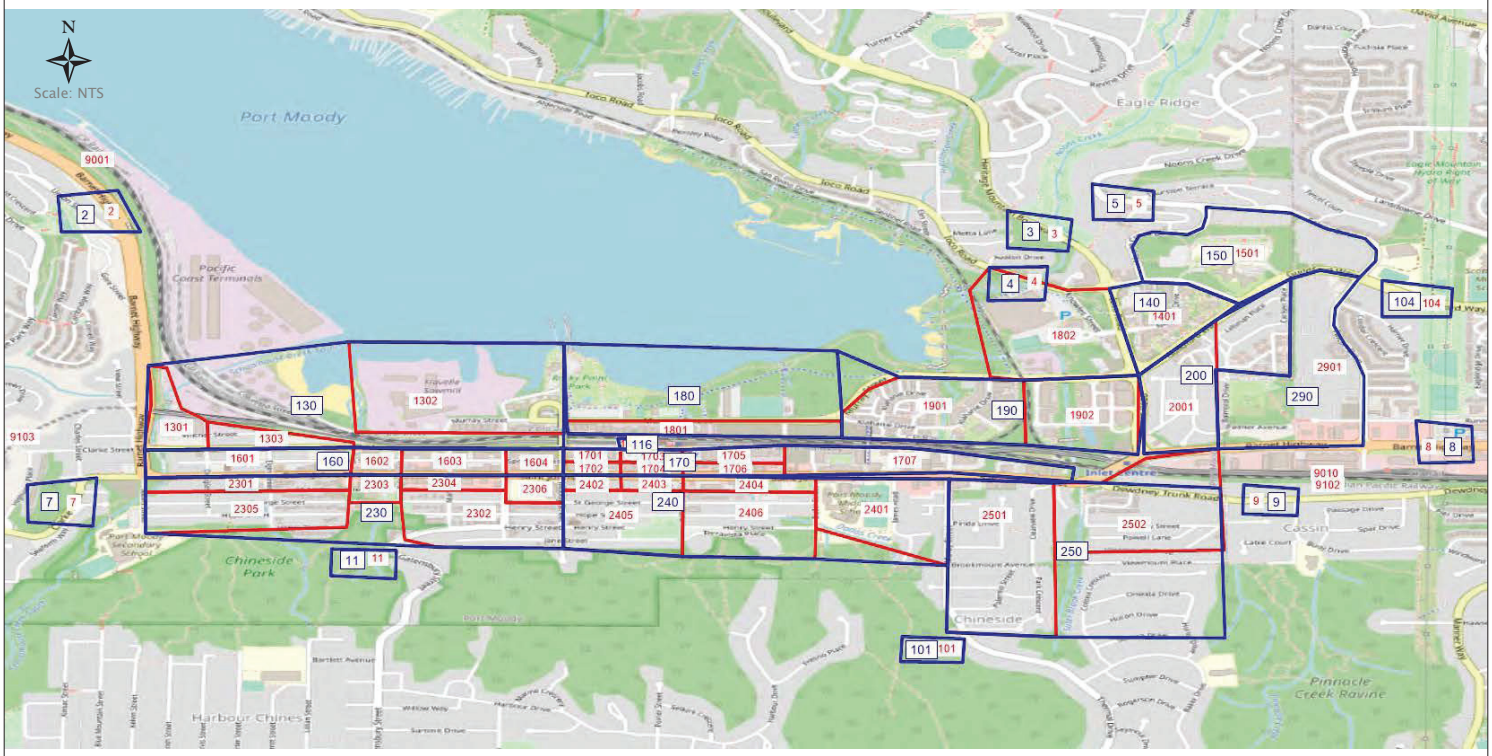
The results of the calibration showed that the RTM prediction underestimated AM vehicle trips by 18% and PM vehicle trips by 16%. Consequently, the origin and destination values were uniformly increased by the respective percentages to form the base existing Visum model.

2.5 Future Conditions Model

The future horizon year for the study was chosen to be 2050, as the major developments in the area are anticipated to have reached build-out, giving a holistic view of the state of the transportation network.

For the Background 2050 model, which assumes that all developments in the area progress except for the Moody Centre redevelopment, the 18% / 16% increase to the RTM volumes was likewise applied based on the assumption that any limitation causing the underestimate in the 2017 data would still impact the 2050 estimate.

S:\PROJECTS\YL\04-18-0289 Pt Moody Stn MP\5.0 Deliverables\Visum\Graphics



170 TAZ from TransLink RTM 3.3

1701 Disagregated zone for Visum analysis

Exhibit 2.2
Analysis Zones

Moody Centre Station Master Plan
04-18-0289 May 2020

bunt &associates

Further review was conducted for the RTM 2050 model to understand key model assumptions:

Andre's Wine and Flavelle developments

- Based on 2050 population and employment in TAZ 31130, a large amount of high-density development has been assumed. However, as Flavelle and Andre's Wine occur in the same TAZ, it is difficult to confirm whether the density reflects both development plans as currently envisioned.

Moody Centre development assumption

- A population increase of less than 200 people by 2050 was modelled at the Moody Centre site (TAZ 31170), which is much lower than the proposed developments planned. Hence, it was assumed that minimal growth was applied to this area.

Coronation Park development

- The 2050 RTM model showed a population increase of 183 from 2017; therefore, it was assumed that the model did not include a major residential development in the area. As no further information was received from Port Moody staff, no further development increase was included for this zone.

Saint Johns Street traffic growth

- The number of AM peak hour trips entering the study area from the east on Barnet Highway and exiting to the west on Barnet Highway increased by only 4% from 2017 to 2050.
- Similarly, the PM peak hour trips entering on Barnet Highway from the west and leaving on Barnet Highway to the east increased by just 3% from 2017 to 2050.

Transit ridership growth

- In the AM peak hour, SkyTrain person trips entering the study area from the east and leaving to the west (i.e. boarding at Coquitlam Centre or before and alighting at Burquitlam or after) increased by 105% from 2017 to 2050.
- Similarly, eastbound SkyTrain person trips increased by 115% in the PM peak hour.

Based on the review above, the Moody Centre redevelopment was not included in the base data from the RTM. Therefore, no further modifications were necessary to make a background 2050 model.

3. MODELLING RESULTS

A simple way to quickly visualize vehicle traffic is by comparing the traffic volume on a road segment with that road's theoretical capacity. Based on research done by the Transportation Research Board in the United States and published in the 2000 edition of the Highway Capacity Manual, the theoretical road capacities assumed are shown in **Table 3.1**. All volume-to-capacity (v/c) ratios throughout the rest of the report reference the capacities in Table 3.1, which are multiplied by the number of lanes to arrive at the capacity of the road segment.

Table 3.1: Theoretical Road Capacities

CLASSIFICATION	CAPACITY PER LANE (VPH)	APPLICABLE ROADS	# LANES PER DIRECTION
Arterial with limited signals	900	Barnet Hwy (W)	2 or 3
Arterial with more frequent signals and access, or 2-lane arterial	800	Saint Johns St, Murray St, Clarke St	2 or 3 1 or 2 1 or 2
Collector	700	Moody St (S of St Johns), Moray St	1 1
Local	600	All Local Roads	1

3.1 Existing (2017) Conditions Results

Existing v/c ratios based on the 2017 model results are shown in **Exhibit 3.1a** and **3.1b** for the AM and PM peak, respectively. As can be seen by the red road segments present in both the AM and PM peak, there are sections of both major east-west corridors through Port Moody that are approaching or exceeding their capacity. This is not a surprising result; rather, the model is identifying and confirming well-known traffic congestion points in the area.

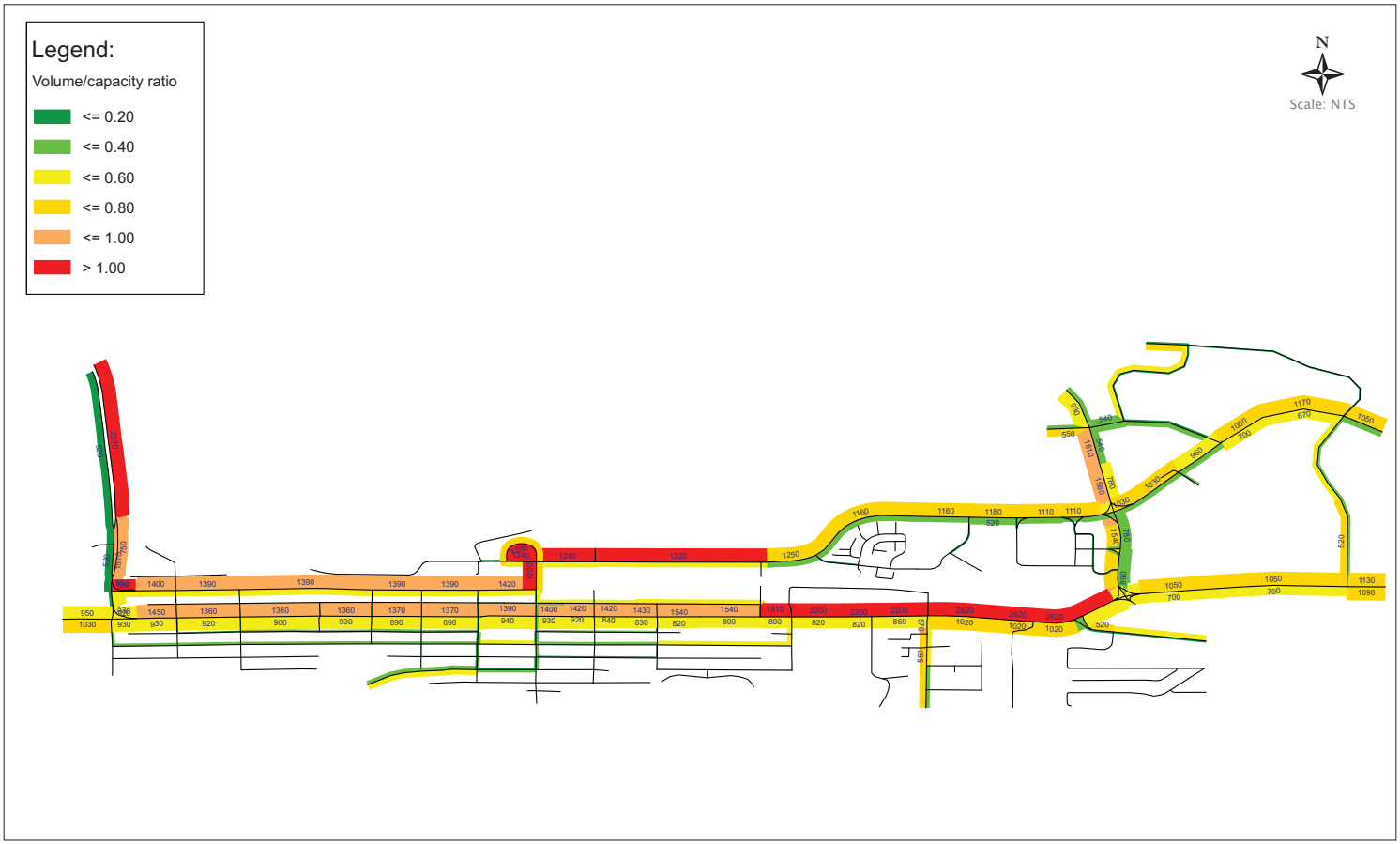


Exhibit 3.1a

Existing AM Volume-to-Capacity Map

Moody Centre Station Master Plan
04-18-0289 May 2020

S:\PROJECTS\YL\04-18-0289 Pt Moody Stn MP\5.0 Deliverables\Visum\Graphics

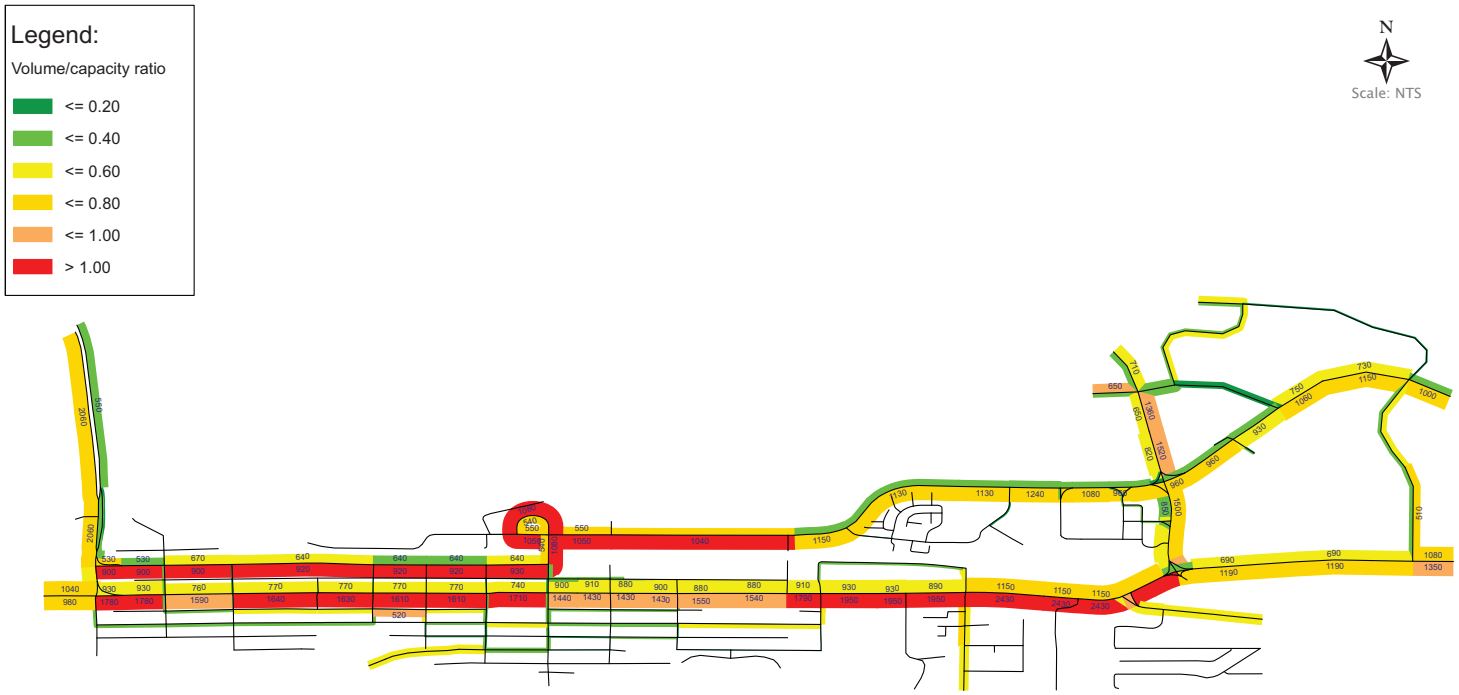


Exhibit 3.1b

Existing PM Volume-to-Capacity Map

Moody Centre Station Master Plan
04-18-0289 May 2020

3.2 Background 2050 Conditions Results

This scenario considers the transportation network if all regional development continues except the Moody Centre redevelopment. The v/c ratios of the predicted vehicle traffic are shown in **Exhibits 3.2a** and **3.2b** for the AM and PM peaks, respectively. As expected, the number of vehicles on the road increased, thus further increasing the v/c ratios.

However, it is important to note:

- The increase in vehicles travelling through the study area is significantly less than what one would expect based on the magnitude of the increase in population and employment of the surrounding areas. For example, the Coquitlam Central development is expected to host 7,500 new residential units by 2050, yet as presented in Section 2.2, the number of vehicle trips entering the study area from the east on Barnet Highway and leaving to the west on Barnet Highway increased by only 4% in the AM peak.

- In reality, v/c ratios exceeding 1.0 cannot exist. Although this analysis is high level and does not individually analyse intersections and turning movements to arrive at an exact capacity, we can confidently presume that if the model is predicting a vehicle volume of 150% of the capacity, then that will not occur in reality without any infrastructure capacity improvements.

These lead to the general conclusion that in the 2050 background scenario, the study area road network is at capacity, and no new peak-hour vehicle trips can be accommodated without new or additional road capacity being provided.

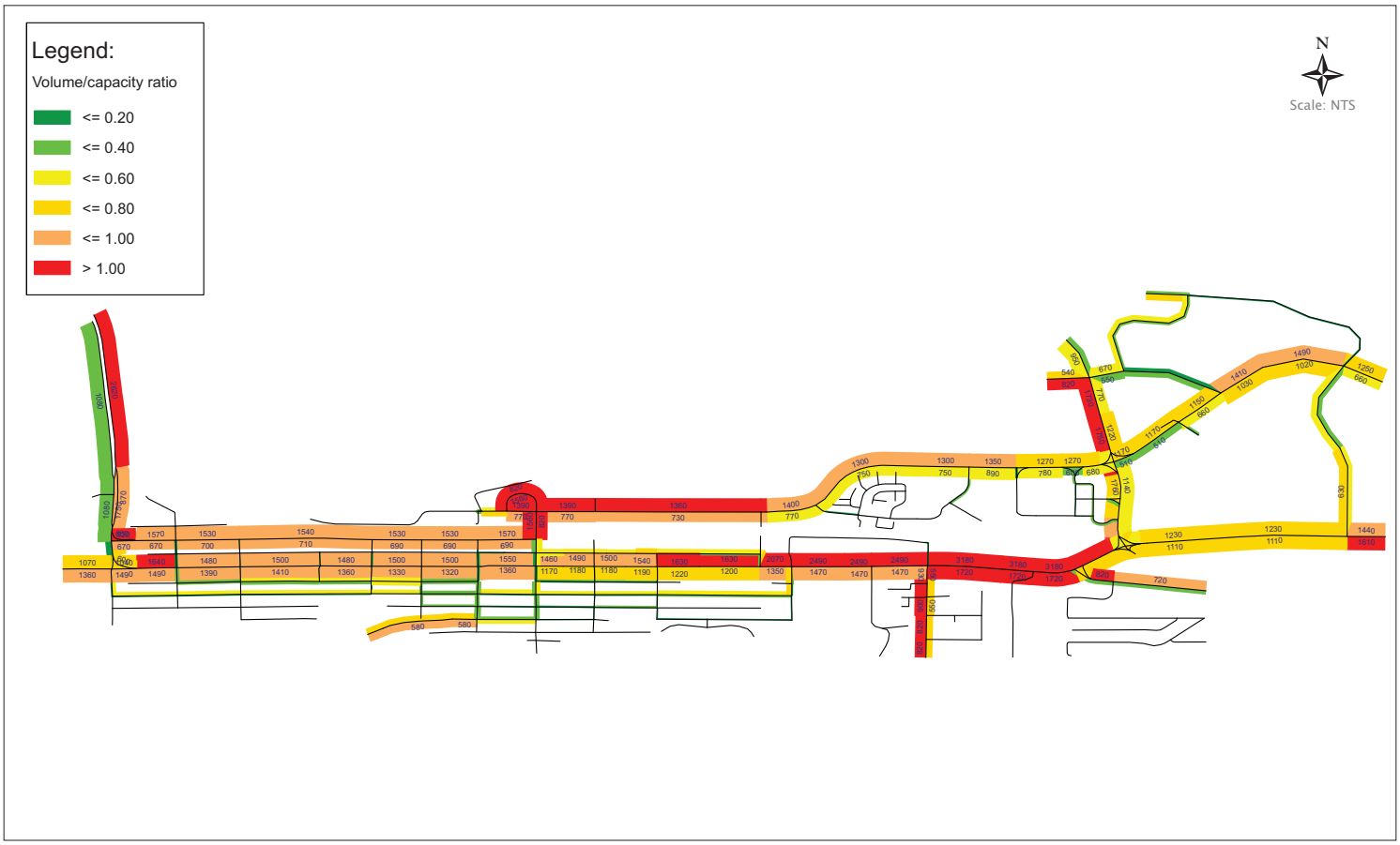
3.3 Moody Centre Site Trips

The development statistics assumed for the Moody Centre redevelopment are shown in **Table 3.2**.

Table 3.2: Moody Centre Proposed Land Use Quantities

LAND USE	QUANTITY
Residential High-Rise	3,970 dwelling units
General Office	280,000 sq.ft.
General Retail	175,000 sq.ft.

Due to the area's transit accessibility and dense mixed-use character, the number of vehicle trips associated with each land use were not calculated directly. Rather, the number of total person trips was calculated using standard Institute of Transportation Engineers (ITE) rates, and a vehicle driver mode split was developed indicating the percentage of the person trips occurring in private vehicles. The person trip rates from ITE are shown in **Table 3.3**, and the resulting number of trips is shown in **Table 3.4**.

