



CITY OF PITT MEADOWS
Public Meeting of Pitt Meadows City Council
AGENDA

Tuesday, April 30, 2024, 7:00 p.m.

Council Chamber

12007 Harris Road, Pitt Meadows, BC V3Y 2B5

Council acknowledges that we meet on the traditional territory of the ḱíçəy̓ (Katzie) First Nation

**THIS MEETING'S PROCEEDINGS WILL BE BROADCAST LIVE VIA THE CITY'S WEBSITE AND AVAILABLE AS A
RECORDED ARCHIVE**

Pages

A. CALL TO ORDER

B. LATE ITEMS

C. APPROVAL OF AGENDA

Recommended Motion:

THAT the agenda for the April 30, 2024, Special (Public) Meeting of Council be approved.

D. ANNOUNCEMENTS

D.1 Day of Mourning for Workers Killed and Injured on the Job

Mayor MacDonald to acknowledge April 28, 2024 as the "National Day of Mourning for Workers Killed and Injured on the Job".

D.2 National Day of Awareness for Missing and Murdered Indigenous Women, Girls, and LGBTQ2S+ Peoples

Carleen McDowell, Manager of Recreation and Culture, to acknowledge National MMIWG2S Day of Awareness, and to invite the public to attend a ceremony and march taking place on May 5, 2024.

E. QUESTION AND COMMENT PERIOD

Maximum 15 minutes for each Q&C Period. Registered speakers may speak once during each Q&C Period (on agenda items only) for a max. of 3 minutes including the time it takes for Council and Staff to respond. Please see the '[Public Engagement at Council Meetings](#)' Policy on the City's website for rules and procedures.

To submit your comments in writing, please
visit pittmeadows.ca/submitquestionsandcomments

This meeting's proceedings will be broadcast live via the city's website and available as a recorded archive from the city's website. Any information shared during the Q&C Period will become part of the public record.

F. ADOPTION OF MINUTES

Recommended Motion:

THAT the Minutes of the following Council meetings be approved as circulated:

- | | | |
|------------|--|-----------|
| F.1 | April 9, 2024, Special (Pre-Closed) Meeting of Council | 7 |
| F.2 | April 9, 2024, Regular Meeting of Council | 9 |
| F.3 | April 16, 2024, Special (Pre-Closed) Meeting of Council | 17 |

G. CONSENT AGENDA

Recommended Motion:

THAT the following items be received into the record:

- | | | |
|------------|---|-----------|
| G.1 | Metro 2050 Type 3 Proposed Amendment | 19 |
| | Correspondence dated March 21, 2024, from George Harvie, Chair of Metro Vancouver Board, regarding proposed minor amendments to Metro 2050, to ensure that Metro 2050 contains the most current and correct maps and text. | |
| G.2 | Metro 2050 Proposed Amendments to Reflect the Electoral Area A Official Community Plan | 21 |
| | Correspondence dated March 21, 2024, from George Harvie, Chair of Metro Vancouver Board, regarding proposed amendments to Metro 2050 to better align its land use designations with the MVRD Board-adopted 2018 Electoral Area A Official Community Plan. | |
| G.3 | Urgent Appeal - Deny Parole for Robert Pickton | 24 |
| | Correspondence dated April 24, 2024, signed by twelve lower mainland mayors including Mayor MacDonald, addressed to Minister Virani, Department of Justice of Canada, to urgently consider denial of Robert Pickton's parole eligibility. | |

H. REPORTS

- | | | |
|------------|---|-----------|
| H.1 | Policy C073 Community Service Awards and Civic Recognition Policy Update | 27 |
| | Carleen McDowell, Manager of Recreation and Culture, to present an overview of the proposed amendments to Council Policy C073 Community Service Awards and Civic Recognition. | |

Recommended Motion:

THAT Council:

- A. Repeal Council Policy C002 Freedom of the City; AND
- B. Approve amendments to Council Policy C073 Community Service Awards and Civic Recognition as presented at the April 30, 2024 Council meeting; OR
- C. Other.

H.2 Air Quality Monitoring Study Update

39

Michelle Baski, Project Manager, Agriculture and Environment, to provide an update on the grant-funded Air Quality Monitoring Study.

Recommended Motion:

THAT Council:

- A. Receive for information the report titled “Air Quality Monitoring Study Update” as presented at the April 30, 2024 Council meeting; OR
- B. Other.

H.3 Public Hearing Procedures Amending Package

174

Christine Carter, Manager of Strategic Initiatives, to present an overview of proposed amendments to bylaws and policies related to the Provincial changes to public hearing procedures, resulting from Bill 44 - Housing Statutes (Residential Development) Act.

Recommended Motion:

THAT Council:

- A. Grant first, second, and third readings to Development Procedures Amendment Bylaw No. 2988, 2024; AND
- B. Approve amendments to the Delegations Before Council Policy C010 as presented at the April 30, 2024 Council meeting; AND
- C. Approve amendments to the Public Engagement at Council Meetings Policy C107 as presented at the April 30, 2024 Council meeting; OR
- D. Other.

H.4 Q2 2024 Strategic Priorities Quarterly Report

198

Mark Roberts, Chief Administrative Officer, to present the operational strategies proposed for Q2 2024 [April – June, 2024].

Recommended Motion:

THAT Council:

- A. Approve the operational strategies for Q2 2024 as presented to

B. Other.

I. BYLAWS & PERMITS

I.1 2024 Financial Plan and Utility Fees Bylaws

207

Laura Barroetavena, Director of Financial Services, to present an overview of the proposed 2024 Financial Plan and Utility Fees Bylaws.

Recommended Motion:

THAT Council:

- A. Approve updated Policy C049 – Revenue and Taxation for inclusion as an attachment in the 2024 – 2028 Financial Plan Bylaw No. 2979, 2024 as required by the *Community Charter*; AND
- B. Grant first, second, and third readings to the 2024 – 2028 Financial Plan Bylaw No. 2979, 2024; AND
- C. Grant first, second and third readings to the Drainage System Protection Amendment Bylaw No. 2978, 2024; AND
- D. Grant first, second and third readings to the Sanitary Sewer and Drainage Amendment Bylaw No. 2976, 2024; AND
- E. Grant first, second and third readings to the Solid Waste Collection and Disposal Amendment Bylaw No. 2977, 2024; AND
- F. Grant first, second and third readings to the Waterworks Amendment Bylaw No. 2975, 2024; OR
- G. Other.

I.2 2024 Annual Tax Rates Bylaw

236

Laura Barroetavena, Director of Financial Services, to present an overview of the 2024 property tax rates.

Recommended Motion:

THAT Council:

- A. Grant first, second and third readings to the 2024 Annual Tax Rates Bylaw No. 2980, 2024; OR
- B. Other.

I.3 Third Reading Extension for 19476 Hammond Road

245

Colin O'Byrne, Manager of Planning, to present an overview of the proposed third reading extension to an in-stream rezoning application at 19476 Hammond Road, which is impacted by the new provincial housing legislation enacted under Bill 44 Housing Statutes (Residential Development) Amendment Act (also referred to as the Small Scale, Multi-Unit Housing Legislation

(SSMUH)).

Recommended Motion:

THAT Council:

- A. Grant an extension to the completion period for Zoning Amendment Bylaw No. 2899, 2021 for 19476 Hammond Road until the City has amended Zoning Bylaw No. 2505, 2011 to align with the new provincial housing legislation as mandated through Bill 44 Housing Statutes (Residential Development) Amendment Act; AND
- B. Include as a condition prior to adoption of Zoning Amendment Bylaw No. 2899, 2021 a restrictive covenant on title limiting the number of units to one per lot as offered by the developer; OR
- C. Other.

I.4 Zoning Amendment Bylaw for the Pitt Meadows Airport

250

Patrick Ward, Director of Planning and Development, to present an overview of Zoning Text Amendment Bylaw No. 2971, 2024, which if adopted, would permit additional, non-aviation uses at the Pitt Meadows Regional Airport.

Recommended Motion:

THAT Council:

- A. Grant third reading and adopt Zoning Text Amendment Bylaw No. 2971, 2024, to permit expanded uses at the Pitt Meadows Regional Airport; OR
- B. Other.

I.5 Bylaw Notice Enforcement Amendment Bylaw No. 2981, 2024

255

Council gave first three readings to the Bylaw Notice Enforcement Amendment Bylaw No. 2981, 2024 on April 9, 2024.

Recommended Motion:

THAT Council:

- A. Adopt Bylaw Notice Enforcement Amendment Bylaw No. 2981, 2024 as presented at the April 30, 2024 Council Meeting; OR
- B. Other.

I.6 Waterworks Amendment Bylaw No. 2984, 2024

257

Council gave first three readings to the Waterworks Amendment Bylaw No. 2984, 2024 on April 9, 2024.

Recommended Motion:

THAT Council:

A. Adopt Waterworks Amendment Bylaw No. 2984, 2024 as presented at the April 30, 2024 Council Meeting; OR

B. Other.

J. COUNCIL LIAISON REPORTS

K. QUESTION AND COMMENT PERIOD

Maximum 15 minutes for each Q&C Period. Registered speakers may speak once during each Q&C Period (on agenda items only) for a max. of 3 minutes including the time it takes for Council and Staff to respond. Please see the '[Public Engagement at Council Meetings](#)' Policy on the City's website for rules and procedures.

To submit your comments in writing, please visit pittmeadows.ca/submitquestionsandcomments

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L. COUNCIL PRIORITIES

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For reference only, a current copy of the Strategic Priorities Quarterly Report reflecting Council's priorities and respective operational strategies.

M. ADJOURNMENT



Minutes of the Special (Pre-Closed) Meeting of Pitt Meadows City Council

April 9, 2024, 3:00 p.m.

Video Conference

Elected Officials:

Mayor N. MacDonald
Councillor T. Elke
Councillor A. Evans
Councillor M. Hayes
Councillor M. Manion
Councillor B. Meachen
Councillor G. O'Connell

Staff:

M. Roberts, Chief Administrative Officer
K. Barchard, Corporate Officer
T. Barr, Deputy Corporate Officer
L. Barroetavena, Director of Financial Services
M. Baski, Project Manager – Agriculture & Environment
D. Chamberlain, Director of Parks, Recreation & Culture
J. Hart, Manager – Major Projects
S. Maki, Director of Engineering & Operations
T. O'Grady, Manager of Communications & Civic Engagement
S. St. Jean, Director of Corporate Services
P. Ward, Director of Planning & Development

A. CALL TO ORDER

The meeting was called to order at 3:00 p.m.

Mayor MacDonald acknowledged that the meeting was held on the traditional territory of the qíicáy (Katzie) First Nation.

B. LATE ITEMS

It was **MOVED** and **SECONDED** THAT Council ADD Sections 90.1 (c) and (m) of the *Community Charter* [employee relations and a matter that, under another enactment, is such that the public may be excluded from the meeting (FIPPA Sections 15 and 22)] to the Notice of the Special (Closed) meeting.

CARRIED

C. APPROVAL OF AGENDA

It was **MOVED** and **SECONDED** THAT the agenda for the April 9, 2024, Special (Pre-Closed) Meeting of Council be approved as amended.

CARRIED

D. NOTICE OF CLOSED MEETING

It was **MOVED** and **SECONDED** THAT the Council Meeting immediately following this meeting be closed to the public as the subject matter being considered relates to employee relations, the proposed provision of a municipal service, a matter that, under another enactment, is such that the public may be excluded from the meeting (FIPPA Sections 15 and 22) and negotiations or related discussions with the provincial and/or federal government under sections 90.1 (c), (k), (m) and 90.2 (b) of the *Community Charter*.

E. ADJOURNMENT

The meeting was adjourned at 3:02 p.m.

Signed and certified as correct:

Nicole MacDonald, Mayor

Kate Barchard, Corporate Officer



Minutes of the Regular Meeting of Pitt Meadows City Council

April 9, 2024, 7:00 p.m.

Council Chamber

12007 Harris Road, Pitt Meadows, BC V3Y 2B5

Elected Officials:

- Mayor N. MacDonald
- Councillor T. Elke
- Councillor A. Evans
- Councillor M. Hayes
- Councillor M. Manion
- Councillor B. Meachen
- Councillor G. O'Connell

Staff:

- M. Roberts, Chief Administrative Officer
- K. Barchard, Corporate Officer
- T. Barr, Deputy Corporate Officer
- C. Carter, Manager of Strategic Initiatives
- S. Drolet, Fire Chief
- S. Maki, Director of Engineering & Operations
- C. O'Byrne, Manager of Planning
- T. O'Grady, Manager of Communications & Civic Engagement
- P. Ward, Director of Planning & Development

A. CALL TO ORDER

The meeting was called to order at 7:00 p.m.

Mayor MacDonald acknowledged that the meeting was held on the traditional territory of the ᑭᓴᓴᑦ (Katzie) First Nation.

B. LATE ITEMS

There was general consent amongst Council to introduce item H.1 following item D.1.

C. APPROVAL OF AGENDA

It was **MOVED** and **SECONDED** THAT the agenda for the April 9, 2024, Regular Meeting of Council be approved as amended.

CARRIED

D. ANNOUNCEMENTS

D.1 New Library Manager

Heather Scoular, Interim Library Manager, Pitt Meadows Public Library, introduced Jessica Armstrong as the new Pitt Meadows Public Library Manager. Jessica shared the goals and aspirations of her new role and a commitment to work collaboratively with the community to continue delivery of quality programs and learning opportunities.

Mayor MacDonald welcomed Jessica and wished her success in the role.

Council shared their appreciation for Heather's dedication and wished her all the best in her future endeavours.

D.2 CELEBRATE PITT MEADOWS [Formerly H.1]

2024 Ridge Meadows Business Excellence Awards

On behalf of Council, Mayor MacDonald congratulated all the winners of the 2024 Ridge Meadows Business Excellence Awards and spoke to their unwavering dedication to our community. The following Pitt Meadows businesses were presented with an award in their respective categories:

1. Foamers' Folly Brewing Co. Represented by Rob Davis
(Small Business of the Year)
2. Amsterdam Garden Centre Represented by Jason & Lindsay Kok
(Medium Business of the Year)
3. Hopcott Farms Represented by the Hopcott family
(Large Business of the Year)
4. MacDonald Meechan Notaries - Lucy Meechan
(Young Entrepreneur of the Year)
5. SD #42 - Kim Dumore
(Ridge Meadows Community Spirit Award)

E. PUBLIC HEARINGS

E.1 Rezoning Application for 18799 Airport Way

Mayor MacDonald opened the public hearing at 7:16 p.m.

Patrick Ward, Director of Planning & Development, presented an overview of the application and historical staff report.

All written submissions received up to and during the public hearing are included as Attachment 1 and form part of the original minutes.

Mayor MacDonald then read aloud the public hearing process statement and invited members of the public to make comment.

With no community members engaging, the public hearing was declared closed at 7:20 p.m.

F. QUESTION AND COMMENT PERIOD

The following members of the public engaged in Question & Comment Period:

- Maureen Robertson, Pitt Meadows - regarding safety concerns of trucks accessing the Heron's Nest housing project site from the existing truck route.
- Julie Paciejewski, Pitt Meadows - regarding concern of long term plan to increase safety along the existing truck route.
- Rod Ramage, Pitt Meadows - regarding consideration of imposing backflow device requirements for all properties not just agricultural.
- Wendy Bolan, Pitt Meadows - regarding road safety along Katzie Slough area and the extension of a more robust barrier, increased traffic and other road hazards on the City's existing truck route. (by email: Attachment 2)

G. ADOPTION OF MINUTES

It was **MOVED** and **SECONDED** THAT the Minutes of the following Council meetings be approved as circulated:

G.1 March 12, 2024, Special (Pre-Closed) Meeting of Council

G.2 March 12, 2024, Regular Meeting of Council

CARRIED

H. CELEBRATE PITT MEADOWS

H.1 2024 Ridge Meadows Business Excellence Awards

This item was addressed under item D.2

I. CONSENT AGENDA

It was **MOVED** and **SECONDED** THAT the following item be received into the record:

I.1 Post-Secondary Education in Ridge Meadows

CARRIED

J. REPORTS

J.1 UBCM Grant Opportunity - Emergency Operations Centre ["EOC"]

Fire Chief, Stephane Drolet, presented a grant opportunity that would fund the relocation of the City's EOC in the event of an emergency.

It was **MOVED** and **SECONDED** THAT Council:

- A. Endorse Staff's application to the UBCM Emergency Operation Centre (EOC) Training and EOC Mobile Supplies grant for \$28,625 in funding in order to financially support the relocation of the EOC from the Fire Hall in the event of an emergency.

CARRIED

J.2 Provincial Housing Legislation - Communication Strategy

Christine Carter, Manager of Strategic Initiatives, presented an overview of the Homes for People action plan and legislative requirements that municipalities need to address. Tia O'Grady, Manager of Communications & Civic Engagement, continued the presentation sharing the communications strategy related to the incoming legislation.

Council members participated in a roundtable discussion.

It was **MOVED** and **SECONDED** THAT Council:

- A. Receive for information the presentation on "New B.C. Housing Legislation: Communications Strategy –Approach", as delivered at the April 9, 2024 Regular Council Meeting.

CARRIED

J.3 UBCM Farm Tax Reform Resolutions

Tia O'Grady, Manager of Communications & Civic Engagement, presented an overview of a draft handout for Council's advocacy of farm tax reform to be distributed during the upcoming Lower Mainland Local Government Association conference in May.

Council members participated in a roundtable discussion.

J.4 Pitt Meadows Economic Development Corporation – Annual Business

Kate Barchard, Corporate Officer, presented an overview of the Staff Report.

It was **MOVED** and **SECONDED** THAT Council:

- A. Authorize the City, being the sole shareholder of the Pitt Meadows Economic Development Corporation (the “Company”), to consent to the written resolutions of the Company, as presented to Council at the April 9, 2024 public meeting, in lieu of holding an annual general meeting;
AND
- B. Direct the City’s authorized signatories to sign the resolutions of the Company on behalf of the City of Pitt Meadows.

CARRIED

J.5 Rezoning Application for 12469 191B St

Colin O'Byrne, Manager of Planning, presented an overview of the Staff Report.

It was **MOVED** and **SECONDED** THAT Council:

- A. Direct staff to advise the applicant of the proposed townhouse development at 12469 191B Street, to host a development information meeting as outlined in the Staff Report dated March 21, 2024.

CARRIED

Councillor Hayes voted in opposition

J.6 Localized Truck Route Feasibility Study - Overview

Samantha Maki, Director of Engineering & Operations, presented an overview of the Staff Report.

Council members participated in a roundtable discussion.

There was general consent amongst council to amend the motion to include item C.

It was **MOVED** and **SECONDED** THAT Council:

- A. Receive for information the summary report titled “Localized Truck Route Feasibility Study - Overview” as presented at the April 9, 2024 Council Meeting; AND
- B. Support implementation of the recommended improvements as outlined in Option 1– Upgrade the Existing Truck Route; AND
- C. Direct staff to share progress of the improvements and any additional recommendations for this localized truck route as part of the next Transportation Master Plan.

CARRIED

J.7 Backflow Device Installation

Samantha Maki, Director of Engineering & Operations, presented an overview of the importance of backflow devices, risks factors and guiding principles and standards associated with the installation of backflow devices in Pitt Meadows.

Samantha continued the presentation and provided an overview of proposed amendments to the Waterworks Bylaw to allow for the implementation of two compliance pathways.

Council members participated in a roundtable discussion.

It was **MOVED** and **SECONDED** THAT Council:

- A. Endorse the approach to addressing the requirement for installation of backflow devices and continued implementation of the City’s Cross-Connection Control Program, as presented at the April 9, 2024 Regular Council Meeting.

CARRIED

K. BYLAWS & PERMITS

K.1 Waterworks Amendment Bylaw No. 2984, 2024

Samantha Maki, Director of Engineering & Operations, provided an overview of the Staff Report.

It was **MOVED** and **SECONDED** THAT Council:

- A. Grant first, second, and third readings to the Waterworks Amendment Bylaw No. 2984, 2024 as presented at the April 9, 2024 Council meeting.

CARRIED

K.2 Rezoning Application and Cannabis Retail Store Licence for 112 – 19150 Loughheed Highway

Colin O'Byrne, Manager of Planning, provided an overview of the application and next steps following the third reading of Zoning Text Amendment Bylaw No. 2966, 2024.

It was **MOVED** and **SECONDED** THAT Council:

- A. Adopt Zoning Text Amendment Bylaw No. 2966, 2024, to permit a new cannabis retail store at 112 – 19150 Loughheed Highway; AND
- B. Recommend to the Liquor and Cannabis Regulation Branch that the Cannabis Retail Store licence for Kelo Cannabis at 112 – 19150 Loughheed Highway be issued; AND
- C. Direct staff to forward to the Liquor and Cannabis Regulation Branch the written comments attached to the report titled “Rezoning Application and Cannabis Retail Store Licence for 112 – 19150 Loughheed Highway” as presented to Council on April 9, 2024.

CARRIED

Councillor O’Connell voted in opposition

K.3 Bylaw Notice Enforcement Bylaw Update (Home-based Business Regulations)

Patrick Ward, Director of Planning & Development, provided an overview of the Staff Report.

It was **MOVED** and **SECONDED** THAT Council:

- A. Grant first, second and third readings to the Bylaw Notice Enforcement Amendment Bylaw No. 2981, 2024 as presented at the April 9, 2024 Council Meeting.

CARRIED

K.4 Bylaw Notice Enforcement Amendment Bylaw No. 2974, 2024

It was **MOVED** and **SECONDED** THAT Council:

- A. Adopt Bylaw Notice Enforcement Amendment Bylaw No. 2974, 2024 as presented at the April 9, 2024 Council Meeting.

CARRIED

L. COUNCIL LIAISON REPORTS

Council provided updates on recent community involvement and events.

M. QUESTION AND COMMENT PERIOD

The following members of the public engaged in Question & Comment Period:

- Bill Wild, Pitt Meadows - regarding an inquiry whether or not pools and hot tubs are required to have a backflow preventer.

N. COUNCIL PRIORITIES

O. ADJOURNMENT

The meeting was adjourned at 9:32 p.m.

Signed and certified as correct:

Nicole MacDonald, Mayor

Kate Barchard, Corporate Officer



Minutes of the Special (Pre-Closed) Meeting of Pitt Meadows City Council

April 16, 2024, 3:00 p.m.

Video Conference

Elected Officials:

- Mayor N. MacDonald
- Councillor T. Elke
- Councillor A. Evans
- Councillor M. Hayes
- Councillor M. Manion
- Councillor B. Meachen
- Councillor G. O'Connell

Staff:

- M. Roberts, Chief Administrative Officer
- K. Barchard, Corporate Officer
- T. Barr, Deputy Corporate Officer
- C. Carter, Manager of Strategic Initiatives
- T. O'Grady, Manager of Communications & Civic Engagement
- P. Ward, Director of Planning & Development

A. CALL TO ORDER

The meeting was called to order at 3:02 p.m.

Mayor MacDonald acknowledged that the meeting was held on the traditional territory of the q̓íc̓əy̓ (Katzie) First Nation.

B. LATE ITEMS

There were no late items.

C. APPROVAL OF AGENDA

It was **MOVED** and **SECONDED** THAT the agenda for the April 16, 2024 Special (Pre-Closed) Meeting of Council be approved.

CARRIED

D. NOTICE OF CLOSED MEETING

It was **MOVED** and **SECONDED** THAT the Council Meeting immediately following this meeting be closed to the public as the subject matter being considered relates to the receipt of advice subject to solicitor-client privilege and the proposed provision of a municipal service under sections 90.1 (i) and (k) of the *Community Charter*.

CARRIED

E. ADJOURNMENT

The meeting was adjourned at 3:03 p.m.

Signed and certified as correct:

Nicole MacDonald, Mayor

Kate Barchard, Corporate Officer

March 21, 2024

File: CR-12-01
Ref: RD 2024 02 23

Mayor Nicole MacDonald and Council
City of Pitt Meadows
12007 Harris Rd
Pitt Meadows, BC V3Y 2B5
VIA EMAIL: nmacdonald@pittmeadows.ca; council@pittmeadows.ca

Dear Mayor Nicole MacDonald and Council:

**Metro 2050 Type 3 Proposed Amendment to Reflect
Accepted Regional Context Statements and Correct Minor Errors**

Metro 2050, the regional growth strategy, is the regional federation's plan for managing growth coming to Metro Vancouver in a way that protects important lands like agricultural, ecologically important, and industrial lands; contains growth within an urban containment boundary and directs it to transit oriented locations; and supports the efficient provision of utilities and transit. *Metro 2050* contains six regional and parcel based land use designations that support those objectives. By signing on to *Metro 2050*, if a member jurisdiction aspires to change the regional land use designation for a site then, as part of the process, they have agreed to have the Metro Vancouver Board consider any regional implications of the proposed amendment. *Metro 2050* outlines the process for proposed amendments.

Over the first year since *Metro 2050* was adopted on February 24, 2023, Metro Vancouver staff identified some minor inconsistencies in terminology, formatting, numerical references, and mapping that are proposed to be corrected through a Type 3 amendment. The proposed amendment also includes mapping revisions that stem from MVRD Board-accepted regional context statements, regional land use designation amendments made under the municipal flexibility clause, updates to *Metro 2050* reference maps based on new data (e.g., new sensitive ecosystem inventory map) and corrections to map text and designation boundaries. The proposed revisions are administrative in nature, and do not alter the intent of *Metro 2050*. This amendment is an administrative amendment intended to ensure that *Metro 2050* contains the most current and correct maps and text.

66164757

At its February 23, 2024 regular meeting, the Board of Directors of the Metro Vancouver Regional District (MVRD) adopted the following resolution:

That the MVRD Board:

- a) initiate the Metro 2050 amendment process for the Metro 2050 Type 3 Amendment to reflect accepted regional context statements and correct minor errors;*
- b) give first, second, and third readings to "Metro Vancouver Regional District Regional Growth Strategy Amendment Bylaw No. 1380, 2024"; and*
- c) direct staff to notify affected local governments as per section 6.4.2 of Metro 2050.*

As required by both the *Local Government Act* and *Metro 2050*, the regional growth strategy amendment process requires a minimum 45-day notification period to allow all affected local governments, First Nations, and members of the public to provide comment on the proposed amendment. Following the comment period, the MVRD Board will review all comments received and consider adoption of the amendment bylaw.

The proposed amendment is a Type 3 amendment to *Metro 2050*, which requires that an amendment bylaw be passed by the MVRD Board by an affirmative 50% + 1 weighted vote. For more information on regional growth strategy amendment procedures, please refer to Sections 6.3 and 6.4 in *Metro 2050*. Enclosed is a Metro Vancouver staff report dated January 23, 2024, titled "*Metro 2050 Type 3 Proposed Amendment to Reflect Accepted Regional Context Statements and Correct Minor Errors*" providing background information and a summary of the amendment.

You are invited to submit written comments via council resolution on the proposed amendment. If you have any questions, please contact Jonathan Cote, Deputy General Manager, Regional Planning and Housing Development, by phone at 604-432-6391, or by email at jonathan.cote@metrovanancouver.org by **May 5, 2024**.

Yours sincerely,



George V. Harvie
Chair, Metro Vancouver Board

GVH/JWD/hm

cc: Mark Roberts, Chief Administrative Officer, City of Pitt Meadows
Jerry W. Dobrovolsky, Commissioner/Chief Administrative Officer, Metro Vancouver
Heather McNell, Deputy Chief Administrative Officer, Policy and Planning, Metro Vancouver

Encl: [MVRD Board report dated January 23, 2024, titled "Metro 2050 Type 3 Proposed Amendment to Reflect Accepted Regional Context Statements and Correct Minor Errors" \(pg. 139\)](#)

March 21, 2024

File: CR-12-01
Ref: RD 2024 02 23

Mayor Nicole MacDonald and Council
City of Pitt Meadows
12007 Harris Rd
Pitt Meadows, BC V3Y 2B5
VIA EMAIL: nmacdonald@pittmeadows.ca, council@pittmeadows.ca

Dear Mayor Nicole MacDonald and Council:

Metro 2050 Proposed Amendments to Reflect the Electoral Area A Official Community Plan

Metro 2050, the regional growth strategy, is the regional federation's plan for managing growth coming to Metro Vancouver in a way that: protects important lands like agricultural, ecologically important, and industrial lands; contains growth within an urban containment boundary and directs it to transit oriented locations; and supports the efficient provision of utilities and transit. *Metro 2050* contains six regional and parcel based land use designations that support those objectives. By signing on to *Metro 2050*, if a member jurisdiction aspires to change the regional land use designation for a site then, as part of the process, they have agreed to have the Metro Vancouver Board consider any regional implications of the proposed amendment. *Metro 2050* outlines the process for proposed amendments.

Amendments are proposed to *Metro 2050* that will better align its land use designations with the MVRD Board-adopted 2018 Electoral Area A Official Community Plan that applies to the majority of the rural and remote portions of the Electoral Area (excluding UBC, UEL, Bowyer Island, Passage Island, and First Nation reserve lands). Staff have identified *Metro 2050* regional land use designation changes to ninety-two Electoral Area A parcels for the MVRD Board's consideration.

These proposed amendments are consistent with *Metro 2050*'s goals and strategies, and bring the *Metro 2050* and OCP land use designations into closer alignment. They do not alter the intent of *Metro 2050*.

66173847

At its February 23, 2024 regular meeting, the Board of Directors of the Metro Vancouver Regional District (MVRD) adopted the following resolution:

That the MVRD Board:

- a) initiate the Metro 2050 Type 2 and Type 3 amendment processes to reflect the Electoral Area A Official Community Plan;*
- b) give first, second, third readings to “Metro Vancouver Regional District Regional Growth Strategy Amendment Bylaw No. 1378, 2024”;*
- c) give first, second, third readings to “Metro Vancouver Regional District Regional Growth Strategy Amendment Bylaw No. 1379, 2024”; and*
- d) direct staff to notify affected local governments as per section 6.4.2 of Metro 2050.*

As required by both the *Local Government Act* and *Metro 2050*, the regional growth strategy amendment process requires a minimum 45-day notification period to allow all affected local governments, First Nations, and members of the public to provide comment on the proposed amendment. Following the comment period, the MVRD Board will review all comments received and consider adoption of the amendment bylaw.

The proposed amendments are either Type 2 and Type 3 amendments to *Metro 2050*. The first requires adoption with a weighted 2/3 majority of the Board, and the second requires adoption by a weighted 50%+1 vote of the Board. For more information on regional growth strategy amendment procedures, please refer to Sections 6.3 and 6.4 in *Metro 2050*. Enclosed is a Metro Vancouver staff report dated January 20, 2024, titled “Metro 2050 Proposed Amendments to Reflect the Electoral Area A Official Community Plan” providing background information and an assessment of the proposed amendment regarding its consistency with *Metro 2050*.

You are invited to submit comments via council resolution on the proposed amendment. If you have any questions, please contact Jonathan Cote, Deputy General Manager, Regional Planning and Housing Development, by phone at 604-432-6391, or by email at jonathan.cote@metrovanancouver.org by **May 5, 2024**.

Yours sincerely,



George V. Harvie
Chair, Metro Vancouver Board

GVH/JWD/hm

cc: Mark Roberts, Chief Administrative Officer, City of Pitt Meadows
Jerry W. Dobrovolny, Commissioner/Chief Administrative Officer, Metro Vancouver
Heather McNell, Deputy Chief Administrative Officer, Policy and Planning, Metro Vancouver

Encl: [MVRD Board report dated January 20, 2024, titled "Metro 2050 Proposed Amendments to Reflect the Electoral Area A Official Community Plan" \(pg. 197\)](#)

66173847



April 24, 2024

The Honourable Arif Virani
Minister of Justice and Attorney General of Canada
Department of Justice Canada
284 Wellington Street Ottawa, Ontario K1A 0H8

Dear Minister Virani,

Re: Urgent Appeal: Deny Parole for Robert Pickton

As Mayors, it is our duty to advocate for the safety and security of our residents. With this responsibility in mind, I implore you to consider the parole eligibility of Robert Pickton, a prolific offender whose actions have impacted many, especially the Indigenous communities, as many of his victims being of Indigenous ancestry. Furthermore, I request for a critical reassessment of our parole and sentencing framework for prolific offenders and mass murderers, ensuring alignment with the overarching principles of justice.

Robert Pickton's heinous crimes have left an indelible scar on the fabric of our society, particularly within the communities of British Columbia. The magnitude of his actions, which resulted in the deaths of numerous innocent individuals, is beyond comprehension and cannot be overstated. The pain and suffering inflicted upon the victims and their families continue to reverberate throughout our province, and the wounds inflicted by Pickton's atrocities remain raw and profound.