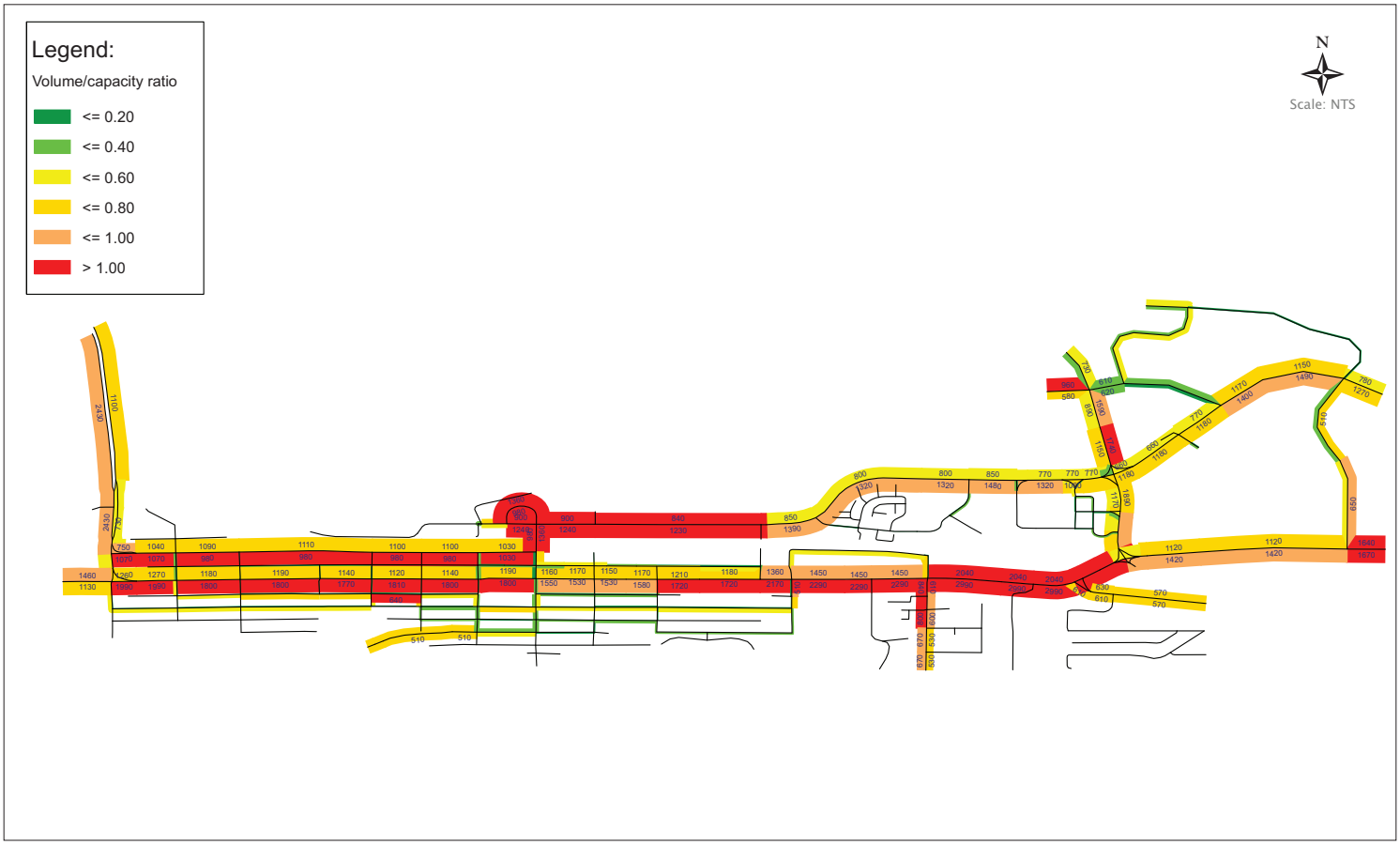


S:\PROJECTS\YL\04-18-0289 Pt Moody Stn MP\5.0 Deliverables\Visum\Graphics

Exhibit 3.2a

Background 2050 AM Volume-to-Capacity Map

Moody Centre Station Master Plan
04-18-0289 May 2020



S:\PROJECTS\YL\04-18-0289 Pt Moody Stn MP\5.0 Deliverables\Visum\Graphics

Exhibit 3.2b

Background 2050 PM Volume-to-Capacity Map

Moody Centre Station Master Plan
04-18-0289 May 2020

Table 3.3: Peak Hour Person Trip Rates

LAND USE	UNITS	AM PEAK HOUR			PM PEAK HOUR		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Residential High-Rise	per dwelling unit	0.15	0.58	0.73	0.35	0.25	0.60
General Office	per 1000 sq.ft.	1.09	0.16	1.25	0.30	1.05	1.35
General Retail	per 1000 sq.ft	1.19	0.73	1.91	3.88	3.88	7.75

Table 3.4: Estimated Peak Hour Site Person Trips by Land Use

LAND USE	UNITS	AM PEAK HOUR			PM PEAK HOUR		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Residential High-Rise	3,970 dwelling units	610	2290	2900	1400	980	2380
General Office	280,000 sq.ft.	300	50	350	80	300	380
General Retail	175,000 sq.ft.	210	130	340	680	680	1360
		1120	2460	3580	2170	1950	4120

In order to estimate the percentage of person trips using personal vehicles, a review of existing mode splits was conducted for a number of well-established, dense, transit-oriented areas in the Lower Mainland. The data was taken from the 2016 census "journey to work" category, as many of the locations of interest did not have recent, locally-conducted mode split surveys. Moody Centre's census data cannot be directly used because the SkyTrain line opened after the 2016 census. The results are shown in **Table 3.5**.

Table 3.5: 2016 Census Journey to Work Mode Splits

LOCATION	POPULATION	DENSITY (POP/KM^2)	CAR (DRIVER + PASSENGER)	TRANSIT	ACTIVE (WALK + BIKE)	OTHER
Downtown, New Westminster	3,070	9,971	46%	47%	6%	1%
Gateway, Surrey	3,929	5,416	44%	49%	6%	1%
King George, Surrey	8,998	6,118	57%	34%	8%	1%
Metrotown, Burnaby	7,638	10,461	52%	33%	14%	1%
DENSITY-ADJUSTED AVERAGE			50%	40%	9%	1%

Other includes scooter, taxi, HandyDart, etc.

The car mode split ranged from 44% to 57%, and the transit mode split ranged from 33% to 49%. It should be noted that the census tracts are not centred on their SkyTrain station, and the mode split applies to residential commutes.

Understanding that the Moody Centre area will transition to being a dense mixed-use environment similar to the sites in Table 3.5, the following mode split was assumed for Moody Centre's full build-out condition for combined residential and commercial uses: 45% car, 45% transit, 10% active and others. Based on this, the number of site trips per mode is shown in **Table 3.6**.

Table 3.6: Estimated Peak Hour Site Person Trips by Mode

MODE GROUP		BREAKDOWN BY MODE		AM PEAK HOUR			PM PEAK HOUR		
				IN	OUT	TOTAL	IN	OUT	TOTAL
Car	45%	Car Driver (1.3 people/car)	35%	390	850	1240	750	680	1420
		Car Passenger	10%	120	260	370	2250	200	430
Transit	45%	SkyTrain (70% of transit)	32%	350	780	1130	680	610	1300
		Bus (15% of transit)	7%	80	170	240	150	130	280
		WCE (15% of transit)	7%	80	170	240	150	130	280
Active	10%	Active (walk + bike)	10%	110	250	360	220	200	410
	100%		**100%**	**1130**	**2480**	**3580**	**2170**	**1950**	**4120**

Breakdown by transit mode comes from TransLink RTM estimate for the transit mode split of Flavelle's zone in 2050

This breakdown shows that the number of projected two-way car trips generated by the Moody Centre redevelopment is estimated to be 1240 in the AM peak and 1420 in the PM peak.

3.4 Total 2050 Conditions Results

Vehicle Trips

Vehicle trips will be generated with any developments in the Port Moody area. These cars by necessity will use the study area road network as they have no other route choice. The new vehicle trips mean a short-term volume increase on the road network. However, as the road network is already at capacity, attempting to push more cars through results in significantly increased delays. As a result, those drivers who have a choice whether or not to pass through the study area, namely external trips, will eventually change their behaviour to avoid the delays caused by the over-capacity road network.

As the road network was at or above capacity in the Background 2050 conditions, simply adding on the estimated new vehicle trips from the Moody Centre redevelopment and further increasing the v/c ratio will not yield useful or reasonable results. Instead, the Total 2050 scenario assumes that compared to the Background scenario, the number of trips in the study area remains constant in order to keep the same level of congestion. This means that some external trips will be displaced to provide some capacity to the local traffic.

In order to calculate the number of displaced trips, the number of trips estimated for the Moody Centre zones by the RTM in the Background 2050 scenario was subtracted from the new vehicle trip estimate developed in Table 3.6. These displaced trips were then removed from the analysis proportionally based on the popularity of different external origin/destination pairs. For example, as 10% of all external trips enter the study area from the east on Barnet Hwy and exit to the west on Barnet Hwy, then 10% of the total displaced trips were removed from that origin/destination pair.

In total, approximately 890 external trips will be displaced in the AM peak hour and 980 in the PM peak to accommodate new local traffic of approximately 1240 – 1420 trips per hour within Moody Centre area.

The resulting v/c ratio maps are provided in **Exhibits 3.3a** and **3.3b** for the AM and PM peak hours, respectively. As expected, there is minimal change from the Background 2050 scenario, as the total number of trips between the two scenarios remains constant due to the displaced trips previously described.

Transit Trips

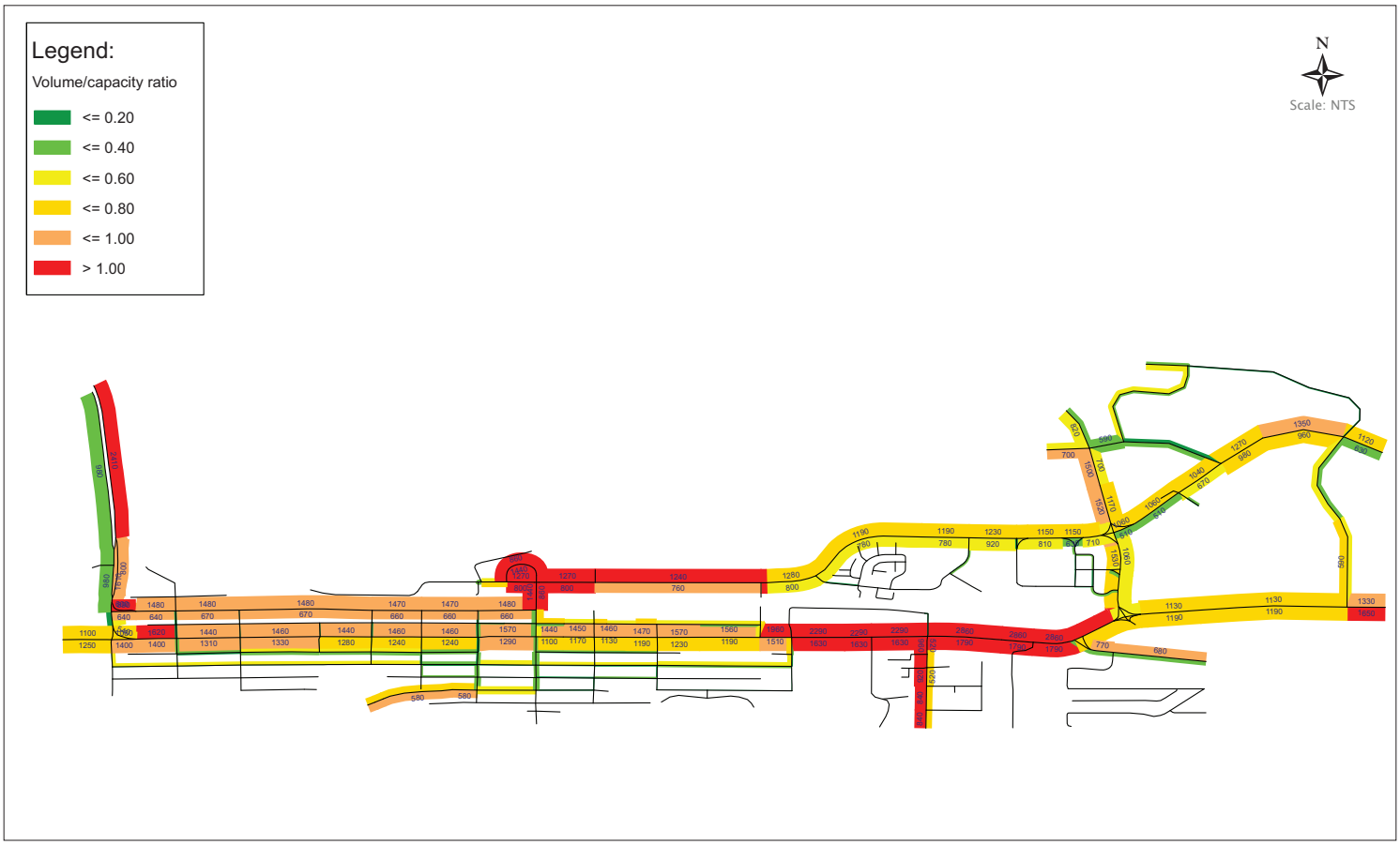
It is also important at this point to ensure that there is enough transit capacity to support the redevelopment traffic, specifically to serve the 32% SkyTrain mode split that is forecasted. SkyTrain ridership is significantly more complicated to forecast based on the fact that one cannot assume that ridership will remain constant as was the assumption for the road network. As such, a high-level calculation was carried out to simply confirm that the magnitude of expected SkyTrain passengers could be served without the need for physical improvements such as lengthening stations to accommodate longer trains. The calculation was carried out for the critical period of the AM peak hour in the westbound direction as shown in **Table 3.7**.

Table 3.7: Projected Westbound AM SkyTrain Demand and Capacity at Moody Centre

	TODAY	FUTURE	NOTES
A	130	130	Passengers / car
B	2	4	Cars / train
C	17	18	Trains / hour
D	4420	9360	Base capacity at Moody Centre Station (A*B*C)
E	50%	50%	Percentage of max load on board at Moody Centre
F	2210	4680	Practical capacity at Moody Centre in order to not overcrowd at Commercial (D*E)
G	1800	3600	Passengers already on board before Moody Centre
H	410	1080	Boarding capacity at Moody Centre (F-G)
J	250	870	Boarding demand (H must be > J)

Assumes that of the 780 new Moody Centre SkyTrain trips estimated in Table 3.6, 80% will travel westbound

Based on the assumptions highlighted in red that the passengers already on board before Moody Centre will have doubled by 2050 (item G) but that the train must still only be half full when leaving Moody Centre to accommodate new development along the rest of the Millennium Line (item E), running 4-car trains 18 times per hour (every 3.33 minutes) serves the expected demand. This confirms that SkyTrain demand should be able to be met with existing infrastructure, but with more frequent service and doubled train capacity.



S:\PROJECTS\YL\04-18-0289 Pt Moody Stn MP\5.0 Deliverables\Visum\Graphics

Exhibit 3.3a

Total 2050 AM Volume-to-Capacity Map

Moody Centre Station Master Plan
04-18-0289 May 2020

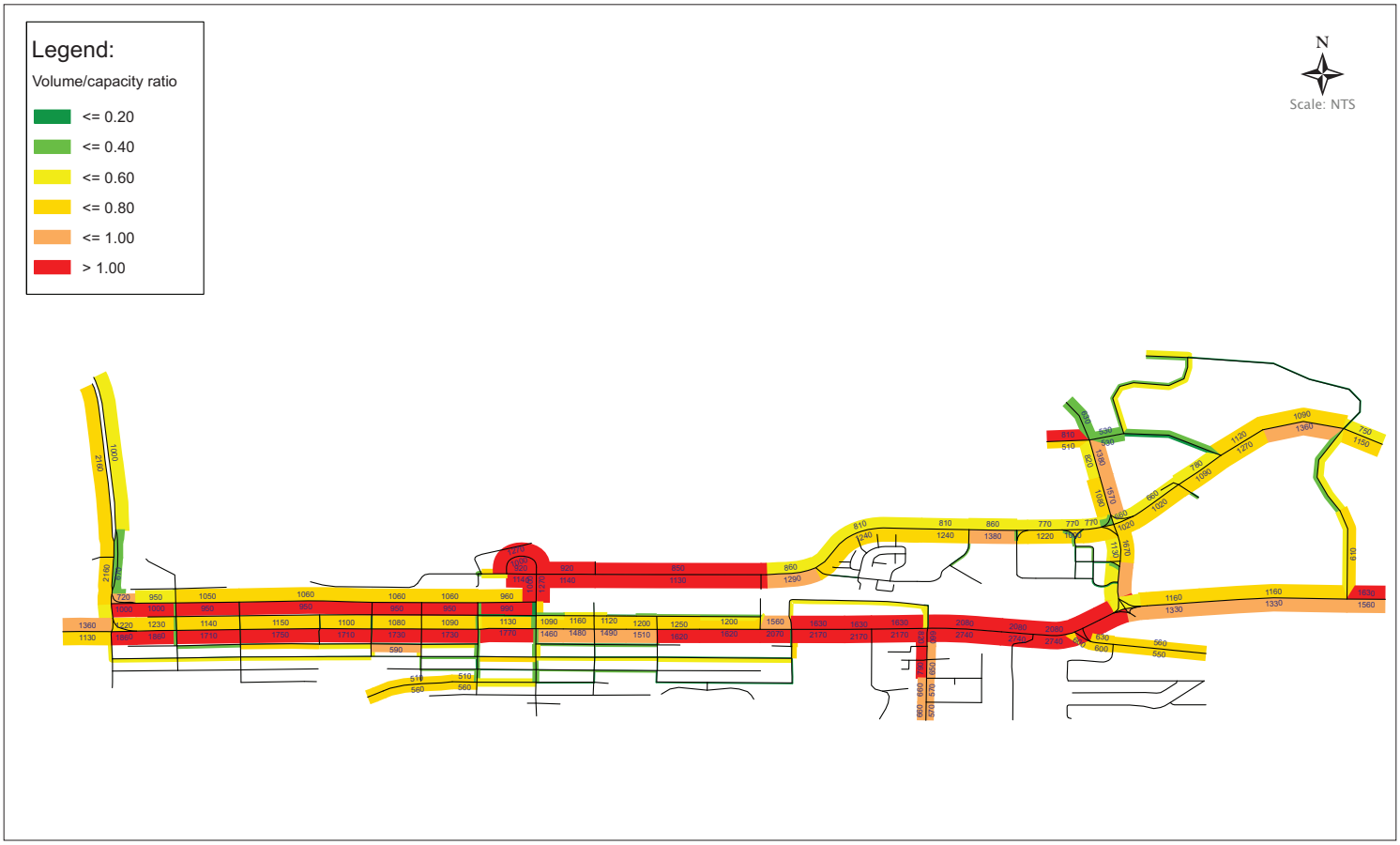


Exhibit 3.3b

Total 2050 PM Volume-to-Capacity Map

Moody Centre Station Master Plan
04-18-0289 May 2020

4. CONCLUSIONS

Our modelling exercise presents four main conclusions:

i. Arterial routes through Port Moody are already expected to operate at capacity by 2050 without the redevelopment of the Moody Centre area. Proceeding with any development in central Port Moody without additional road capacity will not increase vehicle volumes on the study area road network, rather, the number of vehicles on the road will stay constant and external trips passing through the study area will be replaced by local trips. The more vehicles generated by local developments, the more external traffic will be displaced.

ii. Based on a review of existing mode splits in well-established transit-oriented developments directly adjacent to SkyTrain stations, it is reasonable to expect that at full build-out, the Moody Centre redevelopment can achieve a mode split of 45% auto (driver + passenger), 45% transit (bus, SkyTrain, West Coast Express), and 10% active (walking, cycling) / others for combined residential and commercial uses.

iii. Assuming a 35% car driver mode split, approximately 1,240 – 1,420 vehicles generated by the Moody Centre site will replace a total of 890 – 980 external trips during the weekday AM and PM peak hours to maintain the same level of road congestion in the Moody Centre study area.

iv. Assuming a large number of projected new SkyTrain trips generated by the Moody Centre development, a brief calculation with a number of high-level assumptions confirms that that there is sufficient SkyTrain capacity to serve the projected demand without the need for physical improvements (i.e. lengthening stations to accommodate longer trains).

The City of Port Moody is geographically located in a natural commuter conduit for car traffic from Coquitlam and points east destinated for Vancouver. Therefore, there will always be congestion with or without developments in Port Moody. This provides Port Moody the opportunity to improve the urban fabric by influencing the nature and destination of the traffic that causes the congestion.

When new developments in Port Moody occur and fill in the area road network, the external trips will have three general options: (i) choose a different route (e.g. Lougheed Hwy to Hwy 1), (ii) choose a different mode (e.g. SkyTrain or West Coast Express), or (iii) choose a different time to travel (e.g. leave for work at 6:45 rather than 7:30). All three of these travel behaviour changes are already visible around different parts of the Lower Mainland as the region densifies.

The resulting benefits for Port Moody are threefold.

i. ***The City can make a significant step towards meeting its accelerated climate emergency-driven mode split target.*** As it is likely unreasonable to expect the suburban single-family areas of the City like Ioco and Heritage Mountain to achieve a 40% non-auto mode split. Supporting large transit-oriented development that can achieve significantly better than 40% non-auto will offset the impact of the auto-oriented areas to arrive at a citywide average of 40%.

ii. ***The City can realize its plans for a walkable and inviting City Centre area.*** Without the catalyst of a large development project and the residents such a project would bring, projects such as the Spring Street revitalization would either not be possible or have limited value due to the lack of people living in the City Centre core. In fact, there will likely be a natural progression as more people and workers come to Moody Centre that they will begin advocating for increased livability of their neighbourhood and reduced vehicle trips passing through the downtown area.

iii. ***The City cements its status as a municipality that understands and supports the benefits of concentrating the region's growth in dense, transit-oriented development.*** Every other city in the Lower Mainland with SkyTrain stations has eagerly begun implementing plans to develop their SkyTrain stations into important mixed-use community nodes, and there is no reason why that should not hold true for Port Moody.

In summary, the redevelopment of the Moody Centre area offers a number of unparalleled opportunities for the City of Port Moody, and the Master Plan concept is supportable from a transportation perspective.

MEMO

DATE: July 14, 2020
PROJECT NO: 04-18-0289
PROJECT: Port Moody Station Master Plan
SUBJECT: Parking Rate Analysis – Version 4

TO: Virendra Kallianpur and Ryan Bragg
Perkins + Will

PREPARED BY: Thea Wilson and Nicolas Moss, EIT
REVIEWED BY: Peter Joyce, P.Eng. and Yulia Liem, P.Eng.

1. INTRODUCTION

The objective of this memo is to present information regarding off-street parking rates, mainly for residential use in Metro Vancouver, to help guide the conversation on a parking reduction for the transit orientated Moody Centre Master Plan. This memo provides a review of:

- Residential off-street parking rates of Port Moody and other municipalities in Metro Vancouver;
- Minimum approved residential & commercial parking rates for Transit Orientated Development (TOD) which Bunt has been involved with;
- TransLink/Metro Vancouver's 2018 Regional Apartment Parking Study results;
- Transit-oriented residential parking rates for other North American Cities; and
- Vehicle ownership data at Suter Brook Village.

The project team has significant concerns regarding the feasibility of the Zoning Bylaw required off-street parking supply rates given the site's soil conditions and parcel depth. As such, it is critical at this early master planning stage to address what parking rates and accompanying Transportation Demand Management (TDM) measures can be reasonably supported by the City and are achievable for the project.

Bunt's previous experience with major projects in Port Moody has involved sites near to frequent transit service but not directly adjacent to a SkyTrain Station as is the case with the Moody Centre Station area under consideration here. As such, the focus of this review is our current and past dealings with off-street parking demand and supply studies in SkyTrain-serviced Town Centre projects in Coquitlam, Burnaby and other areas in Metro Vancouver, which will serve as the basis for the parking recommendations in this memo and following studies.

2. PARKING RATE OVERVIEW

Off-street parking rates for TOD multi-family residential use in Port Moody and other municipalities in Metro Vancouver are summarised in **Table 1**. The other municipalities listed have similar densities and access to frequent transit as the proposed Moody Centre Station Master Plan site.

Table 1: TOD Residential Off-Street Minimum Parking Rates

MUNICIPALITY	AREA	MARKET STRATA	MARKET RENTAL
Port Moody	Moody Centre Station (site)/ Inlet Centre (Suter Brook Village)	1/ studio & 1 Bed 1.35/ 2 Bed Visitor: 0.2 per 1st 100 units & 0.1 for remainder	1/ unit Visitor: 0.2 per 1st 100 units & 0.1 for remainder
Coquitlam – *Proposed New Rates*	Evergreen Line Core and Shoulder Station Areas	Studio & 1 Bed – 0.85 Or 0.77 with TDM 2 Bed – 1.25 Or 1.13 with TDM Visitor: 0.1/ unit	Market: 0.75 / unit Below Market / Non-Market: 0.65 / unit Visitor: 0.1/ unit
Burnaby	Brentwood TC Approved Rate	1/ unit *(approved only with TDM measures)* Visitor 0.1/ unit	0.48/ unit *(approved only with TDM measures)*
City of North Vancouver	All	1.05/ unit Visitor 0.1/ unit	0.6 / unit Visitor 0.1/ unit
Surrey - *Proposed New Rates*	City Centre & LRT Corridor	0.9 / unit, or down to 0.7 / unit with sufficient TDM measures Visitor 0.1	
Richmond	All	0.9 or 0.81 with TDM Visitor 0.15/ unit	Market: 0.9 or 0.81 with TDM Low End Market: 0.8 or 0.72 with TDM Visitor 0.1/ unit
New Westminster	Rates applicable within 400m of a SkyTrain Station and located in the downtown area	Downtown: 1 / 1 Bed 1.35 / 2 Bed + Visitor 0.1/ unit	400 metres of a Skytrain Station or FTN: 1/ unit Downtown: 0.6 / 1 Bed 0.8 / 2 Bed + Visitor 0.1/ unit
Vancouver	Downtown	No Minimum. TDM Measures Required Visitor 0-0.05	No Minimum. TDM Measures Required Visitor 0-0.05
SUMMARY	RESIDENTIAL	WITHOUT TDM: 0.9 - 1.35 WITH TDM: 0 - 1.15	WITHOUT TDM: 0.6-1.2 WITH TDM: 0 -1.0
	VISITOR	0-0.2	0

As shown in Table 1, the City of Surrey has new proposed parking requirements for areas located near frequent transit. These rates also include a parking maximum. The intent is that this approach will make it easier for developments to include a greater proportion of 2 and 3 bedroom units that are targeted at families.

Burnaby also has comparably lower approved rates for residential use at Brentwood Town Centre, with 1.1 parking stalls per unit for strata use, and 0.48 per unit for rental use, regardless of unit size. These rates however are contingent on the development providing a suite of Transportation Demand Management (TDM) measures (2 Class A long term bicycle storage spaces per unit, subsidised transit passes, and car share stalls, vehicles and memberships).

The City of Vancouver has no parking minimum for all residential uses Downtown, however TDM measures are required, which are provided by a formalized policy.

As shown, Port Moody has higher rates than both Coquitlam and Burnaby and at present does not provide a formulized parking reduction mechanism to apply TDM measures.

The following **Table 2** presents a summary of the approved minimum parking rates (though not necessarily constructed as yet) for transit orientated projects that Bunt has been involved with in recent years.

Table 2: TOD Approved Minimum Parking Rates & Required TDM Measures

PROJECT	MINIMUM RATES PERMITTED (NOT NECESSARILY BUILT)						TDM REQUIRED
	STRATA	RENTAL	STRATA VISITOR	RENTAL VISITOR	RETAIL	OFFICE	
Lougheed Town Centre, Burnaby, Shape	1.0	0.48	0.1 per unit	None; shared with Commercial	2.4 /100 m^2 1 per 42 m^2	None; Office uses retail stalls on weekdays	Phase 1 -15 Car share vehicles for 1,531 units - Transit Subsidy: 15% of strata units, 2 zone pass for 2 years - Bike route on North Rd and Austin Rd; - 2 bike spaces per unit -Centralized end of trip facilities for non-res - Commitment to monitoring
Brentwood Town Centre Burnaby, Shape	1.0	0.48	0.1 per unit	None; shared with Commercial	2.4 /100 m^2 1 per 42 m^2	None; Office uses retail stalls on weekdays	Phase 1 - 12 Car share vehicles for 1,600 units - 13 EV stalls - Transit Subsidy: 15% of strata units, 2 zone pass for 2 years -Pedestrian Bridge -Commitment to monitoring
Oakridge, Vancouver, Ivanhoe Cambridge	0.4 plus one per 285 m^2		0.075		2.7/100 m^2 1 per 37 m^2	1.6 /100 m^2 1 per 63 m^2	-Car Share memberships; -Public Transit passes, -Financial contribution to - Canada Line station infrastructure, -Separated bike lanes & 3 public bike stations, -75 private & 10 public Car share vehicles for 2,548 units
Surrey City Central, Anthem	1.0		0.1		3/100 m^2 1 per 33 m^2	1.4 /100 m^2 1 per 71 m^2	TBD
King George Station, Surrey, PCI	Bach/1 BR or less: 0.85 2+BR: 1	0.85 per unit	0.025		2/100 m^2 1 per 50 m^2	2 /100 m^2 1 per 50 m^2	-Free or subsidized monthly transit pass; -Provide premium parking stalls with discounts for registered carpools; - Car share vehicles
13678 Grosvenor Rd, Surrey, Tien Sher Homes	0.5 (micro lofts)	-	0.1	-	-	-	2 car share vehicles for 56 units

The following **Table 3** presents a summary of the major opportunities for parking reductions for this site and supportable parking rate targets.

Table 3: Site Parking Rate Challenges and Opportunities

CHALLENGE	OPPORTUNITY
Base rate for strata 2+ bedroom units	There is a City/OCP objective to provide homes for families. The parking rate discourages this unit type.
Base rate for rental	Numerous studies demonstrate rental residential tenants have lower vehicle ownership then 1 per unit. Also support creation of more rental homes.
Visitor Parking	There are ample opportunities for shared parking on this site between the office, residential visitor, and Park & Ride uses.
TDM Measures	Port Moody is unique in that it does not specify parking reductions based on provided TDM measures

3. 2018 REGIONAL PARKING STUDY

The 2018 Regional Parking Study[1], conducted by TransLink and Metro Vancouver, is the second region-wide apartment parking study (the first region-wide apartment parking study was completed by Metro Vancouver in 2012). The study's objectives included: increasing the number of observations of apartment parking supply and demand and to document trends and patterns in local practice. The findings of the 2018 Regional Parking Study largely corroborate those in the 2012 Apartment Parking Study.

A summary of the study's findings, pertaining to the proposed Master Plan development are summarised below:

Based on the Parking Facility On-Site Survey:

- Strata apartment buildings with 800m of rapid transit have a parking utilization of 0.86 resident vehicles per dwelling unit; and.
- Market Rental apartment buildings with 800m of rapid transit have a parking utilization of 0.35 vehicles per dwelling unit; and,
- Mixed tenure sites with 800m of rapid transit have a parking utilization of 0.60 resident vehicles per dwelling unit

[1] Metro Vancouver Regional Parking Studies http://www.metrovancouver.org/services/regional-planning/transportation/regional-parking-studies/Pages/default.aspx

Based on the Household Survey:

- Small strata or rental units (studio or 1 bedroom units) tend to be most responsive to proximity to frequent transit, followed by 2 bedroom units.

Based on the Street Parking Survey:

- Where households reported parking on a nearby street, they typically park within a five-minute walk of their apartment building.
- For rental sites where residential parking is not included in the rent, both apartment residential parking supply and utilization are lower compared to sites where parking is included in the rent. For the former, nearby street parking utilization is also higher, but does not exceed the 85 percent threshold.

4. MULTI FAMILY RESIDENTIAL PARKING MINIMUMNS IN OTHER URBAN, TRANSIT ACCESSIBLE LOCATIONS

Summarised below in **Table 4** are the parking minimums for a sample of other jurisdictions in Canada and the United States. This table is a condensed and updated version of that which was presented in the 2012 Metro Vancouver Apartment Parking Study, Technical Report[2].

As shown:

- Other than Toronto, the cities have minimum residential parking requirements of less than 1.0 for their Downtown (excluding visitor parking).
- Most cities, with the exception of Toronto and Edmonton, do not vary parking requirements by the number of bedrooms.

[2] [2] Metro Vancouver Regional Parking Studies http://www.metrovancouver.org/services/regional-planning/transportation/regional-parking-studies/Pages/default.aspx

Table 4: Select Apartment Parking Requirements in Other Jurisdictions

MUNICIPALITY	DESIGNATED GEOGRAPHY	MINIMUM RATES PERMITTED		
		STUDIO / 1 BEDROOM	2BEDROOM +	VISITOR
Edmonton	Downtown	0 - 0.40	0.40 – 0.80	0 - 0.1
	Transit Oriented Development (TOD)	0.70 – 1.00	1.00-1.50	0.14
Calgary	Downtown	0.75-1.00		0.1-0.15
	Area 2 600m of LRT	0.90		0.15
Toronto	Downtown	0.3-0.75	0.70-1.35	0.1
	Centres & Avenues on Subway	0.6-1.05	0.9-1.50	0.1
Montreal	Within 150m of metro station - 25% reduction	0.95 /unit		-
Seattle	Urban Centre and station area; In Urban Villages and within 400 m of frequent transit service	0		-
Bellevue	Downtown Transit District	0-2.00		0.05
Portland	Zones within 150m of 20-min peak hour transit service	0 (0 -30 units) 0.20 (31-40 units) 0.25 (41-50 units) 0.33 (51+ units)		-
San Francisco	Citywide	0		0

5. SUTER BROOK VEHICLE OWNERSHIP

Based on ICBC data from April 2018, **Table 5** lists the number of actively insured vehicles at addresses in Suter Brook Village near Inlet Centre Station. Note that these buildings were all built and occupied before the opening of the Evergreen Line in December 2016.

Table 5: ICBC Vehicle Ownership Data – Suter Brook Village

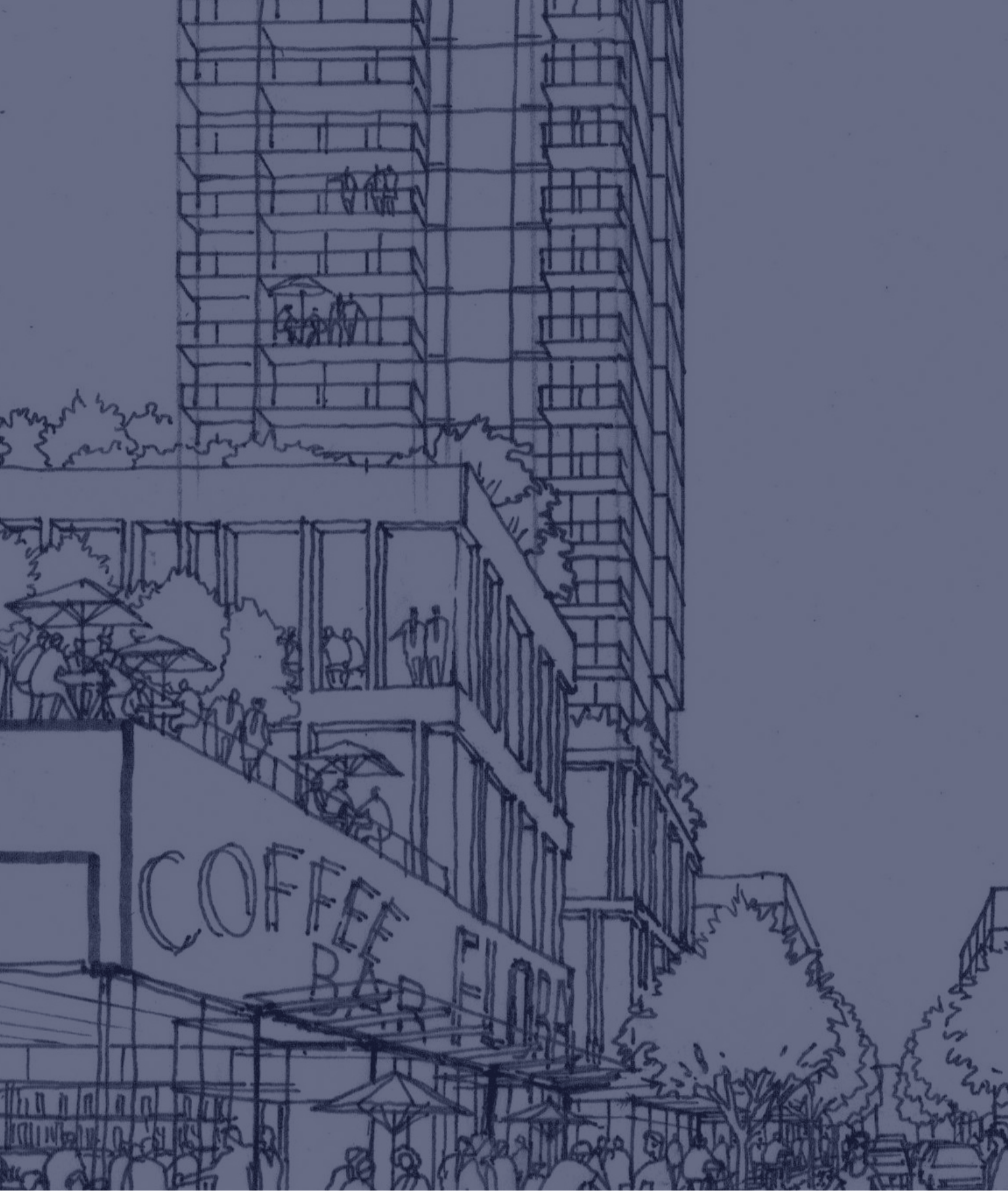
ADDRESS	NUMBER OF VEHICLES *	NUMBER OF RESIDENTIAL UNITS	ESTIMATED PARKING RATE (INSURED VEHICLES / UNIT)
110, 200, 301, 400 Capilano Rd	618	511	1.21
110, 121, 130 Brew St	385	336	1.15
101, 201 Morrissey Rd	141	112	1.26
	1,144	**959**	**1.19**

*Based on ICBC provided count of actively insured vehicles by postal code, address, and city as of April 30, 2018

6. CONCLUSION

Based on a review of relevant parking rates for transit-oriented development within the Lower Mainland and beyond, Port Moody's current Bylaw has among the highest requirements. In an effort to support the City's mode share targets and to not over-provide parking, the Moody Centre redevelopment is proposing to match the City of Coquitlam's Evergreen Line Core Area rates of 0.85 spaces per 1-bedroom unit plus 1.25 spaces per 2+ bedroom unit. Further reduction to these rates can be achieved by providing Transportation Demand Management measures such as carshare vehicles, more enclosed bicycle parking spaces, etc.

Based on an estimated 20-30% of the units in the Moody Centre redevelopment having 2+ bedrooms, this places the proposed average parking rate for the project at around 0.95 spaces per unit if no TDM is provided. Based on the immediate proximity to the SkyTrain and West Coast Express as well as the magnitude of dense mixed-use development being planned, this parking rate is supportable from a transportation perspective.


COFFEE
BAR

3.0 Civil and Site Servicing

As part of the approval process, the City of Port Moody requires the completion of a stormwater management plan for all proposed developments within the City. This document provides details concerning how a development parcel could meet specific requirements related to stormwater management. These requirements generally fall into three categories, rate control, volume reduction, and water quality. These issues normally arise on developments due to the increase of non-permeable surfaces when compared to a property in its predevelopment or existing state. Rate control is generally handled through the construction of detention facilities. Volume reduction and water quality can be maintained using onsite vegetation and mechanical treatment facilities. Additionally, low impact development (LID's) measures can be implemented where possible to assist with control flow and water quality.

To better mitigate potential stormwater issues during the development of the Moody Centre neighborhood, the City of Port Moody retained Kerr Wood Leidal Associates to prepare the 'Moody Centre Stormwater Management Servicing Plan' (File 0310.055, October 2019). This report provides criteria for the three categories identified above.

Issue	Criteria
Water Quality	Minimum target: Treat 90% of annual runoff from all impervious surfaces to provide 80% removal (by mass) of TSS loading
Rate Control	Control post-development runoff rate to the lesser of pre-development condition or current zoning condition for up to the 5-year return period flow
Volume Reduction	All other land uses (other than single family): onsite rainfall capture and infiltration of 72% of the 2- year 24-hour rainfall depth (58mm) for the increased impervious area from pre- to post-development conditions

To meet the criteria given above, each development parcel within this project will determine its own specific requirements and design stormwater management facilities, which will be presented in each site-specific stormwater management plan.

Rate control could be accomplished through detention systems consisting of oversized pipes, concrete tanks, or other materials. These systems would be managed by a flow control device located near the storm service connection of each development. During storm events when runoff flows exceed the permitted release rate, excess flow would be directed into a detention system until it could be released at the predetermined rate. During a storm greater than the design event. Runoff would bypass the flow control device and flow into the municipal system.

It is anticipated volume reduction will be achieved using onsite landscaping. Vegetation with minimum topsoil depths would provide an opportunity for runoff to infiltrate into the soil. Evaporation, plant uptake and evapotranspiration will also contribute to volume reduction. An impervious area target of 80% will aid in ensuring enough vegetation is provided to achieve capture objectives.