Allowing Robert Pickton any opportunity for parole would not only undermine the integrity of our justice system but also jeopardize the safety and well-being of our communities. His demonstrated lack of remorse and the depravity of his actions serve as stark reminders of the danger he poses to society.

Furthermore, granting parole to an individual of such irredeemable character would send a chilling message to victims of crime, their families, and the broader public, suggesting that justice can be compromised and that the most heinous offenders may one day walk freely among us. Such a notion is unacceptable and undermines the fundamental principles of accountability, deterrence, and public safety upon which our justice system is built.

... 2

Moreover, Pickton's potential parole eligibility not only retraumatizes the victims' families but also undermines the ongoing and collective healing process of the Indigenous communities, undermining the significant and transformative change called for in the "Calls for Justice" in *Final Report of the National Inquiry into Missing and Murdered Indigenous Women and Girls (Final Report-MMIWG)*.

Should Pickton apply for parole, we respectfully urge you to take all necessary measures to ensure that he is not granted parole under any circumstances. It is incumbent upon us, as elected officials, to uphold the sanctity of our justice system and to prioritize the safety and well-being of our citizens above all else.

This action would be in line with the Call for Justice # 1.5, issued as a legal imperative, outlined in the Final Report-MMIWG as noted below.

1. 5 We call upon all governments to immediately take all necessary measures to prevent, investigate, punish, and compensate for violence against Indigenous women, girls, and 2SLGBTQQIA people.

In 2011, Canada commendably passed legislative amendments through Bill C-48, *the Protecting Canadians by Ending Sentence Discounts for Multiple Murders Act*, enabling courts to impose consecutive life sentences for those convicted of mass murders, essentially establishing a system resembling life imprisonment without parole. This legislative action was a substantial step in ensuring that sentences genuinely reflect the gravity of such grave crimes, making the notion of "life imprisonment" for mass murderers substantially more impactful.

However, the Supreme Court of Canada's 2022 decision in *R. v. Bissonnette*, which declared such extensions of parole ineligibility unconstitutional, struck down key elements of Bill C-48. This ruling highlights the urgent need to reassess parole eligibility criteria and sentencing laws.

It is crucial that our laws not only respect the Charter but also uphold the principles of justice, ensuring that penalties for heinous crimes are just and maintain public confidence in our criminal justice system. Such legislative review is essential to balance the need for public safety, the rights of the accused, and the necessity of a sentencing framework that genuinely reflects the gravity of the offenses committed.

Thank you for your attention to this critical matter. I trust that you will give it the consideration it deserves.

Signed,



George V. Harvie
Mayor, City of Delta



John McEwen
Mayor, Village of Anmore



Jamie Ross
Mayor, Village of Belcarra



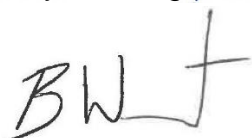
Mike Hurley
Mayor, City of Burnaby



Ken Berry
Mayor, Village of Lions Bay



Nicole MacDonald
Mayor, City of Pitt Meadows



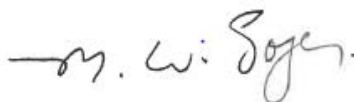
Brad West
Mayor, City of Port Coquitlam



Malcolm Brodie
Mayor, City of Richmond



Ken Sim
Mayor, City of Vancouver



Mark Sager
Mayor, District of West Vancouver



Megan Knight
Mayor, City of White Rock



Meghan Lahti
Mayor, City of Port Moody

Staff Report to Council

Parks, Recreation & Culture

FILE: 15-7710-01/24

REPORT DATE: April 16, 2024

MEETING DATE:

April 30, 2024

TO: Mayor and Council

FROM: Carleen McDowell, Manager of Recreation and Culture

SUBJECT: Policy C073 Community Service Awards and Civic Recognition Policy
Update

CHIEF ADMINISTRATIVE OFFICER REVIEW/APPROVAL:



RECOMMENDATION(S):

THAT Council:

- A. Repeal Council Policy C002 Freedom of the City; AND
- B. Approve amendments to Council Policy C073 Community Service Awards and Civic Recognition as presented at the April 30, 2024 Council meeting; OR
- C. Other.

PURPOSE

For Council to consider repealing Council Policy C002 Freedom of the City and to present proposed amendments to C073 Community Service Awards and Civic Recognition.

☐ Information Report

☒ Decision Report

☐ Direction Report

DISCUSSION

Background:

The Freedom of the City Policy C002 was flagged for review by staff during the 2024 Business Planning Process. This policy provides guidelines related to the awarding of the honour to

distinguished individuals by Council and was last reviewed in May of 2015. Since that time, Council Policy C073 Community Service Awards and Civic Recognition was developed which establishes the community led process for the Community Service Awards and other ways for Council to provide recognition to notable community members.

Relevant Policy, Bylaw or Legislation:

To view the current Freedom of the City Policy C002, please visit

https://www.pittmeadows.ca/sites/default/files/docs/city-hall/policies/c002_freedom_of_the_city.pdf

The Freedom of the City policy was drafted under the guidance of the *Community Charter* Section 158.

To view the current Community Service Awards and Civic Recognition Policy C073

<https://www.pittmeadows.ca/city-hall/bylaws-policies/policies/c073>

Analysis:

C002 Freedom of the City

Freedom of the City was a historic award dating back to the Medieval times and was considered the highest honour a municipality could bestow upon an individual, military unit or nation. The *Community Charter* stipulates that any persons or military unit that is a conferred recipient of Freedom the City, is deemed to be an elector of the municipality and eligible to be registered as such and able to vote in an election for mayor or councillor. Secondly, if the person is a Canadian citizen, the individual would be deemed to be qualified to be nominated, elected or hold office on Council despite their current or future residency location. In 2012, the City conferred Freedom of the City to the Royal Westminster Regiment; this group is the only chronicled recipient of the Freedom of the City award in Pitt Meadows.

Considering the robust C073 Community Service Awards and Civic Recognition policy, it is staff's recommendation that Freedom of the City no longer be offered and that the Royal Westminster Regiment be recorded as a grandfathered recipient.

Each year after the Community Service Awards presentation, the Task Force and Staff Liaison meet to review the process. The Task Force met on March 5, 2024 and had a fulsome discussion about the nomination process, category descriptions, the event, and made some recommended changes to the Terms of Reference which informs the amendment of Council Policy C073.

C073 Community Service Awards and Civic Recognition

This policy was amended to:

- Simplify wording in the Awards categories
 - Establish examples of types of contributions that could be applicable to all categories and put as a description at the beginning of award descriptions.
 - Ensuring clarity on Spirit of Pitt Meadows Award being for long term/lasting contributions, Good Neighbour is intended for local contributions, and the Community Service award could include contributions locally or abroad.
 - Extending the Age Category for the Youth awards to include young adults up to 25 years of age to encourage the younger generation to be recognized and to potentially increase numbers of nominations.
- Add information about the sunset policy Freedom of the City C002.

There are no other substantive changes to the content or intent of the Policy.

Further to the policy amendments there was a recommendation for the Terms of Reference to allow for City Staff to put forward nominations for consideration by the citizen led taskforce. City Staff are often in contact with various user groups and community members that would be a strong candidate for the Awards program. The Terms of Reference are approved by Chief Administrative Officer and therefore not attached to this report.

COUNCIL STRATEGIC PLAN ALIGNMENT

- ☐ Principled Governance ☐ Balanced Economic Prosperity ☐ Infrastructure
☒ Community Spirit & Wellbeing ☐ Corporate Pride ☐ Public Safety
☐ Not Applicable

WORKPLAN IMPLICATIONS

- ☒ Already accounted for in department workplan / no adjustments required
☐ Emergent issue / will require deferral of other priority(ies)
☐ Other

FINANCIAL IMPLICATIONS

- ☐ None ☒ Budget Previously Approved ☐ Referral to Business Planning
☐ Other
-

PUBLIC PARTICIPATION

☒ Inform ☐ Consult ☐ Involve ☐ Collaborate ☐ Empower

KATZIE FIRST NATION CONSIDERATIONS

Referral ☐ Yes ☒ No ☐ Other

SIGN-OFFS**Written by:**

Carleen McDowell,
Manager of Recreation and Culture

Reviewed by:

Diane Chamberlain,
Director of Parks, Recreation and Culture

Tanya Barr,
Deputy Corporate Officer

ATTACHMENT(S):

- A. C073 Community Service Awards and Civic Recognition – Proposed amendments

COUNCIL POLICY C073

01 - Administration

Community Service Awards and Civic Recognition

Effective Date: June 23, 2015

Last Revised:

PART 1 – INTRODUCTION

Policy Statement

1. The City of Pitt Meadows (the “City”) encourages, supports and recognizes community groups, teams, organizations or individuals who have contributed to the betterment of Pitt Meadows through accomplishments or contributions that significantly enhance quality of life and community spirit in Pitt Meadows.

Purpose

2. This policy establishes criteria for individuals, groups or organizations to receive formal recognition from the City for their commitment and contributions to Pitt Meadows.

Scope

3. Examples of individuals, groups or organizations that may be recognized under this policy include: residents, local service clubs, businesses, community groups, sports teams, arts and culture groups, environmental stewards, humanitarian champions, academic institutions, community inclusion groups or advocates, community services, neighbourhood groups, and individuals that provide a benefit to Pitt Meadows through contributions, achievements, actions, accomplishments and/or exemplary community service.
4. Award recipients must be residents of Pitt Meadows or businesses that operate within the City.
5. This policy outlines the process for two separate recognition processes:
 - a. Annual Community Service Awards Program. A community-led process that allows peers to recognize and celebrate their fellow citizens; and



- b. Civic Recognition. A Council-led process that allows Council to recognize and celebrate citizens for their contributions to the City of Pitt Meadows.

Exclusions

6. Volunteer Appreciation Events/Awards are not covered under this policy.
7. This policy is separate from other awards hosted by other community groups or protective service agencies (e.g. business awards, bravery awards, etc.). Nothing in this policy precludes the City from recognizing the winners of other awards through the processes outlined in this policy.
8. The City of Pitt Meadows no longer awards Freedom of the City. See details under 'Civic Recognition – Other Provisions'.

PART 2 - ANNUAL COMMUNITY SERVICE AWARDS PROGRAM

Awards - Purpose

9. The City seeks to recognize noteworthy contributions and achievements of groups, organizations and individuals that provide a benefit to our communities by conferring annual "Community Service Awards". The City will facilitate a community-led process that allows peers to recognize and celebrate their fellow citizens.

Awards - Categories

10. The categories and descriptions of the Annual Community Service Awards are as follows:

The Annual Community Service Awards Program was established in 2019 to recognize and honour outstanding contributions and achievements of groups, organizations and individuals in Pitt Meadows. The award program recognizes recipient's contributions in various areas including volunteerism; coaching; arts and cultural contributions; teaching; environmental and humanitarian champions; advocates for community inclusion; significant acts of philanthropy or heroism; or other noteworthy endeavors in the following six categories;

- a. Against the Odds Achievement. To recognize individuals who successfully overcome extraordinary obstacles; being resilient in difficult times and situations, and showing perseverance during exceptional circumstances.

- b. Business of the Year. To recognize a local business that, on a regular basis, contributes to the overall quality of life in Pitt Meadows through endeavours that support community service, programs or events, and/or fosters positive relationships with volunteer groups or activities.
- c. Community Service Youth (25 years and under) For demonstrating exemplary leadership in community service. This award is intended to recognize the positive contributions of young members of the community, who have provided outstanding service to the community without regard for their own personal gain. Each year, the City may award two bursaries each valued at \$500.
- d. Community Service. To recognize exemplary leadership and outstanding community service provided without regard for personal gain that impacts the community and beyond.
- e. Good Neighbour Award. For an individual who has contributed to their neighbourhood community through a single act of kindness, or multiple good deeds benefiting many people. This is a resident that is an unsung hero and makes their local neighbourhood a better place to live.
- f. Spirit of Pitt Meadows – Recognizing the contributions of one individual for their overall outstanding community service, dedication and commitment to improving the quality of life for the citizens of Pitt Meadows. This individual has dedicated many years of service to the community and has made a lasting difference through their service.

Awards - Roles and Responsibilities

11. The City will:

- a. establish a Community Service Awards Task Force (the "Task Force"), comprised of Pitt Meadows residents and/or business owners, to review all award nominations and select the annual award winners;
- b. establish a Terms of Reference for the Task Force, including award eligibility, nomination criteria, and selection criteria;
- c. coordinate the annual nomination process, including a public communications strategy;
- d. provide funding for the program through the Council Community Relations budget;



- e. print or prepare the annual Community Service Award certificates/plaques for presentation to the winners;
 - f. maintain an official record of all award recipients; and
 - g. recognize the annual winners on the City's website or through other media publications.
12. The Community Service Awards Task Force will:
- a. review award nomination packages;
 - b. select the annual recipients of the Community Service Awards;
 - c. inform Council of decisions through a delegation and memo at a closed council meeting; and
 - d. participate in the annual awards celebration where the winners are announced publically and presented with their awards.
13. Award nominators will:
- a. nominate residents or local businesses for the annual awards;
 - b. consider the nominee's significant achievements in the year immediately prior to receiving the award, as well as their past achievements and ongoing contributions; and
 - c. provide details on their nomination form regarding the scope and impact of the nominee's actions on the community.

Awards – Other Provisions

14. Nominations:
- a. may be made by any individual, group or organization;
 - b. may be submitted online, mailed, or dropped off in person at City Hall;
 - c. must include accurate contact information for the nominator and nominee; anonymous nominations, or nominations without valid contact information for both the nominator and nominee will not be accepted;



- d. must include information about the nominee and why they are a good candidate for a Community Service Award;
 - e. may be re-submitted in subsequent years should the nominee not be chosen for an award; alternatively, the Chief Administrative Officer may re-submit unsuccessful nomination packages to the Community Awards Task Force for consideration in subsequent years.
15. Previous recipients of the award categories may receive the award in the future; however, the accomplishments of that person or organization that were considered for the original award may not be considered for future awards.
 16. Only one award will be granted per category each year with the exception of the Child/Youth award as there is intention to award two age categories, ideally one award for younger youth 5-12 and 13-25 with authorization to award two in one category based on the submitted nominations.
 17. The awards will be presented to the award winners at an annual award event organized by the City.
 18. The Awards Task Force is not obligated to choose a winner for each category each year if they do not feel there is a suitable recipient for a particular category.

PART 3 - CIVIC RECOGNITION PROGRAM

Civic Recognition - Purpose

19. The Civic Recognition Program is a Council led process that allows the Mayor and Council to recognize and celebrate Pitt Meadows citizens and organizations for their contributions, noteworthy deeds, or significant achievements.

Civic Recognition - Components

20. The three components to the Civic Recognition Program are as follows
 - a. Letters of Recognition:
 - i. At the Mayor's discretion, the Mayor may send a congratulatory letter to an individual or organization to acknowledge a key achievement. Examples include milestone birthdays or anniversaries, community contributions, national or international recognition, or other accomplishments deemed worthy of recognition.



Letters of recognition may be requested or recommended throughout the year by any individual, group or organization, including a Staff member or Council member, and are subject to the approval of the Mayor.

b. Celebrate Pitt Meadows:

- i. Council may publically recognize an individual, group or organization for an outstanding achievement or community contribution during the 'Celebrate Pitt Meadows' section of a Regular Council Meeting.
- ii. Recognition may include a public statement by the Mayor, presentation of a certificate, award or other gift, and a photo opportunity with Council.
- iii. Nominations may be made throughout the year by any individual, group or organization, including a Staff member or Council member.
- iv. Nominations are subject to the approval of the Mayor or a majority vote of Council.

c. Recognition of Former Council Members:

- i. Council may acknowledge and honour past or present Council members upon their death for their civic and personal contributions to the community.
- ii. Should Staff be notified of the passing of a former or current Council member:
 1. Mayor and Council will be informed of the member's passing;
 2. Flowers and a card will be sent from Council to the member's family;
 3. The Mayor will send a letter of condolence to the family on behalf of Council;
 4. Council will acknowledge the member at a public Council meeting and formally recognize their contributions to the community;
 5. If available in City archives, a photograph of the member will be printed with the City logo or crest and will be provided to the family;

6. Flags may be lowered in certain circumstances as prescribed by the City's Flag Policy C001;
7. Additional measures may be considered depending on the circumstances, and with the unanimous vote of Council.
- iii. Council may recognize a former member of Council during their lifetime.
 1. This level of civic recognition is reserved for past Council members who are in good standing with the City, embrace and reflect the City's values, and have made a unique and extraordinary contribution to the community.
 2. Such recognition will be dealt with on a case by case basis, with the level of recognition and specific details to be approved by a unanimous vote of Council.
 3. This level of recognition is not available for current Council members.

Civic Recognition – Other Provisions

21. Administrative Services will coordinate and manage the administrative details of the Civic Recognition Program, and coordinate with other departments as required.
22. The Corporate Officer, or designate, will maintain a record on all council members including photographs and notes on committee work and Councillor Initiatives to inform recognition opportunities in the future.
23. Expenses associated with the Civic Recognition Program will be funded through Council's Community Relations budget.
24. Freedom of the City was a historic award dating back to the Medieval times and was considered the highest honour a municipality can bestow upon an individual, military unit or nation. In 2012, the City conferred Freedom of the City to the Royal Westminster Regiment; this group is the only chronicled recipient of the Freedom of the City award in Pitt Meadows. Freedom of the City is no longer offered and the Royal Westminster Regiment is recorded as a grandfathered recipient.



PART 4 - RELATED POLICIES

25. City policies related to this policy include:

- a. Media and Public Relations Communications Policy – Council Policy C063
- b. City Committees Policy C102
- c. Flag Policy C001

Staff Report to Council

Planning and Development

FILE: 11-5280-02/24

REPORT DATE: April 22, 2024

MEETING DATE:

April 30, 2024

TO: Mayor and Council

FROM: Michelle Baski, Project Manager, Agriculture & Environment

SUBJECT: Air Quality Monitoring Study Update

CHIEF ADMINISTRATIVE OFFICER REVIEW/APPROVAL:



RECOMMENDATION(S):

THAT Council:

- A. Receive for information the report titled “Air Quality Monitoring Study Update” as presented at the April 30, 2024 Council meeting; OR
 - B. Other.
-

PURPOSE

To provide an update on an air quality monitoring study related to railway operations that will be starting this quarter.

☒ Information Report ☐ Decision Report ☐ Direction Report

DISCUSSION

Background:

On July 26, 2022, Council received a report that presented the findings of the Air Quality Human Health Risk Assessment of Diesel Emissions (HHRA) final report. This report expanded on the previous interim Air Quality Human Health Risk Assessment and included existing Pitt Meadows air quality data, emissions forecasting from locomotive diesel emissions, and modelling of how it disperses across the community, based on three different scenarios (see Attachment A):

1. Train emissions for 2022 locomotive operations;

2. Estimated emissions from forecasted 2030 locomotive operations; and
3. Estimated emissions from the forecasted 2030 locomotive operations, plus the forecasted train and heavy truck operations from the proposed CP Logistics Park.

The HHRA found that, for all the scenarios, in locations with the highest modelled contaminant concentration, there are increased non-cancer health risks for acute exposure to diesel particulate matter (DPM), fine particulate matter (PM_{2.5}), and nitrogen dioxide (NO₂), and increased lifetime cancer risks from exposure to DPM. More details on the findings for each scenario can be found in Attachment A.

The July 26, 2022 report identified an opportunity for additional, longer-term air quality monitoring in order to provide a more robust data set. Although the additional air quality monitoring was not expected to change the findings of the HHRA (since the risk analysis identifies the upper range of the potential health risks and is based on a modelling approach), the report noted that more robust air quality data could support advocacy for improved emissions policies and regulations.

Since the July 26, 2022 report, staff have consulted with Metro Vancouver, Fraser Health, and Environment and Climate Change Canada representatives to discuss collaboration opportunities on potential air quality monitoring initiatives. In January 2023, the City became aware of a funding opportunity through Transport Canada's *Program to Enhance Rail Safety Engagement (PERSE)*, which is intended to help develop, improve and/or implement rail transportation strategies and policies, including researching the impact rail lines have on communities or traditional territories. Staff contacted partner agencies, applied for funding in February 2023, and were notified of approval in December 2023. The signed contribution agreement for \$82,200 was received in March 2024, and staff are working with an external consultant, Envirochem Services Inc., to implement the air quality monitoring study detailed below. Envirochem Services Inc. was the consultant used for the previous air quality monitoring work conducted in 2021 and HHRA finalized in 2022; therefore, they are familiar with the conditions and background information.

Proposed Air Quality Monitoring Study:

The air quality monitoring study is intended to:

- Capture baseline air contaminant concentrations ahead of future predicted increases in rail operations in Pitt Meadows;
- Evaluate air quality concentrations in areas close to rail operations and areas predicted to be 'hot spots' from findings of the previous air quality study; and
- Compare these near-rail air quality concentrations to those captured at other locations, such as the Metro Vancouver monitoring station on Old Dewdney Trunk Road.

The primary air contaminants of concern identified in the HHRA, and that will be targeted in the monitoring efforts, were PM_{2.5} and NO₂. Environment and Climate Change Canada staff also recommended monitoring for black carbon, which is the small airborne particulates of carbon released during fossil fuel combustion and is a specific component of PM_{2.5}.

Several sensors will be installed close to the rail operations to continuously monitor the air quality for PM_{2.5} and NO₂. Select locations will also include a black carbon module to contextualize the emission sources of measured PM_{2.5}, and meteorological sensors will also be included to track the wind patterns observed at the measurement locations during the monitoring, to aid in interpretation of the results. Locations of the monitors will be informed by the findings of the HHRA and advice from Envirochem Services Inc.

The air quality monitoring is anticipated to be in place until the end of 2024, though staff will be requesting that Transport Canada provide a project extension to allow for a full year of monitoring.

The HHRA and an invitation to collaborate on this study were sent to neighbouring municipalities adjacent to rail operations, including Port Coquitlam, Maple Ridge, Coquitlam, Surrey, and the Township of Langley. The ᑭᓴᓴᓴ (Katzie) First Nation was also invited to participate, along with Fraser Health, Metro Vancouver, and Environment and Climate Change Canada. Fraser Health's Health Protection, Population and Public Health Section provided a letter of support for the PERSE grant application and is interested in the results of the monitoring study, as is Environment and Climate Change Canada, and Metro Vancouver. Once the study is complete, the report will be shared with Council, the partnering agencies, ᑭᓴᓴᓴ (Katzie) First Nation, and surrounding municipalities.

The information from this study is intended to further support the City's advocacy efforts related to rail emissions and to inform other air quality studies being conducted by other agencies in the region.

COUNCIL STRATEGIC PLAN ALIGNMENT

- ☒ Principled Governance ☐ Balanced Economic Prosperity ☐ Infrastructure
☒ Community Spirit & Wellbeing ☐ Corporate Pride ☐ Public Safety
☐ Not Applicable

Advocacy – Proactively advocate for issues of importance to our community.

Active Wellness – Provide and encourage a community conducive to healthy, inclusive and accessible living.

WORKPLAN IMPLICATIONS

- ☒ Already accounted for in department workplan / no adjustments required
☐ Emergent issue / will require deferral of other priority(ies)
☐ Other
-

FINANCIAL IMPLICATIONS

- ☒ None ☐ Budget Previously Approved ☐ Referral to Business Planning
☐ Other

There are no financial implications with this report.

PUBLIC PARTICIPATION

- ☒ Inform ☐ Consult ☐ Involve ☐ Collaborate ☐ Empower

Comment(s):

This report will be publicly available on the City's website.

KATZIE FIRST NATION CONSIDERATIONS

Referral ☒ Yes ☐ No ☐ Other

Refer to q̓ic̓əy̓ (Katzie) First Nation for their information.

SIGN-OFFS**Written by:**

Michelle Baski,
Project Manager, Agriculture & Environment

Reviewed by:

Colin O'Byrne,
Manager of Planning

Patrick Ward,
Director of Planning and Development

Justin Hart,
Manager of Major Projects

ATTACHMENT:

- A. July 26, 2022 Report to Council: Air Quality Human Health Risk Assessment of Railway Diesel Emissions – Final Report



Staff Report to Council

Planning and Development

FILE: 11-5280-02/22

REPORT DATE: July 20, 2022 **MEETING DATE:** July 26, 2022

TO: Mayor and Council

FROM: Angie Lucas, Director of Planning and Development

SUBJECT: Air Quality Human Health Risk Assessment of Railway Diesel Emissions – Final Report

CHIEF ADMINISTRATIVE OFFICER REVIEW/APPROVAL:

RECOMMENDATION(S):

THAT Council:

- A. Receive for information the staff report titled “Air Quality Human Health Risk Assessment of Railway Diesel Emissions – Final Report,” presented at the July 26, 2022 Public Council Meeting; OR
- B. Other.

PURPOSE

Representatives of the project team led by Envirochem Services Inc. will share their analysis of the projected human health risks of the current and projected diesel emissions from Canadian Pacific’s (CP) railway operations in Pitt Meadows.

☒ Information Report ☐ Decision Report ☐ Direction Report

DISCUSSION

Background:

An interim air quality human health risk analysis (HHRA) was presented on November 23, 2021 and included:

- A review of existing Pitt Meadows air quality data (including conducting air quality monitoring at a residence adjacent to the mainline track) and comparison with relevant health and air quality thresholds and objectives.
- Emissions forecasting of fine particulate matter (PM_{2.5}) from locomotive diesel emissions and modelling of how it disperses across the community for the following three scenarios:
 1. CP's current rail operations in Pitt Meadows (i.e., VIF and mainlines);
 2. Forecasted 2030 operations (i.e., increased mainline train activity and moving existing train building from the mainline to the new north lead extension); and,
 3. Forecasted 2030 operations as outlined above, plus the proposed CP Logistics Park Vancouver (LPV) and accompanying rail changes.
- Preliminary human health risk analysis (HHRA) of the modelled locomotive PM_{2.5} concentrations and dispersal.

The attached study expands on this prior work to include projections and risk analysis of additional railway diesel-source air contaminants (e.g., diesel particulate matter (DPM), nitrogen dioxide (NO₂), and acrolein – see descriptions in appendix B of the attached report) and inclusion of projections of air contaminants from heavy truck traffic associated with operation of the proposed LPV. This final report also provides a comprehensive risk analysis of the potential current and future health impacts of diesel emissions from major railway operations in Pitt Meadows.

With regard to the Road and Rail Improvement Project and the proposed LPV project, the study addressed analysis of the rail components based on each project's regulatory and operational context.

Road and Rail Improvements Project

Staff understand that CP has the ability to construct the new siding and lead track extension regardless of the status of the Pitt Meadows Road and Rail Improvements Project. Under Section 98(3) of the *Canada Transportation Act*, CP does not need permission or permits from the City, Canadian Transportation Agency, or other levels of government to construct these tracks within their current right-of-way. These rail additions, therefore, were included in the study as future conditions but do not contribute to changes in train volumes or emission production because, as discussed below, they will serve the same role for the Vancouver Intermodal Facility (VIF) as is currently served by the north mainline.

Analysis of railway operation impacts to on-road vehicle emissions at train crossings were not included in the consultant's scope of work, which focused on human health impacts of locomotive emissions. Further information on on-road vehicle emissions, including staff's review of vehicle greenhouse gas emissions at the Harris Road rail crossing, can be found in the November 23, 2021 staff report.

Proposed Industrial CP Logistics Park Vancouver

CP must apply to the Canadian Transportation Agency for approval to construct and operate the LPV, and other federal agencies for task specific permits and authorizations. The City will proactively

engage throughout the Canadian Transportation Agency's review of the LPV, including detailing the overwhelming drawbacks associated with the LPV, and continue to submit its opposition to this project to other federal regulatory bodies. To inform the City's submissions, the study analyzed the potential human health risks associated with current and future scenarios of railway operations with and without the LPV.

Relevant Policy, Bylaw or Legislation:

The Pitt Meadows Strategic Plan 2018-2022 includes policies advocating for issues of importance to our community and supporting healthy, inclusive and accessible living.

Analysis:

Background Air Quality

As reported in the November 2021 interim report, four years of available Metro Vancouver air quality data from the regional monitoring station located on Old Dewdney Trunk Road was reviewed and compared to regional and federal air quality objectives. The findings indicate the air quality at that location has generally only exceeded Metro Vancouver's current air quality objectives when wildfire smoke has impacted the region. Aside from wildfire smoke impacts, air pollution levels were found to be proportionately higher when the wind is coming from the south, where contributing sources include CP's operations, Lougheed Highway traffic, and various land uses. The Metro Vancouver air quality data does not, however, identify the relative levels of pollutants from train emissions or other specific sources.

Twenty-six (26) days of near-rail PM_{2.5} air quality data was also collected at an urban residential property adjacent to the rail corridor. Comparison to the Metro Vancouver monitoring station over the same period (figure 3-4 in Attachment A) shows near-rail PM_{2.5} concentrations were generally higher than at the regional monitoring station; however, they remained below the relevant Metro Vancouver Ambient Air Quality Objective.

Air Quality Objectives and Standards

The Metro Vancouver Ambient Air Quality Objectives and the Canadian Ambient Air Quality Standards discussed in the attached report are both non-statutory objectives, meaning they are not enforceable. These objectives and standards are also not entirely health-based, meaning health impacts can still occur if air contaminant measurements remain under the threshold values defined in the objectives and standards. Instead, these metrics are primarily used to inform air quality monitoring of large areas (e.g., Metro Vancouver) and support related permitting and policy development.

Emissions Forecasting and Modelling

The study forecasted locomotive diesel emission production volumes (and heavy truck activity associated with the LPV) and modelled how the resulting air contaminants spread into the surrounding areas for the three scenarios described below. All three scenarios were developed as plausible worst-case scenarios based on information available from CP and reviews of similarly sized railyards and rail corridors. VIF activity levels were constant in the modelling of all three scenarios

because they were defined using the upper levels of activity for railyards of that size (i.e., operational capacity) identified through review of similarly sized railyards elsewhere in North America.

Worst-case scenarios are used in this and similar studies to avoid under-estimating the emission levels and potential human health risks. The resultant findings provide upper values of what might occur and, therefore, a buffer that allows for 'what-if' scenarios where individual study variables may be underestimated (e.g., some locomotives produce more emissions than others, or future train activity exceeds what was anticipated by the study).

Scenario 1: estimated train emissions from current locomotive operations on the two CP mainline tracks, at the Vancouver Intermodal Facility (VIF), and West Coast Express station.

The mainline train emission calculations included two VIF departing east-bound trains per day idling on the north mainline, east of Harris Road at the Bonson Road pedestrian bridge (i.e., close to Edith McDermott and Davie Jones Elementary schools as a worst-case), plus two westbound trains idling on the north mainline waiting for the Pitt River rail bridge to close.

Scenario 2: estimated emissions from forecasted 2030 locomotive operations on the two CP mainline tracks, at the VIF, and West Coast Express station.

As with scenario 1, the freight calculations included two east-bound trains per day idling at the Bonson Road pedestrian bridge, plus two trains per day waiting for the Pitt River rail bridge to close. Emission estimates included these idling trains located 14 feet north from the scenario 1 mainline locations, on the new siding along the VIF and on the lead track extension towards Golden Ears Way that CP is able to construct under federal legislation.

Scenario 3: emission estimates from Scenario 2 plus the forecasted train and heavy truck operations from the proposed CP Logistics Park: Vancouver (LPV).

Projected LPV train operations included two departing trains per day idling on the LPV loop track just north of Highland Park Elementary as a plausible worst-case scenario. In addition to the heavy truck diesel emissions, the modelling included air contaminant contributions from brake wear, tire wear, and road-dust kicked up from truck activities related to the proposed LPV operations.

Emissions Modelling Analysis

Emissions modelling is commonly used in similar studies of emission production and dispersion from specific sources. It is instrumental here since the contaminants from trains and heavy trucks are chemically similar to other mobile sources (e.g., emissions from diesel passenger, freight, and farm vehicles), plus several natural sources (e.g., dust and wildfire smoke). Modelling is also the only way to estimate the impact of future operations, such as emissions due to projected increases in rail traffic or railyard activities.

Based on the findings presented in the attached report, locomotive emissions are projected to be more concentrated in the vicinity of the VIF for all three scenarios. The lower train speed limit (40 km/h) for the Pitt River rail bridge crossing results in locomotives slowing and spending relatively more time and, therefore, polluting more in this area. Switching activities at the VIF facility, and at the LPV in scenario 3 (along with heavy truck traffic), also contribute to the higher overall emission production in this area. For the mainline east of the VIF, rail speed limits are higher, resulting in trains

in the emissions modelling spending less time in these areas per length of track. The modelled emissions and contaminant concentrations, therefore, are comparatively lower through this area. The most significant increase in emission concentrations occurs between scenario 1 and scenario 2 due to an approximate doubling of freight train traffic. Comparison between scenarios 2 and 3 shows a lower, but still noticeable, increase in emissions and air contaminants due to the proposed LPV rail and heavy truck activities.