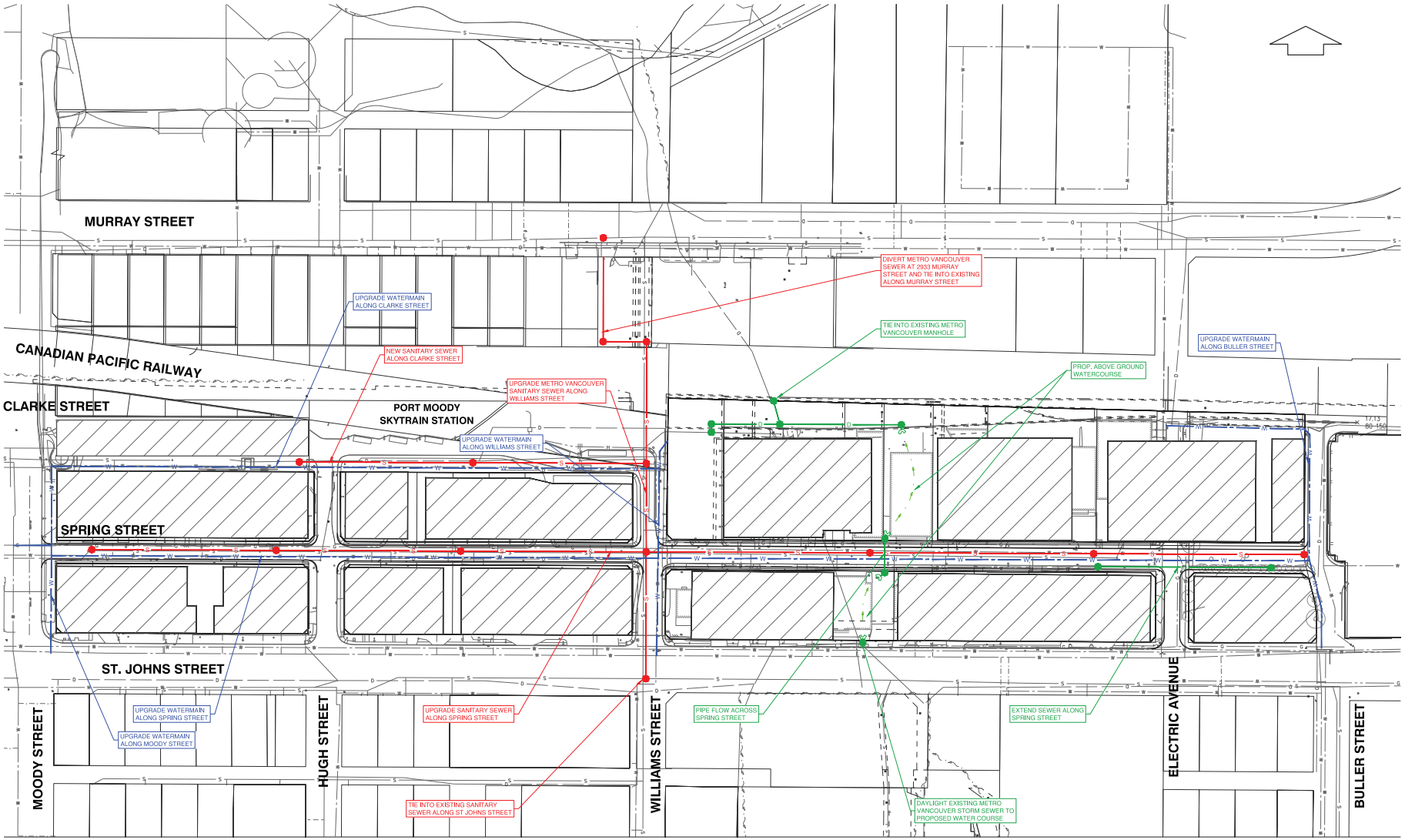
Water quality would be maintained using best management practices (BMP's) such as trapping hoods and sumps in catchbasins, or allowing runoff to pass through vegetated areas prior to entering the developments drainage system. Additionally, a mechanical treatment system such a continuous deflection separation (CDS) manhole could be installed upstream of the flow control device to reduce

the maintenance requirements of the detention system and prevent deleterious materials from entering the municipal storm system, where appropriate.

In addition to site specific measures, the 'Moody Centre Stormwater Management Servicing Plan' also identifies green infrastructure opportunities. For this project, soil cells along St Johns Street and the daylighting of an existing Metro Vancouver storm sewer between St Johns Street and the Evergreen Skytrain line have been identified as potential opportunities. Soil cells provide additional soil volume for street trees allowing them to grow to much larger sizes then they would in a traditional tree pit. Larger trees have larger canopies which can capture rainwater and provide numerous other environmental benefits Design of these soil cells could be integrated into the proposed roadway design along St John's Street.

The daylighting of a previously piped stream would directly improve the health of the stream and watershed by extending the creeks riparian area. Riparian areas provide fish and wildlife habitat, filter runoff, and act a buffer between developments and natural areas. Educational opportunities also arise with the creation of these natural areas in close proximity to developments and can foster a sense of environmental stewardship.

Water quality will also need to be maintained during the construction phase of the proposed developments. The 'Moody Centre Stormwater Management Servicing Plan' provides specific water quality targets which need to be achieved during the construction of each development. Erosion and sediment control (ESC) plans will be developed for each site, ensuring conformance to municipal, provincial, and federal standards.



PRELIMINARY

No.	DATE	REVISION	BY
1	2020-05-29	ISSUED FOR REVIEW	NP

BINNIE
The people behind your infrastructure.

R.F. BINNIE & ASSOCIATES LTD.
314-9440 202 Street
Langley, BC V1M 4A6
TEL 604 574 3336
BINNIE.com

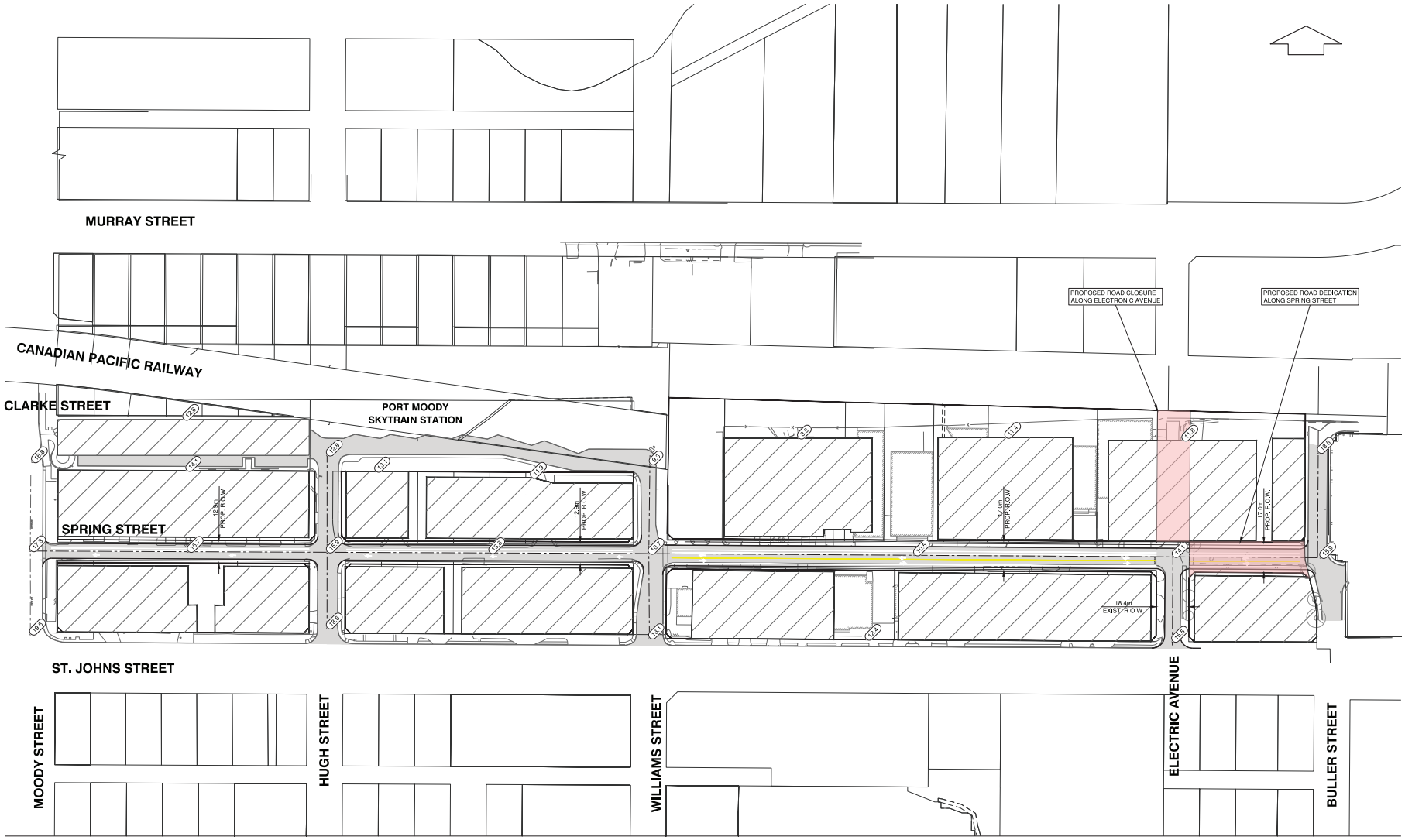
CLIENT: MOODY CENTRE TOD PLANNING GROUP

DRAWING DESCRIPTION:
MOODY CENTRE
CONCEPTUAL SERVICING PLAN

SURVEYED BY
DRAWN BY BVR
DESIGNED BY NP
CHECKED BY TR

SCALES
0 1:1000 40m

DATE 2020-05-29
DRAWING No. 18-0729-C2
SHEET 2 OF 2 REV. 1
DESTROY ALL PRINTS BEARING PREVIOUS No.



PRELIMINARY

No.	DATE	REVISION	BY
1	2020-05-29	ISSUED FOR REVIEW	NP

BINNIE
The people behind your infrastructure.

R.F. BINNIE & ASSOCIATES LTD.
314-9440 202 Street
Langley, BC V1M 4A6
TEL 604 574 3336
BINNIE.com

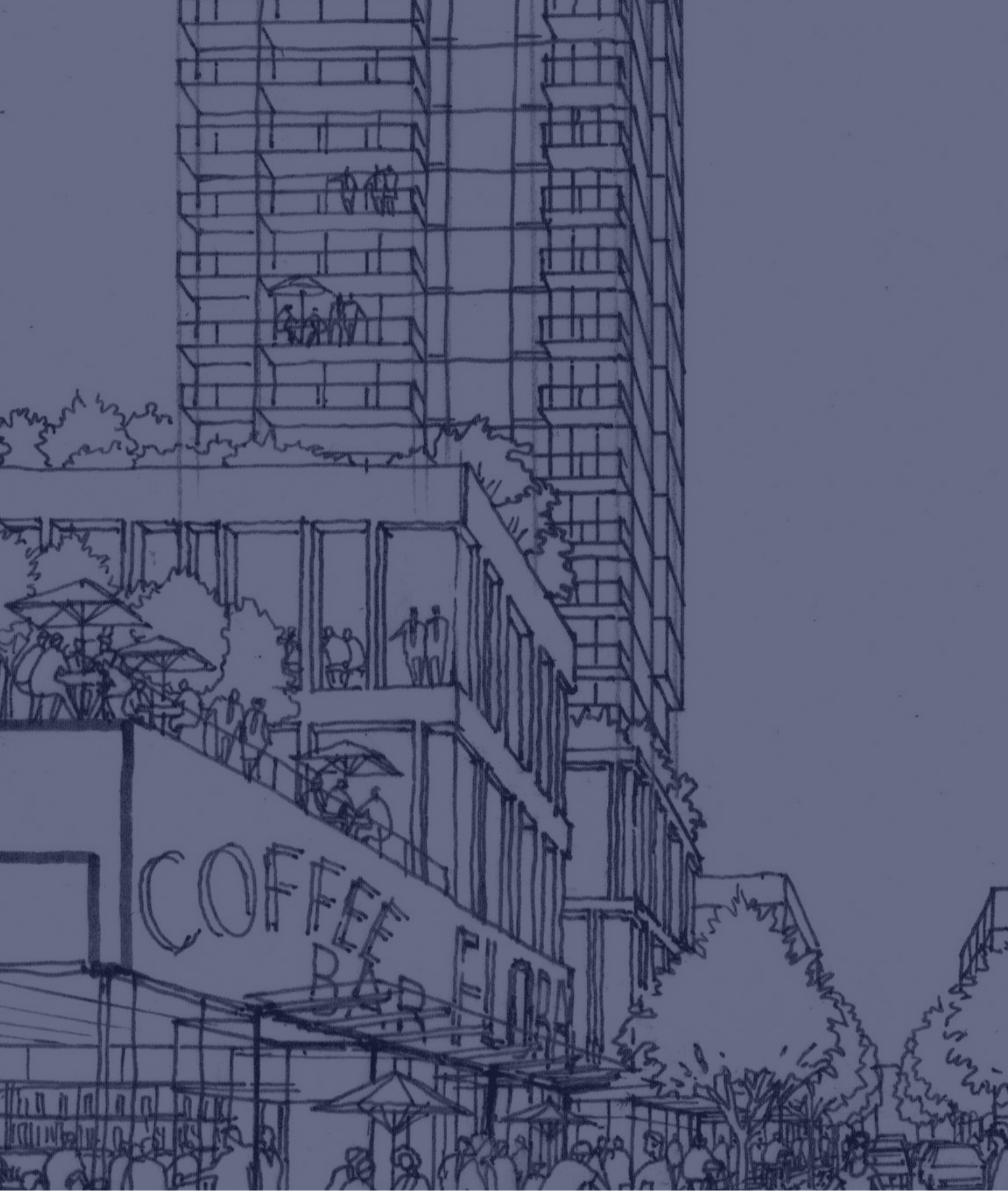
CLIENT: MOODY CENTRE TOD PLANNING GROUP

DRAWING DESCRIPTION:
MOODY CENTRE
CONCEPTUAL GRADING PLAN

SURVEYED BY
DRAWN BY BVR
DESIGNED BY NP
CHECKED BY TR

SCALES
0 1:1000 40m

DATE 2020-05-29
DRAWING No. 18-0729-C1
SHEET 1 OF 2
REV. 1
DESTROY ALL PRINTS BEARING PREVIOUS No.


COFFEE
BAR

4.0 Environmental Report

Keystone Environmental
Knowledge-Driven Results

July 9, 2020

Mr. Brad Howard
Project Manager
PCI Developments Corp.
300 – 1030 West Georgia Street
Vancouver, BC V6E 2Y3

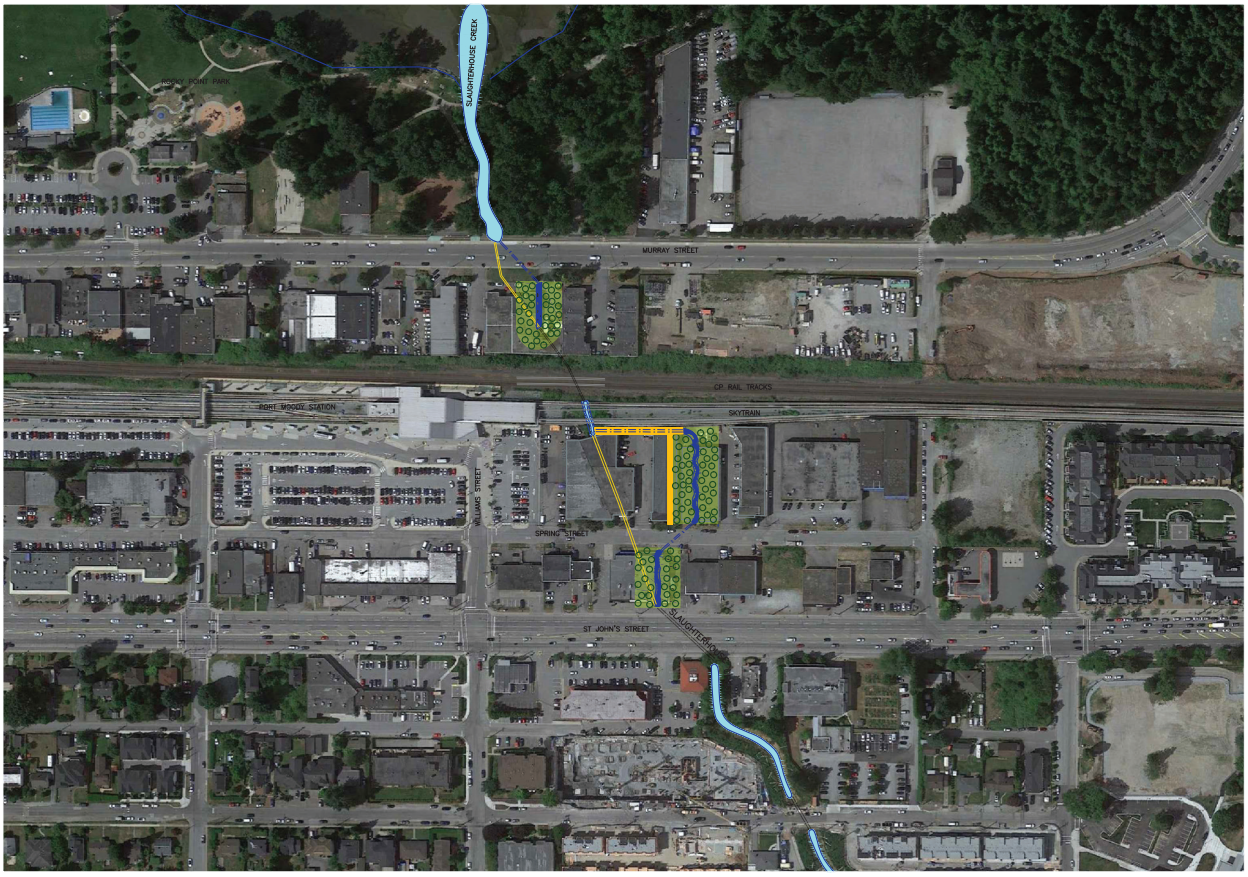
Dear Mr. Howard:

Re: Summary Report
Slaughterhouse Creek Proposed Daylighting
3006, 3010, and 3020 Spring Street, Port Moody, BC
Keystone File No.: 13820-101

Keystone Environmental Ltd. (Keystone Environmental) is working with PCI Developments Corp. (PCI) regarding the development of 3006, 3010, and 3020 Spring Street in Port Moody, BC (the Site). As part of this project and the master plan for the area, PCI is proposing to daylight the lower portions of Slaughterhouse Creek (Figure 1).

PCI is proposing to develop the land contained within 3006, 3010 and 3020 Spring Street. The existing one-storey structures, foundations and impervious surfaces will be removed from the Site, and a mixed-use residential and commercial development is planned. Based on overall size of the Site (2.25 acres), two towers are considered feasible by the design team and are being planned. The towers are designed to take up a footprint of at least 24 m x 24 m (576 m^2). The towers a required to sit on a commercial podium that is 57 m x 91 m wide in order to provide separation for the two towers, retail space and sufficient underground parking. Generally, these buildings are required to have a square form in order to use the space efficiently.

The creek runs underground almost uninterrupted from St. Johns Street to Murray Street. Upstream of Murray Street (i.e., south), the majority of Slaughterhouse Creek is culverted in a 1.5 m diameter culvert. A long 122 m culvert runs from the creek mouth under Murray Street to a short 23 m long open stream segment under the SkyTrain tracks. South of that location, a 171 m culvert runs south to St. Johns Street. The culverts have no baffles and range in gradient up to a 10 % making them extremely poor for fish passage. Fish like cutthroat trout are known to exist both upstream and downstream but cannot traverse this portion of the creek. Current fish classification of the area from the Chines Integrated Stormwater Management Plan is shown in Figure 2.



Keystone Environmental

NOTES:
1. THIS DRAWING IS FOR GENERAL INFORMATION ONLY. LOT BOUNDARIES AND FEATURES ARE APPROXIMATE
2. BASE PLAN PROVIDED BY OTHERS.

50m 0 100m
SCALE: 1:2500(approx.)

Spring Street
Port Moody, BC
PCI

REVISION No.	DATE	PROJECT No.
05	July 2020	13820

Figure 1
Master Plan
Slaughterhouse Creek Daylighting

PLOT SCALE: 1:1 DRAWN BY: AB CADD FILE No. 13820/Phase 00101Figs/190204/Fig1-Master Plan-R4.dwg

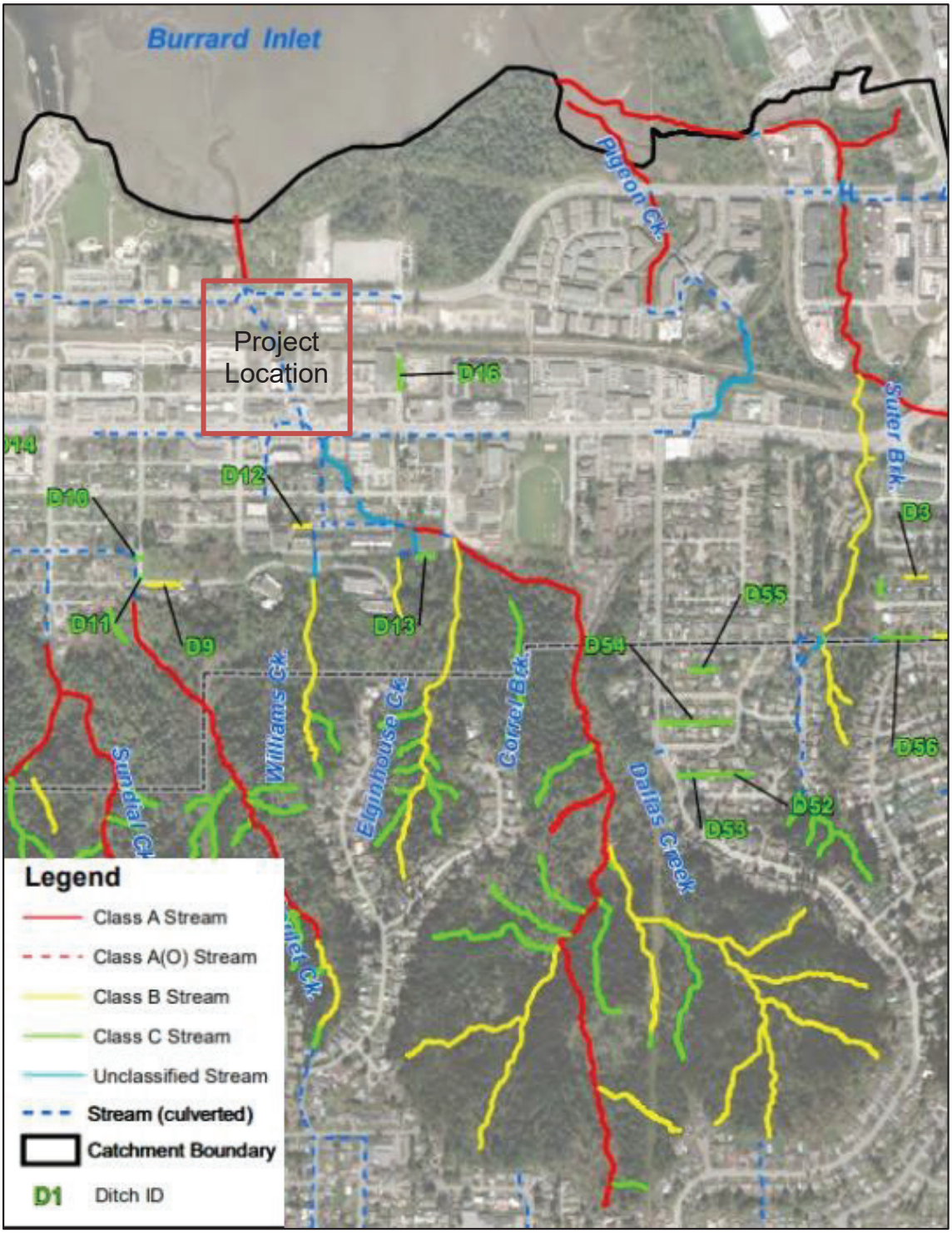


Figure 2 **Stream classification from Chines ISMP. Red and yellow are fish bearing, green is not fish bearing and dashed lines are culverted.**

The urban context of the Site, including being located adjacent to a rapid transit and commuter train stations, results in a finite amount of space available for stream daylighting activities. While a full riparian area as defined in the City of Port Moody Zoning Bylaw No. 2937 cannot be accommodated, reductions are allowed under the Zoning Bylaw for daylighting creeks in order to provide incentive to conduct daylighting where it would otherwise not occur.