The modelling indicates that most of the air contaminant concentrations under all three scenarios remain below Metro Vancouver's ambient air quality objectives (AAQO), with the exception of nitrogen dioxide (NO₂). The modelled NO₂ levels exceed Metro Vancouver's AAQO in all three scenarios, and do not include existing background levels from other sources.

The estimated ground level concentration values for all areas were used to separately identify the locations of maximum predicted ground-level concentrations for the following land-use types where people will be exposed:

- Residences
- Schools
- Child care facilities
- Senior care facilities
- Health care facilities
- Businesses
- Publicly accessible locations

The worst-case locations with the highest projected short-term and annual average concentrations in each of these categories were then analyzed to determine the potential for increased health risks. For each land use category, the worst-case locations for acute (i.e., short-term 1-hour) and chronic (i.e., annual) exposure were sometimes different, according to the concentration levels and rate of dispersion modelled for each emission contaminant.

The maps shown in attachment A, tables 5-2, 5-3, and 5-4 spatially illustrate the predicted maximum short-term 1-hour and annual average ground-level concentrations of diesel particulate matter (DPM), PM_{2.5} and NO₂ calculated for each point in the area over the modelled year. Because dispersion of the emission components (and, therefore, their concentration) would vary depending on prevailing wind speed and direction, the maps at the top of each table showing maximum short-term values do not show concentration values that necessarily would occur simultaneously. Instead, the locations included in each colour band are estimated to have a maximum concentration value that falls within the range represented by that colour at some point over the course of the year.

Preliminary Human Health Risk Analysis

The preliminary human health risk analysis (HHRA) summarized in the attached report calculated the health risks of chronic (long-term) and acute (short-term) exposures to locomotive and heavy truck diesel emission air contaminants at the location with the highest estimated concentration for each land use category identified above. The calculations took into account exposure concentrations, duration, frequency, and life expectancy (for cancer risk). Maximum predicted 1-hour average concentrations were used to calculate short-term exposure health risks for most air contaminants (with maximum 24 hour rolling average for PM_{2.5}), while annual average concentrations were used to calculate chronic exposure health risks. The duration and frequency used to calculate the chronic health risks are summarized in Attachment A (see table 6-2).

Toxicity values used to calculate the health risks (i.e., concentration thresholds where health effects are more likely to occur) were based on health standards used by Canadian health agencies, or international health agencies where Canadian standards do not exist. In the case of PM_{2.5}, NO₂, and chronic impacts of SO₂, health-based toxicity thresholds were not available from Canadian or international health agencies; therefore, Canadian Ambient Air Quality Standards (AAQS) values were used. Notably, Health Canada indicates there is no safe threshold for exposure to PM_{2.5} and NO₂; therefore, health effects are likely to occur where concentrations are below the Canadian AAQS.

The method used to estimate health risk did not include background concentration levels (i.e., quantity of existing contaminants currently present in the atmosphere) in the risk calculations, but does account for this absence. This allows for direct comparison between the three scenarios to estimate the change in emission production and health risks associated with current and projected increases in railway operations.

As with the emissions forecasting, the values used to calculate human health risk also apply a plausible worst-case scenario approach intended to identify the likely upper range of the potential health risks. For example, the assumed exposure frequency and duration values used to estimate the chronic health risks for residents include 24 hours per day of exposure, 7 days a week for 80 years. There are many residents who work at home, home-school children, provide home-based childcare, or are retired, so lower frequency and duration values would underestimate the upper range of potential health risks.

The health risk analysis for scenario 1 indicates:

- All worst-case locations (i.e., those with the highest modelled contaminant concentrations) for each land use type identified above have increased non-cancer health risks for acute (short-term) exposure to DPM and NO₂. Several worst-case locations also have increased health risk for acute exposure to PM_{2.5} (childcare, health care, and residence) and nickel (residence). Non-cancer health risks for chronic (long-term) exposure is within the acceptable risk range for all worst-case locations, except for NO₂ (residence and senior care locations) and acrolein (residence).
- The worst-case locations for all land use types have increased lifetime cancer risks from diesel particulate material (DPM). Notably, the worst-case residential location's estimated risk is substantially higher (an estimated 23 additional cancer cases per 100,000 people exposed) than Health Canada's guideline of an acceptable incremental lifetime cancer risk of 1 per 100,000.

Scenario 2 analysis indicates:

- All worst-case locations for each land use type have increased non-cancer health risks for acute exposure for PM_{2.5}, DPM, and NO₂. Several also have increased health risks for acute exposure to nickel (childcare, health care, and residence) and acrolein (childcare and residence). Non-cancer health risks for chronic exposure is within the acceptable risk range for all worst-case location, except for NO₂ (residence, childcare, and senior care locations) and acrolein (residence, childcare, and senior care locations).

- The worst-case locations for all land use types have lifetime cancer risks from diesel particulate material (DPM) that are higher than scenario 1. Additionally, the lifetime cancer risk values from diesel particulate material (DPM) for all modelled locations (not just the worst-case locations) were between 55% and 89% higher than scenario 1.

Scenario 3 analysis indicates:

- All worst-case locations for each land use type have increased non-cancer health risks for acute exposure for PM_{2.5}, DPM, and NO₂. Several also have increased health risks for acute exposure to nickel (business, childcare, health care, and residence) and acrolein (childcare and residence). Non-cancer health risks for chronic exposure is within the acceptable risk range for all worst-case locations, except for NO₂ (residence, childcare, and senior care locations) and acrolein (residence, childcare, and senior care locations).
- The worst-case locations for all land use types have lifetime cancer risks from diesel particulate material (DPM) that are the same as or are higher than scenario 2. For all modelled locations, the lifetime cancer risk was up to 95% higher than the same location calculated for scenario 2.

Similar to the emissions mapping, the maps shown in table 6-10 spatially illustrates the predicted maximum acute non-cancer health risk values of acrolein, DPM, formaldehyde, nickel, PM_{2.5}, and NO₂ calculated for each point in the area over the modelled year and for each scenario. Because dispersion of the emission components (and, therefore, their concentration) would vary depending on prevailing wind speed and direction, the maps do not show acute health risk values that necessarily would occur simultaneously. Instead, the locations included in each colour band are estimated to have an acute health risk value that falls within the range represented by that colour at some point over the course of the year. The areas identified in light green and red are areas that are identified as exceeding the acute non-cancer health risk thresholds used in this study.

Table 6-11 spatially illustrates the predicted chronic non-cancer health risks for NO₂ and acrolein, at all modelled locations for all three scenarios, based on annual average concentrations calculated for each modelled location. Areas shown in light green and red have projected chronic non-cancer health risks that exceed the health thresholds used in this study.

Table 6-12 spatially illustrates the predicted lifetime cancer risks for exposure to DPM, at all modelled location for all three scenarios, based on calculated annual average concentrations. All areas within all coloured bands exceed Health Canada's threshold of acceptable risk of 1 additional cancer case per 100,000 people exposed.

As noted previously, the results represent the upper values of estimated potential human health risk due to current and future railway locomotive and heavy truck (for scenario 3) diesel emissions. The HHRA results do not necessarily predict that a community member living or working in a particular part of the city may or may not experience health impacts directly due to rail activities since there are many variables involved (e.g., genetic susceptibility, age, exposure duration and frequency, weather patterns, train activity, background sources, etc.). However, the findings are based on industry standard methods, guidelines, and best practices for estimating human health risks for the community as a whole. As such, the results suggest there are substantial concerns with the impacts to the community attributed to current and projected rail-source diesel emissions in Pitt Meadows.

Air Quality Sampling

In addition to the already collected near-rail PM_{2.5} air quality data, the project proposed to identify locations for targeted baseline air quality sampling based on the modelling work. The original intent was for air quality data collection to run for three months and for this to serve as a comparison for future collected data.

Through discussion with the consultant, and review of recent air quality monitoring projects underway by health authorities and proposed by Metro Vancouver, a revised approach is being reviewed that will enable longer-term (e.g., two to three years) of continuous data gathering. This longer-term sampling will provide a more robust data set for future comparison.

The baseline air quality sampling data is not expected to change the findings of the HHRA since risk analysis identifies the upper range of the potential health risks and is based on a modelling approach. Instead, the collected air quality data will be compared with the Metro Vancouver air quality data and air quality thresholds to assist with advocacy for improved emissions policies and regulations.

Advocacy

As noted in the November 23, 2021 staff report, the regulatory regime for locomotive emissions (i.e., the Locomotive Emissions Regulation) is limited to restricting maximum emission outputs for units being brought into service, based on the age of their manufacture, and increasingly stringent standards for new and remanufactured locomotives. There are no enforceable standards directly governing impacts on local air quality by train emissions. In response to the presented information, Council passed the following motion at the November meeting:

“That Council:

B. Direct staff to work with rights-holders, stakeholders, and partner agencies to advocate for enforceable and appropriate health-based air quality standards for railway emissions.”

Given the concerning health risk estimates identified in the attached report and Council’s previous direction, staff will continue to engage others (including Metro Vancouver, Fraser Health, Provincial and Federal agencies) to identify collaboration opportunities to address air quality concerns. Following these discussions, staff will report back to Council in November 2022 with information on collaboration opportunities and a recommended advocacy strategy to pursue pollutant avoidance and mitigation measures.

COUNCIL STRATEGIC PLAN ALIGNMENT

- ☒ Principled Governance ☐ Balanced Economic Prosperity ☐ Corporate Excellence
☒ Community Spirit & Wellbeing ☐ Transportation & Infrastructure Initiatives

Advocacy. Actively advocate for issues of importance to our community.

Wellness. Provide and encourage a community conducive to healthy, inclusive and accessible living.

FINANCIAL IMPLICATIONS

☐ None ☒ Budget Previously Approved ☐ Referral to Business Planning
☐ Other

There are no financial implications with this report.

PUBLIC PARTICIPATION

☒ Inform ☐ Consult ☐ Involve ☐ Collaborate ☐ Empower

Comment(s): This report will be publicly available on the City's website.

KATZIE FIRST NATION CONSIDERATIONS

Referral ☒ Yes ☐ No

Refer to Katzie First Nation for their information.

SIGN-OFFS

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ATTACHMENT(S):

- A. Pitt Meadows Preliminary Air Quality and Human Health Risk Assessment of Railway-source Diesel Emissions, Envirochem Services Inc., July 2022.



REPORT

Pitt Meadows Preliminary Air Quality and Human Health Risk Assessment of Railway-source Diesel Emissions

City of Pitt Meadows

Prepared for:

City of Pitt Meadows

12007 Harris Road

Pitt Meadows, BC V3Y 2B5

Envirochem Project No.: 21162

Date: July 2022

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EXECUTIVE SUMMARY

As a result of CP's expressed desire to expand railway operations and operational capacity in the area, the City of Pitt Meadows retained Envirochem Services Inc. (Envirochem) to conduct an air quality and preliminary Human Health Risk Assessment (HHRA) to estimate the potential impacts of air emissions related to projected rail operation increases and proposed rail infrastructure and operational growth within the city's boundary.

The rail changes considered in this study largely focuses on predicted increases in mainline rail traffic and associated rail layout changes before 2030, and the proposed CP Logistics Park: Vancouver (LPV) project. Various scenarios (Scenario 1 - current operations, Scenario 2 - predicted 2030 operations, and Scenario 3 – predicted 2030 operations including the proposed LPV project) were evaluated to assess the air quality impacts and associated potential health risks with the current and potential future rail operations within the city.

The methodology for this assessment can be broken into three main stages: emissions inventory calculations to predict the emissions related to current and future rail operations in Pitt Meadows, air quality dispersion modelling to predict the dispersion of emissions and ground level air contaminant concentrations around the rail operations, and preliminary human health risk assessment to assess the health risks of predicted worst-case contaminant concentrations.

This study predicted exceedances of the acceptable health risk thresholds (for non-carcinogenic and carcinogenic health effects) for some of the individual air contaminants due to exposure to the model predicted concentrations associated with diesel emissions in each of the three scenarios evaluated, including under existing conditions. Based on these results, potential human health risks related to diesel emissions from the existing and proposed rail-related operations need further consideration.

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APPENDICES

Appendix A: HHRA Conceptual Exposure Model

Appendix B: COPC Toxicity Profiles

Appendix C: CALMET Model Evaluation

GLOSSARY OF TERMS

Acronym	Definition
AAQOs	Ambient Air Quality Objectives
CAAQs	Canadian Ambient Air Quality Standards
CACs	Criteria Air Contaminants
COPCs	Contaminants of Potential Concern
CP	Canadian Pacific Railway
DB	Dynamic Breaking
DE	Diesel Emissions
DPM	Diesel Particulate Matter
HAPs	Hazardous Air Pollutants
HHRA	Human Health Risk Assessment
HQ	Hazard Quotient
ILCR	Incremental Lifetime Cancer Risks
IUR	Inhalation Unit Risk
LPV	CP Logistics Park: Vancouver
MOVES	Motor Vehicle Emissions Simulator (US EPA Model)
MPOI	Maximum Point of Impingement
RAC	Railway Association of Canada
ROPCs	Receptors of Potential Concern
TC	Tolerable Concentration
TDCA	Time-adjusted average daily air concentration
TLACA	Time-adjusted lifetime air concentration
TRV	Toxicity Reference Value
US EPA	United States Environmental Protection Agency
VFPA	Vancouver Fraser Port Authority
VIF	Vancouver Intermodal Facility
VKT	Vehicle Kilometers Travelled
VOCs	Volatile Organic Compounds
WCE	West Coast Express

1.0 INTRODUCTION

1.1 Overview of Project

The City of Pitt Meadows retained Envirochem Services Inc. (Envirochem) to conduct a preliminary air quality Human Health Risk Assessment (HHRA) of the current and future predicted air emissions from rail operations within the city's boundary.

Canadian Pacific Railway (CP) operations within the city currently consist of the CP Vancouver Intermodal Facility (VIF) and a 5.3 km long rail corridor with two mainline tracks. Approximately 28 freight trains use the corridor each day and additional processing of the trains occurs in the VIF. This rail activity supports a considerable amount of goods that move to and from the Port of Vancouver.

Port growth is expected in future years and that growth will lead to additional freight trains travelling along the mainline on a daily basis. CP has indicated that they are planning to extend their existing lead track from the east end of the VIF as well as adding a new rail siding alongside the VIF. It is understood that the future lead track extension and new siding will accommodate activities currently happening on the north mainline. Additionally, the CP Logistics Park: Vancouver (LPV) is at a proposal stage as a separate project in an area adjacent to the VIF.

This preliminary HHRA study includes air emissions from current locomotive operations within the city's boundary as well as two future operation scenarios; 2030 predicted locomotive operations without the LPV, and 2030 predicted locomotive operations with the addition of the proposed LPV as well as emissions related to heavy trucking associated with the proposed LPV operations. Current air quality in the area has also been reviewed and compared to applicable air quality standards and objectives. The main aspect of this study looks at human health concerns associated with diesel combustion emissions (DE) from rail activities. Many air contaminants are emitted from diesel engines and are evaluated in this study.

It should be noted that detailed CP rail operational data was not provided by CP to the project team or City staff. Hence, to identify the maximum potential health impacts and locations where they may occur, the operating scenarios and their related air emissions modelling were based on estimated worst-case activity levels (based on understanding of rail operations in Pitt Meadows and available research on comparable railyard operations, such as those identified in risk assessments of the major rail yards in California ¹).

¹ California Air Resources Board - *Railyard Health Risk Assessments*

1.2 Evaluated Scenarios

The following scenarios were evaluated in this study. Details of these scenarios are expanded upon further in **Sections 4.3, 4.4, and 4.5**.

- **Scenario 1** – Current rail operations in the City of Pitt Meadows including freight and passenger rail traffic on the two mainline tracks through the city as well as operations of diesel locomotives at the CP Vancouver Intermodal Facility (VIF). On average, 28 freight trains use the corridor each day, along with 10 West Coast Express (WCE) passenger trains (5 westbound in the morning, 5 eastbound in the evening).
- **Scenario 2** – Future (2030) rail operations based on a predicted increase in rail traffic to 59 freight trains using the corridor per day, plus current operations occurring on the north mainline track moving to the extension of the lead track from the east end of the VIF, and a new rail siding alongside the VIF.
- **Scenario 3** – Future (2030) rail operations as evaluated in Scenario 2 with the addition of predicted locomotive operations at the proposed CP Logistics Park: Vancouver (LPV) located to the south of the VIF and mainline at the west end of Pitt Meadows. In addition to evaluation of locomotive emissions, the proposed LPV is predicted to have significant heavy truck operations and emissions from these heavy trucks were also considered.

1.3 Limitations

Estimating air emissions from rail operations can be challenging for a number of reasons. Many variables influence emissions of air contaminants from diesel locomotives including, but not limited to: the model and age of the locomotive, track grade and curvature, train speed, train scheduling etc. Limited data on these variables, especially on a local level, is a common limitation across all rail emissions studies and therefore assumptions need to be made to predict air emissions.

Two main factors that influence the calculated air emissions and dispersion modelling used in this study are activity levels, and characterization of emission sources.

With regards to rail activity levels, it should be noted that information provided by CP regarding the operations within the VIF and anticipated operations at the proposed LPV was limited in detail. Therefore, through consultation with the City of Pitt Meadows, the project proceeded with activity level estimates based on the limited information provided and available information on activity levels at similar size rail facilities. Where ranges of potential activity values were considered, values on the upper end of the range were selected to avoid underestimating emissions (i.e., a conservative approach was taken).

With regards to the characterization of emission sources, due to limitations of the available data, identifying the exact locomotives and variables influencing their emission rates (e.g., throttle settings or emission control features) were not feasible. This is a common limitation across studies of rail emissions. In this study, rail emission sources were characterized using similar methodology to other studies of similar facilities as described in **Section 4.0**. Emission factors (i.e., representative values identifying the amount of a pollutant released by an activity, for example, the amount of particulate matter emitted per

litre of diesel used) were identified from the Railway Association of Canada (RAC) annual report ², as applied by the Vancouver Fraser Port Authority (VFPA) for their 5-year regional emission inventories. RAC emission factors are categorized by locomotives used for freight line haul, yard switching, and passenger transport as the locomotives used for these activities differ, but emission factors are averaged across the makeup of the national fleet of rail locomotives in terms of specific models and the age of locomotives. The makeup of the locomotive fleet may be slightly different on a local level resulting in higher or lower emission rates. RAC emission rates used for all scenarios in this study are based on the most recent year available (2018). Please note that emission rates may decrease ahead of the 2030 scenarios modelled, as a percentage of older locomotives may be retired from the fleet and replaced with new locomotives with improved emission controls. Emissions from new and rebuilt locomotives are required to meet the emission standards set out by the Canadian Locomotive Emissions Regulations enforced by Transport Canada.

Truck emissions associated with the proposed LPV were based on anticipated truck volumes/activities provided by CP and were estimated using the US EPA Motor Vehicle Emission Simulator, also known as MOVES ³. Variables influencing emissions related to truck movements/activity include but are not limited to: travel speeds, travel distances, idling times, road grade, area of assessment, vehicle age, and climatic conditions. Limited data on some of these variables, especially on a local level, is a common limitation in studies without an in-depth traffic assessment and therefore assumptions need to be made to predict air emissions. Where specific information was not available in certain model input areas (e.g., vehicle age distribution), either default model settings or conservative estimates were assumed. Similar to rail estimates, please note that trucking emissions may decrease ahead of the 2030 scenario depending on potential emission improvements/implementation of other fuel-based transport options (e.g., electric trucks, biofuels, etc.).

² Railway Association of Canada – *Locomotive Emissions Monitoring Report 2018*

³ U.S. Environmental Protection Agency – *MOVES3 Model*

2.0 BACKGROUND

This section provides the background information used in the air quality assessment of the railway emissions including air emission contaminants, emission sources, modelling scenarios, relevant ambient air quality objectives and methodology for the assessment.

2.1 Air Emission Contaminants

The following air contaminants are considered in this air quality assessment:

- Diesel particulate matter (DPM),
- Fine particulate matter (PM_{2.5}),
- Nitrogen Oxide (NO₂),
- Sulphur Oxide (SO₂),
- Carbon Monoxide (CO), and
- Hydrocarbons (HC) ⁴.

In addition to the air contaminants assessed in the air quality assessment, additional Hazardous Air Pollutants (HAPs) are assessed in the preliminary HHRA through scaling of the predicted DPM and total hydrocarbon concentrations into individual components of these contaminant groups, using speciation profiles for locomotive and heavy truck emissions (approach described in **Sections 4.1**, and **4.2**, respectively). The full list of Contaminants of Potential Concern (COPCs) assessed in the preliminary HHRA are presented in **Table 6-1**.

While ozone is an air contaminant that is regularly of interest and has air quality objectives and standards at various levels, it was not the focus of this study as predicting ozone concentrations is reliant on more complex modelling that considers chemical transformation in the atmosphere on a regional scale and requires more detailed information on all emissions in an airshed (rather than focusing on one source such as rail operations).

2.2 Air Emission Sources

As noted in **Section 1.2**, three scenarios were considered for this assessment:

- Scenario 1: Current rail operations,
- Scenario 2: Predicted rail operations in 2030, and
- Scenario 3: Predicted rail operations in 2030 with the addition of the proposed LPV.

Emission sources considered in this study include freight and passenger rail traffic and idling on the mainline tracks through the city. On-site freight movement/switching/idling activities at the VIF and LPV (for current and future scenarios as applicable) are also included in emission estimates. For Scenario 3, project related trucking emissions associated with the LPV were also modelled. Additional details for emission estimates and the air dispersion modelling study conducted as a part of this assessment are provided in **Sections 4** and **5**, respectively.

⁴ Total hydrocarbon emissions and predicted concentrations are included for speciation into individual HAPs in the preliminary HHRA only, and are not evaluated as a whole.

2.3 Relevant Ambient Air Quality Objectives (AAQOs)

Ambient Air Quality Objectives (AAQOs) are set at federal, provincial, and regional levels. These are targets that define the acceptable outdoor concentration of key air contaminants, informed by human and environmental health considerations. Metro Vancouver has delegated authority under the *BC Environmental Management Act* to manage air quality within the region. Metro Vancouver uses a variety of approaches to manage air contaminants in the region, including AAQOs. Metro Vancouver uses AAQOs to:

- Assess regional and local air quality,
- Support the development of air quality management plans and regulations, and
- Guide air management and decisions, including when to issue permits and air quality advisories.

Metro Vancouver AAQOs are in line with (or in some cases more stringent than) the federal Canadian Ambient Air Quality Standards (CAAQS) and the provincial British Columbia Ambient Air Quality Objectives. The relevant Metro Vancouver AAQOs have been presented in **Table 2-1**. The CAAQS are planned to decrease in 2025 for NO₂ and SO₂ and these lower objectives are also presented. Metro Vancouver's 2025 objectives are expected to be at least as stringent as the federal CAAQS. AAQOs are presented in units of micrograms per cubic metre of air (µg/m³).

It should be noted that ambient air quality objectives are not based solely on health effects; therefore, further health-based thresholds and objectives for other parameters are considered in the preliminary HHRA aspect of this study.

Table 2-1: Relevant Metro Vancouver Ambient Air Quality Objectives

Air Contaminant	Averaging Period	Metro Vancouver Objectives ^(a) (µg/m ³)
Carbon Monoxide (CO)	1-hour 8-hour ^(b)	14,900 5,700
Fine Particulate Matter (PM _{2.5})	24-hour ^(b) Annual	25 8 (6) ^(d)
Nitrogen Dioxide (NO ₂)	1-hour ^(c) Annual	113 (CAAQS 2025 - 79) ^(e) 32 (CAAQS 2025 - 23) ^(e)
Sulphur Dioxide (SO ₂)	1-hour Annual	183 (CAAQS 2025 - 173) ^(e) 13 (CAAQS 2025 - 11) ^(e)

(a) Except where noted, Metro Vancouver objectives are "not to be exceeded", meaning the objective is achieved if 100% of the validated measurements are at or below the objective level.

(b) Objectives based on rolling average.

(c) Achievement based on annual 98th percentile of the daily maximum 1-hour concentration, averaged over three consecutive years.

(d) Metro Vancouver's annual PM_{2.5} planning goal of 6 µg/m³ is a longer-term aspirational target to support continuous improvement.

(e) The 2025 Canadian Ambient Air Quality Standards (CAAQS) are presented as context for how Metro Vancouver's AAQO's may decrease for NO₂ and SO₂ in 2025.

2.4 Methodology for Assessment

The methodology for this assessment can be broken into three main stages:

1. Emissions inventory calculations to predict the emissions associated with each scenario,
2. Air dispersion modelling to predict the dispersion of the calculated emissions in the areas surrounding the rail operations, and predict ground level air contaminant concentrations, and
3. Preliminary human health risk assessment to evaluate the health risks associated with the worst-case predictions of air contaminant concentrations.

Methodology for each of these project stages is described below. Prior to these steps of this assessment, a review of background air quality in the project area was conducted and is described in **Section 3**. The focus of this study was to assess the impact of rail operations in Pitt Meadows; therefore, the emissions from railway operations only were considered for evaluation without the addition of background concentrations. The preliminary HHRA methodology used in this study is described in **Section 6.0**.

Emissions Inventory

Emissions associated with rail operations in each of the three scenarios identified were calculated using a combination of activity estimates and published emission factors (e.g., mass of pollutant emitted per litre of diesel consumed in g/L). Where specific operational information/details were not available or provided, conservatively high activity level estimates were used to ensure emission projections were not underestimated. Through the emissions inventory calculations, the expected emission rates were calculated for use in the air dispersion modelling. Average emission rates were calculated based on typical daily activity levels for evaluation of air contaminants where 24-hour or annual AAQOs and health thresholds exist, and worst-case maximum hourly emission rates were calculated based on estimated maximum hourly activity levels for evaluation of air contaminants where 1-hour AAQOs and acute health thresholds exist.

The emissions inventory methodology is described in more detail in **Section 4.0**.

Air Quality Dispersion Modelling

Air quality dispersion modelling was then conducted to predict the dispersion of the emissions calculated in the emission inventory, and predict ground level concentrations of the various air contaminants of interest. Modelling was performed using the CALPUFF air dispersion modelling system and followed the British Columbia Air Quality Dispersion Modelling Guideline 2021 (BC AQDMG) ⁵. The BC AQDMG provides key guidance on a variety of topics including: model selection, application of models for regulatory purposes in BC, and best modelling practices. The CALPUFF modelling system consists of two main model packages including CALMET, a diagnostic 3-dimensional meteorological model, and CALPUFF, an air quality dispersion model.

The air dispersion modelling methodology is described in more detail in **Section 5.1**.

⁵ British Columbia Ministry of Environment & Climate Change Strategy, 2021 — *British Columbia Air Quality Dispersion Modelling Guideline*.

Preliminary Human Health Risk Assessment

From the results of the dispersion model, a preliminary HHRA was then completed to provide context to the potential health effects/impacts of project related emissions. An HHRA is a scientific process that estimates the potential toxicological human health risks from exposure to chemical contaminants in environmental media. An HHRA determines if contaminant(s) with potential health effects are present, if human receptor(s) are present, and if there are exposure pathways from the contaminant(s) to the human receptor(s), which could result in risks to health. The methodology for conducting this HHRA follows guidance published by Health Canada outlining the best practices and approaches to HHRA⁶. This study is referred to as a *preliminary* human health risk assessment as it assesses exposures that are based on estimated emissions and model predictions of air contaminant concentrations and is an appropriate level of assessment for the scope of this study. This study also assesses worst-case exposures only with regards to acute health effects (note that model predicted annual average exposures are used for assessment of chronic health risks).

A summary of the inputs and components included in the HHRA is summarized in **Figure 2-1**.

The preliminary human health risk assessment methodology is described in more detail in **Section 6.05.1**.

⁶ Health Canada, 2016 – *Human Health Risk Assessment for Diesel Exhaust*, and Health Canada, 2021 – *Federal Contaminated Site Risk Assessment in Canada: Guidance on Human Health Preliminary Quantitative Risk Assessment (PQRA)*. Version 3.0

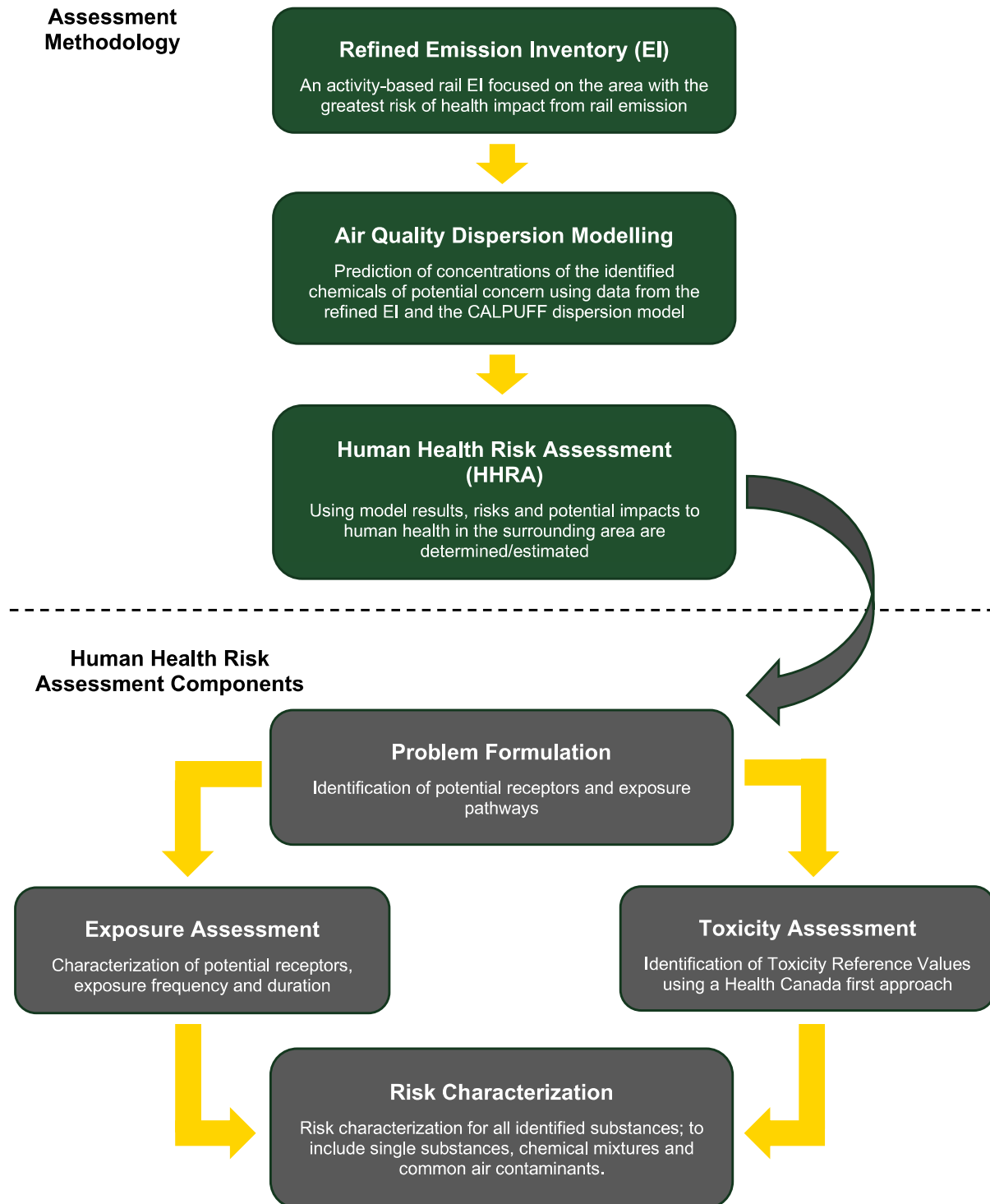


Figure 2-1: Flow Chart of the Development of the Human Health Risk Assessment

3.0 BASELINE AIR QUALITY REVIEW

Existing air quality in the area is affected by many emission sources including: vehicles and roads, construction projects, natural sources, industrial sources and rail activity (the focus of this study). Metro Vancouver operates an extensive network of ambient air quality monitoring stations that measure criteria air contaminants (CACs). **Figure 3-1** shows Metro Vancouver meteorological and ambient air quality monitoring stations, including the T20 station which is operated in Pitt Meadows.

To evaluate the existing ambient air quality in the area, historical hourly air quality data from the Pitt Meadows station was obtained from Metro Vancouver for the most recent four-years and compiled to achieve the relevant time-based averaging period to be compared with the related ambient air quality objectives.

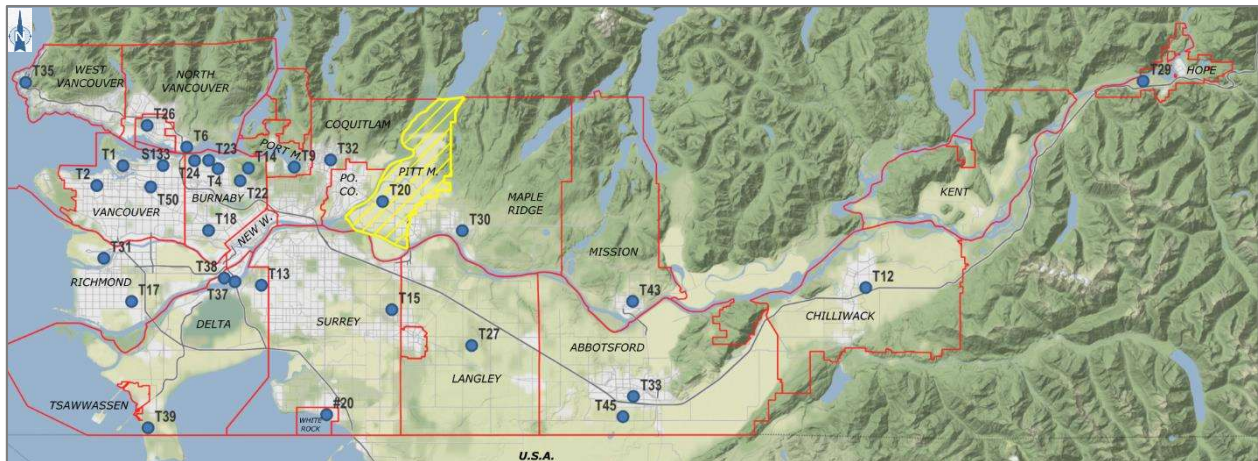


Figure 3-1. Metro Vancouver Air Quality Monitoring Station Network

Blue circles indicate the locations of Metro Vancouver air quality monitoring stations. Red outlines indicate municipal boundaries within the region with the City of Pitt Meadows highlighted in yellow.
Map tiles by Stamen Design, under CC BY 3.0. Base map data by OpenStreetMap, under OdbL.

3.1 Pitt Meadows Air Quality Monitoring Station

The Metro Vancouver Pitt Meadows air quality monitoring station (T20) is operated on Old Dewdney Trunk Road. This location is approximately 700 m to the north of the CP VIF boundary, and 1 km from the rail mainline. The surrounding area to the north and east of the station is primarily agricultural land. South of the station is Lougheed Highway (~600 m), and the urban areas of Pitt Meadows. The Pitt River is to the west of the station, with the CP Coquitlam rail yard and Coquitlam urban areas on the west side of the river.

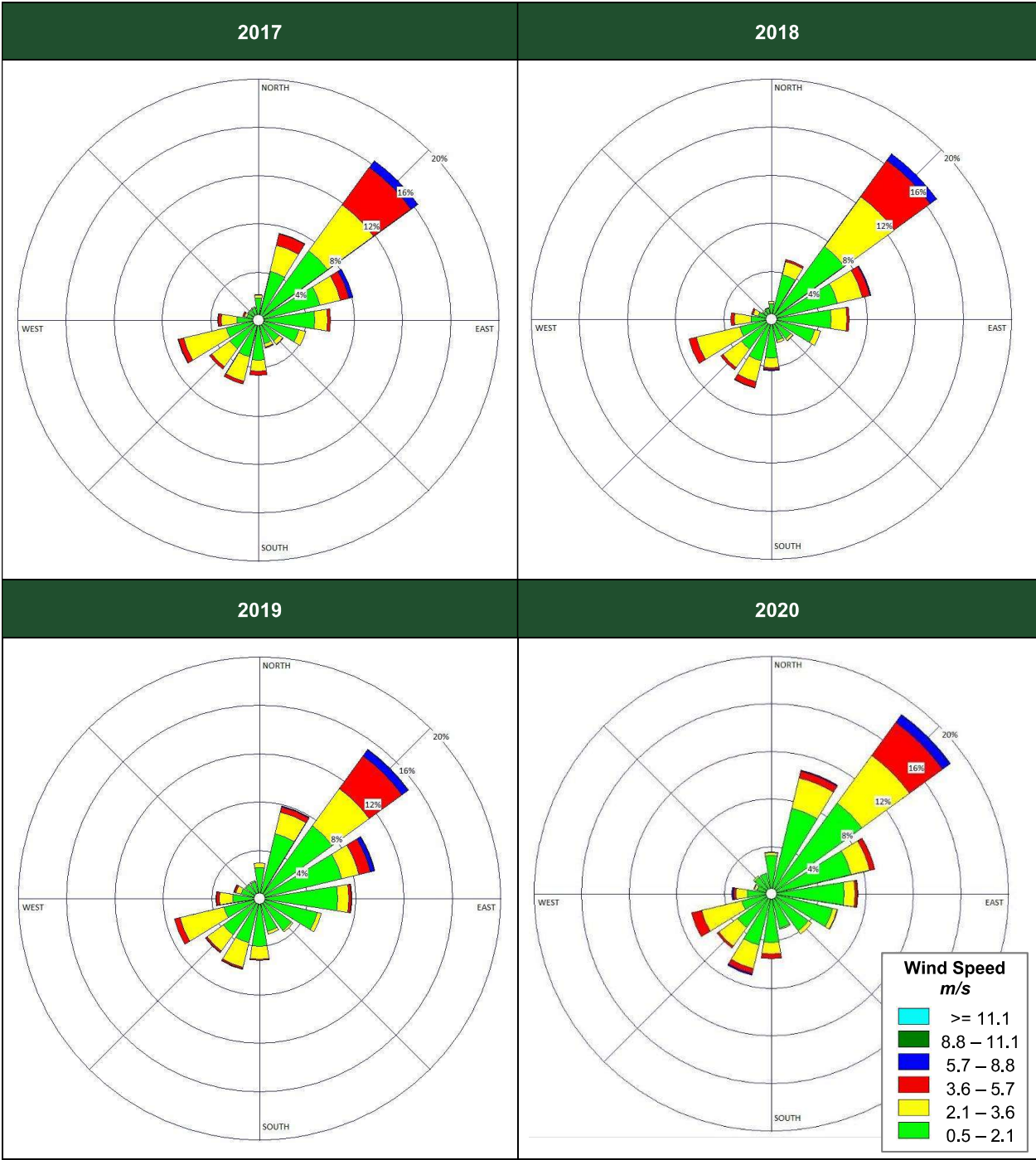
To add context to the air quality measured at the monitoring station, wind patterns using the hourly data at the monitoring station were evaluated and show that wind patterns in the area are dominated by winds flowing out of the valley between Coquitlam Mountain and Golden Ears and containing Pitt Lake, as seen in annual wind roses presented in **Table 3-1** and an overall wind rose from 2017-2020 in **Figure 3-2**. Wind patterns are very similar between the years analyzed.

How to read a wind rose

*Wind rose diagrams are used to show the general wind direction and speed patterns at a location for a period of time. The circular format of the wind rose shows the direction the winds blew from and the length of each "spoke" around the circle shows how often the wind blew from that direction. For example, the wind rose for 2017 in **Table 3-1** below shows that during this particular period (2017) the wind blew from the northeast approximately 16% of the time, and from the east approximately 6% of the time, etc.*

The different colors of each spoke provide details on the wind speed, in metres/second (1 m/s = 3.6 km/h), of the wind from each direction. Using the 2017 example, the longest spoke shows the wind blew from the northeast at speeds between 0.50 - 2.10 m/s (green) about 7% of the time, 2.10 - 3.60 m/s (yellow) about 5% of the time, 3.60 – 5.70 m/s about 3.5% of the time and 5.70 - 8.80 m/s (dark blue) about 0.5% of the time.

Table 3-1: Wind Rose Showing Wind Patterns Measured at the Pitt Meadows Air Quality Monitoring Station (2017, 2018, 2019, and 2020)
Direction shown as 'wind blowing from'.



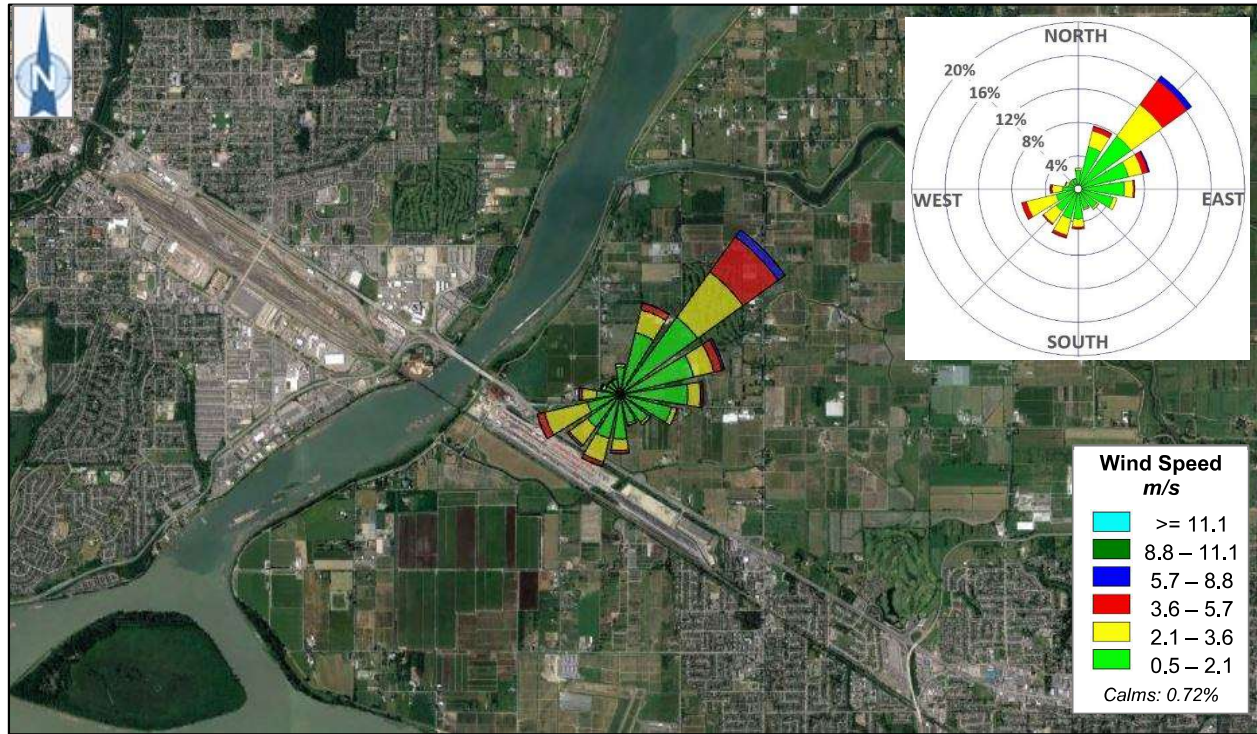


Figure 3-2: Wind Rose Showing Wind Patterns Measured at the Pitt Meadows Air Quality Monitoring Station (2017-2020 Inclusive)

Direction shown as 'wind blowing from'.

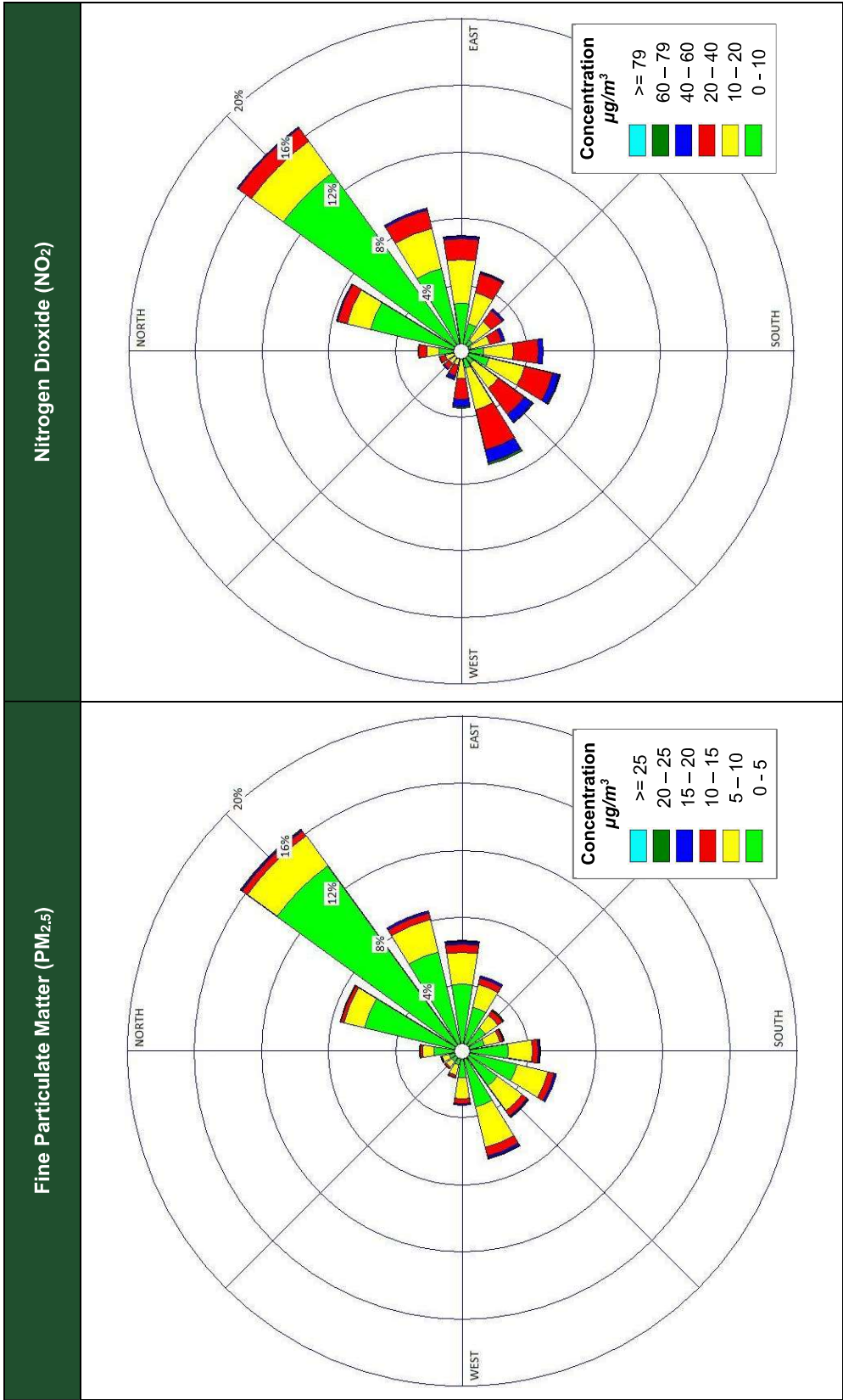
PM_{2.5} and NO₂ hourly monitoring data were compared to the wind directions at the time of measurement from 2017 to 2020 and are presented in **Table 3-2**. At times where wind directions are from the south, higher concentrations of PM_{2.5} and NO₂ appear to be measured more frequently compared to when wind direction is from the north.

How to read a pollution rose

Pollution rose diagrams are used to show the general wind direction and contaminant concentration patterns for a substance at a location for a period of time. The circular format of the pollution rose shows the direction the winds blew from and the length of each "spoke" around the circle shows how often the wind blew from that direction.

The different colors of each spoke provide details on the typical concentration readings for the contaminant examined, in micrograms/cubic metres, at times the wind was blowing from each direction.

Table 3-2: Pollution Roses Showing Comparison of Measured PM_{2.5} and NO₂ Concentrations and Wind Direction at the Pitt Meadows Air Quality Monitoring Station



(a) Direction shown as 'wind blowing from'
(b) PM_{2.5} data excludes dates where Metro Vancouver Air Quality Advisories were in place due to wildfire smoke.

3.2 Calculated Background Air Quality

For this study, appropriate time-based averages of the historical monitoring data from T20 station (Pitt Meadows) were calculated based on the British Columbia Air Quality Dispersion Modelling Guideline⁷. As carbon monoxide is assessed in the air quality aspect of this study and as background data for CO is not recorded at station T20 (Pitt Meadows), data from the closest station with available CO data was assessed (the Metro Vancouver T30 Maple Ridge air quality monitoring station).

Annual averages of hourly data are calculated for each of the four years and for short-term periods (i.e., maximum 1-hour and 24-hour values) the applicable percentile of each time-based averages of the data were calculated based on the BC AQDMG. The BC AQDMG recommends using 98th percentiles to establish background values for short-term averaging periods (i.e., 1-hour and 24-hour) for most contaminants to be used in dispersion modelling studies (please note 99th is recommended for SO₂). 98th percentiles are a common statistical approach to provide context on the high values observed in a dataset by calculating the maximum value or measurement which includes 98% of the data (i.e., only 2% of the data is above this value). It should be also noted that as per the BC AQDMG, the 1-hour NO₂ background data for the dispersion modelling purposes is calculated differently and is based on the 98th percentile of the daily maximum 1-hour values rather than all hourly data.

In recent years, wildfire smoke events have impacted the Metro Vancouver area, leading to episodes of elevated PM_{2.5} concentrations. Therefore, in addition to evaluating all PM_{2.5} data, PM_{2.5} concentrations from dates not impacted by wildfire smoke were also reviewed. To do this, PM_{2.5} data from the dates where Metro Vancouver air quality advisories were in place were removed from consideration to exclude the impact of these high concentrations on the calculation of background averages.

The calculated background air quality data are presented in **Table 3-3**. The background air quality data can be also compared to each of the relevant Metro Vancouver ambient air quality objectives as applicable to have a general understanding of the current air quality in the region. In addition to the applicable background air quality data, other measures such as average, median, and the 98th percentile of the data are presented in this table for further statistical information on the general air quality in the region.

It should be noted that although the review of background air quality data is included here, model predicted air contaminant concentrations based on the emission estimates only were evaluated, without the addition of background concentrations, in order to assess the impact of rail operations in Pitt Meadows.

⁷ British Columbia Ministry of Environment & Climate Change Strategy, 2021 — *British Columbia Air Quality Dispersion Modelling Guideline*.

Table 3-3: Background Air Quality Concentrations for T20 Pitt Meadows Air Quality Monitoring Station (2017-2020)

Air Contaminant	Averaging Period	Ambient Air Quality Objective ($\mu\text{g}/\text{m}^3$)	Measure	Year(s) of Analysis				
				Monitoring Data				
				2017	2018	2019	2020	2017-2020
PM _{2.5} All Data	24-hour Rolling Average	25	Maximum (24-hour Rolling Average)	63.0	115.3	24.2	153.9	153.9
			98 th Percentile (of 24-hour Rolling Averages)	38.8	31.2	13.2	52.6	25.3
	Annual	8 (6)	Average	6.1	6.8	5.2	6.2	6.1
			Median	3.8	4.5	4.4	3.5	4.0
PM _{2.5} With Wildfire Smoke Events Excluded ^(a)	24-hour Rolling Average	25	Maximum (24-hour Rolling Average)	18.3	28.0	24.2	18.5	28.0
			98 th Percentile (of 24-hour Rolling Averages)	14.4	13.9	13.2	11.3	13.5
	Annual	8 (6)	Average	4.7	5.4	5.2	4.3	4.9
			Median	3.6	4.3	4.4	3.4	3.9
NO ₂	1-hour	113 (2025 CAAQS of 79)	Maximum	92.2	84.9	93.9	86.3	93.9
			98 th Percentile (All Data)	58.0	49.3	51.6	44.2	51.4
			98 th Percentile of Daily 1-hour Maximums ^(b)	76.1	71.2	79.8	63.3	73.9
	Annual	32 (2025 CAAQS of 23)	Average	18.1	16.5	16.2	13.2	16.0
			Median	14.7	13.6	13.4	10.1	12.8
SO ₂	1-hour	183 (2025 CAAQs of 173)	Maximum	30.3	14.1	18.6	13.6	30.3
			99 th Percentile	6.7	5.3	5.9	3.7	5.9
	Annual	13 (2025 CAAQs of 11)	Average	1.1	0.9	1.0	0.7	0.9
			Median	0.5	0.5	0.5	0.0	0.5
CO ^(c)	1-hour	14,900	Maximum	1,921	1,735	1,432	2,247	2,247
			98 th Percentile	769	652	571	843	675
	8-hour Rolling Average	5,700	Maximum	1,195	1,351	852	2,140	2,140
			98 th Percentile	700	568	504	867	603

(a) Data from dates during Metro Vancouver air quality advisories for wildfire smoke was removed from consideration in the analysis of monitored PM_{2.5} concentrations.

(b) The 98th percentile of 1-hour daily maximums is presented for NO₂ as this is the exceedance criteria for the Metro Vancouver AAQO.

(c) CO not recorded at T20 Pitt Meadows air quality monitoring station. Hence, data for CO was obtained from the next closest air quality monitoring station - Metro Vancouver T30 Maple Ridge.

3.3 Comparison of Background Concentrations to Metro Vancouver Ambient Air Quality Objectives

For each of the four years analyzed, none of the calculated annual average background concentrations exceeded the existing annual Metro Vancouver AAQO's as seen in **Table 3-3**. In the case of PM_{2.5}, the annual averages were each below the current objective of 8 µg/m³ but in all years except 2019 they were above the long-term planning goal of 6 µg/m³. When PM_{2.5} calculations were performed for the dates where wildfire smoke was not impacting the airshed (data from dates where Metro Vancouver air quality advisories were in place were removed), the annual averages were each below the long-term planning goal of 6 µg/m³.

For the short-term Metro Vancouver ambient air quality objectives (i.e., 24 hour rolling averages and 1 hour average), the frequency of exceedance was calculated and is presented in **Table 3-4**. Aside from periods with wildfire smoke impacts, the analysis indicates the regional air quality measured at the Metro Vancouver monitoring station is generally within the Metro Vancouver AAQOs.

In most cases Metro Vancouver's AAQOs "...are not to be exceeded, meaning the objective is achieved if 100% of the validated measurements are at or below the objective level". It should be noted that the NO₂ objective is evaluated differently and is based on the annual 98th percentile of the daily maximum 1-hour objectives averaged over three consecutive years.

Table 3-4: Background Air Quality Comparison to Short-Term Metro Vancouver Ambient Air Quality Objectives

Air Contaminant	Averaging Period	Objective $\mu\text{g}/\text{m}^3$	Measure	Year(s) of Analysis				
				2017	2018	2019	2020	2017-2020
PM_{2.5} <i>All Data</i>	24-hour Rolling Average	25	Number of Exceedances	272	218	0	198	688
			Percentage of Exceedances ^(a)	3.11%	2.49%	0 %	2.25%	1.96%
PM_{2.5} <i>With Wildfire Smoke Events Excluded</i> ^(b)	24-hour Rolling Average	25	Number of Exceedances	0	13	0	0	13
			Percentage of Exceedances	0 %	0.15%	0 %	0 %	0.04%
NO₂	1-hour	Current Objective: 113	Number of Exceedances ^(c)	0	0	0	0	0
			Percentage of Exceedances ^(c)	0 %	0 %	0 %	0 %	0 %
		2025 CAAQs: 79	Number of Exceedances ^(c)	8	4	16	1	29
			Percentage of Exceedances ^(c)	0.09%	0.05%	0.18%	0.01%	0.08%
SO₂	1-hour	Current Objective: 183	Number of Exceedances	0	0	0	0	0
			Percentage of Exceedances	0 %	0 %	0 %	0 %	0 %
		2025 CAAQs: 173	Number of Exceedances	0	0	0	0	0
			Percentage of Exceedances	0 %	0 %	0 %	0 %	0 %
CO ^(d)	1-hour	14,900	Number of Exceedances	0	0	0	0	0
			Percentage of Exceedances	0 %	0 %	0 %	0 %	0 %
	8-hour Rolling Average	5,700	Number of Exceedances	0	0	0	0	0
			Percentage of Exceedances	0 %	0 %	0 %	0 %	0 %

- (a) Percentage of hours exceeding is based on a count of available data (e.g. wildfire removed PM_{2.5} is calculated as the number of 24 hour rolling averages above the objective divided by the total hours of remaining data after advisory dates were removed).
- (b) Data from dates during Metro Vancouver air quality advisories for wildfire smoke was removed from consideration in the analysis of monitored PM_{2.5} concentrations.
- (c) The Metro Vancouver AAQO for 1-hour average NO₂ concentrations is assessed based on the 98th percentile over three consecutive years of the daily maximum 1-hour average values. This allows for up to 2% of the daily maximum values to be higher than the objective level before the objective is deemed to be exceeded.
- (d) CO not recorded at T20 Pitt Meadows air quality monitoring station. Hence, data for CO was obtained from the next closest air quality monitoring station - Metro Vancouver T30 Maple Ridge.

3.4 Preliminary Air Quality Monitoring Data

Preliminary air quality monitoring was conducted at a residence along the mainline approximately 500 m east of the Harris Road rail crossing between October and November, 2021 to explore the current air quality concentrations present in areas of Pitt Meadows closer to the rail operations. A continuous PM_{2.5} monitoring instrument was installed in the garden of the residence which backs onto the rail line to measure ambient PM_{2.5} concentrations along the rail line. Measured one-hour average concentrations are presented in **Figure 3-3** below. **Figure 3-4** presents the 24-hour rolling average concentration (which corresponds with the Metro Vancouver short-term AAQO) measured by the temporarily installed PM_{2.5} monitoring instrument and comparison to the PM_{2.5} concentrations measured at the Metro Vancouver T20 Pitt Meadows air quality monitoring station over the same time period.

As anticipated, concentrations of PM_{2.5} (an air contaminant emitted by diesel combustion and other sources) were generally higher during this period at the temporary near-rail monitoring location than those reported by the Metro Vancouver T20 air quality monitoring station location, which is located further from specific PM_{2.5} emission sources and where winds often blow from the northeast where fewer emission sources are located (as seen in **Figure 3-2**).

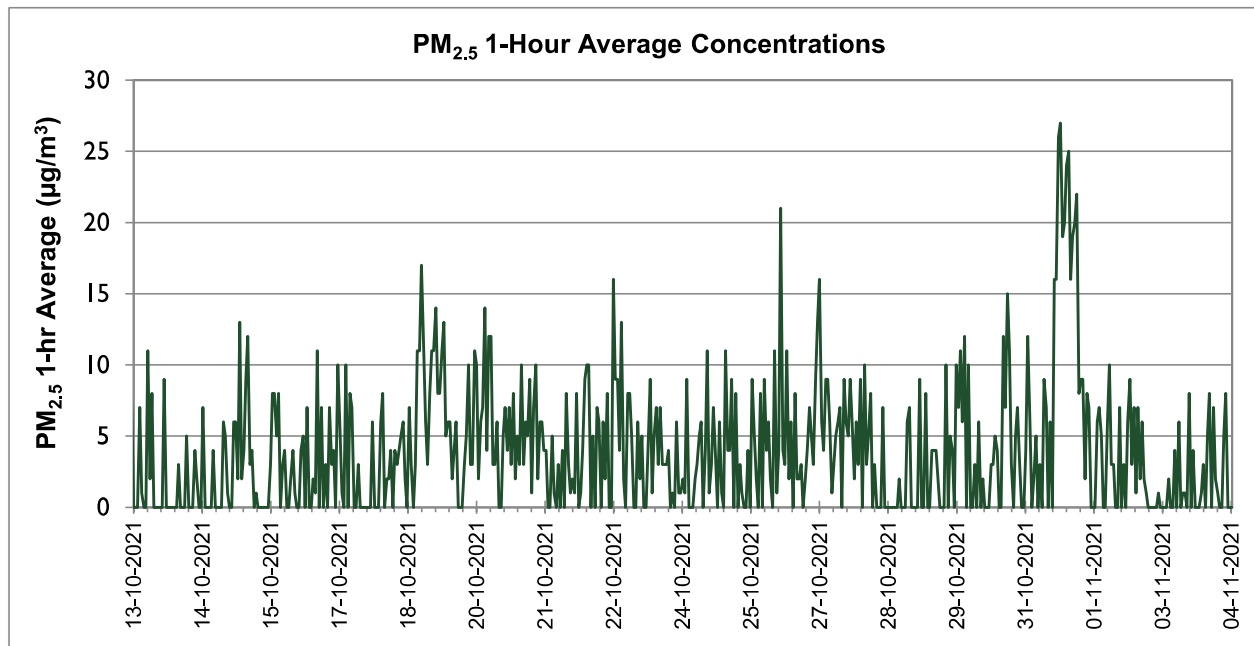


Figure 3-3: PM_{2.5} 1-hour Average Concentrations Measured by the Temporarily Installed PM_{2.5} Instrument

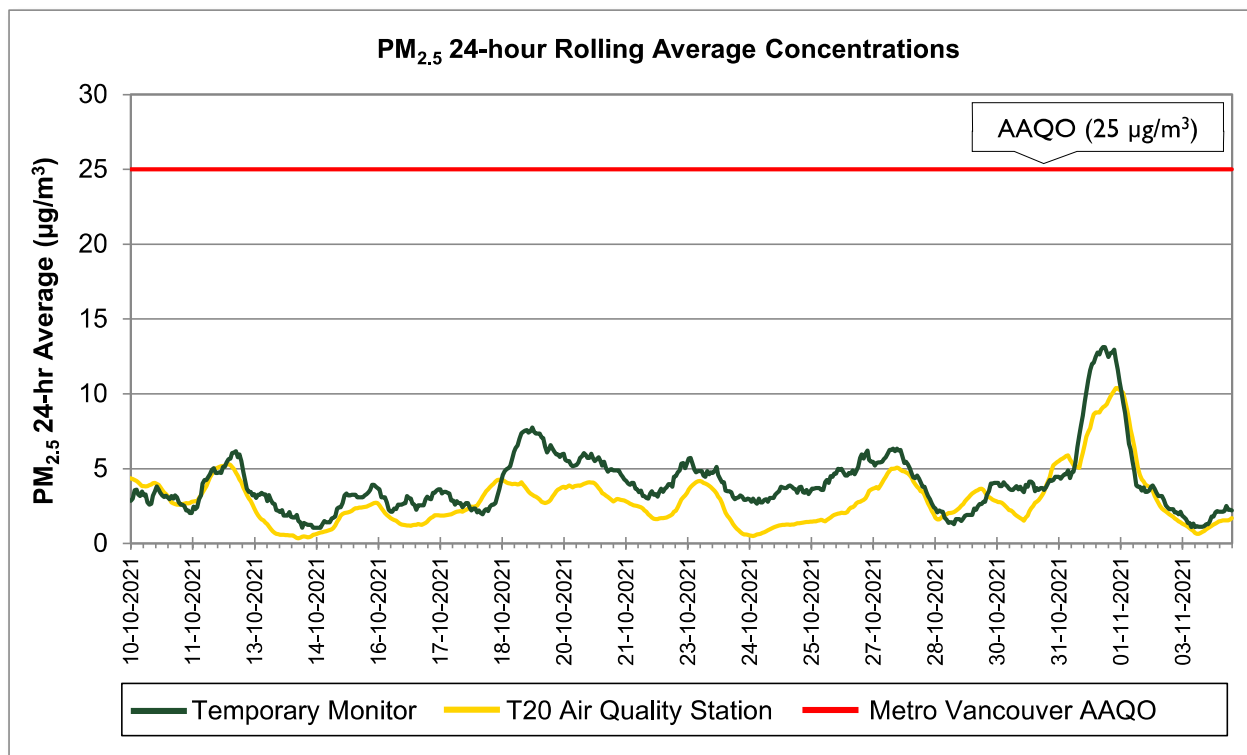


Figure 3-4: PM_{2.5} 24-hour Rolling Average Concentrations Measured by the Temporarily Installed PM_{2.5} Instrument and at the Metro Vancouver T20 Air Quality Monitoring Station

Note: Data from the T20 station is presented as raw data and has not been passed through Metro Vancouver's data validation procedures which are conducted on an annual basis.

4.0 EMISSIONS INVENTORY

Emissions considered in this study include locomotive emissions in all scenarios and truck-related emissions to/from the proposed LPV in Scenario 3. The methods used to estimate locomotive emissions and truck emissions are described in **Sections 4.1** and **4.2**, respectively. Emission estimates and details for each of the three scenarios are included in **Sections 4.3, 4.4, and 4.5** respectively.

4.1 Locomotive Emissions

The activity-based rail emissions inventories for the three scenarios and their various components (i.e., mainline, VIF, and proposed Logistics Park) are presented in **Table 4-3, Table 4-4, and Table 4-5** below. As noted in **Section 2.4** above, where specific information/details were not available or provided, conservatively high activity level estimates were established based on available information to ensure emission projections were not underestimated.