Through discussions with the City of Port Moody environmental and planning department staff, it was agreed that the provincial *Riparian Areas Protection Act* setbacks could be used provided they resulted in a setback similar to those granted upstream of the Site on Slaughterhouse Creek. The resulting setback becomes 13 m from top of bank to meet these requirements and requires the average width of the creek be designed to less than 4.3 m, which is consistent with the existing stream width at the railroad tracks.

Areas that are being developed that will require a new culvert will make use of a shallow slope less than 1 % and baffles or equivalent fish passage structures. Daylight creek areas would incorporate instream complexing to create pools using embedded round rock. Several bends would be created to produce a meandering low-flow channel to improve fish passage. The average creek width will be less than 4.3 m wide and have an adjacent riparian area planted with native vegetation on a slope less than 3:1 for up to 13 m from the top of bank. A fence will be installed along the perimeter of the riparian area with a lookout location for the public.

Alignment options for the daylighting of the creek were discussed with the City of Port Moody environmental and planning department staff. The proposed alignment is along the side of the property rather than its existing alignment down the centre to balance both the ecological benefits with development feasibility. Benefits of the proposed daylighting alignment and culvert replacement include:

- A reduction of stream gradient from up to 9.8 % to less than 1 % in new culverts to improve fish passage for fish such as cutthroat trout.
- Newly installed culverts would include baffles or similar features to improve fish passage. Culvert diameters would be increased to accommodate current design standards.
- A significant reduction in the percentage of stream channel located underground. Currently 94 % of Slaughterhouse Creek between Murray Street and St. Johns Street is underground. By comparison, the proposed master plan would reduce this to 60 %. Daylighting the stream will improve fish habitat by creating 153 m (612 m^2) of instream rearing habitat for salmonids and 3,978 m^2 of riparian habitat to support the life processes of fish in the stream and terrestrial species like birds, mammals and amphibians. This is consistent with the ISMP and the Salmon-Safe best management practices. Currently these do not exist on the Site.
- The creation of new opportunities for public awareness of environmental stewardship through creation of public access points and signage.
- Improved groundwater recharging.
- Creation of a natural wildlife corridor that currently does not exist in the area.
- Wildlife snags or related avian features will be installed in the riparian area to improve its function for birds.

- Opportunities for pollinator species and various native plants to grow.
- Improved siltation control and water quality.
- Reduced flashiness of stormwater flows.
- Integration with the Chines Integrated Stormwater Management Plan.
- Salmon-Safe Best Management Practices will be incorporated where possible, including the design and implementation of an erosion and sediment control plan and installation of fences to prevent encroachment by people and/or pets such as dogs that may impact the ecological integrity of the setback areas.

The proposed daylighting works will create an improvement in ecological features and functions for fish habitat and wildlife use from the existing conditions at the Site, which is currently buildings and pavement. The daylighting was well supported at a recent presentation at the Mossom Creek Hatchery and Education Centre. We trust that further support will be obtained for this aspect of the project as consultation and additional discussions with the City of Port Moody continue.

CLOSURE

Findings presented in this report are based upon (i) reviews of available documentation and (ii) observations of the Site and surrounding lands. The conclusions and recommendations documented in this report have been prepared in a manner consistent with that level of care and skill normally exercised by other members of the environmental science profession, practicing under similar circumstances in the area at the time of the performance of the work.

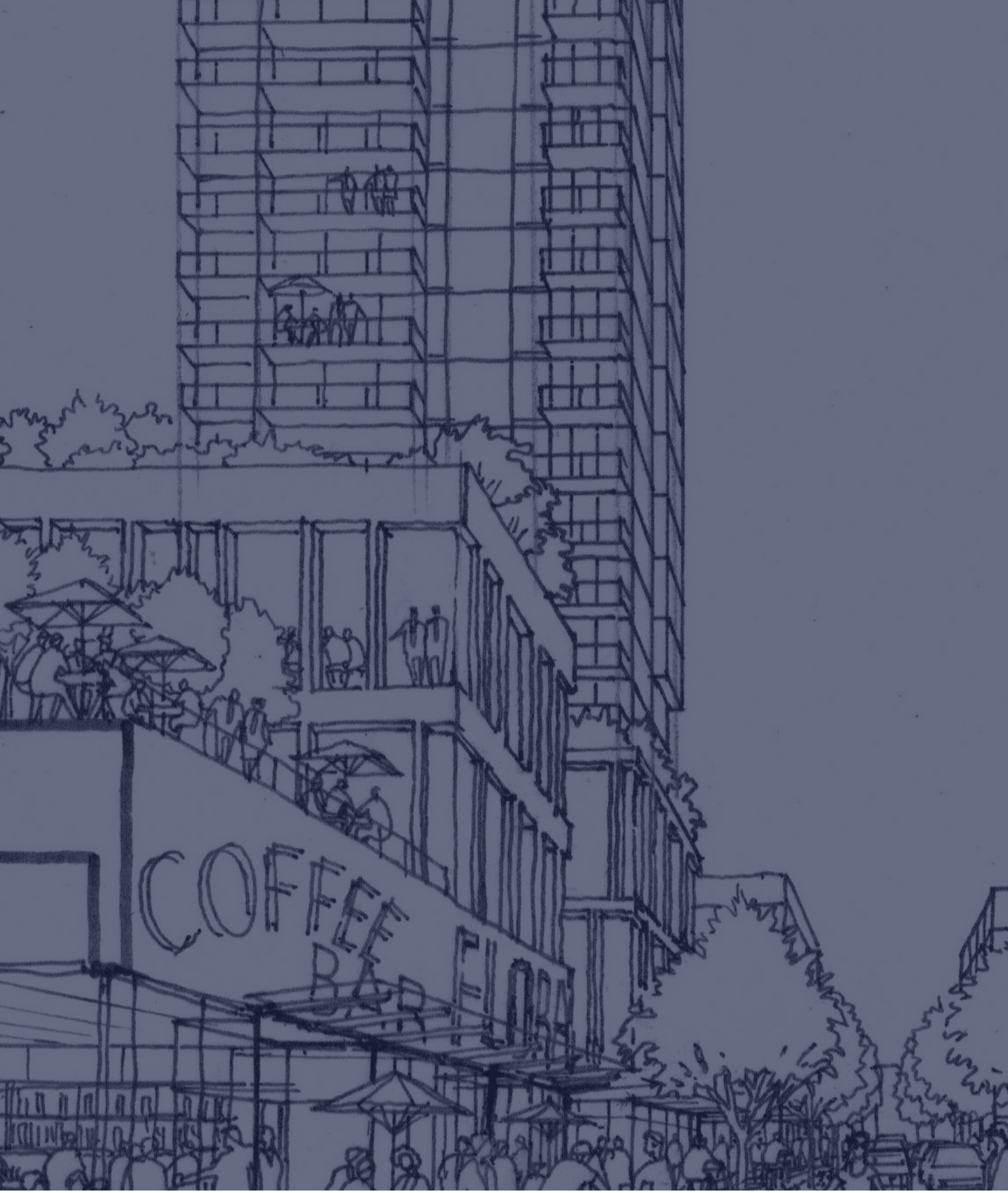
This report has been prepared solely for the use of PCI Developments Corp., pursuant to the agreement between Keystone Environmental Ltd. and PCI Developments Corp. By using this report PCI Developments Corp. agrees that they will review and use this report in its entirety. Any use which other parties make of this report, or any reliance on or decisions made based on it, are the responsibility of such parties. Keystone Environmental Ltd. accepts no responsibility for damages, if any, suffered by other parties as a result of decisions made or actions based on this report.

This report was prepared by Warren Appleton and reviewed by Dave Langill. Warren Appleton is the professional of record. We trust this report provides the information you require. Should you have questions or require clarification on the content of this report, please contact the undersigned at 604-430-0671 and we will be happy to assist.

Sincerely,

Keystone Environmental Ltd.

Warren Appleton, R.P.Bio.
Project Manager


COFFEE
BAR

5.0 Arborist Report

Arboricultural Inventory

For:
Moody Centre TOD Planning Group

Site Location:
Moody Centre
Port Moody, BC

To be submitted with Tree Inventory Plan dated:
June 9, 2020

Submitted to:
PCI Developments
300-1030 West Georgia Street
Vancouver, BC Canada
V6E VY3
Email:

Date: June 9, 2020

Submitted by:

DIAMOND HEAD
3559 Commercial Street
Vancouver, BC 604.733.4886

The following Diamond Head Consulting staff conducted the on-site tree inventory and prepared or reviewed the report.

All general and professional liability insurance and staff accreditations are provided below for reference.

Project Staff:

Dan Brown, B.Sc
ISA Certified Arborist (PN7785-A)
ISA Qualified Tree Risk Assessor (TRAQ)

Please contact us if there are any questions or concerns about the contents of this report.

Contact Information:

Phone: 604-733-4886
Fax: 604-733-4879
Email: dan@diamondheadconsulting.com
Website: www.diamondheadconsulting.com

Insurance Information:

WCB:	# 657906 AQ (003)
General Liability:	Northbridge General Insurance Corporation - Policy #CBC1935506, $10,000,000
Errors and Omissions:	Lloyds Underwriters – Policy #1010615D, $1,000,000

Scope of Assignment:

Diamond Head Consulting Ltd. (DHC) was retained to complete an arboricultural assessment to supplement the proposed development application for Moody Centre. This report contains an inventory of protected on and off-site trees and summarizes management recommendations with respect to future development plans and construction activities. Off-site trees are included because pursuant to municipal bylaws, site owners must include the management of off-site trees that are within the scope of the development. This report is produced with the following primary limitations, detailed limitations specified in Appendix 7:

1) Our investigation is based solely on visual inspection of the trees during our last site visit. This inspection is conducted from ground level. We do not conduct aerial inspections, soil tests or below grade root examinations to assess the condition of tree root systems unless specifically contracted to do so.

2) Unless otherwise stated, tree risk assessments in this report are limited to trees with a *high* or *extreme* risk rating in their current condition, and in context of their surrounding land use at the time of assessment.

3) The scope of work is primarily determined by site boundaries and local tree-related bylaws. Only trees specified in the scope of work were assessed.

4) Beyond six months from the date of this report, the client must contact DHC to confirm its validity because site base plans and tree conditions may change beyond the original report's scope. Additional site visits and report revisions may be required after this point to ensure report accuracy for the municipality's development permit application process. Site visits and reporting required after the first submission are not included within the original proposal fee and will be charged to the client at an additional cost.

The client is responsible for:

- Reviewing this report to understand and implement all tree **risk**, removal and protection requirements related to the project.
- Understanding that we did not assess trees off the subject property and therefore cannot be held liable for actions you or your contractors may undertake in developing this property which may affect the trees on neighboring properties.
- Obtaining a tree removal permit from the relevant municipal authority prior to any tree cutting.
- Obtaining relevant permission from adjacent property owners before removing off-site trees and vegetation.
- Obtaining a timber mark if logs are being transported offsite.
- Ensuring the project is compliant with the tree permit conditions.
- Constructing and maintaining tree protection fencing.
- Ensuring an arborist is present onsite to supervise any works in or near tree protection zones.

Table of Contents

List of Figures

List of Tables

1.0 Introduction

1.1 Site Overview

The subject site spans multiple addresses bound to the west by Moody Street, the south by St. John's Street (north side of the street), east by Electronic Avenue and the north by the CP rail tracks. The site also includes 2933 – 3005 Murray Street, on the north side of the CP rail tracks. Most of the site is currently occupied by various commercial and light industrial businesses, in addition to a large parking lot associated with Mood Centre SkyTrain station. Much of the site is impermeable (concrete, asphalt etc.) and there is low tree canopy cover.

1.2 Proposed Land Use Changes

The details of the proposed land use changes will be contained in a forthcoming OCP amendment application and will generally consist of high density residential, office and retail uses. In preparing this report, we reviewed the following information:

- DRAFT Topographic Survey, Butler Sundvick, May 22, 2020

1.3 Report Objective

This report has been prepared to ensure the proposed development is compliant with the City of Port Moody Bylaw No. 2961. Refer to Bylaw 2961 for the complete definition of protected trees, summarized below as:

- Trees with a diameter (measured at 1.4 m above grade) of at least 10 centimeters when they are:
    - On City property;
    - Located in a Streamside Protection Area or Environmentally Sensitive Area;
    - Dedicated for retention through a covenant or other legal instrument;
    - Subject to a Development Approval;
- Significant trees identified by Council.

Additionally, any neighbouring trees with a tree protection zone that extends into the subject site have been captured in the arborist report.

This report outlines the existing condition of protected trees on and adjacent to the property, summarizes the proposed tree retention and removal, and suggests guidelines for protecting retained trees during the construction process.

Figure 1. “ in context of the surrounding landscape and infrastructure.

2.0 Process and Methods

Dan Brown of DHC visited the site on May 15, 2020. The following methods and standards are used throughout this report.

2.1 Tree Inventory

Trees on site and trees shared with adjacent properties were marked with a numbered tag and assessed for attributes including: species; height measured to the nearest meter; and, diameter at breast height (DBH) measured to the nearest centimeter at 1.4 m above grade. Off-site trees were inventoried, but not tagged. The general health and structural integrity of each tree was assessed visually and assigned to one of five categories: *excellent; good; moderate; poor; or dying/dead*. Descriptions of the health and structure rating criteria are given in Appendix 3.

Tree retention value, categorized as *high, medium, low, or nil,* was assigned to each tree or group of trees based on their health and structure rating, and potential longevity in a developed environment. Descriptions of the retention value ratings are given in Appendix 4. Recommendations for tree retention or removal were determined by taking in to account a tree's retention value rating, its location in relation to proposed building envelopes and development infrastructure.

2.2 Tree Risk Assessment

Tree risk assessments were completed following methods of the ISA Tree Risk Assessment Manual[1] published in 2013 by the International Society of Arboriculture, which is the current industry standard for assessing tree risk. This methodology assigns risk based on the likelihood of failure, the likelihood of impact and the severity of consequence if a failure occurs. Only on-site hazard trees that had *high* or *extreme* risk ratings in their current condition and in context of their surrounding land use were identified and reported in section 3.2. Appendix 5 gives the likelihood and risk rating matrices used to categorize tree risk. DHC recommends that on-site trees be re-assessed for risk after the site conditions change (e.g. after damaging weather events, site disturbance from construction, creation of new targets during construction or in the final developed landscape).

2.3 Tree Protection and Replacement

Tree protection zones were calculated as drip line each tree according to the barrier requirements but may be modified based on professional judgement of the project arborist to accommodate species specific tolerances and site specific growing conditions.

The number of replacement trees has been calculated based on the number of protected trees removed and their species according to the specifications in Bylaw 2961.

[1] Dunster, J.A., Smiley, E.T., Matheny, N. and Lilly, S. (2013). Tree Risk Assessment Manual. *International Society of Arboriculture*. Champaign, Illinois.

3.0 Findings: Tree Inventory and Risk Assessment

3.1 Tree Inventory

The tree inventory is given in Table 1. A total of 70 trees were inventoried. All City and private property trees within the defined area were inventoried, including those that did not appear on the supplied survey.

A Retention Value is not provided for City owned trees.

Appendix 1 Table 1: Complete Tree Inventory Table

The complete tree inventory below contains information on tree attributes and recommendations for removal or retention. Tree ownership in this inventory table is not definitive, its determination here is based on information available from the legal site survey, GPS locations, and field assessment during site visits. Tree Protection Zones are measured from the outer edge of a tree's stem. If using these measurements for mapping the tree protection zone, ½ the tree's diameter must be added to the distance to accommodate a survey point at the tree's center. Where tree protection fencing is proposed to vary from the minimum municipal TPZ, comments will be included in the Retention/TPZ comments and shown on the Tree Retention and Removal Plan.

*TPZ is the tree protection zone size required by the relevant municipal bylaw or, if not defined, the project arborist.

Surveyed (Y/N)	Tag #	Location	Species Common Name	Botanical Name	DBH (cm)	Height (m)	LCR	Dripline Radius (m)	Health and Structure Rating	Comments	Retention Value Rating	*TPZ (m)
N	2923	Unsurveyed	Japanese Maple	Acer palmatum	15	2	40-59%	1	Moderate	5+5+5cm DBH, multi-stemmed from base. Growing in sloped landscape bed.	NA	2
N	2924	Unsurveyed	Japanese Maple	Acer palmatum	15	2	40-59%	1	Moderate	5+5+5cm DBH, multi-stemmed from base. Growing in sloped landscape bed.	NA	2
N	2925	On-Site	English Holly	Ilex aquifolium	62	8	40-59%	2	Moderate	22+16+14cm DBH. Growing in grass strip, retaining wall 1m to west, curb and asphalt parking 1m to east. Historically topped multiple times, dense crown, multiple service drop lines running through crown.	Low	3.72

Surveyed (Y/N)	Tag #	Location	Species Common Name	Botanical Name	DBH (cm)	Height (m)	LCR	Dripline Radius (m)	Health and Structure Rating	Comments	Retention Value Rating	*TPZ (m)
N	2926	On-Site	Emerald Cedar	Thuja occidentalis	44	8	40-59%	2	Moderate	16+14+14cm DBH, multi-stemmed from base. Base almost abutting concrete retaining wall to east. Paved concrete walkway 50cm to west, 30cm width, root zone otherwise grass/permeable. Some stems/branches failing out of crown, typical pattern of failure for species, often due to snow loading.	Low	2.64
N	2927	On-Site	Emerald Cedar	Thuja occidentalis	46	8	40-59%	2	Moderate	24+22cm DBH, multi-stemmed from base. Base almost abutting concrete retaining wall to east. Paved concrete walkway 50cm to west, 30cm width, root zone otherwise grass/permeable. Some stems/branches failing out of crown, typical pattern of failure for species, often due to snow loading.	Low	2.76
N	2928	On-Site	Common Hazelnut	Corylus avellana	72	8	40-59%	3	Moderate	26+24+22cm DBH, multi-stemmed from base. Most of root zone rough grass, permeable. Typical form for species.	Low	4.32
Y	2929	NA	Red Maple	Acer rubrum	25	5	60-79%	2	Poor	Growing in 2m wide shrubbery, root barrier at edge with large roots visible abutting the barrier. Topped at 3m, dense regrowth. Poor rating based on structure, high vigour.	Low	2

Surveyed (Y/N)	Tag #	Location	Species Common Name	Botanical Name	DBH (cm)	Height (m)	LCR	Dripline Radius (m)	Health and Structure Rating	Comments	Retention Value Rating	*TPZ (m)
Y	2930	NA	Red Maple	Acer rubrum	25	5	60-79%	2	Poor	Growing 70cm high mound in 2m wide shrubbery, root barrier at edge with large roots visible abutting the barrier. Topped at 3m, dense regrowth. Poor rating based on structure, high vigour.	Low	2
Y	2931	NA	Red Maple	Acer rubrum	20	5	60-79%	2	Poor	Growing 30cm high mound in 2m wide shrubbery, root barrier at edge with large roots visible abutting the barrier. Topped at 3m, dense regrowth. Poor rating based on structure, high vigour.	Low	2
Y	2932	NA	Red Maple	Acer rubrum	22	5	60-79%	2	Poor	Growing 30cm high mound in 2m wide shrubbery, root barrier at edge with large roots visible abutting the barrier. Topped at 3m, dense regrowth. Poor rating based on structure, high vigour.	Low	2
N	2933	NA	Dogwood spp.	Cornus spp.	5	3	60-79%	1	Moderate	Recently planted in landscaped bed adjacent to new ramp from street down to parking lot. Tag attached to stake.	Medium	2
N	2934	NA	Dogwood spp.	Cornus spp.	5	3	60-79%	1	Moderate	Recently planted in landscaped bed adjacent to new ramp from street down to parking lot. Tag attached to stake.	Medium	2