Diesel-electric locomotives operate with their engines in one of eight specific throttle positions known as notches, or with their engine idling. Annual and maximum hourly fuel consumption for the activities considered in each scenario (e.g., mainline travel, switching activities, idling, etc.) was therefore calculated based on fuel consumption rates for representative trains by notch setting utilization (i.e., the amount of time spent in each throttle position). A summary of the fuel consumption rates for the line-haul/passenger/switch locomotives used for this study is shown in **Table 4-1** below.

Table 4-1: Fuel Consumption for Line Haul/Passenger, and Switcher Locomotives

Locomotive Type	Model	Fuel Consumption by Throttle Notch Position (L/hour)									
		Idle	1	2	3	4	5	6	7	8	DB ^(a)
Line Haul/Passenger ⁸	GE AC4400	11.4	45.4	102.2	204.4	299.1	397.5	530.0	647.3	794.9	44.4
Switcher Locomotives ⁹	SD40-2	20.8	34.4	94.3	156.7	216.5	299.0	410.7	549.6	634.8	79.5
	GP38	17.4	26.5	60.6	118.9	177.2	241.5	314.6	389.1	463.3	56.8

^(a) DB = Dynamic Braking

The locomotive engines assumed in this study were based on typical models expected in CP's fleet and switching yards. The GE AC4400 (a relatively high-powered locomotive typically used for line-haul operations) was used to model line-haul locomotives. The GE AC4400 was also used to model the typically lower powered passenger trains travelling/idling on the mainline, again, to ensure emissions

⁸ U.S. EPA, 1998 – *Locomotive Emissions Standards, Regulatory Supporting Document*

⁹ Railsolve Leaf – *Utilizing Genset Technology in Locomotive Power at Intermodal Railyard Operations*

rates were not under-estimated. Switchers in the switching yards for the VIF and proposed Logistics Park were represented by SD40-2 and GP38 locomotive engine models based on available information.

The duty cycle (i.e., time spent in each throttle notch setting) and the associated fuel consumption rates for each activity considered in the study were based on a combination of available information, literature values, and estimates on the upper range of expected values. For line-haul trains, an average of operation in notches 4 and 5 were used to estimate train movements on the mainline. Notch 5 was used to estimate passenger train movements (based on communication with Translink - West Coast Express). The distribution of typical times spent in each notch position for switching activities were based on locomotive duty cycle data from the Railway Association of Canada (RAC) Locomotive Emissions Monitoring Program ¹⁰.

Once the annual and maximum hourly fuel consumption values for each activity were estimated based on activity times and the rates above, emission totals/rates were then calculated using fuel-based emission factors from the RAC Locomotive Emissions Monitoring Report ¹¹. These emission factors are based on active locomotive fleets for line-haul locomotives, yard switching locomotives, and passenger locomotives across Canada. Fuel-based emission factors from the most recent fleetwide study available (2018) were used and are summarized in **Table 4-2** for reference. The fuel-based emission factors used are consistent with those employed by the Vancouver Fraser Port Authority (VFPA) in their 5-year emission inventories for rail operation. It should be noted that these emission rates may decrease ahead of the 2030 scenarios modelled, as a percentage of older locomotives may be retired from the fleet and are rebuilt or replaced with new locomotives with improved emission controls. Emissions from new or rebuilt locomotives are required to meet the emission standards set out by the Canadian Locomotive Emissions Regulations.

Table 4-2: Railway Association of Canada Fuel-Based Emission Factors

Locomotive Type	Emission Factor (g/L)				
	Nitrogen Oxides (NO _x)	Particulate Matter (PM) ^(a)	Carbon Monoxide (CO)	Hydrocarbons (HC)	Sulphur Dioxide (SO ₂)
Freight: Line-Haul	34.56	0.78	7.02	1.54	0.02
Total Yard Switching	56.67	1.18	7.35	3.33	0.02
Total Passenger	54.37	1.11	7.03	2.1	0.02

^(a) Based on correspondence with RAC, the PM emission factor here refers to PM₁₀ (particulate matter with a diameter of less than 10 microns). For the purposes of this study, it was assumed that PM, PM₁₀, PM_{2.5} and DPM are equivalent from diesel locomotive combustion.

¹⁰ Railway Association of Canada – Locomotive Emissions Monitoring Program 2008

¹¹ Railway Association of Canada – Locomotive Emissions Monitoring Report 2018

Using the emission factors above and speciation profiles for locomotive emissions (i.e., the ratios of specific contaminants found in diesel emissions to total particulate matter or total hydrocarbons) recommended by port emission inventory guidance ¹², additional hazardous air pollutants (HAPs) emissions from locomotive engines were estimated. Speciation profiles were applied to scale the identified base pollutant concentrations (i.e., PM or HC) to yield individual HAP emission rates (e.g., nickel emission rate was predicted by multiplying the PM emission rate by the nickel to PM ratio). To avoid underestimating emissions, the maximum speciation value found for each HAP across the locomotive engine types considered in the guidance (i.e., line haul, passenger, yard) was used.

4.2 Heavy Truck Emissions

Heavy truck emissions associated with the LPV in Scenario 3 were estimated using a combination of transportation model emission rates, established emission factors, and activity estimates. The scope of items considered in truck emission estimates include emissions from truck exhaust (from travelling/idling), emissions from brake/tire wear, and emissions from re-entrainment of road dust. The activity-based truck emissions inventories for Scenario 3 and the various components are presented in **Table 4-7**.

Emissions associated with truck exhaust and tire/brake wear were estimated using emission factors extracted from the US EPA Motor Vehicle Emission Simulator, also known as MOVES ¹³. Emissions estimation in MOVES is dependent on several factors including travel speeds, area of assessment, vehicle age, and climatic conditions. Emission factors from combination short haul trucks were used as a basis for the emission calculations. Travel speeds were conservatively estimated to be below road/on-site speed limits to avoid underestimating emissions and account for the slower speeds typically associated with fully loaded heavy vehicles, road traffic, and controlled intersections. Where specific information was not available in certain input areas (e.g., vehicle age distribution) default model settings were used. Emission factors obtained from the EPA's MOVES model were then multiplied by activity estimates (e.g., total kilometers travelled, idling times, etc.) to yield total yearly emissions and emission rates.

As with locomotive engines, hazardous air pollutants (HAPs) from truck engine emissions were also estimated. HAPs from truck engine emissions were estimated using MOVES.

Road dust emissions associated with trucking activity from the LPV were estimated in accordance with the US EPA's Compilation of Air Pollutant Emission Factors known as AP-42. Specifically, equations/details from AP42 Section 13.2.1 – Paved Roads were used in road dust emission calculations ¹⁴. Road dust kicked up from vehicle travel (i.e., re-entrainment) contributes to airborne particulate matter concentrations.

As noted above, heavy truck emissions were considered as an additional source for LPV operations only (Scenario 3) to account for anticipated increases in traffic-related emissions due to the project.

¹² U.S. Environmental Protection Agency, 2020 - *Port Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions*

¹³ U.S. Environmental Protection Agency – MOVES3 Model

¹⁴ U.S. Environmental Protection Agency, 2011 – *AP-42 13.2.1 Paved Roads*.

4.3 Scenario 1 – Current Operations

The components included in Scenario 1 are reflective of current operations as a baseline for comparison with the future scenarios considered (i.e., Scenario 2 and 3).

Components included in Scenario 1 include emissions from the mainline from freight travel, emissions from the mainline from WCE passenger trains, idling emissions at the Pitt Meadows WCE station, and activities at the VIF rail yard.

Based on current traffic data, 28 freight trains were modelled to be travelling on the mainline each day. An additional 10 passenger trains per day were modelled to account for WCE traffic on the mainline.

Travel on the mainline was modelled including a buffer of 1 km either side of the City of Pitt Meadows boundary and was broken into three main sections of track (west, alongside, and east of the VIF) totaling 7.3 km. Travel times for each of the three sections of track were determined using section distances and maximum travel speed information provided by CP (speeds for eastbound travel is 25 mph over the Pitt River bridge and 60 mph when clear of bridge, speeds for westbound travel is maximum of 45 mph, slowing to 25 mph at the bridge). Since only maximum travel speeds were available, a 0.75 factor was applied to conservatively estimate the amount of time needed to cross each section of track. Four line-haul locomotives were assumed for each freight train travelling on the mainline and one locomotive per train was assumed for each passenger train travelling on the mainline. Based on correspondence with TransLink, 1.5 minutes at the WCE station was used to model locomotive idling time in addition to the modelled moving activity. A reduced speed was assumed for passenger train travel on the modelled mainline segment east of the VIF to account for additional time needed for slowing down and speeding up of trains from the stations.

Locomotive rail activity at the VIF was estimated based on provided daily traffic information:

- 2 trains departing eastbound per day,
- 2 trains terminating westbound per day,
- 1 shuttle train both arriving and departing to Deltaport.

Based on activity times from similar sized facilities/operations, switching times are typically 30-60 minutes for arrival trains and 45-90 minutes for departing trains/train make-ups. Since exact switching times at the VIF were not provided, the high end of the ranges noted above were used to model switching activities at the VIF (i.e., 60 minutes for arrival trains, and 90 minutes for departing trains/train make-ups). Four switch locomotives were assumed to be operational at the VIF as seen in studies of other similar sized rail facilities.

Using the activity estimates above, maximum 1-hour emission rates were determined. These emission rates reflect the expected worst-case scenarios associated with each activity (to avoid under-estimating emissions). A maximum of three freight trains and two passenger trains were expected in 1-hour. Maximum 1-hour emissions in the switching yard assumes all four switcher locomotives operating at the same time for the full hour.

Idling of a pair of locomotives was modelled on the north mainline track under the Bonson Road pedestrian bridge between two schools as a worst-case location scenario. Idling near the Bonson Road pedestrian bridge was assumed to occur for 30 minutes (based on on-site observations of train building during a departing train from the VIF) for both eastbound trains leaving the VIF facility per day for a total of one hour per day.

Additionally, idling emissions for two trains a day were also modelled on the existing north mainline track, again under the Bonson Road pedestrian bridge as a worst-case location scenario, to account for trains waiting for the Pitt River rail bridge to close (i.e., when the bridge is drawn up/not crossable due to vessel movements on the Pitt River). Idling was estimated to occur for 20 minutes for each bridge event. Idling trains waiting for the rail bridge to close were assumed to have four locomotives per train, consistent with line-haul trains noted in the sections above.

Maximum 1-hour emission rates for the locomotive idling activity associated with train building assumed two locomotives (at the front of a train) idling under the Bonson Road pedestrian bridge for the full hour. Maximum 1-hour emission rates for the mainline train idling waiting for the Pitt River rail bridge assumed all four locomotives on the train idling for the full duration of time estimated to wait for the bridge (20 minutes). As it is not possible for two trains to be idling on the same section of the north mainline in Scenario 1, the higher of these two calculated maximum hourly emission rates (lead track idling departing the VIF) were used to model maximum 1-hour rates for locomotive idling at this location.

A summary table including the estimated activity times/operational details included in this scenario and emission totals and rates are provided in **Table 4-3**.

Table 4-3: Scenario 1 Emissions Inventory Summary

Scenario Details										Annual				Maximum 1-hour							
Scenario Component	Activity	Modelled Sections	Length (m)	Number of Locomotives	Speed (km/h)	Minutes per Delivery/ Activity	Number of Deliveries per Day	Number of Deliveries per Year	Total Hours per Year	Calculated Fuel Consumption (L/yr)	Emissions (Tonnes/yr)				Max 1-hour Deliveries/ Scenarios	Calculated Fuel Consumption in Maximum 1-hour (L/hr)	Emissions (g/s)				
											CO	NOx	HC	DPM			SOx	CO	NOx	HC	DPM
Freight Trains	Mainline Travel	Mainline-1: West of VIF	1,165	4	30.2	2.32	28	10220	395	549,656	3.86	19.00	0.85	0.43	0.01	161.3	0.31	1.55	0.07	0.03	8.96E-04 (a)
		Mainline 2: Alongside VIF	3,070		63.4	2.91			485	689,739	4.84	23.84	1.06	0.54	0.01	202.5	0.39	1.94	0.09	0.04	1.12E-03
		Mainline 3: East of VIF	2,954		63.4	2.8			476	663,677	4.86	22.94	1.02	0.52	0.01	194.8	0.38	1.87	0.08	0.04	1.08E-03
	VIF Departing under Benson Road Train Idling	LTI: Idling on mainline under Benson Road Pedestrian Bridge	-	2	-	30	2	730	365	8,293	0.06	0.29	0.01	0.01	1.68E-04	22.7	0.04	0.22	9.72E-03	4.92E-04	
	Idling waiting for the Pitt River rail bridge to close	SI: Idling on mainline under Benson Road Pedestrian Bridge	-	4	-	20	2	730	243	11,057	0.08	0.38	0.02	0.01	2.21E-04	15.1 (b)	- (b)	- (b)	- (b)	- (b)	
West Coast Express Passenger Trains	Mainline Travel	Mainline-1: West of VIF	1,165	1	30.2	2.32	10	3650	141	56,011	0.39	3.05	0.12	0.06	1.12E-03	30.7	0.06	0.46	0.02	0.01	1.71E-04
		Mainline 2: Alongside VIF	3,070		63.4	2.91			177	70,286	0.49	3.82	0.15	0.08	1.41E-03	38.5	0.08	0.58	0.02	0.01	2.14E-04
		Mainline 3: East of VIF	2,954		31.7	5.59			340	135,260	0.95	7.35	0.28	0.15	2.71E-03	74.1	0.14	1.12	0.04	0.02	4.12E-04
VIF	Idling	At WCE Station	-	4	-	1.5	3 Departing	1095	1643	223,333	1.64	12.66	0.74	0.26	4.47E-03	0.588	1.11E-03	8.58E-03	3.31E-04	1.79E-04	3.16E-06
	Moving freight/ switching/ idling	VIF	-		90	1095		148,888	1.09	8.44	0.50	0.18	2.98E-03	136	0.28	2.14	0.13	0.04	7.55E-04		

(a) Written in scientific notation. For example: 8.98E-04 = 8.98 x 10⁻⁴ = 0.000898

(b) Idling of trains departing the VIF eastbound, and idling waiting for the Pitt River rail bridge were modelled in the same location on the north mainline under the Benson Road Pedestrian Bridge in Scenario 1. The higher of the two calculated maximum hourly emission rates (lead track idling departing the VIF) were used to model maximum 1-hour rates for this location as two trains cannot both be idling on the same section of mainline.

4.4 Scenario 2 – Future (2030) Predicted Operations

Scenario 2 builds on Scenario 1 and reflects the predicted increases in mainline traffic by 2030 (59 freight trains compared to the 28 trains in Scenario 1). VIF operations and West Coast Express emissions are modelled with the same activity levels and assumptions as it is anticipated the operational activities modeled in Scenario 1 sufficiently captures the expected operational capacity of the VIF and expected WCE operations.

Freight train idling emissions were assumed to be the same as Scenario 1, however in different locations. The estimated idling of two trains a day to account for trains waiting for the Pitt River rail bridge to close (i.e., when the bridge is drawn up/not crossable due to vessel movements on the Pitt River) were assumed to be moved from the north mainline track (Scenario 1 modelled under the Bonson Road pedestrian bridge) to a new siding alongside the VIF and closer to the river. Similar to mainline idling in Scenario 1, idling at the new siding in Scenario 2 was estimated to occur for 20 minutes for each bridge event. Idling trains waiting for the rail bridge to close were assumed to have four locomotives per train, consistent with line-haul trains noted in the sections above. Maximum 1-hour emission rates at the new siding assume all four locomotives on the train idling for the full duration of time estimated to close the bridge (20 minutes).

The locomotive idling during each eastbound train departure from the VIF will move from the north mainline track to the extended lead track from the east end of the VIF. These emissions were still modelled under the Bonson Road pedestrian bridge between two schools as a worst-case location scenario. This idling activity was assumed to occur for 30 minutes (based on on-site observations of train building during a departing train from the VIF) for both eastbound trains leaving the VIF facility per day for a total of one hour per day. Maximum 1-hour emission rates assume two locomotives (at the front of the train) idling for the full hour.

A summary table including the estimated activity times/operational details included in this scenario and emission totals/rates are provided in **Table 4-4**.

Table 4-4: Scenario 2 Emissions Inventory Summary

Scenario Component	Scenario Details						Annual				Maximum 1-hour				
	Activity	Modelled Sections	Length (m)	Number of Locomotives	Speed (km/h)	Minutes per Delivery/Activity	Number of Deliveries per Day	Number of Deliveries per Year	Total Hours per Year	Calculated Fuel Consumption (L/yr)	Emissions (Tonnes/yr)				Calculated Fuel Consumption in Maximum 1-hour period (L/hr)
											CO	NOx	HC	DPM	SOx
Freight Trains	Mainline Travel	Mainline-1: West of VIF	1,165	4	30.2	2.32	59	21535	831	1,158,205	8.13	40.03	1.78	0.90	0.02
		Mainline 2: Alongside VIF	3,070		63.4	2.91			1043	1,453,378	10.20	50.23	2.24	1.13	0.03
		Mainline 3: East of VIF	2,954		63.4	2.8			1004	1,398,462	9.82	48.33	2.15	1.09	0.03
West Coast Express Passenger Trains	Mainline Travel	LTI: Idling on extended VIF east lead track under Bonson Road Pedestrian Bridge	-	2	-	30	2	730	365	8,293	0.06	0.29	0.01	0.01	1.66E-04
		SI: Idling on new siding alongside VIF	-	4	-	20	2	730	243	11,057	0.08	0.38	0.02	0.01	2.21E-04
		Mainline-1: West of VIF	1,165	1	30.2	2.32	10	3650	141	56,011	0.39	3.05	0.12	0.06	1.12E-03
VIF	Moving freight/switching/idling	Mainline 2: Alongside VIF	3,070		63.4	2.91			177	70,266	0.49	3.82	0.15	0.08	1.41E-03
		Mainline 3: East of VIF	2,954		31.7	5.59			340	135,260	0.95	7.35	0.28	0.15	2.71E-03
		At WCE Station	-		-	1.5			91	1,037	7.29E-03	5.64E-02	2.18E-03	1.15E-03	2.07E-05
VIF	Moving freight/switching/idling	VIF	-	4	-	90	3 Departing	1095	1643	223,333	1.64	12.66	0.74	0.26	4.47E-03
					-	60	3 Arriving	1095	1095	148,888	1.09	8.44	0.50	0.18	2.98E-03
					-	-	-	-	-	-	-	-	-	-	-

(a) Written in scientific notation. For example: 2.09E-03 = 2.09 x 10⁻³ = 0.00209

4.5 Scenario 3 – Future (2030) Predicted Operations with Inclusion of Proposed CP Logistics Park: Vancouver

As noted in Section 1.2 above, Scenario 3 includes future rail operations with inclusion of activities associated with the proposed LPV. Since the proposed project is predicted to have significant heavy truck operations, trucking emissions were estimated in addition to rail emission estimates. Activity details referenced below that inform the emissions estimates were based on the most up to date information on the proposed LPV plans made available at the time of writing ¹⁵.

4.5.1 Locomotives

Locomotive emission estimates in Scenario 3 builds on Scenario 2 and includes rail activity at the proposed CP LPV to be located south of VIF operations. As with Scenario 2, Scenario 3 also includes expected mainline traffic in 2030 (59 trains on the mainline). Emissions from VIF operations, West Coast Express, and the freight train idling are modelled with the same activity levels and assumptions.

The proposed LPV is proposed to consist of operations for the transloading of agricultural products, automobiles, and liquid products in three distinct areas of the LPV. Additional activities modelled in Scenario 3 include idling emissions from the agricultural hub/rail loop, and rail switching activities associated with the automobile and liquid products subsites. Idling on the LPV entry and loop track just north of Highland Park Elementary was also included as a worst-case scenario.

Agricultural products are proposed to arrive to the LPV in 147-car, 8,500-ft unit trains. Once arrived on-site, unit trains for agricultural products are intended to move as a solid train (no switching required) through the proposed rail loop in a clockwise direction. Agricultural cars will be bottom unloaded into a conveyor in an unloading pit. Based on provided descriptions, one unit train can be unloaded every 24 hours, with an average of one train unloaded every three days. Trains were assumed to be idling during unloading operations. As with the other mainline freight trains considered in this study, fuel consumption rates from GE4400AC locomotives were used with an assumed four locomotives per train. Maximum 1-hour emission rates at the rail loop assume all four locomotives on the train idling for the full hour.

Automobile and liquid products are proposed to arrive at the LPV via mixed-product trains and directed to the receiving staging yard. Switcher locomotives are intended to move loaded railcars from the receiving staging yard to commodity specific locations on-site. Empty/unloaded railcars from the automobile/liquid subsites will then be sorted in destination specific blocks for departure. It was assumed approximately two mixed-product trains will be arriving and departing the LPV each day.

Activity times for switching activities at the LPV were assumed to be consistent with the activity times assumed at the VIF (i.e., 60 minutes for arrival trains, and 90 minutes for departing trains/train make-ups). Four switch locomotives were also assumed to be operational at the LPV. Maximum 1-hour emissions in the switching yard assumes all four switcher locomotives operating at the same time for the full hour.

To consider the additional entry and loop track associated with the LPV facility, idling of a pair of locomotives is modelled on the proposed entry and loop track just north of Highland Park Elementary as a

¹⁵ Canadian Pacific, 2021 – *Environmental Effects Evaluation CP Logistics Park: Vancouver*

worst-case location close to sensitive receptors. Idling near the school was assumed to occur for 30 minutes during the departure of two trains per day from the LPV facility, similar to the assumption used for the VIF (based on on-site observation of a departing train). Maximum 1-hour emission rates near Highland Park Elementary assumes two locomotives (at the front of the train) idling for the full hour.

A summary table including the estimated activity times/operational details included for rail in this scenario and emission totals and rates are provided in **Table 4-5**.

Table 4-5: Scenario 3 Emissions Inventory Summary (Locomotives Only)

Scenario Component	Scenario Details						Annual				Maximum 1-hour										
	Activity	Modelled Sections	Length (m)	Number of Locomotives	Speed (km/h)	Minutes Delivery/ Activity	Number Deliveries per Year	Total Hours per Year	Calculated Fuel Consumption (L/yr)	CO	NOx	HC	DPM	SOx	Calculated Fuel Consumption in Maximum Hour (L/hr)	CO	NOx	HC	DPM	SOx	
Freight Trains	Mainline Travel	Mainline-1: West of VIF	1,165		30.2	2.32		831	1,198,205	8.13	40.03	1.78	0.90	0.02		376.5	0.73	3.61	0.16	0.08	2.09 E-03 (a)
		Mainline 2: Alongside VIF	3,070	4	63.4	2.91	59	21535	1043	1,453,378	10.20	50.23	2.24	1.13	0.03		472.4	0.92	4.54	0.20	2.62 E-03
		Mainline 3: East of VIF	2,954		63.4	2.8		1004		1,398,462	9.82	48.33	2.15	1.09	0.03		454.6	0.89	4.36	0.19	2.53 E-03
	VIF departing train idling	LTI: Idling on extended VIF lead track under Bonson Road Pedestrian Bridge	-	2	-	30	2	730	365	8,293	0.06	0.29	0.01	0.01	1.68E-04		0.04	0.22	9.72E-03	4.92E-03	1.26 E-04
West Coast Express Passenger Trains	Mainline Travel	Idling waiting for the Pitt River rail bridge to close	-	4	-	20	2	730	243	11,057	0.08	0.38	0.02	0.01	2.21E-04		0.03	0.15	6.48E-03	3.28E-03	8.41 E-05
		Mainline-1: West of VIF	1,165		30.2	2.32		141		56,011	0.39	3.05	0.12	0.06	1.12E-03		0.06	0.46	0.02	9.46E-03	1.71 E-04
		Mainline 2: Alongside VIF	3,070	1	63.4	2.91	10	3650	177	70,286	0.49	3.82	0.15	0.08	1.41E-03		0.08	0.58	0.02	0.01	2.14 E-04
	Idling	At WCE Station	-		31.7	5.59		340		135,260	0.95	7.35	0.28	0.15	2.71E-03		0.14	1.12	0.04	0.02	4.12 E-04
VIF	Moving freight/switching/ idling	VIF	-	-	-	90	3 Departing	1643		7.29E-03	5.64E-02	2.18E-03	1.15E-03	2.07E-05		0.588	1.11E-03	8.58E-03	3.31E-04	1.75E-04	3.16 E-06
						60	3 Arriving	1095		148,888	1.09	8.44	0.50	0.18	2.98E-03		2.14	0.13	0.04	7.55 E-04	
LPV	Agricultural Products Transloading	Idling along LPV rail loop for agricultural products	-	4	-	1440	1/3	2920		132,685	0.93	4.59	0.20	0.10	2.65E-03		0.09	0.44	0.02	9.85E-03	2.52 E-04
		Automobiles & Liquids areas of proposed LPV	-	4	-	90	2 Departing	1095		148,888	1.09	8.44	0.50	0.18	2.98E-03		0.28	2.14	0.13	0.04	7.55 E-04
	Idling on LPV lead track	LPI TI: Idling on proposed lead track just north of Highland Park Elementary	-	2	-	30	2	730	365		8,293	0.06	0.29	0.01	0.01	1.66E-04		0.04	0.22	9.72E-03	4.92E-03

(a) Written in scientific notation. For example: 2.09E-03 = 2.09 x 10⁻³ = 0.00209

4.5.2 Trucks

As part of Scenario 3, emissions from the high volume of trucking traffic associated with the proposed LPV were also considered and estimated. After the shipments of agricultural products, automobiles, and liquids are received via rail, they are proposed to be transferred to temporary storage before distribution. Liquid products and automobiles will be distributed to various locations throughout greater Vancouver by truck, while agricultural products will be moved by truck to CP's VIF facility for further distribution. As part of the construction of the LPV project, a new access road is proposed to provide access to the sites. Other proposed infrastructure associated with the project also includes two 3-leg, stop-controlled intersections to direct traffic to and from the sites as needed.

With consultation with the City of Pitt Meadows, estimated emissions associated from trucking movements and activity in Scenario 3 includes the following:

- On-site truck movements to/from product areas to LPV entrance,
- Off-site truck movements to/from LPV entrance to the VIF entrance (agricultural products),
- Off-site truck movements to/from LPV entrance to the intersection with Lougheed highway (automobile/liquid products),
- Truck idling at LPV at staging/loading areas (for agricultural, automobile, liquid products),
- Truck idling at stop-controlled intersections,
- Truck idling during rail crossing closures at the Kennedy Road at-grade crossing of the mainline.

The number of trucks coming to and from CP's LPV facility is approximately 374 trucks (round trip) per day on average and are based on expected commodity throughputs. Approximately 37 trucks (round trip) are expected to come to and from the LPV facility at peak hour. Using the distribution of trucks from daily averages, the maximum number of trucks anticipated for each product/commodity at peak hour were estimated.

The daily average truck traffic and expected trucks at peak hour are summarized and shown in **Table 4-6** for reference.

Table 4-6: LPV Expected Daily Throughput and Project-Related Truck Traffic ¹⁶

Product	Expected Commodity Throughput Per Day	Average Trucks Per Day	Estimated Trucks at Peak Hour
Agricultural Products	4,900 tonnes/day	186	18
Automobiles	360 vehicles/day	45	5
Liquid Products	1,920,000 gallons/day	143	14
Facility Total	-	374	37

¹⁶ Canadian Pacific, 2021 – *Environmental Effects Evaluation CP Logistics Park: Vancouver*

Using expected number of trucks and approximate distances of travel for each truck (on-site and off-site), total vehicle kilometers travelled (VKT) values were calculated. Activity emission factors from MOVES and road dust emission factors from AP42 Section 13.2.1¹⁷ were applied to total VKT values to yield total emissions for truck movement.

Average truck idling times at the rail crossing were approximated based on anticipated crossing closure times in 2030 of up to 6 hours/day and up to 30 minutes/hour¹⁸. Average truck idling times at intersections near the LPV were assumed to be 2 minutes/truck. On-site idling times were based on an anti-idling policy limiting idling to 3 minutes unless essential¹⁹; an idling time of 6 minutes was applied per truck to account for multiple stops and starts on-site. A summary table including the estimated activity times/operational details included for trucks in this scenario and emission totals and rates are provided in **Table 4-7**.

¹⁷ U.S. Environmental Protection Agency, 2011 – *AP-42 13.2.1 Paved Roads*

¹⁸ Port of Vancouver. (n.d.). – *Port authority-led infrastructure and developments*

¹⁹ Canadian Pacific, 2021 – *Environmental Effects Evaluation CP Logistics Park: Vancouver*

Table 4-7: Scenario 3 Emissions Inventory Summary (Trucks Only)

Area	Spatial Description	Activity	Movement		Annual						Maximum-Hour									
			Length (mi)	Average Speed (mi/h)	Number of Trucks/Day	Idling Minutes per Truck	CO	NOx	HC	DPM	SOx	PM _{2.5} Brakes, Tires, and Road Dust	Max Number of Trucks/Hr	Idling Minutes per Truck	CO	NOx	HC	DPM	SOx	PM _{2.5} Brakes Tires, and Road Dust
Road Travel	LPV to VIP entrance	Movement	1.36	25	186	-	0.35	0.50	0.10	0.01	4.13E-04	9.19E-02	18	-	2.6E-02	3.7E-02	7.6E-03	7.0E-04	3.0E-05	7.6E-03 ^(a)
	LPV to Highway	Movement	2.2	30	188	-	0.48	0.71	0.14	0.01	6.30E-04	1.48E-01	19	-	3.7E-02	5.4E-02	1.1E-02	1.1E-03	4.8E-05	1.3E-02
	Idling for KR crossing	Idling	-	-	748	1.5	0.14	0.35	0.09	0.01	1.71E-04	-	74	2.5	1.8E-02	4.4E-02	1.1E-02	8.1E-04	2.1E-05	-
LPV	Access Road	Movement	0.52	15	374	-	0.36	0.53	0.13	0.01	3.71E-04	7.37E-02	37	-	2.7E-02	4.0E-02	9.5E-03	6.4E-04	2.8E-05	6.2E-03
		Idling	-	-	374	2	0.10	0.23	0.06	4.32E-03	1.14E-04	-	37	2	7.2E-03	1.8E-02	4.6E-03	3.3E-04	8.6E-06	-
	Automobile	Movement	0.525	10	45	-	0.06	0.09	0.02	1.31E-03	5.68E-05	9.37E-03	5	-	4.7E-03	7.3E-03	1.9E-03	1.1E-04	4.8E-06	8.8E-04
		Idling	-	-	45	6	0.03	0.08	0.02	1.56E-03	4.12E-05	-	5	6	2.9E-03	7.1E-03	1.8E-03	1.3E-04	3.5E-06	-
	Agricultural	Movement	1.7	10	186	-	0.75	1.16	0.30	0.02	7.60E-04	1.25E-01	18	-	5.5E-02	8.5E-02	2.2E-02	1.3E-03	5.6E-05	1.0E-02
		Idling	-	-	186	6	0.14	0.35	0.09	0.01	1.70E-04	-	18	6	1.0E-02	2.6E-02	6.6E-03	4.7E-04	1.3E-05	-
	Liquids	Movement	1.2	10	143	-	0.41	0.63	0.16	0.01	4.13E-04	6.81E-02	14	-	3.0E-02	4.7E-02	1.2E-02	7.1E-04	3.1E-05	5.8E-03
		Idling	-	-	143	6	0.11	0.27	0.07	4.95E-03	1.31E-04	-	14	6	8.1E-03	2.0E-02	2.2E-03	3.7E-04	9.7E-06	-

(a) Written in scientific notation. For example: 7.6E-03 = 7.6 x 10⁻³ = 0.0076

5.0 AIR QUALITY DISPERSION MODELLING

5.1 Methodology

Air dispersion modelling was performed to predict the dispersion of emissions from rail operations into surrounding areas and predict ground level air contaminant concentrations.

Modelling was performed using the CALPUFF air dispersion modelling system and followed the British Columbia Air Quality Dispersion Modelling Guideline 2021²⁰. The BC AQDMG provides key guidance on a variety of topics: model selection, application of models for regulatory purposes in BC, and best modelling practices. The CALPUFF modelling system consists of two main model packages including CALMET, a diagnostic 3-dimensional meteorological model, and CALPUFF, an air quality dispersion model.

Meteorological modelling was performed using CALMET for a 1-year period using a domain of 25 km x 25 km centred on Pitt Meadows. CALMET was ran in hybrid mode where both mesoscale meteorological model output data (i.e., output from a larger scale meteorological model to characterize the impact of regional meteorology) and local measured meteorological station data for the modelled year are used along with geophysical data (terrain elevations, land use and land cover etc.) to predict 3D wind fields. QA/QC checks of the model output data was conducted and is included in **Appendix C**. The meteorological modelled year was chosen as 2012 based on availability of high-resolution (1 km grid resolution) Weather Research and Forecasting (WRF) model output prognostic data and as this year has been found to be representative of typical conditions in the region.

CALPUFF is a multi-layer, multi-species, non-steady-state Lagrangian Gaussian air quality modelling system for regulatory use that can simulate the effects of varying meteorological conditions in time and space on pollutant transport. CALPUFF modelling was performed using similar parameters for rail emission sources and road trucks as used in other studies. Rail activities were modelled as a mixture of road sources to simulate the train movements along the mainline, volume sources to cover switching locomotives moving around the VIF and LPV, and point sources to simulate stationary idling locomotives. Emissions from heavy trucks were also modeled as road sources to simulate emissions along the assessed roads (Kennedy Road and LPV access road), and area sources for each activity area of the LPV.

A cartesian nested grid of receptors (i.e., points where air contaminant concentrations are calculated) of 50 m spacing within 1.5 km of the mainline and 500 m spacing for the remainder of the CALPUFF domain was defined within the study area, as shown in **Figure 5-1**. Sensitive receptors (e.g., schools, residences, care facilities, businesses) anticipated to be most impacted were identified and included in the model, as shown in **Figure 5-2**. It should be noted that the receptors height above ground level were set to 1.5 m (breathing height, which may be predicted to have a slightly higher ambient concentration than when the height of receptors is set to 0.0m), with some residential receptors in multi-storey buildings at increased heights.

²⁰ British Columbia Ministry of Environment & Climate Change Strategy, 2021 – *British Columbia Air Quality Dispersion Modelling Guideline*.

Model results, for each of the three modeled scenarios were extracted for varying averaging periods corresponding with AAQOs and health thresholds by using the appropriate emission rates based on either the daily average, or predicted worst-case 1-hour activity estimates for each modelled emission source as described in **Section 4.0**.

Maximum 1-hour average concentrations of each contaminant were predicted for each source/model run at each receptor based on a full year of meteorological data (i.e., 8,784 simulated hours for 2012). The CALSUM post-processor was then used to sum the hourly predicted maximum concentrations at each receptor from each of the model runs for each scenario to obtain the total predicted maximum concentrations from all emission sources. Post-processing of the total hourly model results was then conducted by CALPOST, a statistical processing program, to determine required metrics for comparison with ambient air quality objectives over the relevant averaging periods.

The Ambient Ratio Method (ARM) was chosen to model nitrogen dioxide (NO₂) emissions based on the total emissions of nitrogen oxides (NO_x) as recommended by the British Columbia Guidance for NO₂ Dispersion Modelling ²¹. The ARM method utilizes representative hourly NO_x and NO₂ monitoring data to characterize the NO_x: NO₂ ratio based on the estimated ambient NO_x concentration. The ARM2 method, a refinement of the original ARM, was used for urban sites as recommended by the British Columbia Guidance for NO₂ Dispersion Modelling.

²¹ British Columbia Ministry of Environment & Climate Change Strategy, 2021 – *Guidance for NO₂ Dispersion Modelling in British Columbia*



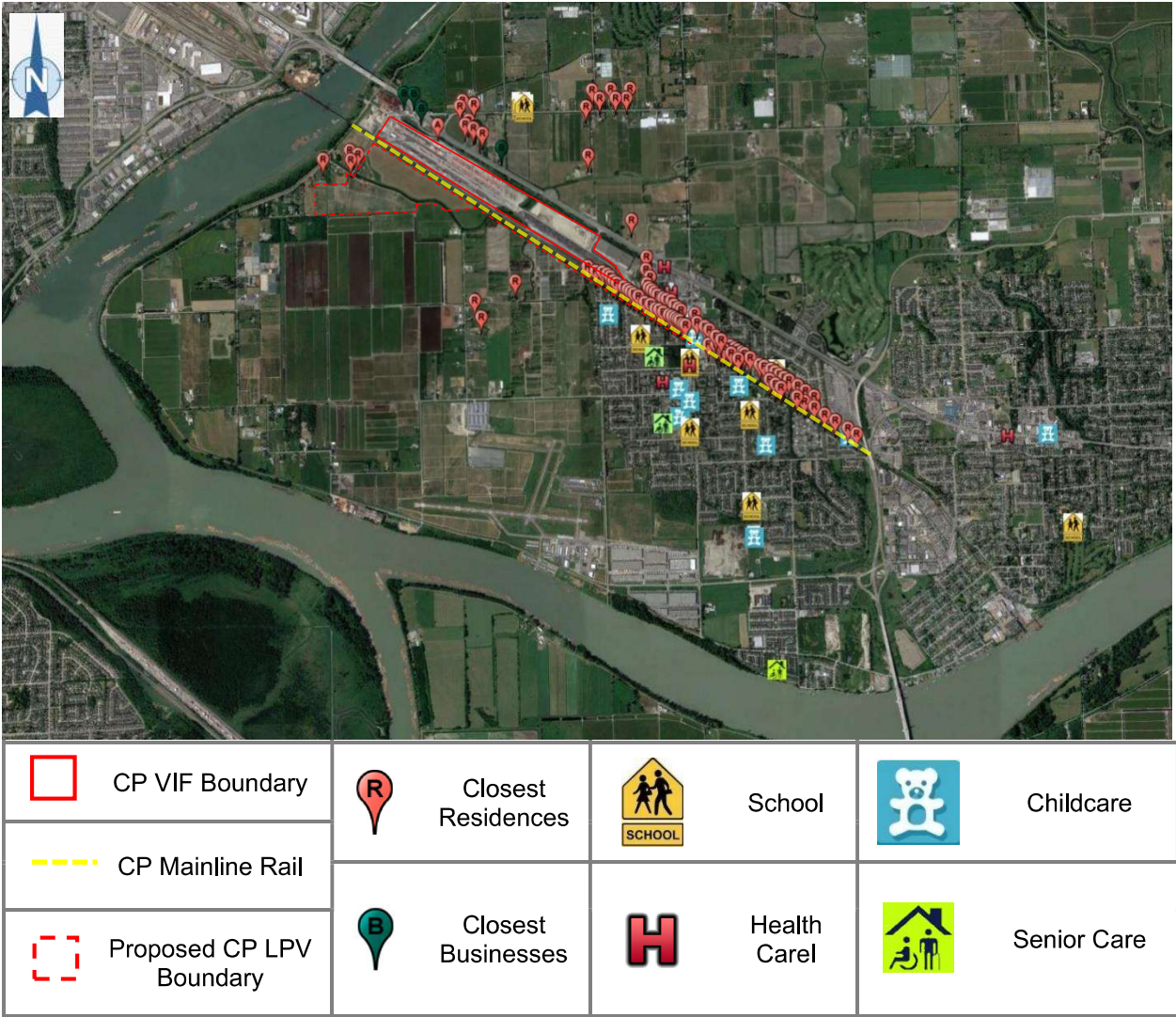


Figure 5-2: Sensitive Receptors Used in CALPUFF

5.2 Results

Model predicted worst-case ground level concentrations are presented in **Table 5-1** for each of the three scenarios for CO, NO₂, DPM, PM_{2.5}, SO₂ and total hydrocarbons. For the purposes of this study, it was assumed that particulate matter (PM), PM_{2.5}, and DPM emissions are equivalent from diesel combustion as the vast majority of particulate matter generated by diesel combustion is smaller than 2.5 microns (i.e., PM_{2.5}). As Scenarios 1 and 2 only consider diesel combustion emissions from locomotives, model predicted ground-level concentrations of DPM and PM_{2.5} are therefore equivalent for these scenarios. In Scenario 3 the predicted PM_{2.5} ground level concentrations include both the diesel combustion emissions from locomotives and trucks, as well as the non-diesel combustion emissions from the assessed truck activity in Scenario 3 (i.e., from brake wear, tire wear, and road dust re-entrainment), therefore predicted PM_{2.5} concentrations are greater than DPM concentrations in Scenario 3.

It should be noted that for the purpose of this study, only railway operation emissions were considered for evaluation, without the addition of background concentrations in order to assess the impact of rail operations in Pitt Meadows. Model results are based on the estimated worst-case scenarios for locomotive and truck (only in Scenario 3 for proposed LPV trucking) emissions within the municipal boundary of the City of Pitt Meadows (plus 1 km buffer on each end of the mainline).

The model results are discussed for locations outside of the CP “fenceline”, that is, where there is public access. For each air contaminant and assessed averaging period, the predicted worst-case concentration predicted at each receptor over the year of modelling was assessed. Results presented in **Table 5-1** are for the sensitive receptors identified to have the predicted worst-case concentration within each receptor category (i.e., concentration at the residence with the highest predicted concentration of all modelled residences, concentration at the school with the highest predicted concentration of all modelled schools etc.). Therefore, the result under each averaging period and for each scenario may not necessarily be at the same receptor (e.g., a different residence may be predicted to have the highest 1-hour average than the residence predicted to have the highest annual average).

No exceedances of Metro Vancouver AAQOs are predicted for the majority of air contaminants for all scenarios with the exception of the NO₂ 1-hour objective of 113 µg/m³ (assessed as the 98th percentile of the 1-hour daily maximums) and annual objective of 32 µg/m³. The distribution of exceedances is increased under the future scenarios presented (Scenarios 2 and 3). While it should be noted that the recommended methodology for modelling of NO₂ concentrations in BC is conservative, these exceedances are predicted without the addition of background NO₂ concentrations (i.e., impacts from other emission sources in the airshed).

For PM_{2.5}, the highest model predicted 24-hour rolling average PM_{2.5} concentration (10.5 µg/m³, close to the CP fence line in Scenario 3) in any of the three scenarios was less than 50% of the Metro Vancouver 24-hour ambient air quality objective of 25 µg/m³. Annual average PM_{2.5} concentrations were also below the Metro Vancouver long-term planning goal of 6 µg/m³ in all three scenarios, with a maximum result of 3.6 µg/m³ close to the CP fence line in Scenario 3. While there are no 1-hour ambient air quality objectives in BC nor in Metro Vancouver for comparison of predicted PM_{2.5} concentrations under the worst-case maximum 1-hour scenarios, these results are presented for use in the preliminary HHRA aspect of this study.

When DPM concentrations are examined separately (i.e., PM from diesel combustion only), the highest 1-hour and 24-hour rolling average DPM concentrations were predicted as 50.9 and 6.4 µg/m³, respectively, both for Scenario 3. While there is no specific ambient air quality objective for DPM and the **Table 5-2**

DPM results are only for comparison purposes, further health-based thresholds specific to DPM are evaluated in the preliminary HHRA aspect of this study.

Results for CO and SO₂ show predicted concentrations are well below AAQO's. AAQO's do not exist for total hydrocarbons; these results are presented for context only, as they are speciated into individual HAPs and evaluated in the preliminary HHRA aspect of this study.

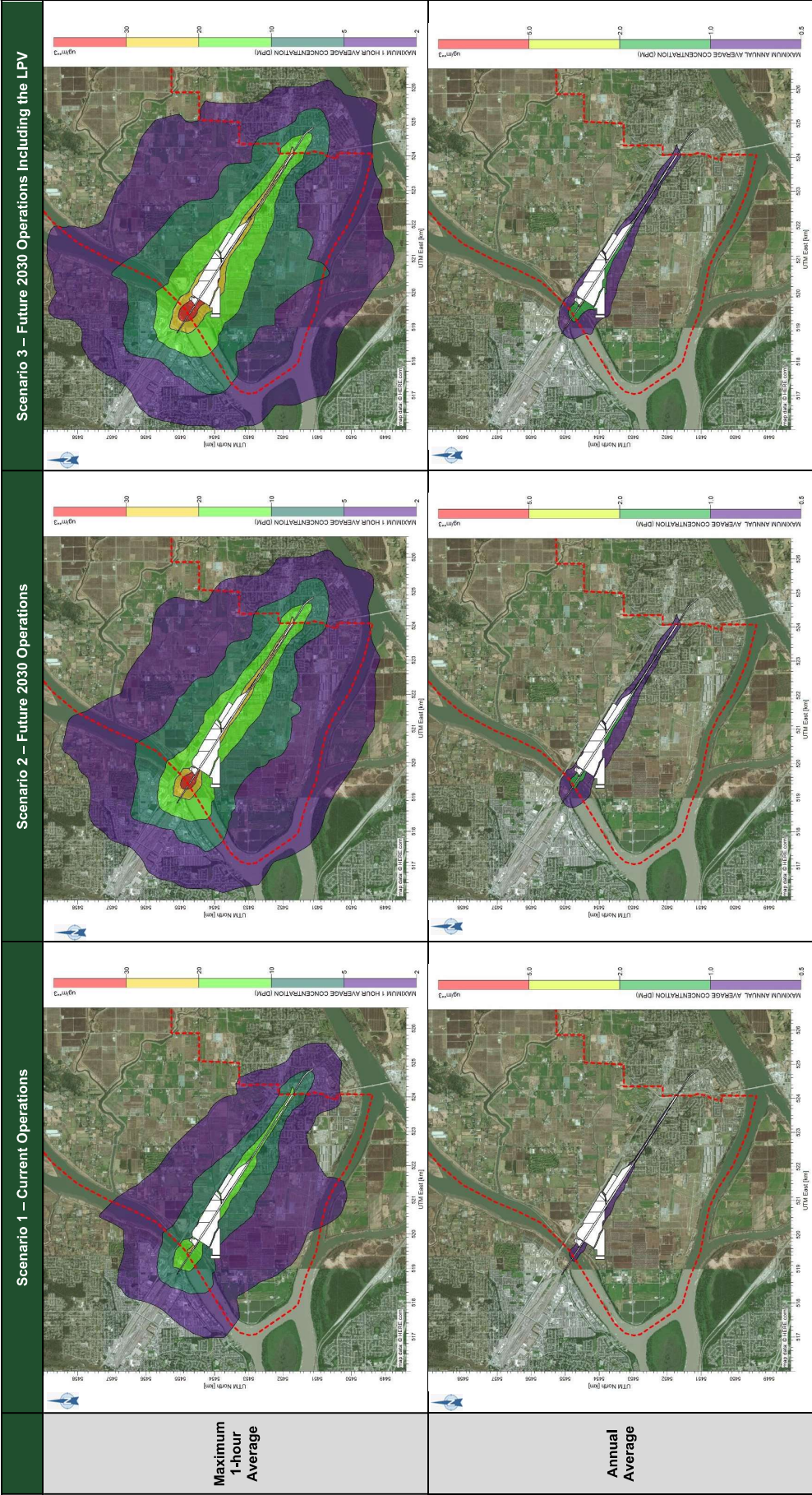
Table 5-2, Table 5-3, and Table 5-4 present isopleth figures (i.e., bands of colour representing areas with similar concentration values) showing the model predicted worst-case short-term averages and the annual averages of DPM, PM_{2.5}, and NO₂ concentrations across the area surrounding the modelled rail operations. For the short-term averaging periods (1-hour, 24-hour, etc.), the figures show the worst result at each location over the full model year (i.e., this pattern could not be observed at a single point in time). **Table 5-5** also shows the distribution of frequency of exceedances (percentage of hours per year) of the 1-hour NO₂ objective for each emissions scenario (using the ARM2 NO_x to NO₂ conversion method). Predicted concentrations were found to follow the mainline with higher results close to the current VIF rail yard and proposed LPV in Scenario 3.

Table 5-1: Maximum Predicted Concentration in Each Receptor Category for Each Modelled Scenario

Contaminant	Averaging Period	Metro Vancouver AAQO ($\mu\text{g}/\text{m}^3$)	Maximum Predicted Ground Level Concentration for each Sensitive Receptors Category ^(a)																				
			Scenario 1: Current Rail Operations						Scenario 2: Forecasted 2030 Operations						Scenario 3: Scenario 2 with the Addition of the LPV								
			MPO ^(b)	Business	Child Care	Health Care	Residence	School	Senior Care	MPO ^(b)	Business	Child Care	Health Care	Residence	School	Senior Care	MPO ^(b)	Business	Child Care	Health Care	Residence	School	Senior Care
CO	Max 1-Hour Average	14,900	189	67	116	82	133	66	56	392	117	220	143	256	127	101	451	190	227	154	260	130	105
	Max 8-hour Rolling Average	5,700	38	18	26	16	30	16	12	73	29	51	31	60	32	23	300	149	151	93	176	96	68
	100% Conversion ARM2	-	1024	415	669	501	818	408	334	2042	669	1214	822	1397	693	569	2303	1024	1254	886	1415	710	595
NO ₂	Annual 98 th Percentile of 1-hour Daily Max	113 (79) ^(c)	827	387	528	341	704	317	247	1627	593	997	605	1194	600	457	1950	972	1003	612	1202	602	457
	100% Conversion ARM2	-	165	103	118	97	141	95	90	325	121	199	121	239	121	113	390	194	201	122	240	121	113
	Annual Conversion ARM2	32 (23) ^(c)	45.6	14.7	22.9	11.9	34.9	13.7	8.7	86.5	22.4	41.4	21.3	54.9	24.6	15.5	101.5	31.6	41.7	21.5	55.2	24.7	15.7
	Max 1 Hour Average	-	32.7	12.6	19.2	10.6	27.0	12.2	7.8	45.6	17.2	29.1	17.1	35.7	19.7	13.4	50.3	20.7	29.3	17.3	35.8	19.7	13.5
PM _{2.5}	Max 1 Hour Average	-	22.8	9.0	14.7	10.9	17.8	8.9	7.3	45.4	14.6	26.3	17.8	30.2	15.0	12.4	65.1	33.5	27.4	19.7	41.6	15.8	13.3
	Max 24-hour Rolling Average	25	2.8	1.4	1.9	1.1	2.4	1.2	0.7	5.3	2.2	3.5	2.0	4.3	2.1	1.3	10.5	5.3	3.5	2.1	7.3	2.1	1.3
	Annual Average	8 (6) ^(d)	1.0	0.3	0.5	0.3	0.8	0.3	0.2	1.9	0.5	0.9	0.5	1.2	0.5	0.3	3.6	1.1	0.9	0.5	2.1	0.5	0.3
DPM	Max 1 Hour Average	-	Same as PM _{2.5}																				
	Max 24-hour Rolling Average	-	Same as PM _{2.5}																				
	Annual Average	-	Same as PM _{2.5}																				
SO ₂	Max 1-Hour Average	183 (173) ^(e)	0.54	0.19	0.33	0.23	0.38	0.19	0.16	1.10	0.33	0.62	0.41	0.73	0.36	0.29	1.21	0.47	0.64	0.43	0.73	0.37	0.30
	Annual Average	13 (11) ^(e)	0.024	0.007	0.012	0.006	0.016	0.007	0.004	0.047	0.011	0.023	0.012	0.029	0.013	0.008	0.054	0.016	0.023	0.012	0.029	0.014	0.009
Hydrocarbon (HC)	Max 1-Hour Average	-	46.7	21.3	30.4	24.6	41.3	20.1	16.1	88.5	31.3	53.0	38.1	60.4	31.1	25.9	126.2	61.4	55.8	42.5	77.8	33.3	27.7
	Max 24-hour Rolling Average	-	6.7	3.2	3.8	2.2	5.2	2.3	1.5	10.7	4.7	7.0	4.0	8.6	4.2	2.6	20.2	9.6	7.1	4.1	14.5	4.3	2.7
	Annual Average	-	2.2	0.7	1.0	0.5	1.7	0.6	0.4	3.8	1.1	1.8	0.9	2.6	1.1	0.7	6.4	2.0	1.8	1.0	4.2	1.1	0.7

^(a) Maximum concentration of contaminants for the sensitive receptors which were predicted to have the highest ground-level concentration among that receptor category are presented for each scenario and averaging period.
^(b) Maximum Point of Impingement outside of CP Owned Lands (i.e., at a publicly accessible location).
^(c) Metro Vancouver's NO₂ objectives are expected to decrease to a value equal to or less than 19 $\mu\text{g}/\text{m}^3$ and 23 $\mu\text{g}/\text{m}^3$ in 2025 for 1-hour and annual averaging periods respectively, in alignment with the 2025 CAAQS.
^(d) Annual objective of 6 $\mu\text{g}/\text{m}^3$ is a longer-term aspirational target to support continuous improvement.
^(e) Metro Vancouver's SO₂ objectives are expected to decrease to a value equal to or less than 173 $\mu\text{g}/\text{m}^3$ and 11 $\mu\text{g}/\text{m}^3$ in 2025 for 1-hour and annual averaging periods respectively, in alignment with the 2025 CAAQS.
^(f) **Bold** = predicted value exceeds relevant ambient air quality objective.

Table 5-2: Dispersion Model Predicted Ground Level DPM Concentrations for Each Emissions Scenario



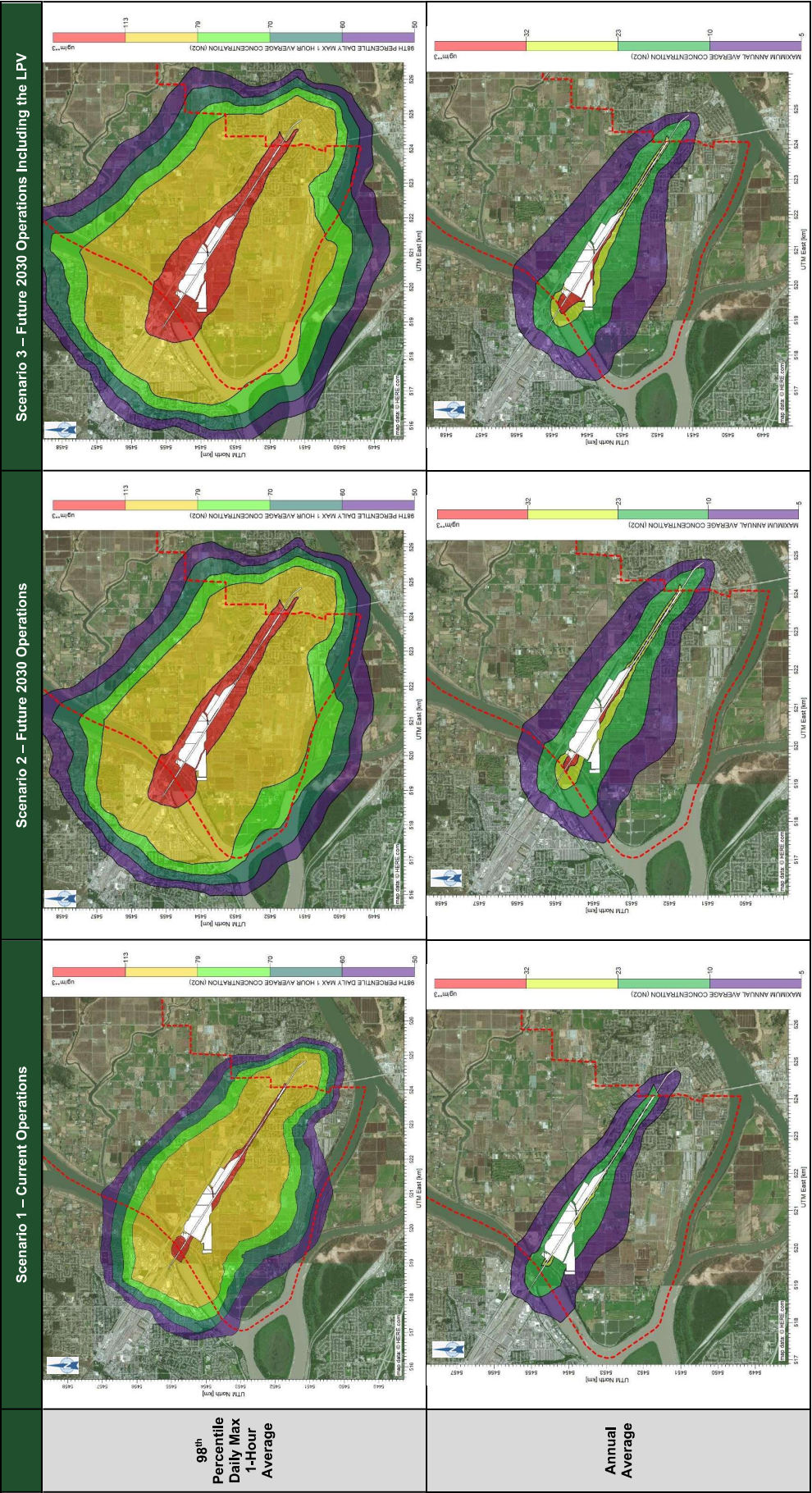
NOTE: Model predicted DPM concentrations shown here are based on emissions from rail activities within the City of Pitt Meadows municipal boundary (shown as a red dashed line) with the addition of a 1km buffer on the mainlines to the east and west of the city boundary. White areas show CP lands and the rail right of way where there is no public access.
--- = The City of Pitt Meadows Boundary

Table 5-3: Dispersion Model Predicted Ground Level PM_{2.5} Concentrations for Each Emissions Scenario

	Scenario 1 – Current Operations	Scenario 2 – Future 2030 Operations	Scenario 3 – Future 2030 Operations Including the LPV
Maximum 24-hour Rolling Average			
Annual Average			

NOTE: Model predicted PM_{2.5} concentrations shown here are based on emissions from rail activities within the City of Pitt Meadows municipal boundary (shown as a red dashed line) with the addition of a 1km buffer on the mainlines to the east and west of the city boundary. White areas show CP lands and the rail right of way where there is no public access.
- - - = The City of Pitt Meadows Boundary

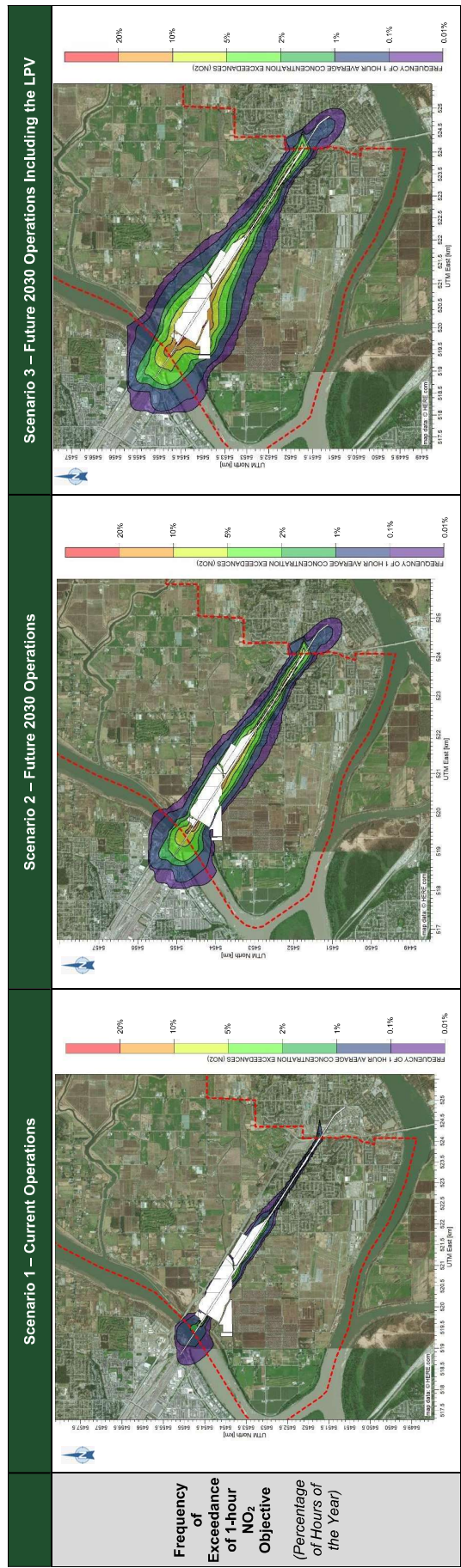
Table 5-4: Dispersion Model Predicted Ground Level NO₂ Concentrations for Each Emissions Scenario (Using ARM2 NO₂ Conversion Method)



NOTE: Model predicted NO₂ concentrations shown here are based on emissions from rail activities within the City of Pitt Meadows municipal boundary (shown as a red dashed line) with the addition of a 1km buffer on the mainlines to the east and west of the city boundary. White areas show CP lands and the rail right of way where there is no public access.

--- = The City of Pitt Meadows Boundary

Table 5-5: Dispersion Model Predicted Frequency of Exceedance (Percentage of Hours per Year) of the 1-hour NO₂ Objective for Each Emissions Scenario (Using ARM2 NO₂ Conversion Method)



NOTE 1: Exceedance of 1-hour NO₂ Ambient Air Quality Objective would be determined based on the 98th percentile of daily maximum 1-hour values.

NOTE 2: Model predicted NO₂ concentrations shown here are based on emissions from rail activities within the City of Pitt Meadows municipal boundary (shown as a red dashed line) with the addition of a 1km buffer on the mainlines to the east and west of the city boundary. White areas show CP lands and the rail right of way where there is no public access.

--- = The City of Pitt Meadows Boundary

6.0 PRELIMINARY HUMAN HEALTH RISK ASSESSMENT

6.1 Risk Assessment Approach

The potential for human health risks exist due to the presence of chemical constituents in environmental media is predicated on the co-existence of three components: 1) chemicals must be present at hazardous levels, 2) receptors (people) must be present, and 3) exposure pathways must exist between the chemicals and receptors. In the absence of any one of the three components, human health risks do not exist. The presence of all three elements indicates a potential for risks but does not indicate the magnitude of risk. A risk assessment is conducted to determine if these three essential elements of risk are present, and whether the magnitude of risk is acceptable or unacceptable.

The risk assessment framework applied for the project is consistent with provincial and federal guidance and consists of four steps:

- 1) Problem Formulation;
- 2) Exposure Assessment;
- 3) Effects Assessment; and
- 4) Risk Characterization.

In Problem Formulation, a conceptual exposure model is developed which identifies the contaminants of potential concern, the human receptors of potential concern, and potentially complete exposure pathways between the contaminants and receptors. In Exposure Assessment, the frequency, magnitude and duration of contaminant exposure is estimated for each receptor. In Effects Assessment, the adverse effects that exposures to the contaminants could cause are identified, and toxicity reference values (TRVs) are selected. During the Risk Characterization step, the results of the Exposure and Effects Assessments are integrated and interpreted into descriptions of human health risk.

The guidance documents used in the human health risk assessment were:

- Protocol 1 for Contaminated Sites - Detailed Risk Assessment, Version 3.0. ENV, May 13, 2021.
- Human Health Risk Assessment for Diesel Exhaust. Health Canada, March 2016.
- Federal Contaminated Site Risk Assessment in Canada: Guidance on Human Health Preliminary Quantitative Risk Assessment (PQRA). Version 3.0. Health Canada, March 2021.
- Federal Contaminated Site Risk Assessment in Canada: Toxicological Reference Values (TRVs), Version 3.0. Health Canada, March 2021.

6.2 Problem Formulation

6.2.1 Conceptual Exposure Model

The three scenarios for which dispersion modelling was conducted and that the HHRA considers are as follows. It should be noted that the emissions modelling in this study includes worst-case activity levels (based on current understanding of rail operations in Pitt Meadows) to identify the maximum potential health impacts. Comparison of the results for each scenario is reasonable with the understanding that background concentrations from other emissions sources in the region will also impact potential risks identified below.

- **Scenario 1:** Current rail operations,
- **Scenario 2:** Forecasted 2030 rail operations,
- **Scenario 3:** Forecasted 2030 rail operations with the addition of the proposed CP Logistics Park: Vancouver

Contaminants of Potential Concern

The contaminants of potential concern (COPCs) associated with diesel emissions for which dispersion modelling was conducted include CO, NO₂, PM_{2.5}, DPM, SO₂ and hydrocarbons. Model predicted concentrations of DPM and total hydrocarbons were then speciated (i.e., concentrations of their individual chemical components were identified) using speciation factors specific to locomotive and truck emissions from the US EPA to also evaluate the health impacts of additional COPCs, including specific volatile organic compounds (VOCs), metals, polycyclic aromatic hydrocarbons (PAHs), and dioxins/furans. The full list of COPCs evaluated is presented in **Table 6-1**.