Surveyed (Y/N)	Tag #	Location	Species Common Name	Botanical Name	DBH (cm)	Height (m)	LCR	Dripline Radius (m)	Health and Structure Rating	Comments	Retention Value Rating	*TPZ (m)
N	2935	NA	Dogwood spp.	Cornus spp.	5	3	60-79%	1	Moderate	Recently planted in landscaped bed adjacent to new ramp from street down to parking lot. Tag attached to stake.	Medium	2
N	2936	On-Site	Western Red Cedar	Thuja plicata	120	25	80-100 %	5	Poor	Private yard with dogs, limited assessment from distance. Live crown to base. Multiple tops from approximately 10m with acute unions, aerial assessment recommended. Poor rating based on structure, normal vigour.	Low	7.2
N	2937	On-Site	English Holly	Ilex aquifolium	40	12	<20 %	3	Dying	Private yard with dogs, very limited assessment from distance.	Nil	2.4
N	2938	On-Site	Western Red Cedar	Thuja plicata	20	10	80-100 %	2	Good	Assessed from parking lot, 2m below grade of base of tree, limited assessment. Tree growing directly at top of 2m retaining wall, damage to retaining wall certain if tree left in place. Live crown to base.	Low	2
N	2939	On-Site	Black Cottonwood	Populus balsamifera ssp. trichocarpa	50	20	40-59%	5	Moderate	Limited assessment from parking lot, 2m below base of tree. Tree growing directly at top of 2m retaining wall, growing through chain-link fence. Damage to wall certain of tree left in place.	Nil	3

Surveyed (Y/N)	Tag #	Location	Species Common Name	Botanical Name	DBH (cm)	Height (m)	LCR	Dripline Radius (m)	Health and Structure Rating	Comments	Retention Value Rating	*TPZ (m)
N	2940	On-Site	Elm spp.	Ulmus spp.	50	10	40-59%	4	Moderate	25+15+10cm DBH. Growing directly at top of 2m retaining wall, all roots to south, mostly under asphalt. Damage to wall certain if tree left in place.	Nil	3
N	2941	NA	Norway Maple	Acer platanoides	7	4	40-59%	1	Moderate	Growing in 70cm radius circular cut-out with grate, surrounded by concrete.	NA	2
N	2942	NA	Norway Maple	Acer platanoides	8	5	40-59%	1	Moderate	Growing in 70cm radius circular cut-out with grate, surrounded by concrete.	NA	2
N	2943	NA	Cherry spp.	Prunus spp.	8	2	40-59%	1	Moderate	Growing in 1.3m radius circular cut-out surrounded by concrete. Grafted, weeping.	NA	2
N	2944	NA	Katsura	Cercidiphyllum japonicum	7	3	20-39%	1	Poor	Growing in 90cm radius circular cut-out with grate, surrounded by concrete. 50% stem diameter missing bark from base to emergence of branches. Dead central leader.	Low	NA
N	2945	NA	Katsura	Cercidiphyllum japonicum	10	4	40-59%	1	Good	Growing in 90cm radius circular cut-out with grate, surrounded by concrete.	High	NA

Surveyed (Y/N)	Tag #	Location	Species Common Name	Botanical Name	DBH (cm)	Height (m)	LCR	Dripline Radius (m)	Health and Structure Rating	Comments	Retention Value Rating	*TPZ (m)
N	2946	NA	Katsura	Cercidiphyllum japonicum	9	4	40-59%	1	Good	Growing in 90cm radius circular cut-out with grate, surrounded by concrete.	High	NA
N	2947	NA	Spruce spp.	Picea spp.	6	2	80-100 %	1	Good	Growing in 1m wide strip of soil, concrete sidewalk to east, curb then asphalt parking to west. Staked, tag attached to stake.	High	NA
N	2948	NA	Spruce spp.	Picea spp.	8	3	80-100 %	1	Good	Growing in 1m wide strip of soil, concrete sidewalk to east, curb then asphalt parking to west. Staked, tag attached to stake.	High	NA
N	2949	NA	Spruce spp.	Picea spp.	8	3	80-100 %	1	Good	Growing in 1m wide strip of soil, concrete sidewalk to east, curb then asphalt parking to west. Staked, tag attached to stake.	High	NA
N	2950	NA	Spruce spp.	Picea spp.	8	3	80-100 %	1	Good	Growing in 1m wide strip of soil, concrete sidewalk to east, curb then asphalt parking to west. Staked, tag attached to stake.	High	NA
N	2951	NA	Maple spp./japonicum	Acer spp.	17	4	80-100 %	2	Poor	10+7cm DBH. Dead stem at base. Growing in 2m wide strip of pebbles, building 1m to west, asphalt parking 1m to west.	Medium	NA

Surveyed (Y/N)	Tag #	Location	Species Common Name	Botanical Name	DBH (cm)	Height (m)	LCR	Dripline Radius (m)	Health and Structure Rating	Comments	Retention Value Rating	*TPZ (m)
Y	2952	NA	Rowan/Mountain-Ash	Sorbus aucuparia	30	5	60-79%	2	Moderate	10+10+10cm DBH, multi-stemmed from base with multiple smaller stems. Growing directly below power lines.	Low	2
Y	2953	NA	Cypress		75	15	20-39%	3	Poor	35+30+10cm DBH from base. Concrete walkway at edge of building, 1m to north, massive roots heaving concrete. Thinning crown.	NA	4.5
Y	2954	NA	Cherry Laurel	Prunus laurocerasus	34	5	60-79%	3	Moderate	12+12+10cm DBH, multi-stemmed from base.	NA	2.04
Y	2955	NA	Eastern White Cedar/Emerald/ Smaragd	Thuja occidentalis	34	6	80-100 %	1	Good	12+12+10cm DBH. Typical for species.	Medium	2.04
Y	2956	NA	Eastern White Cedar/Emerald/ Smaragd	Thuja occidentalis	32	6	80-100 %	1	Good	12+10+10cm DBH. Typical for species.	Medium	2
Y	2957	NA	Cypress (Unknown Species)	Cypress (Unknown species)	48	7	20-39%	2	Poor	16+12+10cm DBH. Declining.	Low	2.88

Surveyed (Y/N)	Tag #	Location	Species Common Name	Botanical Name	DBH (cm)	Height (m)	LCR	Dripline Radius (m)	Health and Structure Rating	Comments	Retention Value Rating	*TPZ (m)
Y	2958	NA	Spruce spp.	Picea spp.	25	9	80-100 %	2	Moderate	Live crown almost to base. Large surface roots visible in surrounding grass, with mechanical damage.	Medium	2
Y	2959	NA	Sawara Cypress	Chamaecyparis pisifera	29	9	<20 %	3	Poor	All live crown on south side, shaded by larger trees to north, crown raised to 5m.	Low	2
Y	2960	NA	Western Red Cedar	Thuja plicata	51	20	40-59%	4	Good	Growing in group. Crown raised to 3m. Appears to be single stem to top. Retain in group.	Medium	3.06
Y	City-01	City	Cherry Plum	Prunus cerasifera	22	4	<20 %	2	Poor	Roots heaving paved sidewalk, mechanical damage to roots and root flare, open wound exposing decaying heartwood from base to 1.8m, where branches emerge. May have been topped, branches appear to be large epicormic.	Low	2
Y	City-02	City	Red Maple	Acer rubrum	40	8	60-79%	4	Poor	Growing in 80x80cm cut out section of paved sidewalk. Roots heaving surrounding pavers. Crown raised to 2m. Growing directly below power lines at approx. 10m. Previously topped, headed back, profuse epicormic growth in interior crown. High vigour. Poor rating based on structural defects and weaknesses resulting from pruning/cutting.	Medium	2.4

Surveyed (Y/N)	Tag #	Location	Species Common Name	Botanical Name	DBH (cm)	Height (m)	LCR	Dripline Radius (m)	Health and Structure Rating	Comments	Retention Value Rating	*TPZ (m)
Y	City-03	City	Red Maple	Acer rubrum	36	8	60-79%	4	Poor	Growing in 80x80cm cut out section of paved sidewalk. Roots heaving surrounding pavers. Crown raised to 2m. Growing directly below power lines at approx. 10m. Previously topped, headed back, profuse epicormic growth in interior crown. High vigour. Poor rating based on structural defects and weaknesses resulting from pruning/cutting.	Medium	2.16
Y	City-04	City	Red Maple	Acer rubrum	35	8	60-79%	4	Poor	Growing in 80x80cm cut out section of paved sidewalk. Roots heaving surrounding pavers. Crown raised to 2m. Growing directly below power lines at approx. 10m. Previously topped, headed back, profuse epicormic growth in interior crown. High vigour. Poor rating based on structural defects and weaknesses resulting from pruning/cutting.	Medium	2.1
Y	City-05	City	Red Maple	Acer rubrum	35	8	60-79%	4	Poor	Growing in 80x80cm cut out section of paved sidewalk. Roots heaving surrounding pavers. Crown raised to 2m. Growing directly below power lines at approx. 10m. Previously topped, headed back, profuse epicormic growth in interior crown. High vigour. Poor rating based on structural defects and weaknesses resulting from pruning/cutting.	Medium	2.1

Surveyed (Y/N)	Tag #	Location	Species Common Name	Botanical Name	DBH (cm)	Height (m)	LCR	Dripline Radius (m)	Health and Structure Rating	Comments	Retention Value Rating	*TPZ (m)
Y	City-06	City	Red Maple	Acer rubrum	29	15	40-59%	2	Poor	Growing in grass boulevard. Historically topped at 4m, decay visible in main stems at this point, many competing, co-dominant leaders. Poor rating based on structure, normal vigour.	Medium	2
Y	City-07	City	Red Maple	Acer rubrum	28	15	40-59%	2	Poor	Growing in grass boulevard. Historically topped at 5m, decay visible in main stems at this point, many competing, co-dominant leaders. Poor rating based on structure, normal vigour.	Medium	2
N	City-08	City	Red Maple	Acer rubrum	27	15	40-59%	2	Poor	Growing in grass boulevard. Historically topped at 4m, decay visible in main stems at this point, many competing, co-dominant leaders. Poor rating based on structure, normal vigour.	Medium	2
N	City-09	NA	Honey Locust	Gleditsia triacanthos	17	5	40-59%	3	Good	Growing in 1x1m cut-out in paved sidewalk. Growing directly below power lines.	NA	2
Y	City-10	NA	Hornbeam	Carpinus betulus	37	14	80-100 %	4	Moderate	Growing in grass back-boulevard. Live crown to 1.5m. Hydro pruned on northwest side. Good vigour, good condition but for hydro pruning.	NA	2.22

Surveyed (Y/N)	Tag #	Location	Species Common Name	Botanical Name	DBH (cm)	Height (m)	LCR	Dripline Radius (m)	Health and Structure Rating	Comments	Retention Value Rating	*TPZ (m)
Y	City-11	NA	Hornbeam	Carpinus betulus	35	9	80-100 %	4	Moderate	Growing in grass back-boulevard. Live crown to 1.5m. Good vigour, good condition but for hydro pruning.	NA	2.1
Y	City-12	NA	Hornbeam	Carpinus betulus	40	9	80-100 %	4	Moderate	Growing in grass back-boulevard. Live crown to 1.5m. Good vigour, good condition but for hydro pruning.	NA	2.4
Y	City-13	NA	Western Red Cedar	Thuja plicata	22	20	40-59%	3	Poor	7 stems from base, 3 largest are 25+25+20cm DBH. Directly below power lines, topped multiple times. Poor rating based on structure, normal vigour.	NA	2
Y	City-14	NA	Black Cottonwood	Populus balsamifera ssp. trichocarpa	50	30	40-59%	5	Poor	Limited assessment made from road, dense vegetation around base. Tree appears to have grown through chain link fence, partly included. Hydro pruned on west side.	NA	3
Y	City-15	City	Cypress		17	5	<20 %	2	Dying	Topped, very low LCR.	NA	2
Y	City-16	City	Spruce spp.	Picea spp.	18	5	<20 %	2	Poor	Topped, low LCR.	NA	2

Surveyed (Y/N)	Tag #	Location	Species Common Name	Botanical Name	DBH (cm)	Height (m)	LCR	Dripline Radius (m)	Health and Structure Rating	Comments	Retention Value Rating	*TPZ (m)
Y	City-17	City	Cypress		17	5	<20 %	2	Dying	Topped, very low LCR.	NA	2
Y	City-18	City	Spruce spp.	Picea spp.	15	5	<20 %	2	Poor	Topped, low LCR.	NA	2
Y	City-19	City	Cypress		26	5	<20 %	2	Dying	9+9+8cm DBH. Topped, very low LCR.	NA	2
Y	City-20	City	Norway Spruce	Picea abies	29	6	20-39%	3	Poor	Topped, directly below power lines.	NA	2
Y	City-21	City	Black Pine	Pinus nigra	65	8	20-39%	5	Poor	35+30cm DBH. Topped, directly below power lines.	NA	3.9
Y	City-21	NA	Norway Spruce	Picea abies	48	22	40-59%	5	Moderate	Growing in group. Historically partially failed root plate, evidenced by raised roots on west side, stem curved but fully corrected by 4m. Otherwise good condition. Crown raised to 3m. Appears to be single stem to top. Retain in group.	Medium	2.88

Surveyed (Y/N)	Tag #	Location	Species Common Name	Botanical Name	DBH (cm)	Height (m)	LCR	Dripline Radius (m)	Health and Structure Rating	Comments	Retention Value Rating	*TPZ (m)
Y	City-22	NA	Cypress		43	20	40-59%	3	Moderate	Growing in group. Crown raised to 3m. Appears to be single stem to top. Retain in group.	Medium	2.58
Y	City-23	NA	Cypress		38	18	20-39%	3	Poor	2 equal stems from base, separate approximately 1.6m, acute union. Growing in group. Crown raised to 3m. Retain in group.	Low	2.28
Y	City-24	NA	Eastern White Pine	Pinus strobus	85	NA	40-59%	6	Poor	2 stems separate just above breast height, approx. 55cm and 30cm at breast height. Larger stem historically topped at 4m, 4 competing co-dominant leaders emerge from this point with 2 larger laterals emerging at 2m and 3m, also competing. Decay likely at topping point. Power pole with service drop wires within crown. Crown raised to 6m south side, 3-4m elsewhere. Undesirable for retention due to structural defects from cutting, combined with poor species failure profile.	Low	5.1
	City-25	City	Spruce spp.	Picea spp.	60	12	60-79%	3	Good	Attributes taken from survey and estimated from photos.	Medium	3.6
Y	Dead	NA	NA	NA	7	4	NA	NA	NA	In circular cut-out with grate, surrounded by concrete.	NA	NA

Surveyed (Y/N)	Tag #	Location	Species Common Name	Botanical Name	DBH (cm)	Height (m)	LCR	Dripline Radius (m)	Health and Structure Rating	Comments	Retention Value Rating	*TPZ (m)
Y	OS-1	NA	Silver Birch	Betula pendula	25	7	<20 %	3	Poor	Growing in group of mixed species. Directly below power lines, previously topped.	NA	2
Y	OS-2	NA	Western Red Cedar	Thuja plicata	26	12	<20 %	2	Poor	Growing in group of mixed species. Directly below power lines, previously topped.	NA	2
Y	OS-3	NA	Black Cottonwood	Populus balsamifera ssp. trichocarpa	22	20	20-39%	3	Poor	Growing in group of mixed species. Limited assessment obscured by surrounding trees. Suppressed by larger cottonwood to north.	NA	2
Y	OS-4	NA	Black Cottonwood	Populus balsamifera ssp. trichocarpa	35	10	20-39%	3	Poor	Growing in group of mixed species. Limited assessment from road, dense vegetation around base, appear to have grown through chain-link fence. Directly below power lines, previously topped.	NA	2.1
Y	Row1	On-Site	Black Cottonwood	Populus balsamifera ssp. trichocarpa	25	7	40-59%	3	Poor	5 trees, 10-30cm DBH, topped at 2m. Assessed from parking lot, 2m below grade of base of trees, limited assessment. Trees growing directly at top of 2m retaining wall, damage to retaining wall certain if tree left in place. Growing through chain-link fence.	Nil	2

3.2 Tree Risk Assessment

There were no trees on this site that posed a *high* or *extreme* risk at the time of assessment.

Appendix 2 Tree Health and Structure Rating Criteria

The tree health and structure ratings used by Diamond Head Consulting summarize each tree based on both positive and negative attributes using five stratified categories. These ratings indicate health and structural conditions that influence a tree's ability to withstand local site disturbance during the construction process (assuming appropriate tree protection) and benefit a future urban landscape.

Excellent: Tree of possible specimen quality, unique species or size with no discernible defects.

Good: Tree has no significant structural defects or health concerns, considering its growing environment and species.

Moderate: Tree has noted health and/or minor to moderate structural defects. This tree can be retained, but may need mitigation (e.g., pruning or bracing) and monitoring post-development. A moderate tree may be suitable for retention within a stand or group, but not suitable on its own.

Poor: Tree is in serious decline from previous growth habit or stature, has multiple defined health or structural weaknesses. It is unlikely to acclimate to future site use change. This tree is not suitable for retention within striking distance of most targets.

Dying/Dead: Tree is in severe decline, has severe defects or was found to be dead.

Appendix 3 Tree Retention Value Rating Criteria

The tree retention value ratings used by Diamond Head Consulting provide guidance for tree retention planning. Each tree in an inventory is assigned to one of four stratified categories that reflect its value as a future amenity and environmental asset in a developed landscape. Tree retention value ratings take in to account the health and structure rating, species profile*, growing conditions and potential longevity assuming a tree's growing environment is not compromised from its current state.

High: Tree suitable for retention. Has a good or excellent health and structure rating. Tree is open grown, an anchor tree on the edge of a stand or dominant within a stand or group. Species of *Populus, Alnus* and *Betula* are excluded from this category.

Medium: Tree suitable for retention with some caveats or suitable within a group**. Tree has moderate health and structure rating, but is likely to require remedial work to mitigate minor health or structural defects. Includes trees that are recently exposed, but wind firm, and trees grown on sites with poor rooting environments that may be ameliorated.

Low: Tree has marginal suitability for retention. Health and structure rating is moderate or poor; remedial work is unlikely to be viable. Trees within striking distance of a future site developments should be removed.

Nil: Tree is unsuitable for retention. It has a dying/dead or poor health and structure rating. It is likely that the tree will not survive, or it poses and unacceptable hazard in the context of future site developments.

* The species profile is based upon mature age and height/spread of the species, adaptability to land use changes and tree species susceptibility to diseases, pathogen and insect infestation.

** Trees that are 'suitable as a group' have grown in groups or stands that have a single, closed canopy. They have not developed the necessary trunk taper, branch and root structure that would allow then to be retained individually. These trees should only be retained in groups.

Appendix 4 Risk Rating Matrices

Trees with a *probable* or *imminent* likelihood of failure, a *medium* or *high* likelihood of impacting a specified target, and a *significant* or *severe* consequence of failure have been assessed for risk and included in this report (Section 3.2). These two risk rating matrices showing the categories used to assign risk are taken without modification to their content from the International Society of Arboriculture Tree Risk Assessment Qualification Manual.

Matrix 1: Likelihood

Likelihood of Failure	Likelihood of Impacting Target			
	Very Low	**Low**	**Medium**	**High**
Imminent	Unlikely	Somewhat Likely	Likely	Very Likely
Probable	Unlikely	Unlikely	Somewhat Likely	Likely
Possible	Unlikely	Unlikely	Unlikely	Somewhat Likely
Improbable	Unlikely	Unlikely	Unlikely	Unlikely

Matrix 2: Risk Rating

Likelihood of Failure and Impact	Consequences of Failure			
	Negligible	**Minor**	**Significant**	**Severe**
Very Likely	Low	Moderate	High	Extreme
Likely	Low	Moderate	High	High
Somewhat Likely	Low	Low	Moderate	Moderate
Unlikely	Low	Low	Low	Low

Appendix 5 Construction Guidelines

Tree management recommendations in this report are made under the expectation that the following guidelines for risk mitigation and proper tree protection will be adhered to during construction.

Respecting these guidelines will prevent changes to the soil and rooting conditions, contamination due to spills and waste, or physical wounding of the trees. Any plans for construction work and activities that deviate from or contradict these guidelines should be discussed with the project arborist so that mitigation measures can be implemented.

Tree Protection Zones

A Tree protection zone (TPZ) is determined using either dripline or a DBH multiplier to define a radius measured in all directions from the outside of a tree's trunk. It is typically determined according to local municipal bylaw specifications and may be modified based on professional judgement of the project arborist to accommodate species specific tolerances and site specific growing conditions. For retained trees, the TPZ and fencing indicated in this report are proposed as suitable in relation to the level of disturbance proposed on the site plan provided to the project arborist. Arborist consultation is required if any additional work beyond the scope of the plans provided is proposed near the tree. Work done in addition to the proposed impacts discussed in this report may cause the tree to decline and die.

Tree Protection Fencing: Tree protection zones (TPZs) will be protected by Tree Protection Fencing except where site features constrict roots (e.g., retaining walls or roads), where continual access is required (e.g., sidewalks), or when an acceptable encroachment into the TPZ is proposed, in which case the fencing will be modified. Tree Protection Fencing is shown on the Tree Protection Plan and, where it varies from the TPZ, the rationale is described in the inventory table in Section 3.1.

Within a TPZ, no construction activity, including materials storage, grading or landscaping, may occur without project arborist approval. Within the TPZ, the following are tree preservation guidelines based on industry standards for best practice and local municipal requirements:

- No soil disturbance or stripping.
- Maintain the natural grade.
- No storage, dumping of materials, parking, underground utilities or fires within TPZs or tree driplines.
- Any planned construction and landscaping activities affecting trees should be reviewed and approved by a consulting arborist.
- Install specially designed foundations and paving when these structures are required within TPZs.
- Route utilities around TPZs.
- Excavation within the TPZs should be supervised by a consultant arborist.
- Surface drainage should not be altered in such a way that water is directed in or out of the TPZ.