Table 6-1: Evaluated Contaminants of Potential Concern

COPC	Class
Diesel Particulate Matter (DPM)	-
Fine Particulate Matter (PM _{2.5})	Criteria Air Contaminant
Nitrogen Dioxide (NO ₂)	Criteria Air Contaminant
Sulphur Dioxide (SO ₂)	Criteria Air Contaminant
Carbon Monoxide (NO ₂)	Criteria Air Contaminant
1,2,3,4,6,7,8-Heptachlorodibenzofuran	Dioxin/Furan
1,2,3,4,6,7,8-Heptachlorodibenzo-p-Dioxin	Dioxin/Furan
1,2,3,4,7,8-Hexachlorodibenzofuran	Dioxin/Furan
1,2,3,6,7,8-Hexachlorodibenzofuran	Dioxin/Furan
1,2,3,6,7,8-Hexachlorodibenzo-p-Dioxin	Dioxin/Furan
1,2,3,7,8,9-Hexachlorodibenzofuran	Dioxin/Furan
1,2,3,7,8,9-Hexachlorodibenzo-p-Dioxin	Dioxin/Furan
1,2,3,7,8-Pentachlorodibenzofuran	Dioxin/Furan
2,3,4,7,8-Pentachlorodibenzofuran	Dioxin/Furan
2,3,7,8-Tetrachlorodibenzofuran	Dioxin/Furan

COPC	Class
2,3,7,8-Tetrachlorodibenzo-p-Dioxin	Dioxin/Furan
Octachlorodibenzofuran	Dioxin/Furan
Octachlorodibenzo-p-Dioxin	Dioxin/Furan
Arsenic	Metal
Chromium (VI)	Metal
Manganese	Metal
Mercury	Metal
Nickel	Metal
Anthracene	PAH
Benz[a]Anthracene	PAH
Benzo[a]Pyrene	PAH
Benzo[b]Fluoranthene	PAH
Benzo[g,h,i]Perylene	PAH
Benzo[k]Fluoranthene	PAH
Chrysene	PAH
Dibenzo[a,h]Anthracene	PAH
Fluoranthene	PAH
Fluorene	PAH
Indeno[1,2,3-c,d]Pyrene	PAH
Phenanthrene	PAH
Pyrene	PAH
Acenaphthene	PAH/VOC
Acenaphthylene	PAH/VOC
Naphthalene	PAH/VOC
1,3-Butadiene	VOC
2,2,4-Trimethylpentane	VOC
Acetaldehyde	VOC
Acrolein	VOC
Benzene	VOC
Ethylbenzene	VOC
Formaldehyde	VOC
Hexane	VOC
Propionaldehyde	VOC
Toluene	VOC
Xylenes (Mixed Isomers)	VOC

Receptors of Potential Concern

The human receptors of potential concern (ROPCs) with respect to exposures to diesel emissions from rail activities are members of the general public that live, work and recreate within the City of Pitt Meadows and the region in general. In particular, dispersion modelling predicted COPC concentrations for the following locations within the study area to which people could be exposed: Businesses, Child Care Facilities, Health Care Facilities, Residences, Schools, Senior Care Facilities, and the Maximum Point of Impingement (MPOI). The ROPCs for the preliminary HHRA are people that spend time at these locations. The location with the highest predicted concentration within each category was assessed (e.g., the school with the highest predicted concentration of the school locations included in the model).

Exposure Pathways

Inhalation of COPCs attached to airborne particles and/or in the vapour phase is expected to be the primary exposure pathway of concern with respect to human exposure and health effects and therefore is the focus of the preliminary HHRA. Exposure to diesel emission related COPCs via other exposure pathways (e.g., ingestion of settled dust, dermal contact with settled dust, ingestion of food grown in contaminated soils, etc.) is possible but expected to be a less important contributor to exposure and risk.

A conceptual exposure model is presented in **Appendix A**.

6.3 Exposure Assessment

Exposure Estimation

The following equation from Health Canada ²² was used to estimate human exposures to COPCs for which inhalation pathway-specific air concentration-based TRVs were available:

$$TDC_A \text{ or } TLAC_A = \frac{C_A \times RAF_{inh} \times D_1 \times D_2 \times D_3 \times D_4}{LE}$$

Where:

- TDC_A = time-adjusted average daily air concentration ($\mu\text{g}/\text{m}^3$) – to assess non-cancer risk
- $TLAC_A$ = time-adjusted lifetime average air concentration ($\mu\text{g}/\text{m}^3$) – to assess cancer risk
- C_A = concentration of COPC in air ($\mu\text{g}/\text{m}^3$)
- RAF_{inh} = relative absorption factor for inhalation (unitless)
- D_1 = hours per day exposed/24 hours
- D_2 = days per week exposed/7 days
- D_3 = weeks per year exposed/52 weeks
- D_4 = number of years exposed (used in exposure estimation for cancer risk only)
- LE = life expectancy (year; used in exposure estimation for cancer risk only)

For non-carcinogenic COPCs for which only an oral dose-based TRV was available, the following equation from Health Canada was used to estimate exposure:

$$\text{Dose} = \frac{C_A \times IR_A \times RAF_{inh} \times D_1 \times D_2 \times D_3}{BW}$$

Where:

- Dose = Daily dose of COPC ($\text{mg}/\text{kgBW}\text{-day}$)
- C_A = concentration of COPC in air ($\mu\text{g}/\text{m}^3$)
- IR_A = air intake rate (m^3/day)
- RAF_{inh} = relative absorption factor for inhalation (unitless)
- D_1 = hours per day exposed/24 hours
- D_2 = days per week exposed/7 days
- D_3 = weeks per year exposed/52 weeks
- BW = body weight (kgBW)

The input parameters used in the exposure estimation equations are defined below.

²² Health Canada, 2021 – *Federal Contaminated Site Risk Assessment in Canada: Guidance on Human Health Preliminary Quantitative Risk Assessment (PQRA)*. Version 3.0.

Predicted Exposure Concentrations

Maximum predicted 1-hour (all COPCs except PM_{2.5}), 8-hour (carbon monoxide) and 24-hr (PM_{2.5})²³ average concentrations at each location and scenario were assumed to represent the concentration of each respective contaminant in air (C_A) for the purposes of estimating short term exposures (see **Table 5-1**). To estimate chronic COPC exposures, predicted annual average concentrations at each location and scenario were assumed to represent the C_A term (see **Table 5-1**). As described previously in this report, for the additional Hazardous Air Pollutants (HAPs) that are not included in **Table 5-1**, concentrations were calculated through scaling of the predicted DPM and total hydrocarbon concentrations into concentrations of the individual components of these contaminant groups, using speciation profiles for locomotive and heavy truck emissions from the US EPA (approach described in **Sections 4.1**, and **4.2**, respectively).

COPC Absorption

A relative inhalation absorption factor (RAF_{Inh}) of one (1) was assumed when estimating COPC exposure, per Health Canada guidance²⁴.

Receptor Characteristics

The duration and frequency (D₁, D₂, D₃, D₄) that ROPCs were assumed to be exposed to each COPC and assumed ROPC life expectancies were based on preliminary human health risk assessment guidance from Health Canada²⁵ and are presented below in **Table 6-2**. The exposure time, frequency, duration and life expectancy terms were not employed when estimating acute COPC exposures.

Table 6-2: Assumed Exposure Duration and Frequency

Location	Hours Per Day Exposed	Days Per Week Exposed	Weeks Per Year Exposed	Years Exposed	Life Expectancy (Years)	Air Intake Rate ^(c) (m ³ /d)	Body Weight ^(c) (kg)
MPOI ^(a)	2	7	52	80	80	8.3	16.5
Business	10	5	48	35	80	8.3	16.5
Child Care	10	5	48	35	80	8.3	16.5
Health Care ^(b)	10	5	48	35	80	8.3	16.5
Residence	24	7	52	80	80	8.3	16.5
School	10	5	48	35	80	8.3	16.5
Senior Care	24	7	52	35	80	16.6	70.7

(a) Maximum predicted model result at an outdoor space near the rail operations

(b) Business hours assumed for the health care facilities as those within the study area are clinics without overnight care.

(c) Conservatively the air intake rate and body weights for most receptors were assigned based on a toddler, with the exception of senior care where it was assumed only adults would be present.

²³Model predicted 24-hour rolling average PM_{2.5} concentrations were used to assess the acute health risks of PM_{2.5} exposure due to the format of the reference value used (i.e., the CAAQS 24-hour rolling average for PM_{2.5}).

²⁴Health Canada, 2021 – Federal Contaminated Site Risk Assessment in Canada: Toxicological Reference Values (TRVs), Version 3.0.

²⁵Health Canada, 2021 – Federal Contaminated Site Risk Assessment in Canada: Guidance on Human Health Preliminary Quantitative Risk Assessment (PQRA). Version 3.0.

6.4 Toxicity Assessment

Carcinogenicity

The potential for each COPC to cause cancer was evaluated in accordance with BC ENV Protocol 30²⁶. The following COPCs were determined to be carcinogenic by this approach:

- Arsenic
- Benz(a)anthracene
- Benzene
- Benzo(b)fluoranthene
- Benzo(k)fluoranthene
- Benzo(a)pyrene
- 1,3-Butadiene
- Chromium VI
- Chrysene
- Diesel Particulate Matter
- Dibenzo(a,h)anthracene
- Formaldehyde
- 2,3,4,7,8-Pentachlorodibenzofuran
- 2,3,7,8-Tetrachlorodibenzo-p-Dioxin

For these substances, cancer risks and non-cancer health risks were estimated. For the remaining substances, only non-cancer health risks were estimated.

Toxicity Reference Values

The following sources were consulted to identify applicable TRVs for use in the HHRA, as recommended by the BC ENV²⁷:

Tier 1:

- Health Canada, Federal Contaminated Site Risk Assessment in Canada: Toxicological Reference Values (TRVs). Version 3.0. March 2021.
- United States Environmental Protection Agency - Integrated Risk Information System.
- World Health Organization - International Programme on Chemical Safety.

Tier 2:

- United States Agency for Toxic Substances and Disease Registry - Toxic Substances Portal.
- Oak Ridge National Laboratory - Risk Assessment Information System.
- Netherlands National Institute of Public Health and the Environment – Re-evaluation of Human Toxicological Maximum Permissible Risk Levels
- California Environmental Protection Agency - Toxic Criteria Database
- United States Environmental Protection Agency - Regional Screening Levels (2015)
- European Chemicals Agency - Registered Substances
- Other Canadian provinces or US state agencies

²⁶ British Columbia Ministry of Environment & Climate Change Strategy, 2017 – *Protocol 30 for Contaminated Sites – Classifying Substances as Carcinogenic, Version 1.0.*

²⁷ British Columbia Ministry of Environment & Climate Change Strategy, 2021 – *Protocol 1 for Contaminated Sites - Detailed Risk Assessment, Version 3.0.*

Within Tier 1, Canadian TRVs were prioritized over international TRVs. TRVs were selected from Tier 2 sources only when applicable values from a Tier 1 source were unavailable. The TRVs used in the HHRA are presented below in **Table 6-3**. The regional air quality objectives and federal standards identified in **Section 2.3** are not purely health-based and therefore were only used for substances where TRVs are not available. In the case of the CAAQS used for NO₂ and SO₂, the 2025 standards have been used as these standards will be in place ahead of the future scenarios evaluated in this study.

A toxicity profile for select COPCs that were predicted to show elevated risk is provided in **Appendix B**.

Table 6-3: Toxicity Reference Values

COPC	Inhalation Reference Concentration – Acute ($\mu\text{g}/\text{m}^3$)	Inhalation Reference Concentration – Chronic ($\mu\text{g}/\text{m}^3$)	Oral Tolerable Daily Intake ($\text{mg}/\text{kgB W-day}$)	Critical Non-Cancer Effect	Inhalation Unit Risk ($\mu\text{g}/\text{m}^3$) ⁻¹	Tumor Sites
Diesel Particulate Matter (DPM)	10 ^(a)	5 ^{(a),(d)}	- ^(m)	Respiratory Cardiovascular	0.0003 ^(c)	Respiratory
Fine Particulate Matter (PM _{2.5})	27 ^(h)	8.8 ^(h)	-	Respiratory Cardiovascular	NA ^(l)	NA
Nitrogen Dioxide (NO ₂)	79 ^(h)	22.6 ^(h)	-	Respiratory	NA	NA
Sulphur Dioxide (SO ₂)	26 ^(e)	10.5 ^(h)	-	Respiratory	NA	NA
Carbon Monoxide (CO)	14,900 ⁽ⁱ⁾ 5,700 ^(j)	VNA ^(k)	-	Respiratory	NA	NA
1,2,3,4,6,7,8-Heptachlorodibenzofuran	VNA ^(k)	VNA ^(k)	2.3E-9 TEQ ^(b)	Development	NA	NA
1,2,3,4,6,7,8-Heptachlorodibenzo-p-Dioxin	VNA ^(k)	VNA ^(k)			NA	NA
1,2,3,4,7,8-Hexachlorodibenzofuran	VNA ^(k)	VNA ^(k)			NA	NA
1,2,3,6,7,8-Hexachlorodibenzofuran	VNA ^(k)	VNA ^(k)			NA	NA
1,2,3,6,7,8-Hexachlorodibenzo-p-Dioxin	VNA ^(k)	VNA ^(k)			NA	NA
1,2,3,7,8,9-Hexachlorodibenzofuran	VNA ^(k)	VNA ^(k)			NA	NA
1,2,3,7,8,9-Hexachlorodibenzo-p-Dioxin	VNA ^(k)	VNA ^(k)			NA	NA
1,2,3,7,8-Pentachlorodibenzofuran	VNA ^(k)	VNA ^(k)			NA	NA
2,3,4,7,8-Pentachlorodibenzofuran	VNA ^(k)	VNA ^(k)			11.4 ⁽ⁿ⁾	Multiple
2,3,7,8-Tetrachlorodibenzofuran	VNA ^(k)	VNA ^(k)			NA	NA

COPC	Inhalation Reference Concentration – Acute ($\mu\text{g}/\text{m}^3$)	Inhalation Reference Concentration – Chronic ($\mu\text{g}/\text{m}^3$)	Oral Tolerable Daily Intake (mg/kgB <i>W-day</i>)	Critical Non-Cancer Effect	Inhalation Unit Risk ($\mu\text{g}/\text{m}^3$) ⁻¹	Tumor Sites
2,3,7,8- Tetrachlorodibenzo-p- Dioxin	VNA ^(k)	VNA ^(k)			38 ⁽ⁿ⁾	Multiple
Octachlorodibenzofuran	VNA ^(k)	VNA ^(k)			NA	NA
Octachlorodibenzo-p- Dioxin	VNA ^(k)	VNA ^(k)			NA	NA
Arsenic	0.2 ^(c)	0.015 ^(c)	-	Reproduction Development Neurologic Cardiovascular	0.0064 ^(b)	Respiratory
Chromium (VI)	0.3 ^(e)	0.1 ^(b)	-	Respiratory	0.076 ^(b)	Respiratory
Manganese	VNA ^(k)	0.05 ^(d)	-	Neurobehavior	NA	NA
Mercury	0.6 ^(c)	0.3 ^(d)	-	Reproduction Development Neurologic	NA	NA
Nickel	0.2 ^(c)	0.018 ^(b)	-	Immunity Respiratory Hematologic	NA	NA
Anthracene	VNA ^(k)	10 ^{(b),(f)}	-	Respiratory	NA	NA
Benz[a]Anthracene	VNA ^(k)	0.002 ^{(b),(g)}	-	Development	0.00006 ^(b)	GI Respiratory
Benzo[a]Pyrene	VNA ^(k)	0.002 ^(b)	-	Development	0.0006 ^(b)	GI Respiratory
Benzo[b]Fluoranthene	VNA ^(k)	0.002 ^{(b),(g)}	-	Development	0.00006 ^(b)	GI Respiratory
Benzo[g,h,i,j]Perylene	VNA ^(k)	0.002 ^{(b),(g)}	-	Development		NA
Benzo[k]Fluoranthene	VNA ^(k)	0.002 ^{(b),(g)}	-	Development	0.00006 ^(b)	GI Respiratory
Chrysene	VNA ^(k)	0.002 ^{(b),(g)}	-	Development	0.000006 ^(b)	GI Respiratory
Dibenzo[a,h]Anthracene	VNA ^(k)	0.002 ^{(b),(g)}	-	Development	0.0006 ^(b)	GI Respiratory
Fluoranthene	VNA ^(k)	0.002 ^{(b),(g)}	-	Development	NA	NA
Fluorene	VNA ^(k)	10 ^{(b),(f)}	-	Respiratory	NA	NA
Indeno[1,2,3-c,d]Pyrene	VNA ^(k)	0.002 ^{(b),(g)}	-	Development	0.00006 ^(b)	GI Respiratory
Phenanthrene	VNA ^(k)	10 ^{(b),(f)}	-	Respiratory	NA	NA
Pyrene	VNA ^(k)	0.002 ^{(b),(g)}	-	Development	NA	NA
Acenaphthene	VNA ^(k)	10 ^{(b),(f)}	-	Respiratory	NA	NA

COPC	Inhalation Reference Concentration – Acute ($\mu\text{g}/\text{m}^3$)	Inhalation Reference Concentration – Chronic ($\mu\text{g}/\text{m}^3$)	Oral Tolerable Daily Intake ($\text{mg}/\text{kgB W-day}$)	Critical Non-Cancer Effect	Inhalation Unit Risk ($\mu\text{g}/\text{m}^3$) ⁻¹	Tumor Sites
Acenaphthylene	VNA ^(k)	10 ^{(b),(f)}	-	Respiratory	NA	NA
Naphthalene	VNA ^(k)	10 ^(b)	-	Respiratory	NA	NA
1,3-Butadiene	660 ^(c)	2 ^(d)	-	Development Reproduction	0.00003 ^(d)	Hematologic
2,2,4-Trimethylpentane	VNA ^(k)	VNA ^(k)	-	NA	NA	NA
Acetaldehyde	470 ^(c)	9 ^(d)	-	Respiratory Eyes Neurologic	NA	NA
Acrolein	2.5 ^(c)	0.02 ^(d)	-	Respiratory Eyes	NA	NA
Benzene	21 ^(e)	30 ^(d)	-	Reproduction Development Immunity Hematologic	0.000016 ^(b)	Hematologic
Ethylbenzene	15,973 ^(e)	2000 ^(b)	-	Liver Endocrine	NA	
Formaldehyde	49 ^(e)	9 ^(c)	-	Respiratory Eyes	0.000013 ^(d)	Respiratory
Hexane	VNA ^(k)	700 ^(b)	-	Neurologic	NA	NA
Propionaldehyde	VNA ^(k)	8 ^(d)	-	Respiratory Neurologic	NA	NA
Toluene	5,000 ^(c)	2,300 ^(b)	-	Neurologic	NA	NA
Xylenes (Mixed Isomers)	8,684 ^(e)	100 ^(b)	-	Neurologic	NA	NA

(a) Health Canada ²⁸

(b) Health Canada ²⁹

(c) California Office of Environmental Health Hazard Assessment (CalEPA)

(d) United States Environmental Protection Agency Integrated Risk Information System

(e) Agency for Toxic Substances and Disease Registry (ATSDR)

(f) TRV for naphthalene used, based on structure-activity relationship (low molecular weight PAH)

(g) TRV for benzo(a)pyrene used, based on structure-activity relationship (high molecular weight PAH)

(h) CCME Canadian Ambient Air Quality Standards

(i) Metro Vancouver Ambient Air Quality Objectives (Averaging Time = 1 hour)

(j) Metro Vancouver Ambient Air Quality Objectives (Averaging Time = 8 hour)

(k) VNA: TRV not available

(l) NA: not applicable

(m) -: dose-based TRV not used since inhalation reference concentration available

(n) World Health Organization

²⁸ Health Canada, 2016 – Human Health Risk Assessment for Diesel Exhaust

²⁹ Health Canada, 2021 – Federal Contaminated Site Risk Assessment in Canada: Toxicological Reference Values (TRVs), Version 3.0.

6.5 Preliminary Risk Estimates (Worst-Case by Receptor Category)

The health risks for each human receptor were estimated based on worst-case air dispersion modelling presented in **Section 5.2**, exposure assumptions presented in **Section 6.3** and TRVs presented in **Section 6.4**. Since CP's rail operations are federally regulated, federal risk guidelines were used to interpret the acceptability of the estimated risks.

Health risks are assessed with respect to acute (i.e., due to short-term exposures to air contaminants) and chronic (i.e., due to long term exposures to air contaminants) non-cancer health risks in **Section 6.5.1**, as well as the incremental lifetime cancer risk associated with long-term exposure to each of the assessed COPCs in **Section 6.5.3**. Acute health risks for each of the COPCs are assessed based on the model predicted worst-case maximum 1-hour concentrations (i.e., based on the estimated emissions for the worst-case maximum 1-hour activity levels of the rail operations described in **Section 4.0** and hourly meteorological data), while chronic non-cancer health risks and incremental lifetime cancer risks are assessed based on the model predicted annual average air concentrations of each COPC (i.e., based on the average of the model predicted air contaminant concentrations predicted for each hour of the model year due to estimated emissions from the typical activity levels of the rail operations described in **Section 4.0**). Therefore, while any model predicted exceedances of the threshold of acceptability used in this study for acute health risks would show potential risk, model predictions of chronic non-cancer health risks or cancer risks exceeding acceptable risk thresholds would show potential risk with greater certainty.

6.5.1 Non-Cancer Health Risks – Methodology

Non-cancer health risks were estimated for each receptor location and scenario by the formulas below. Non-cancer health risks are calculated as hazard quotients (HQ) which refer to the ratio of the estimated exposure concentration/dose over the threshold reference value (e.g., a HQ of 1 identifies that the assessed value is equal to the TRV, while a HQ of 0.33 identifies that the assessed value is equal to one third of the TRV).

$$HQ = \frac{TDC_A}{RFC}$$

Or

$$HQ = \frac{\text{Daily Dose}}{TDI}$$

Where:

- HQ = Hazard Quotient,
- TDC_A = Time-adjusted average daily air concentration ($\mu\text{g}/\text{m}^3$),
- Daily Dose = Time-adjusted daily average oral dose ($\text{mg}/\text{kgBW}\text{-day}$),
- RFC = Inhalation reference concentration ($\mu\text{g}/\text{m}^3$),
- TDI = Oral Tolerable Daily Intake ($\text{mg}/\text{kgBW}\text{-day}$)

The default threshold of acceptability for non-cancer health risks in a preliminary quantitative human health risk assessment conducted for federally-regulated sites, according to Health Canada ³⁰, is a HQ of 0.2. This threshold of acceptability is applicable when all pathways of exposure to a chemical, including background exposures unrelated to a particular site, have not been quantified. Health Canada guidance allows for the use of HQ acceptability thresholds other than 0.2 with rationale.

This preliminary HHRA does not fully account for background exposures to COPCs and focusses on inhalation exposures only. The media to which people could theoretically be exposed to the COPCs include air (inhalation), soil/settled dust (ingestion/dermal contact), water (ingestion/dermal contact), food (ingestion), and consumer products (dermal contact). It is highly unlikely that people would be exposed to COPCs through consumption or contact with water or consumer products. If the tolerable daily intake of COPCs is apportioned equally to the three remaining media (i.e. air, soil/settled dust and food), an allowable HQ of 0.33 from exposure to each medium can be derived. Accordingly, an HQ of 0.33 was used as the threshold of acceptability for the air inhalation risk estimates presented below. This is expected to be conservative since air exposures to COPCs are likely to be much higher and hazardous than exposures to soil/settled dust and food.

Non-cancer hazard quotients for each scenario and location (the receptors with the maximum predicted ground level concentrations in each receptor category) are presented below in **Table 6-4** to **Table 6-6**. (calculated HQs are presented only for COPCs where predicted HQs were greater than 0.2 at any receptor). A toxicity profile for COPC's with elevated risk estimates is provided in **Appendix B**.

Example Calculation – Non-Cancer Hazard Quotient

- Scenario: 1
- Receptor: Business
- Exposure Type: Chronic
- COPC: Diesel Particulate Matter (DPM)

$$HQ = \frac{TDC_A}{RFC}$$

$$HQ = \frac{0.32 \mu\text{g}/\text{m}^3 \times 10 \text{ hours}/24 \text{ hours} \times 5 \text{ days}/7 \text{ days} \times 48 \text{ weeks}/52 \text{ weeks}}{5 \mu\text{g}/\text{m}^3}$$

$$HQ = 0.018$$

It should be noted that in the absence of available TRVs from health agencies, the Canadian Ambient Air Quality Standards (CAAQS) were used as reference concentrations for PM_{2.5}, NO₂ and SO₂ (chronic) (as outlined in **Table 6-3** above). These standards may not be purely based on health protection but rather

³⁰ Health Canada, 2021 – *Federal Contaminated Site Risk Assessment in Canada: Guidance on Human Health Preliminary Quantitative Risk Assessment (PQRA)*. Version 3.0.

represent objectives to encourage air quality improvement across the country. As the relationship between health outcomes and exposure to concentrations of both $PM_{2.5}$ and NO_2 has not been determined to have a concentration threshold below which health outcomes are not observed; if the hazard quotients calculated for these contaminants are found to be below the threshold of acceptability used in this study (i.e., less than 0.33), this does not warrant that there are no health risks associated with exposure to the predicted concentrations of these air contaminants. This matter is discussed further in **Section 6.7.**

6.5.2 Non-Cancer Health Risks – Results

Scenario 1: Current Operations

Under current conditions for Scenario 1, a potential for adverse non-cancer health effects due to acute inhalation exposures was indicated for:

- DPM, and NO₂ at the maximum receptor within all receptor categories,
- PM_{2.5} at the MPOI and maximum residence, child care, and health care receptors, and
- Nickel at the MPOI and maximum residence.

A potential for adverse non-cancer health effects due to chronic inhalation exposures was indicated for:

- Nitrogen dioxide and acrolein for residences and senior care facilities.

Table 6-4 presents the maximum calculated hazard quotients under Scenario 1 for each receptor category for all substances where a HQ greater than 0.2 was calculated.

Table 6-4: Hazard Quotients for Scenario 1: Current Operations

COPC	Hazard Quotient Term	Sensitive Receptor with Maximum Predicted Ground Level Concentration in each Category						
		MPOI	Business	Child Care	Health Care	Residence	School	Senior Care
PM _{2.5}	Acute HQs	0.84	0.33	0.54	0.40	0.66	0.33	0.27
	Chronic HQs	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
DPM	Acute HQs	2.3	0.90	1.5	1.1	1.8	0.89	0.73
	Chronic HQs	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
NO ₂	Acute HQs	2.6	1.3	1.7	1.5	2.1	1.3	1.2
	Chronic HQs	<0.2	<0.2	0.23	<0.2	1.2	<0.2	0.35
Nickel	Acute HQs	0.46	<0.2	0.30	0.22	0.36	<0.2	<0.2
	Chronic HQs	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Acrolein	Acute HQs	0.30	<0.2	<0.2	<0.2	0.26	<0.2	<0.2
	Chronic HQs	<0.2	<0.2	0.21	<0.2	1.3	<0.2	0.30
Arsenic ^(c)	Acute HQs	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Chronic HQs	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Formaldehyde ^(c)	Acute HQs	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Chronic HQs	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

(a) MPOI – maximum point of impingement

(b) **Bold** – exceeds threshold of acceptable risk (0.33)

(c) Arsenic and Formaldehyde are presented here for comparison as HQs exceed 0.2 at some receptors in Scenarios 2 and 3.

Scenario 2: Forecasted 2030 Rail Operations

Under Scenario 2, a potential for adverse non-cancer health effects due to acute inhalation exposures was indicated for:

- PM_{2.5}, DPM, and NO₂, at the maximum receptor within all receptor categories,
- Nickel for the MPOI and maximum residence, child care, and health care receptors,
- Acrolein for the MPOI and maximum residence and child care receptors, and
- Formaldehyde at the MPOI only.

A potential for adverse non-cancer health effects due to chronic inhalation exposures was indicated for:

- NO₂ at the maximum residence, child care and senior care receptors, and
- Acrolein at the maximum residence, child care and senior care receptors.

When comparing the estimated HQs at each of the sensitive receptors between Scenario 2 and Scenario 1, the estimated inhalation HQs for acute DPM (chosen as a proxy) exposure were between 46% and 91% higher, while the estimated HQs for chronic DPM exposure were between 55% and 89% higher. It should be noted that when comparing predicted HQs between each scenario, an increased HQ of “X”% means that the predicted concentration of the air contaminant increased by “X”%, but this does not necessarily infer that there is “X”% more risk associated with exposure to the higher air contaminant concentration as the relationships between the contaminant concentration and health outcomes may not be linear. However, it does imply that greater risk is associated with the exposure to the higher predicted air contaminant concentration.

Table 6-5 presents the maximum calculated hazard quotients under Scenario 2 for each receptor category for all substances where a HQ greater than 0.2 was calculated.

Table 6-5: Hazard Quotients for Scenario 2: Forecasted 2030 Operations

COPC	Hazard Quotient Term	Sensitive Receptor with Maximum Predicted Ground Level Concentration in each Category						
		MPOI	Business	Child Care	Health Care	Residence	School	Senior Care
PM _{2.5}	Acute HQs	1.7	0.54	0.97	0.66	1.1	0.55	0.46
	Chronic HQs	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
DPM	Acute HQs	4.5	1.5	2.6	1.8	3.0	1.5	1.2
	Chronic HQs	<0.2	<0.2	<0.2	<0.2	0.25	<0.2	<0.2
NO ₂	Acute HQs	5.2	1.7	3.1	2.1	3.5	1.8	1.5
	Chronic HQs	<0.2	0.21	0.35	0.21	1.6	0.24	0.59
Nickel	Acute HQs	0.92	0.30	0.53	0.36	0.61	0.30	0.25
	Chronic HQs	<0.2	<0.2	<0.2	<0.2	0.28	<0.2	<0.2
Acrolein	Acute HQs	0.57	<0.2	0.34	0.24	0.39	<0.2	<0.2
	Chronic HQs	0.26	0.24	0.40	0.21	2.1	0.23	0.55
Arsenic	Acute HQs	0.24	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Chronic HQs	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Formaldehyde	Acute HQs	0.40	<0.2	0.24	<0.2	0.27	<0.2	<0.2
	Chronic HQs	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

(a) MPOI – maximum point of impingement

(b) **Bold** – exceeds threshold of acceptable risk (0.33)

Scenario 3: Forecasted 2030 Rail Operations Including Proposed LPV

Under Scenario 3, a potential for adverse non-cancer health effects due to acute inhalation exposures was indicated for:

- PM_{2.5}, DPM, and NO₂, at the maximum receptor within all receptor categories,
- Nickel for the maximum receptor in all categories except school and senior care,
- Acrolein for the MPOI, and maximum residence and child care receptors, and
- Formaldehyde at the MPOI only.

A potential for adverse non-cancer health effects due to chronic inhalation exposures is indicated for:

- NO₂ for the MPOI and at the maximum residence, child care, and senior care receptors, and
- Acrolein for the MPOI and at the maximum residence, child care, and senior care receptors.

The estimated inhalation HQs for acute DPM (chosen as a proxy) exposure at each of the sensitive receptors were up to 79% higher in Scenario 3 (forecasted 2030 rail operations including the proposed LPV) than in Scenario 2 (forecasted 2030 operations without the proposed LPV) while the estimated inhalation HQs for chronic DPM exposure were up to 95% higher. The percentage increase in predicted HQ between scenarios is influenced by the location of the sensitive receptor relative to the proposed LPV operations.

When comparing the estimated HQs at each of the sensitive receptors between Scenario 3 (forecasted 2030 rail operations including the proposed LPV) and Scenario 1 (current rail operations), the estimated inhalation HQs for acute DPM exposure were between 61% and 225% higher, while the estimated inhalation HQs for chronic DPM exposure were between 62% and 243% higher.

As described above, it should be noted that when comparing predicted HQs between each scenario, an increased HQ of "X" % means that the predicted concentration of the air contaminant increased by "X" %, but this does not necessarily infer that there is "X" % more risk associated with exposure to the higher air contaminant concentration as the relationships between the contaminant concentration and health outcomes may not be linear. However, it does imply that greater risk is associated with the exposure to the higher predicted air contaminant concentration.

Table 6-6 presents the maximum calculated hazard quotients under Scenario 3 for each receptor category for all substances where a HQ greater than 0.2 was calculated.