- Site drainage improvements should be designed to maintain the natural water table levels within the TPZ.

Prior to any construction activity, Tree Protection Fencing must be constructed as shown on the Tree Protection Plan. The protection barrier or temporary fencing must be at least 1.2 m in height and constructed of 2" by 4" lumber with orange plastic mesh screening. Tree Protection Fencing must be constructed prior to tree removal, excavation or construction and remain intact for the entire duration of construction.

Tree Crown Protection and Pruning

All heavy machinery (excavators, cranes, dump trucks, etc.) working within five meters of a tree's crown should be made aware of their proximity to the tree. If there is to be a sustained period of machinery working within five meters of a tree's crown, a of line of colored flags should be suspended at eye-level of the machinery operator for the length of the protected tree area. Any concerns regarding the clearance required for machinery and workers within or immediately outside tree protection zones should be referred to the project arborist so that a zone surrounding the crowns can be established or pruning measures undertaken. Any wounds incurred to protected trees during construction should be reported to the project arborist immediately.

Unsurveyed Trees

Unsurveyed trees identified by DHC in the Tree Retention Plan have been hand plotted for approximate location only using GPS coordinates and field observations. The location and ownership of unsurveyed trees cannot be confirmed without a legal surveyed. The property owner or project developer must ensure that all relevant on- and off-site trees are surveyed by a legally registered surveyor, whether they are identified by DHC or not.

Removal of logs from sites

Private timber marks are required to transport logs from privately-owned land in BC. It is property owner's responsibility to apply for a timber mark prior to removing any merchantable timber from the site. Additional information can be found at: http://www.for.gov.bc.ca/hth/private-timber-marks.htm

Regulation of Soil Moisture and Drainage

Excavation and construction activities adjacent to TPZs can influence the availability of moisture to protected trees. This is due to a reduction in the total root mass, changes in local drainage conditions, and changes in exposure including reflected heat from adjacent hard surfaces. To mitigate these concerns the following guidelines should be followed:

- Soil moisture conditions within the tree tree protection zones should be monitored during hot and dry weather. When soil moisture is inadequate, supplemental irrigation should be provided that penetrates soil to the depth of the root system or a minimum of 30 cm.

- Any planned changes to surface grades within the TPZs, including the placement of mulch, should be designed so that any water will flow away from tree trunks.
- Excavations adjacent to trees can alter local soil hydrology by draining water more rapidly from TPZs more rapidly than it would prior to site changes. It is recommended that when excavating within 6 m of any tree, the site be irrigated more frequently to account for this.

Root Zone Enhancements and Fertilization

Root zone enhancements such as mulch, and fertilizer treatments may be recommended by the project arborist during any phase of the project if they deem it necessary to maintain tree health and future survival.

Paving Within and Adjacent to TPZs

If development plans propose the construction of paved areas and/or retaining walls close to TPZs, measures should be taken to minimize impacts. Construction of these features would raise concerns for proper soil aeration, drainage, irrigation and the available soil volume for adequate root growth. The following design and construction guidelines for paving and retaining walls are recommended to minimize the long-term impacts of construction on protected trees:

- Any excavation activities near or within the TPZ should be monitored by a certified arborist. Structures should be designed, and excavation activities undertaken to remove and disturb as little of the rooting zone as possible. All roots greater than 2 cm in diameter should be hand pruned by a Certified Arborist.
- The natural grade of a TPZ should be maintained. Any retaining walls should be designed at heights that maintain the existing grade within 20 cm of its current level. If the grade is altered, it should be raised not reduced in height.
- Compaction of sub grade materials can cause trees to develop shallow rooting systems. This can contribute to long-term pavement damage as roots grow. Minimizing the compaction of subgrade materials by using structural soils or other engineered solutions and increasing the strength of the pavement reduces reliance on the sub-grade for strength.
- If it is not possible to minimize the compaction of sub-grade materials, subsurface barriers should be considered to help direct roots downward into the soil and prevent them from growing directly under the paved surfaces.

Plantings within TPZs

Any plans to landscape the ground within the TPZ should implement measures to minimize negative impacts on the above or below ground parts of a tree. Existing grass layer in TPZs should not be stripped because this will damage surface tree roots. Grass layer should be covered with mulch at the start of the project, which will gradually kill the grass while moderating soil moisture and temperatures. Topsoil should be mixed with the mulch prior to planting of shrubs, but new topsoil layer should not be greater than 20 cm deep on top of the original grade. Planting should take place within the newly placed topsoil mixture and should not disturb the original rooting zone of the trees. A two-meter radius around the

base of each tree should be left unplanted and covered in mulch; a tree's root collar should remain free from any amendments that raise the surface grade.

Monitoring during construction

Ongoing monitoring by a consultant arborist should occur for the duration of a development project. Site visits should be more frequent during activities that are higher risk, including the first stages of construction when excavation occurs adjacent to the trees. Site visits will ensure contractors are respecting the recommended tree protection measures and will allow the arborist to identify any new concerns that may arise.

During each site visit the following measures will be assessed and reported on by a consulting arborist:

- Health and condition of protected trees, including damage to branches, trunks and roots that may have resulted from construction activities, as will the health of. Recommendations for remediation will follow.
- Integrity of the TPZ and fencing.
- Changes to TPZ conditions including overall maintenance, parking on roots, and storing or dumping of materials within TPZ. If failures to maintain and respect the TPZ are observed, suggestions will be made to ensure tree protection measures are remediated and upheld.
- Review and confirmation of recommended tree maintenance including root pruning, irrigation, mulching and branch pruning.
- Changes to soil moisture levels and drainage patterns; and
- Factors that may be detrimentally impact the trees.

Appendix 6 Report Assumptions and Limiting Conditions

1) Unless expressly set out in this report or these Assumptions and Limiting Conditions, Diamond Head Consulting Ltd. ("Diamond Head") makes no guarantee, representation or warranty (express or implied) regarding this report, its findings, conclusions or recommendations contained herein, or the work referred to herein.

2) The work undertaken in connection with this report and preparation of this report have been conducted by Diamond Head for the "Client" as stated in the report above. It is intended for the sole and exclusive use by the Client for the purpose(s) set out in this report. Any use of, reliance on or decisions made based on this report by any person other than the Client, or by the Client for any purpose other than the purpose(s) set out in this report, is the sole responsibility of, and at the sole risk of, such other person or the Client, as the case may be. Diamond Head accepts no liability or responsibility whatsoever for any losses, expenses, damages, fines, penalties or other harm (including without limitation financial or consequential effects on transactions or property values, and economic loss) that may be suffered or incurred by any person as a result of the use of or reliance on this report or the work referred to herein. The copying, distribution or publication of this report (except for the internal use of the Client) without the express written permission of Diamond Head (which consent may be withheld in Diamond Head's sole discretion) is prohibited. Diamond Head retains ownership of this report and all documents related thereto both generally and as instruments of professional service.

3) The findings, conclusions and recommendations made in this report reflect Diamond Head's best professional judgment given the information available at the time of preparation. This report has been prepared in a manner consistent with the level of care and skill normally exercised by arborists currently practicing under similar conditions in a similar geographic area and for specific application to the trees subject to this report on the date of this report. Except as expressly stated in this report, the findings, conclusions and recommendations it sets out are valid for the day on which the assessment leading to such findings, conclusions and recommendations was conducted. If generally accepted assessment techniques or prevailing professional standards and best practices change at a future date, modifications to the findings, conclusions, and recommendations in this report may be necessary. Diamond Head expressly excludes any duty to provide any such modification if generally accepted assessment techniques and prevailing professional standards and best practices change.

4) Conditions affecting the trees subject to this report (the "Conditions", include without limitation, structural defects, scars, decay, fungal fruiting bodies, evidence of insect attack, discolored foliage, condition of root structures, the degree and direction of lean, the general condition of the tree(s) and the surrounding site, and the proximity of property and people) other than those expressly addressed in this report may exist. Unless otherwise stated information contained in this report covers only those Conditions and trees at the time of inspection. The inspection is limited to visual examination of such Conditions and trees without dissection, excavation, probing or coring. While

every effort has been made to ensure that any trees recommended for retention are both healthy and safe, no guarantees, representations or warranties are made (express or implied) that those trees will not be subject to structural failure or decline. The Client acknowledges that it is both professionally and practically impossible to predict with absolute certainty the behavior of any single tree, or groups of trees, in all given circumstances. Inevitably, a standing tree will always pose some risk. Most trees have the potential for failure and this risk can only be eliminated if the risk is removed. If Conditions change or if additional information becomes available at a future date, modifications to the findings, conclusions, and recommendations in this report may be necessary. Diamond Head expressly excludes any duty to provide any such modification of Conditions change or additional information becomes available.

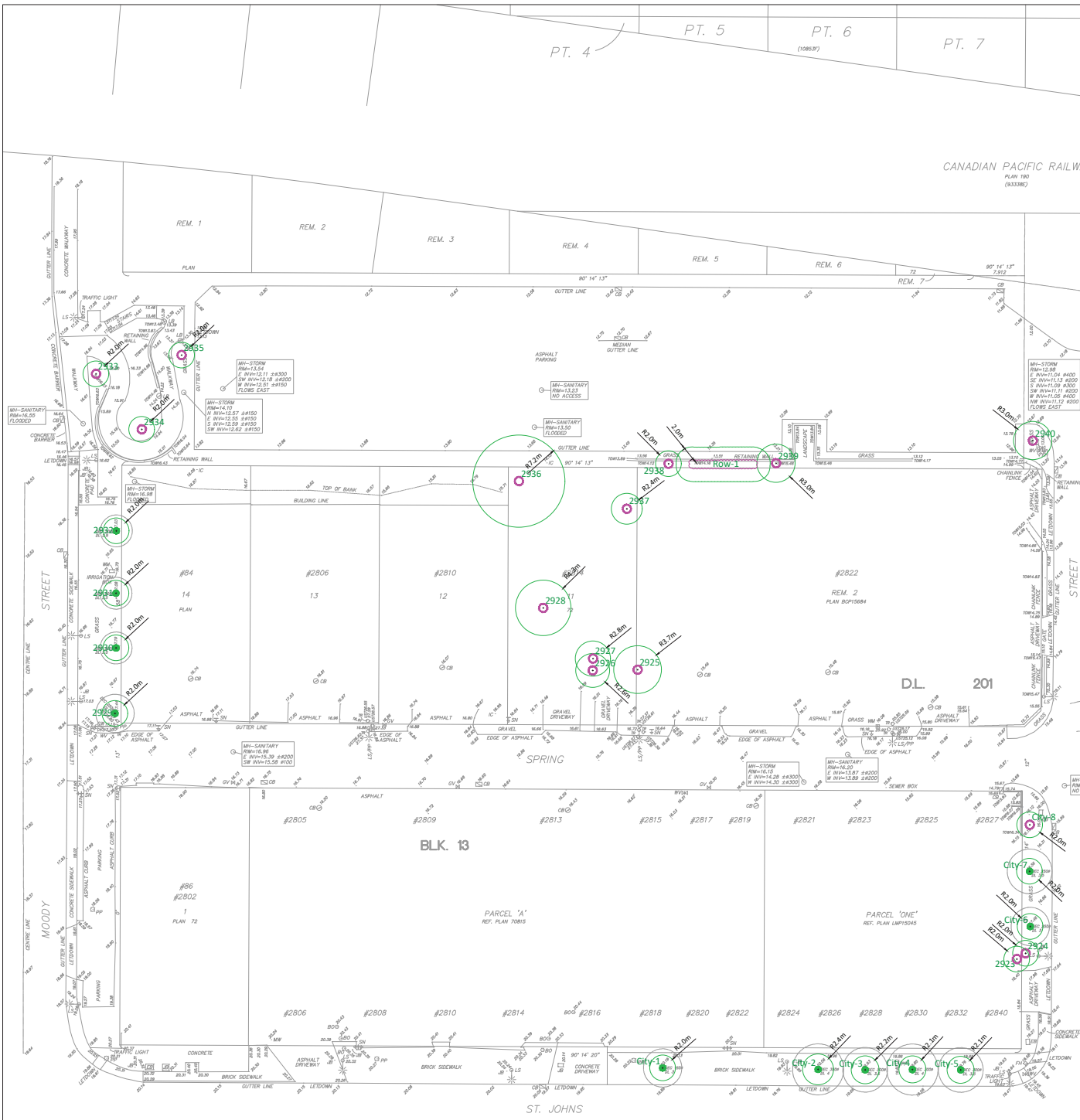
5) Nothing in this report is intended to constitute or provide a legal opinion and Diamond Head expressly disclaims any responsibility for matters legal in nature (including, without limitation, matters relating to title and ownership of real or personal property and matters relating to cultural and heritage values). Diamond Head makes no guarantee, representation or warranty (express or implied) as to the requirements of or compliance with applicable laws, rules, regulations, or policies established by federal, provincial, local government or First Nations bodies (collectively, "Government Bodies") or as to the availability of licenses, permits or authorizations of any Government Body. Revisions to any regulatory standards (including bylaws, policies, guidelines an any similar directions of a Government Bodies in effect from time to time) referred to in this report may be expected over time. As a result, modifications to the findings, conclusions and recommendations in this report may be necessary. Diamond Head expressly excludes any duty to provide any such modification if any such regulatory standard is revised.

6) Diamond Head shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.

7) In preparing this report, Diamond Head has relied in good faith on information provided by certain persons, Government Bodies, government registries and agents and representatives of each of the foregoing, and Diamond Head assumes that such information is true, correct and accurate in all material respects. Diamond Head accepts no responsibility for any deficiency, misinterpretations or fraudulent acts of or information provided by such persons, bodies, registries, agents and representatives.

8) Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.

9) Loss or alteration of any part of this report invalidates the entire report.



DIAMOND HEAD

3559 COMMERCIAL STREET
VANCOUVER BC | V5N 4E8
T 604.733.4886 | F 604.733.4879

Drawing title: Tree Inventory - 1
Project address: Moody Centre
Client: Moody Centre TOD Planning Group

LEGEND

- CRITICAL ROOT ZONE
- TREE PROTECTION ZONE AND FENCING
- SURVEYED TREE TO BE RETAINED
- UN-SURVEYED TREE TO BE RETAINED (MUST BE SURVEYED)
- TREE TO BE REMOVED

NOTES

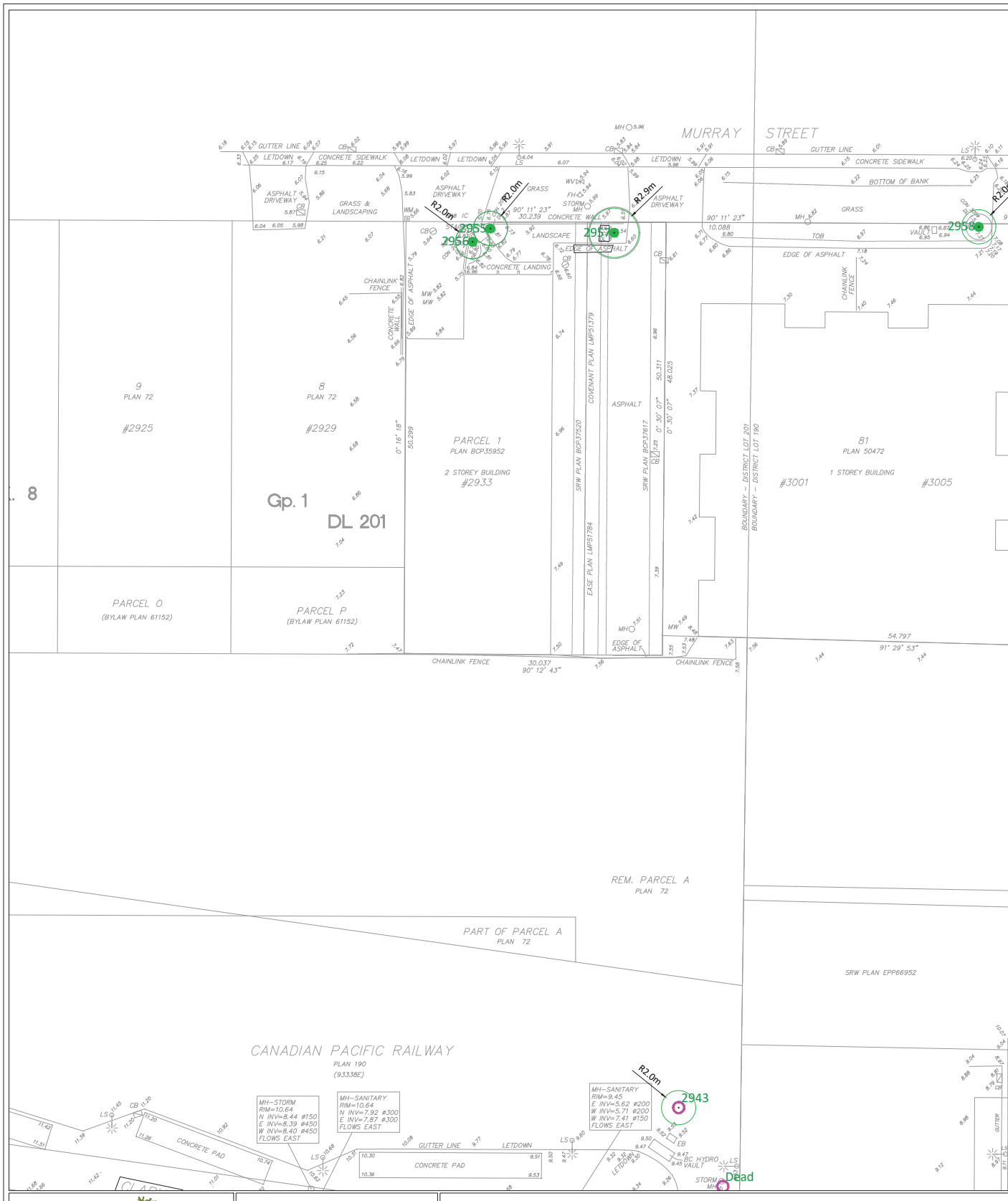
1. The location of un-surveyed trees on this plan is approximate. Their location and ownership cannot be confirmed without being surveyed by a Registered BC Land Surveyor.
2. All tree protection fencing must be built to the relevant municipal bylaw specifications.The dimensions shown are from the outer edge of the stem of the tree.
3. The tree protection zone shown is a graphical representation of the critical root zone, measured from the outer edge of the stem of the tree. ($\frac{1}{2}$ the trees diameter was added to the graphical tree protection circles to accommodate the survey point being in the center of the tree)
4. Any construction activities or grade changes within the Root Protection Zone must be approved by the project arborist.
5. This plan is based on a topographic and tree location survey provided by the owners' Registered British Columbia Land Surveyor (BCLS) and layout drawings provide by the owners' Engineer (P Eng).
6. This plan is provided for context only, and is not certified as to the accuracy of the location of features or dimensions that are shown on this plan. Please refer to the original survey plan and engineering plans.

REFERENCE DRAWINGS

1. Base Survey by:

Drawing No: 1
Date: 2020/06/09
Drawn by: DBR
Page Size: TABLOID 11"x17"

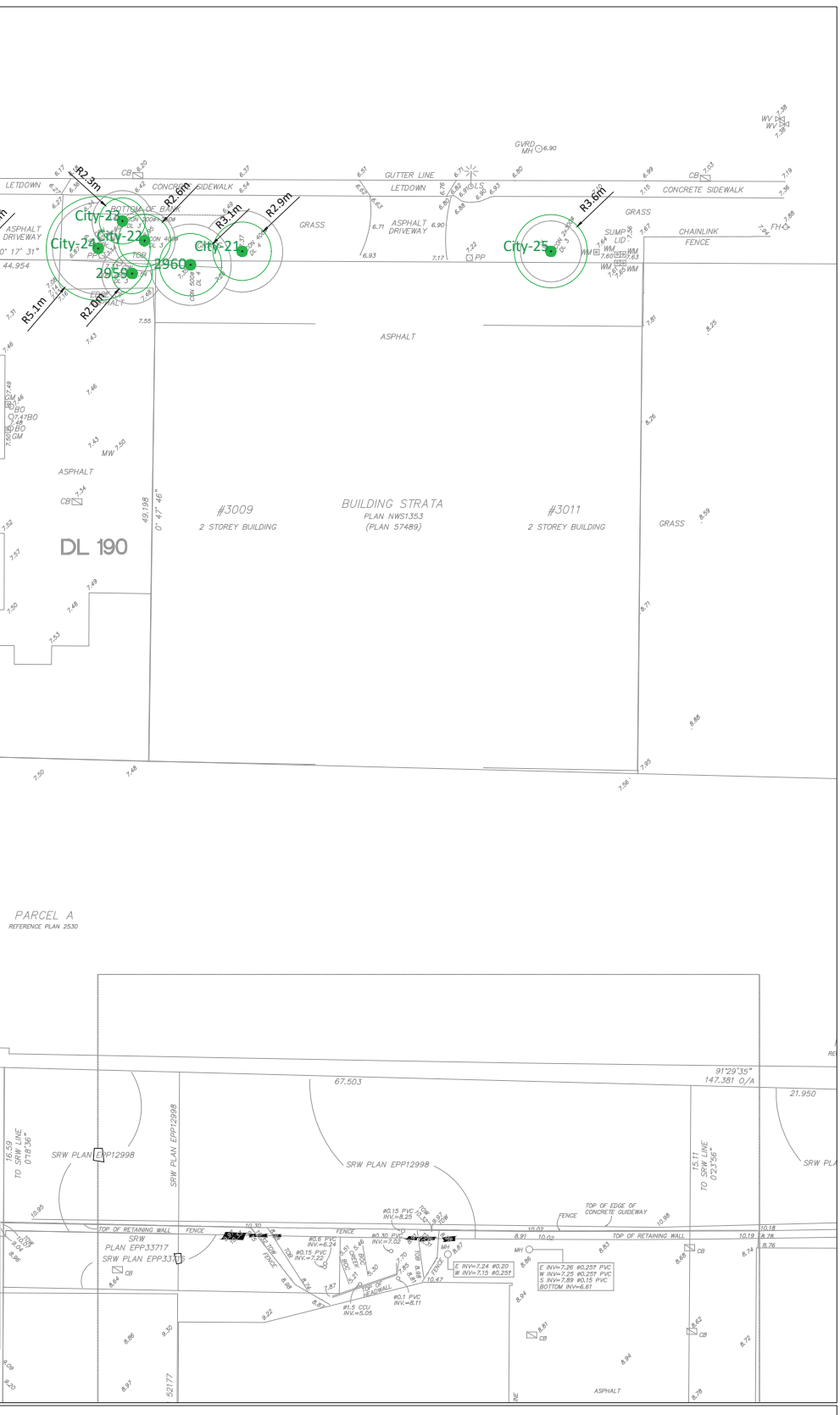
Page # 1 of 4



DIAMOND HEAD

3559 COMMERCIAL STREET
VANCOUVER BC | V5N 4E8
T 604.733.4886 | F 604.733.4879

Drawing title: Tree Inventory - 2
Project address: Moody Centre
Client: Moody Centre TOD Planning Group



LEGEND

- CRITICAL ROOT ZONE
- TREE PROTECTION ZONE AND FENCING
- SURVEYED TREE TO BE RETAINED
- UN-SURVEYED TREE TO BE RETAINED (MUST BE SURVEYED)
- TREE TO BE REMOVED

NOTES

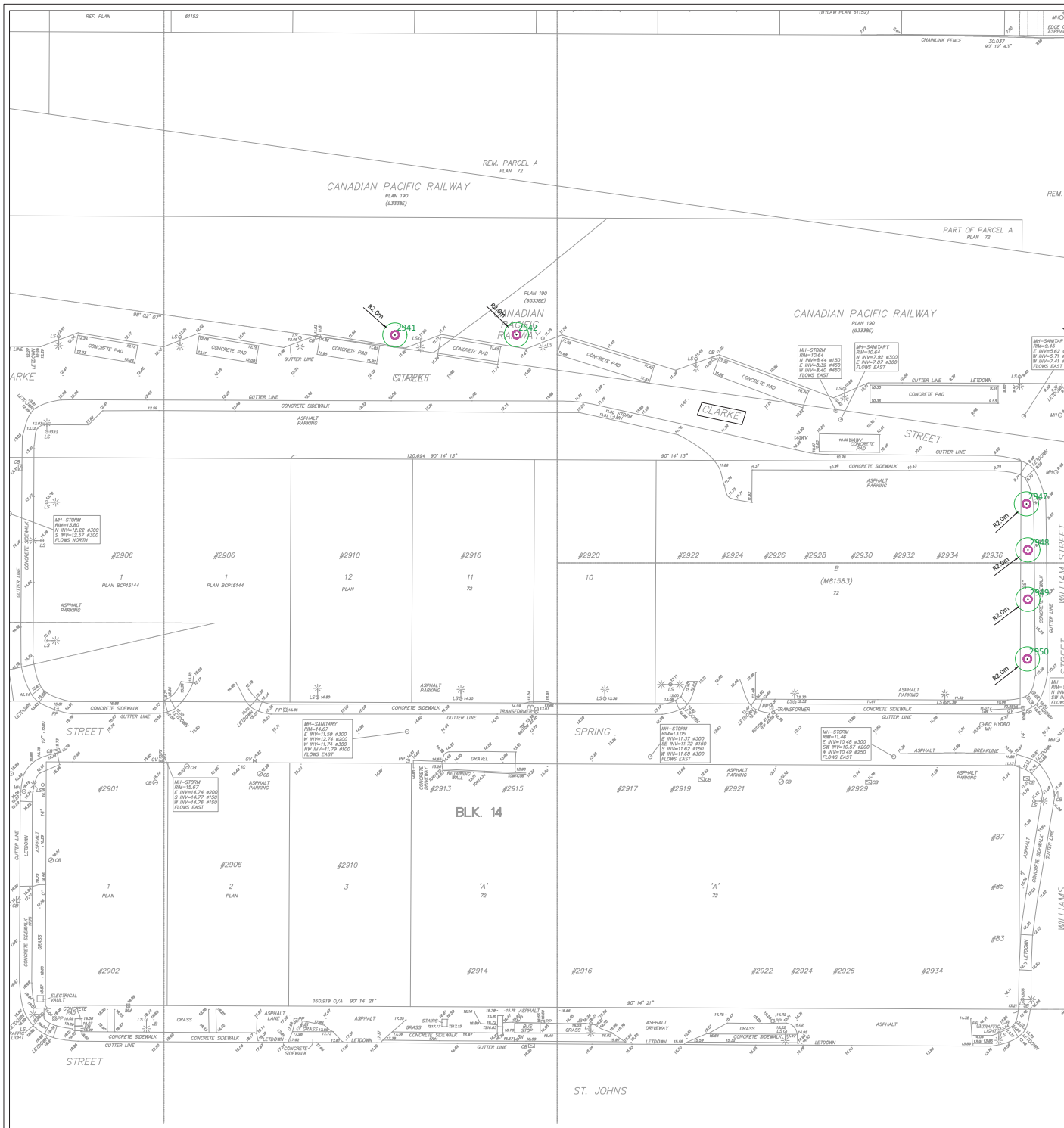
1. The location of un-surveyed trees on this plan is approximate. Their location and ownership cannot be confirmed without being surveyed by a Registered BC Land Surveyor.
2. All tree protection fencing must be built to the relevant municipal bylaw specifications.The dimensions shown are from the outer edge of the stem of the tree.
3. The tree protection zone shown is a graphical representation of the critical root zone, measured from the outer edge of the stem of the tree. ($\frac{1}{2}$ the trees diameter was added to the graphical tree protection circles to accommodate the survey point being in the center of the tree)
4. Any construction activities or grade changes within the Root Protection Zone must be approved by the project arborist.
5. This plan is based on a topographic and tree location survey provided by the owners' Registered British Columbia Land Surveyor (BCLS) and layout drawings provide by the owners' Engineer (P Eng).
6. This plan is provided for context only, and is not certified as to the accuracy of the location of features or dimensions that are shown on this plan. Please refer to the original survey plan and engineering plans.

REFERENCE DRAWINGS

1. Base Survey by:

Drawing No: 1
Date: 2020/06/09
Drawn by: DBR
Page Size: TABLOID 11"x17"

Page # 2 of 4



DIAMOND HEAD

3559 COMMERCIAL STREET
VANCOUVER BC | V5N 4E8
T 604.733.4886 | F 604.733.4879

Drawing title: Tree Inventory - 3
Project address: Moody Centre
Client: Moody Centre TOD Planning Group

LEGEND

- CRITICAL ROOT ZONE
- TREE PROTECTION ZONE AND FENCING
- SURVEYED TREE TO BE RETAINED
- UN-SURVEYED TREE TO BE RETAINED (MUST BE SURVEYED)
- TREE TO BE REMOVED

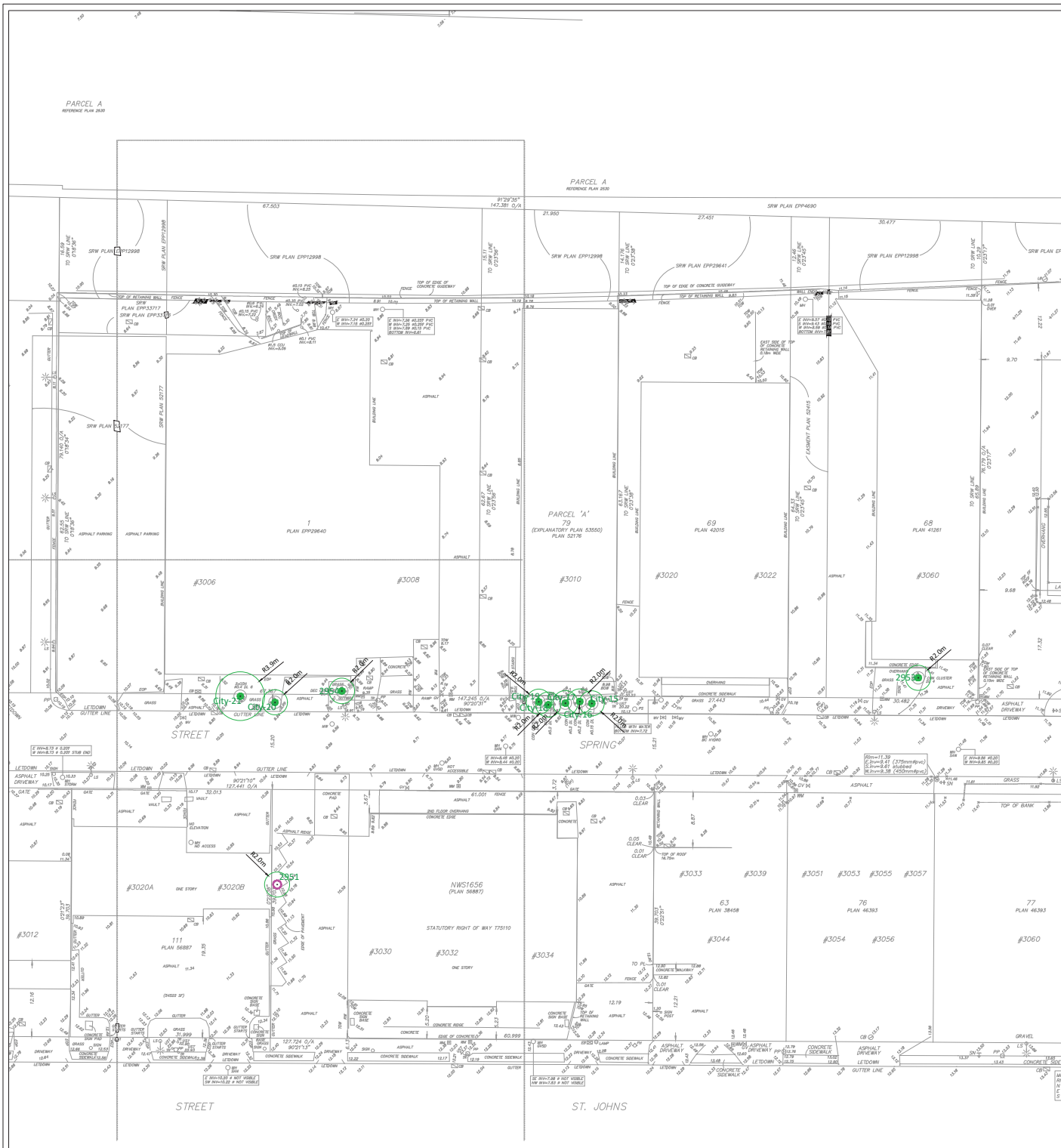
NOTES

1. The location of un-surveyed trees on this plan is approximate. Their location and ownership cannot be confirmed without being surveyed by a Registered BC Land Surveyor.
2. All tree protection fencing must be built to the relevant municipal bylaw specifications.The dimensions shown are from the outer edge of the stem of the tree.
3. The tree protection zone shown is a graphical representation of the critical root zone, measured from the outer edge of the stem of the tree. ($\frac{1}{2}$ the trees diameter was added to the graphical tree protection circles to accommodate the survey point being in the center of the tree)
4. Any construction activities or grade changes within the Root Protection Zone must be approved by the project arborist.
5. This plan is based on a topographic and tree location survey provided by the owners' Registered British Columbia Land Surveyor (BCLS) and layout drawings provide by the owners' Engineer (P Eng).
6. This plan is provided for context only, and is not certified as to the accuracy of the location of features or dimensions that are shown on this plan. Please refer to the original survey plan and engineering plans.

REFERENCE DRAWINGS

1. Base Survey by:

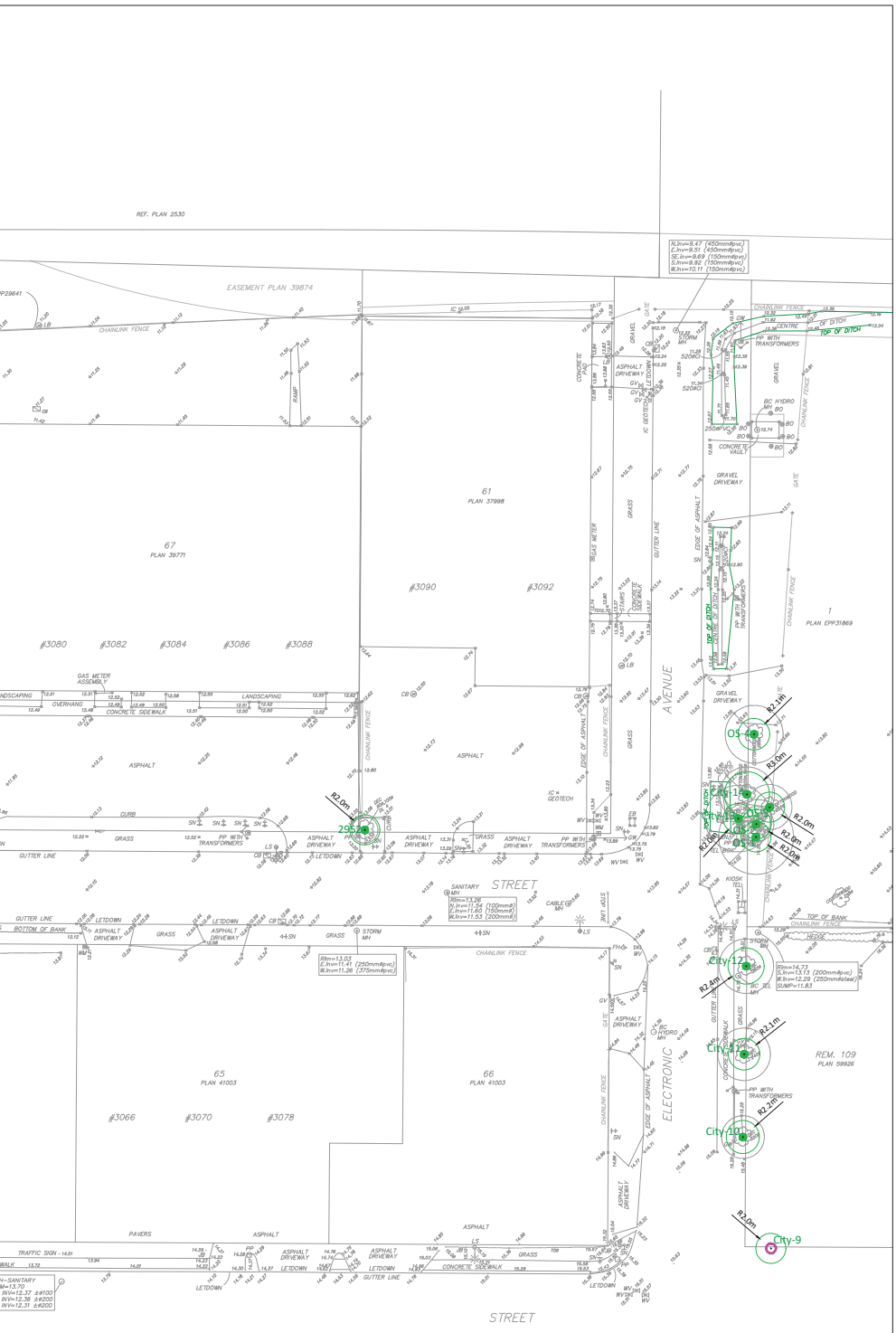
Drawing No: 1
Date: 2020/06/09
Drawn by: DBR
Page Size: TABLOID 11"x17"



DIAMOND HEAD

3559 COMMERCIAL STREET
VANCOUVER BC | V5N 4E8
T 604.733.4886 | F 604.733.4879

Drawing title: Tree Inventory - 4
Project address: Moody Centre
Client: Moody Centre TOD Planning Group



LEGEND

- CRITICAL ROOT ZONE
- TREE PROTECTION ZONE AND FENCING
- SURVEYED TREE TO BE RETAINED
- UN-SURVEYED TREE TO BE RETAINED (MUST BE SURVEYED)
- TREE TO BE REMOVED

NOTES

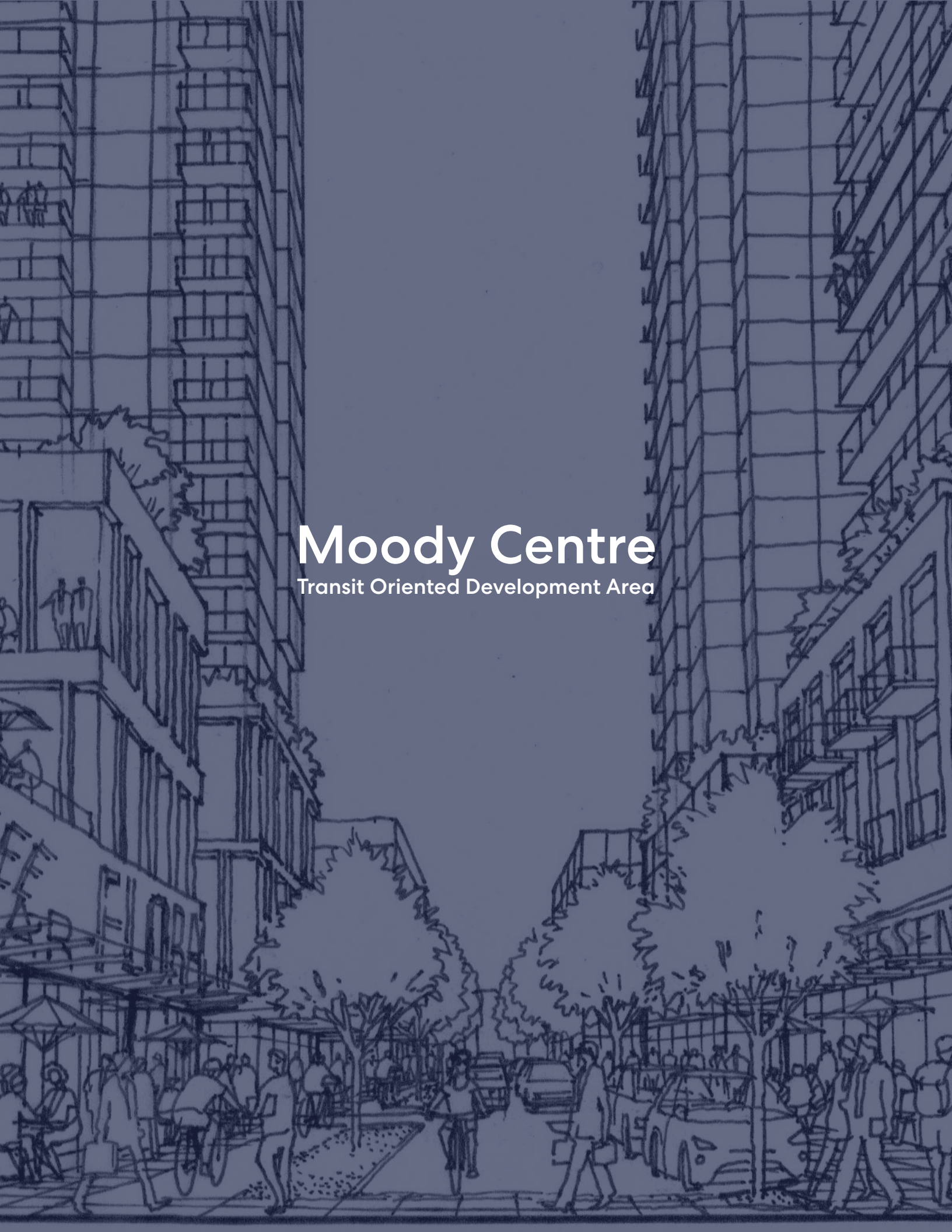
1. The location of un-surveyed trees on this plan is approximate. Their location and ownership cannot be confirmed without being surveyed by a Registered BC Land Surveyor.
2. All tree protection fencing must be built to the relevant municipal bylaw specifications.The dimensions shown are from the outer edge of the stem of the tree.
3. The tree protection zone shown is a graphical representation of the critical root zone, measured from the outer edge of the stem of the tree. ($\frac{1}{2}$ the trees diameter was added to the graphical tree protection circles to accommodate the survey point being in the center of the tree)
4. Any construction activities or grade changes within the Root Protection Zone must be approved by the project arborist.
5. This plan is based on a topographic and tree location survey provided by the owners' Registered British Columbia Land Surveyor (BCLS) and layout drawings provide by the owners' Engineer (P Eng).
6. This plan is provided for context only, and is not certified as to the accuracy of the location of features or dimensions that are shown on this plan. Please refer to the original survey plan and engineering plans.

REFERENCE DRAWINGS

1. Base Survey by:

Drawing No: 1
Date: 2020/06/09
Drawn by: DBR
Page Size: TABLOID 11"x17"

Page # 4 of 4



Moody Centre

Transit Oriented Development Area