Table 6-6: Hazard Quotients for Scenario 3: Forecasted 2030 Operations Including the Proposed LPV

COPC	Hazard Quotient Term	Sensitive Receptor with Maximum Predicted Ground Level Concentration in each Category						
		MPOI	Business	Child Care	Health Care	Residence	School	Senior Care
PM _{2.5}	Acute HQs	2.4	1.2	1.0	0.73	1.5	0.59	0.49
	Chronic HQs	<0.2	<0.2	<0.2	<0.2	0.24	<0.2	<0.2
DPM	Acute HQs	5.1	2.2	2.7	1.9	3.1	1.5	1.3
	Chronic HQs	<0.2	<0.2	<0.2	<0.2	0.25	<0.2	<0.2
NO ₂	Acute HQs	5.8	2.5	3.2	2.2	3.6	1.8	1.5
	Chronic HQs	<0.2	0.24	0.36	0.21	1.6	0.24	0.60
Nickel	Acute HQs	1.0	0.43	0.55	0.39	0.62	0.31	0.26
	Chronic HQs	<0.2	<0.2	<0.2	<0.2	0.28	<0.2	<0.2
Acrolein	Acute HQs	0.65	0.33	0.35	0.27	0.41	0.21	<0.2
	Chronic HQs	0.30	0.33	0.40	0.21	2.1	0.24	0.56
Arsenic	Acute HQs	0.27	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Chronic HQs	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Formaldehyde	Acute HQs	0.46	0.23	0.25	<0.2	0.29	<0.2	<0.2
	Chronic HQs	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

(a) MPOI – maximum point of impingement

(b) **Bold** – exceeds threshold of acceptable risk (0.33)

6.5.3 Cancer Risks - Methodology

The incremental lifetime cancer risks posed by exposure to the carcinogenic COPCs were estimated for each location and scenario by the following formula:

$$ILCR = TLAC_A \times IUR$$

Where:

- ILCR = Incremental Lifetime Cancer Risks
- $TLAC_A$ = Time-adjusted lifetime air concentration ($\mu\text{g}/\text{m}^3$)
- IUR = Inhalation unit risk ($\mu\text{g}/\text{m}^3$)⁻¹

Example Calculation – Incremental Lifetime Cancer Risk

- Scenario: 1
- Receptor: Business
- COPC: Diesel Particulate Matter (DPM)

$$ILCR = 0.32 \mu\text{g}/\text{m}^3 \times 10 \text{ hours}/24 \text{ hours} \times 5 \text{ days}/7 \text{ days} \times 48 \text{ weeks}/52 \text{ weeks} \times 35 \text{ years}/80 \text{ years} \times 3\text{E}-04 (\mu\text{g}/\text{m}^3)^{-1}$$

$$\# \text{ Extra Cancer Cases}/100,000 = 1.2 \text{ in } 100,000$$

Health Canada's guideline of acceptability for incremental lifetime cancer risk is 1 additional cancer case in 100,000 people exposed. (i.e., $ILCR = 1\text{E}-05$). ILCRs for each scenario and location are presented in **Table 6-7** to **Table 6-9** for DPM, the only carcinogenic COPC for which ILCRs exceeded the guideline of acceptability.

6.5.4 Cancer Risks - Results

Scenario 1: Current Operations

ILCRs estimated for all carcinogenic COPCs and receptor types under Scenario 1 predicted an unacceptable cancer risk for DPM only. The threshold of acceptable risk (1 additional cancer case per 100,000 people exposed) was exceeded at the maximum receptor in all receptor categories.

**Table 6-7: Incremental Lifetime Cancer Risks from Exposure to Predicted DPM Concentrations—
Scenario 1: Current Operations**

	MPOI	Sensitive Receptor with Maximum Predicted Ground Level Concentration in each Category					
		Business	Child Care	Health Care	Residence	School	Senior Care
ILCR	2.5E-05	1.2E-05	1.8E-05	3.4E-05	2.3E-04	1.1E-05	2.5E-05
# Extra Cancer Cases/100,000	2.5	1.2	1.8	3.4	23	1.1	2.5

(a) MPOI – maximum point of impingement

(b) **Bold** – exceeds threshold of acceptable risk (1 in 100,000)

Scenario 2: Forecasted 2030 Rail Operations

ILCRs estimated for all carcinogenic COPCs and receptor types under Scenario 2 predicted an unacceptable cancer risk for DPM only. The threshold of acceptable risk was exceeded at the maximum receptor in all receptor categories. Estimated ILCRs were between 55% and 89% higher under Scenario 2 compared to Scenario 1.

**Table 6-8: Incremental Lifetime Cancer Risks from Exposure to Predicted DPM Concentrations –
Scenario 2: Forecasted 2030 Operations**

	MPOI	Sensitive Receptor with Maximum Predicted Ground Level Concentration in each Category					
		Business	Child Care	Health Care	Residence	School	Senior Care
ILCR	4.7E-05	1.8E-05	3.3E-05	6.2E-05	3.7E-04	1.9E-05	4.5E-05
# Extra Cancer Cases/100,000	4.7	1.8	3.3	6.2	37	1.9	4.5

(a) MPOI – maximum point of impingement

(b) **Bold** – exceeds threshold of acceptable risk (1 in 100,000)

Scenario 3: Forecasted 2030 Rail Operations Including Proposed LPV

ILCRs estimated for DPM at the maximum receptor in each category under Scenario 3 exceeded $1\text{E-}05$ (1 in 100,000) indicating an unacceptable risk. The threshold of acceptable risk was not approached for any of the other carcinogenic COPCs assessed at any receptor.

When comparing the predicted ILCRs due to exposure to predicted DPM concentrations at each of the sensitive receptors between Scenario 3 (forecasted 2030 rail operations including the proposed LPV) and Scenario 2 (forecasted 2030 operations without the proposed LPV), predicted ILCRs were up to 95% higher in Scenario 3.

When comparing the predicted ILCRs due to exposure to predicted DPM concentrations at each of the sensitive receptors between Scenario 3 (forecasted 2030 rail operations including the proposed LPV) and Scenario 1 (current rail operations), the estimated ILCRs were between 62% and 243% higher. The percentage increase in predicted ILCRs between scenarios is influenced by the location of the sensitive receptor relative to the proposed LPV operations.

Table 6-9: Incremental Lifetime Cancer Risks from Exposure to Predicted DPM Concentrations - Scenario 3: Forecasted 2030 Operations Including the Proposed LPV

	MPOI	Sensitive Receptor with Maximum Predicted Ground Level Concentration in each Category					
		Business	Child Care	Health Care	Residence	School	Senior Care
ILCR	5.5E-05	2.5E-05	3.3E-05	6.3E-05	3.7E-04	1.9E-05	4.5E-05
# Extra Cancer Cases/100,000	5.5	2.5	3.3	6.3	37	1.9	4.5

(a) MPOI – maximum point of impingement

(b) **Bold** – exceeds threshold of acceptable risk (1 in 100,000)

6.6 Preliminary Risk Estimates (Spatial Extents)

In order to provide context to the preliminary worst-case risk estimates calculated for each receptor category in **Section 6.5**, for those COPCs where preliminary risk estimates found a potential for adverse effect, the distribution of these results beyond the worst-case receptors in each category was reviewed.

Table 6-10 presents the maximum hazard quotients predicted at each receptor over the modelling year for acute inhalation exposures in the areas surrounding the rail operations. It should be noted that the acute health risk hazard quotients presented here are the model predicted worst-case risk based on emissions from estimated maximum 1-hour rail operations and show the maximum air contaminant concentration predicted at each receptor over the full model year (i.e., it is not possible for these risks to be observed at one time, for example if individual hours were examined, at a time where the wind blows from west to east, elevated air contaminant concentrations would be expected to the east of the modelled emission sources, with reduced air contaminant concentrations predicted to the west). Red areas on the figures presented indicate areas where the maximum predicted hazard quotient exceeds 1, with yellow areas indicating areas that exceed the threshold of acceptability of 0.33 used in this study. It should be noted that in the absence of toxicity reference values for PM_{2.5} and NO₂, the Canadian Ambient Air Quality Standards for these substances were used to assess risk due to exposure to the predicted concentrations of these substances in this study. Given the non-threshold nature of the relationship between these air contaminants and health outcomes (i.e., no safe level of exposure to these air contaminants have been found where health outcomes are not observed), if the hazard quotients calculated for these contaminants are found to be below the threshold of acceptability used in this study (i.e., less than 0.33), this may not warrant that there are no health risks associated with exposure to the predicted concentrations of these air contaminants. Therefore, health risks may still be observed in the areas outside of these contours for these air contaminants (PM_{2.5} and NO₂).

Table 6-11 presents the distribution of non-cancer chronic health risks (based on model predicted annual average air contaminant concentrations) in the areas surrounding the rail operations if a residential exposure time is assumed (i.e., 24 hours a day, 7 days a week, 365 days per year), for exposure to NO₂ and acrolein. Similar to the acute hazard quotient figures, red areas on these figures indicate areas where the maximum predicted hazard quotient exceeds 1, with yellow areas indicating areas that exceed the threshold of acceptability of 0.33 used in this study. As described above, the same details regarding the non-threshold nature of health outcomes associated with PM_{2.5} and NO₂ exposure also affect chronic health effects, therefore, health risks may still be observed in the areas outside of these contours for these air contaminants.

Table 6-12 presents the incremental lifetime cancer risks from exposure to model predicted annual average DPM concentrations in the areas surrounding the rail operations if a residential exposure time is assumed (i.e., 24 hours a day, 7 days a week, 365 days per year). The contours on these figures depict the number of additional cancer cases that may occur per 100,000 people exposed to the annual average contaminant concentration predicted at each location. These cancer risks are expressed on a population average basis, it should be noted that an individual's cancer risk is based on many individual factors.

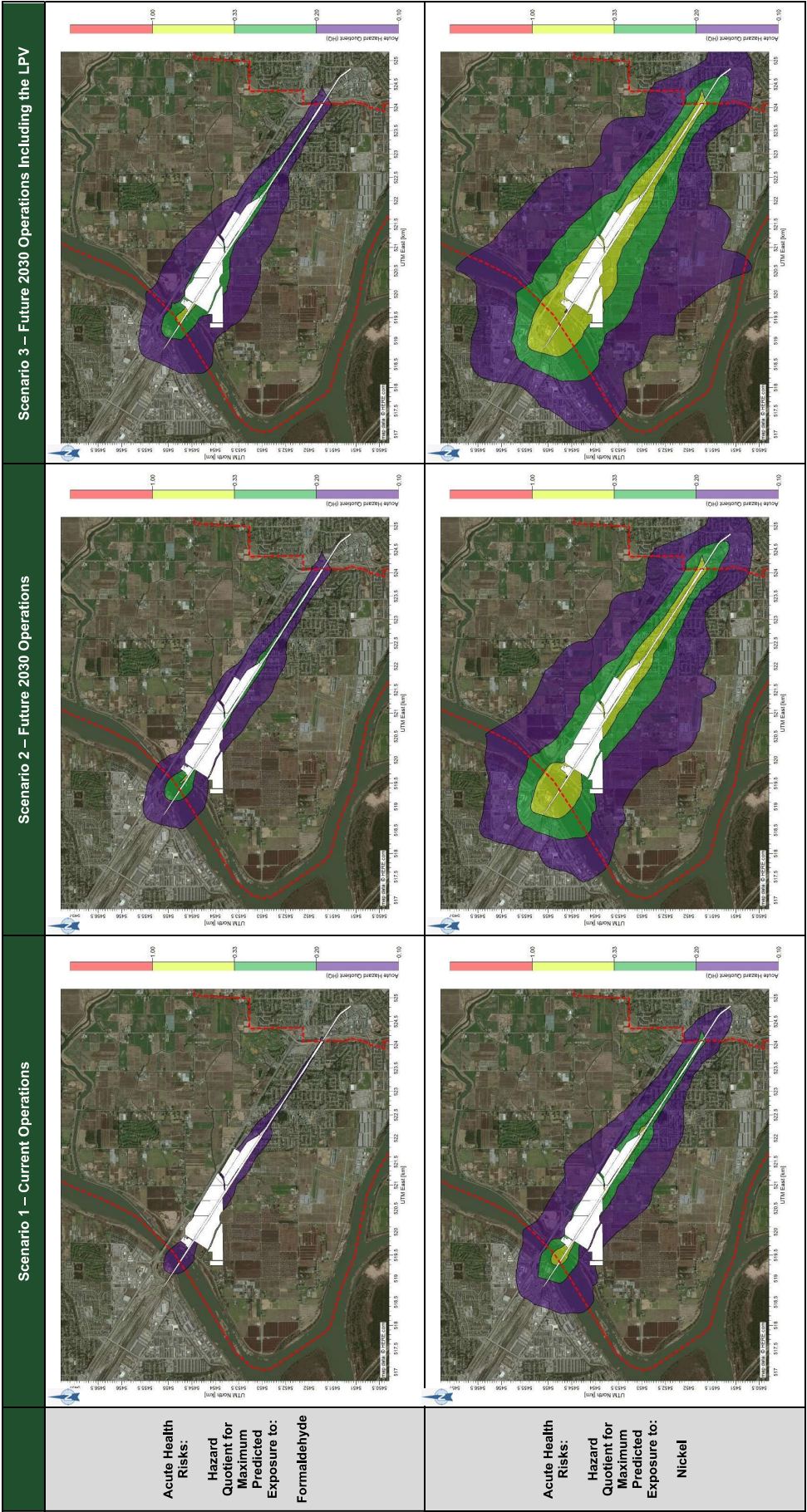
As noted in earlier sections, these results are based on the exposure to emissions from rail operations only. Comparison of the results for each scenario is reasonable with the understanding that background concentrations from other emissions sources in the region will also impact the potential risks identified.

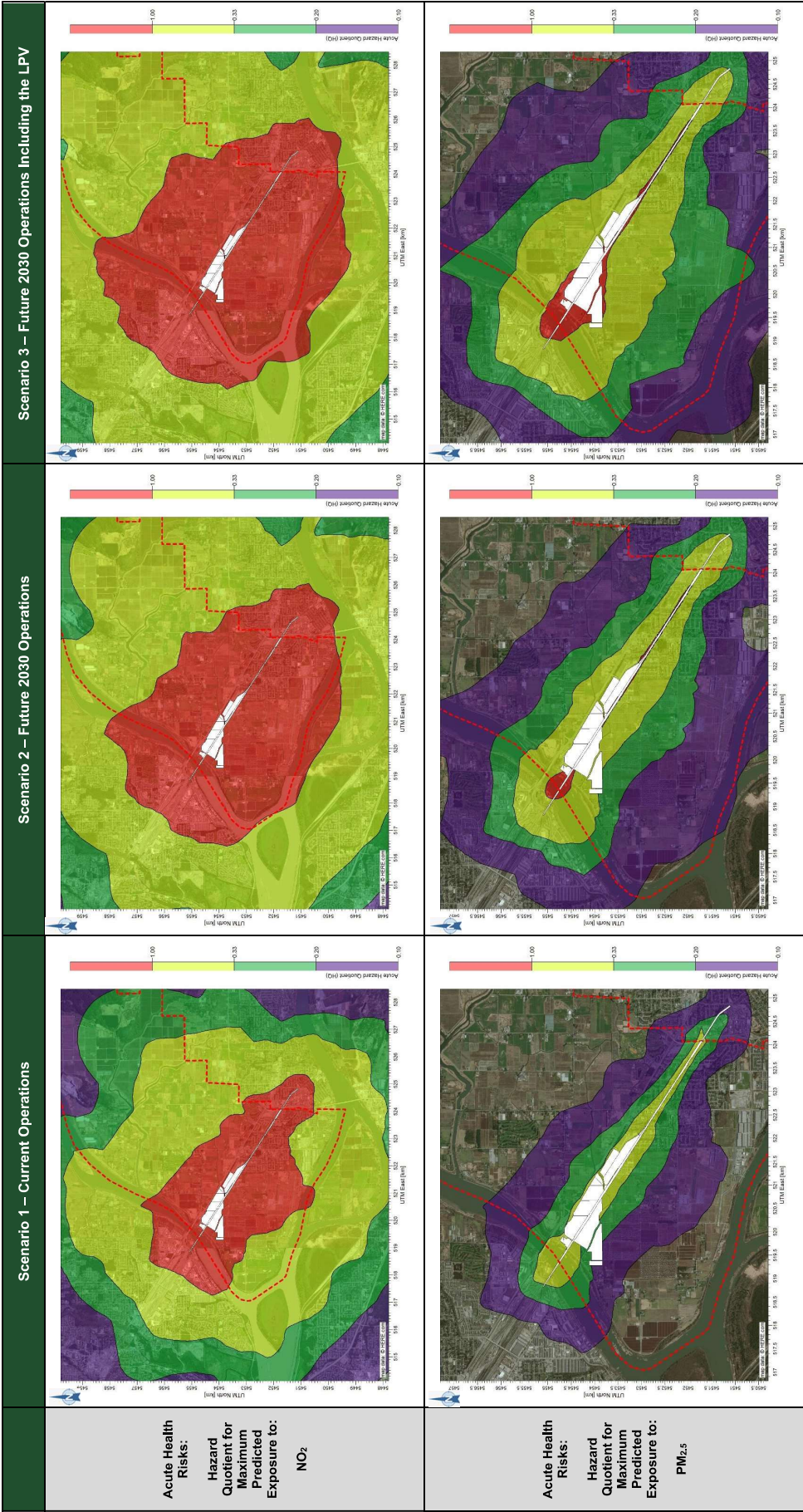
Table 6-10: Spatial Extents of Acute Health Risk Estimates Due to Maximum Model Predicted Inhalation Exposure to: Acrolein, DPM, Formaldehyde, Nickel, NO₂, and PM_{2.5}, for Each Emissions Scenario

Scenario 1 – Current Operations		Scenario 2 – Future 2030 Operations		Scenario 3 – Future 2030 Operations Including the LPV	
<p>Acute Health Risks:</p> <p>Hazard Quotient for Maximum Predicted Exposure to:</p> <p>Acrolein</p>					
<p>Acute Health Risks:</p> <p>Hazard Quotient for Maximum Predicted Exposure to:</p> <p>DPM</p>					

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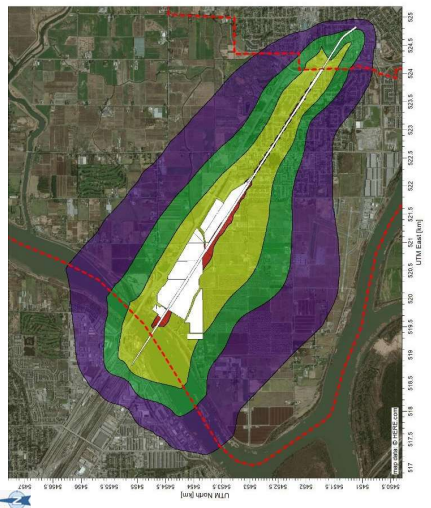
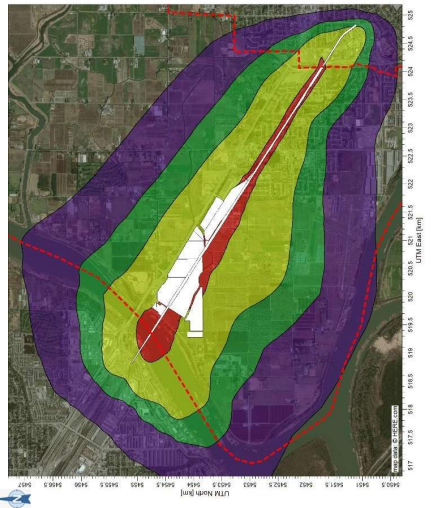
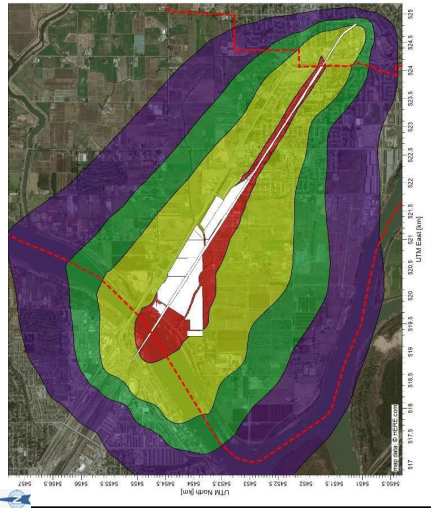
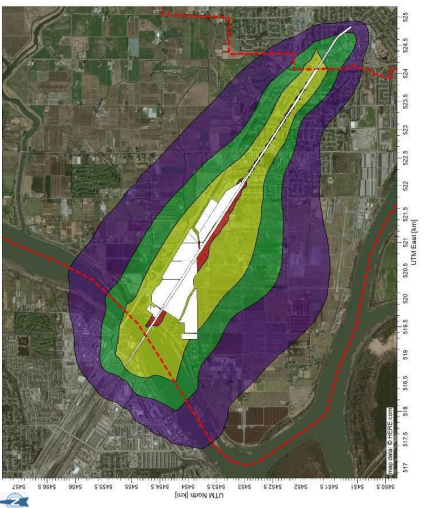
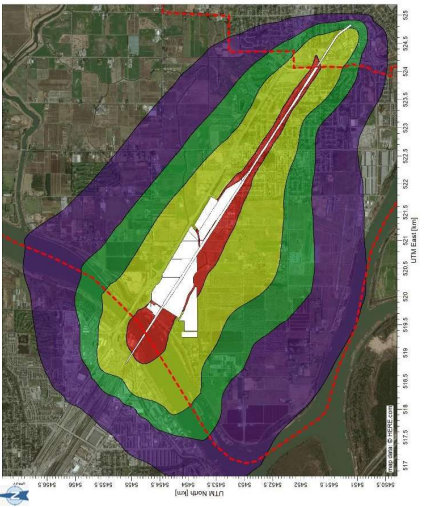
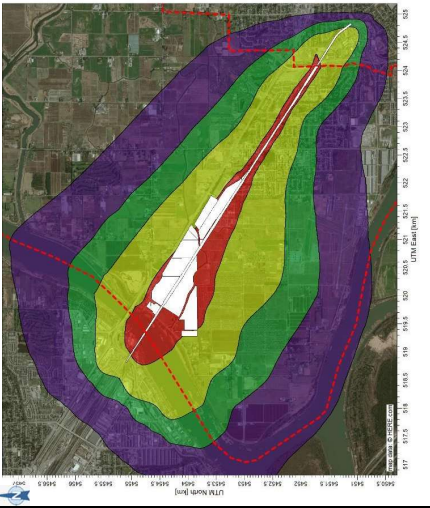
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NOTE: Model predicted acute health risk hazard quotients shown here are the model predicted worst-case risks based on estimated emissions from maximum expected 1-hour rail activities within the City of Pitt Meadows municipal boundary (shown as a red dashed line) with the addition of a 1km buffer on the mainlines to the east and west of the city boundary, and show the maximum air contaminant concentration predicted at each receptor over the full model year (i.e., it is not possible for these risks to be observed at any one time). White areas show CP lands and the rail right of way where there is no public access.
- - - = The City of Pitt Meadows Boundary

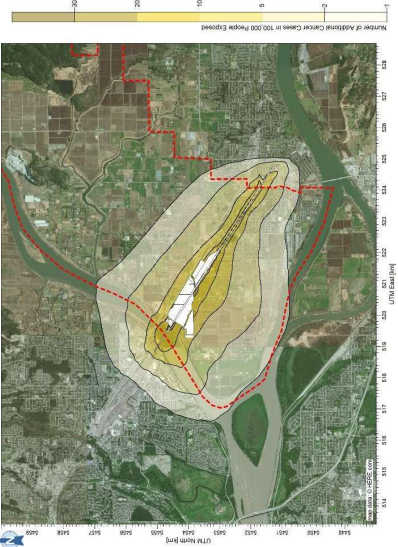
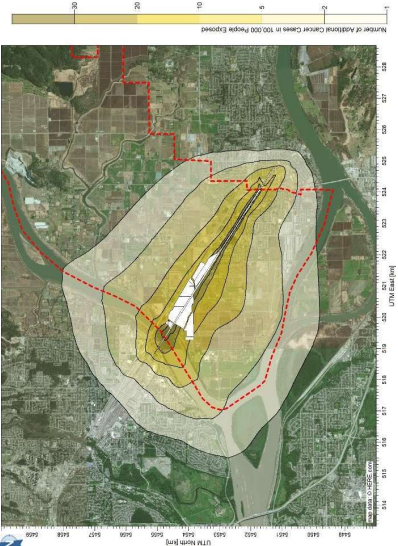
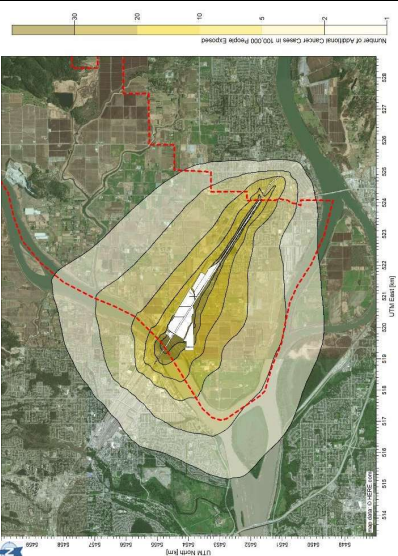
Table 6-11: Spatial Extents of Chronic Non-Cancer Health Risk Estimates Due to Model Predicted Inhalation Exposure to NO₂ and Acrolein for Each Emissions Scenario

Scenario 1 – Current Operations	Scenario 2 – Future 2030 Operations	Scenario 3 – Future 2030 Operations Including the LPV
<div>Chronic Non-Cancer Health Risks: Hazard Quotient for Predicted Exposure to: NO₂ Assumes residential full-time presence.</div> 		
<div>Chronic Non-Cancer Health Risks: Hazard Quotient for Predicted Exposure to: Acrolein Assumes residential full-time presence.</div> 		

NOTE: Model predicted chronic non-cancer health risk hazard quotients shown here are based on model predicted annual average air contaminant concentrations based on estimated emissions from typical expected levels of rail activities within the City of Pitt Meadows municipal boundary (shown as a red dashed line) with the addition of a 1km buffer on the mainlines to the east and west of the city boundary. White areas show CP lands and the rail right of way where there is no public access.

--- = The City of Pitt Meadows Boundary

Table 6-12: Spatial Extents of Incremental Lifetime Cancer Risks Posed by Model Predicted Exposure to DPM for Each Emissions Scenario

	Scenario 1 – Current Operations	Scenario 2 – Future 2030 Operations	Scenario 3 – Future 2030 Operations Including the LPV
Incremental Lifetime Cancer Risk Posed by Predicted Exposure to: DPM Assumes residential full-time presence.			

NOTE: Model predicted incremental lifetime cancer risk due to exposure to model predicted annual average DPM concentrations shown here are based on estimated emissions from typical expected levels of rail activities within the City of Pitt Meadows municipal boundary (shown as a red dashed line) with the addition of a 1 km buffer on the mainlines to the east and west of the city boundary. White areas show CP lands and the rail right of way where there is no public access.

--- = The City of Pitt Meadows Boundary

6.7 Uncertainty Analysis

Uncertainties in the risk estimates presented above relate to the modelling of air concentrations associated with emissions from the rail operations, estimating chemical exposures for the various receptor types and locations, and the toxicity reference values used.

Air Quality Dispersion Modelling

As air quality dispersion modelling predicts theoretical air contaminant concentrations based on many variables there is inherent uncertainty involved. The air quality dispersion model conducted in this study followed industry best practices including following the British Columbia Air Quality Dispersion Modelling Guidelines and took steps to reduce uncertainty. Some specific uncertainties are described below.

As described in **Section 1.3**, there are limitations which introduce uncertainty into the accuracy of the predicted air contaminant concentrations by the emission inventory and air quality dispersion model, including aspects such as a lack of detailed information being made available on the rail activities within the region. Where detailed information was not available, assumptions on activity times etc. were made based on the information available and activity levels at similar size rail facilities. Where ranges of potential activity values were considered, values on the upper end of the range were selected to avoid underestimating emissions (i.e., a conservative approach was taken) and to capture the potential maximum air quality concentrations for review in the preliminary HHRA.

Emissions modelled in this study are based on the most recent available emission rate data for locomotives and trucks which are presented based on the makeup of the national fleets of these vehicles. The makeup of the local fleets may be slightly different which could result in higher or lower emission rates than those reported for national fleets. Emission rates used are also based on the data for the most recent year available, actual average emission rates from the locomotives and truck exhausts in operation in the future 2030 scenarios may decrease as older vehicles are retired from the fleets and are replaced with newer or rebuilt models with improved emission controls or the use of alternative energy sources with lower emissions. Therefore, the predicted air contaminant concentrations in the future scenarios are expected to be conservative.

Nitrogen oxides (NO_x) undergo chemical transformation and conversion in the atmosphere, primarily between nitrogen monoxide (NO), and nitrogen dioxide (NO₂). Emission rates are typically reported for total NO_x while nitrogen dioxide (NO₂) specifically is the main focus from an air quality and health risk perspective. In this study the ARM method is used for the estimation of nitrogen dioxide (NO₂) concentrations based on emissions of total nitrogen oxides as recommended by the 2021 BC ENV guidance for nitrogen dioxide modelling³¹. There is uncertainty in the prediction of NO₂ concentrations as the influence of other air contaminants in the airshed and NO_x emissions from other sources will affect the chemical transformations and the ambient concentrations of NO₂ that are actually experienced.

³¹ BC Ministry of Environment & Climate Change Strategy, 2021 - *Guidance For NO₂ Dispersion Modelling In British Columbia*

Exposure Estimation

Un-amortized model-predicted maximum 1-hour average air concentrations at the various receptor locations were assumed to represent acute exposures. Model-predicted annual average air concentrations at the various receptor locations amortized using Health Canada guidance were assumed to represent chronic exposures. The degree to which the exposure estimates reflect actual potential exposures is uncertain, however the estimates are expected to be conservative.

Toxicity Reference Values

With few exceptions the TRVs used in the HHRA were effects-based thresholds and cancer potency factors obtained from recognized Canadian and international health agencies and are expected to contribute to reliable and conservative risk estimates.

In the absence of available TRVs from health agencies, TRVs used to assess PM_{2.5}, nitrogen dioxide and sulphur dioxide (chronic) were Canadian Ambient Air Quality Standards (CAAQS) which may not be purely based on health protection but rather represent objectives to encourage air quality improvement across the country. For PM_{2.5} and nitrogen dioxide, there is no threshold concentration below which adverse health effects are not possible. Therefore, the TRVs applied for these substances likely do not represent effects thresholds³². However, Hazard Quotients for one or both of these substances were elevated indicating a need for risk mitigation at all receptor types rendering uncertainty in the TRVs unimportant. For sulphur dioxide, the chronic inhalation RfC applied was the CAAQS. However, the uncertainty in this TRV is not likely important given that its use led to Hazard Quotients 90 times less than the threshold of acceptability.

Similarly, the acute inhalation RfCs applied for carbon monoxide were 14,900 and 5,700 µg/m³ for 1- and 8-hour exposures, which were Metro Vancouver ambient air quality objectives. These values appear to be sufficiently protective given that the California Environmental Protection Agency recommends a health-based acute TRV of 23,000 µg/m³ for carbon monoxide.

Based on the foregoing, overall uncertainty in the risk estimates is considered to be moderate with an expectation that they are conservative for all COPCs except PM_{2.5} and nitrogen dioxide. Where the hazard quotients for the PM_{2.5} and nitrogen dioxide concentrations predicted in this study were found to be below the threshold of acceptability used (i.e., HQs of less than 0.33), this does not warrant that no health risks would be associated with exposure to the predicted concentrations of these air contaminants.

³² For this reason, other approaches such as Health Canada's Air Quality Benefits Assessment Tool (AQBAT) are often applied to evaluate the potential impacts of these parameters. Such modelling was beyond the scope of this Preliminary Quantitative Human Health Risk Assessment.

7.0 CONCLUSION

This study assesses the air quality and potential health risks of emissions associated with the current and future rail operations within the City of Pitt Meadows boundary, through completion of an emissions inventory, air quality dispersion modelling, and preliminary human health risk assessment. Scenarios evaluating both current rail operations and future operations (based on 2030 with and without the inclusion of the proposed CP Logistics Park: Vancouver) were evaluated. It should be noted that the emissions modelling in this study includes estimated worst-case activity levels (based on current understanding of rail operations in Pitt Meadows), to identify the maximum potential health risks and locations where they may occur.

This study predicted exceedances of the acceptable health risk thresholds (for non-carcinogenic and carcinogenic health effects) for some of the individual air contaminants due to exposure to the model predicted concentrations associated with diesel emissions in each of the three scenarios evaluated, including under existing conditions. The health risks were predicted to increase in the future scenarios based on 2030 rail operations without (Scenario 2), and with (Scenario 3) the proposed CP: Logistics Park Vancouver.

The risks predicted for acute health effects (i.e., health effects due to short-term exposures to air contaminants) were typically higher than risks predicted for chronic non-carcinogenic health effects (i.e., non-cancer health effects due to long-term exposures to air contaminants). While model predicted exceedances of the threshold for acceptability for acute health risks shows potential risk, the assessment of acute health risks in this preliminary HHRA were based on exposure to the model predicted worst-case maximum 1-hour air contaminant concentrations based on the estimated air emissions associated with worst-case maximum 1-hour activity levels of the rail operations, and therefore this potential risk represents an upper bound of the acute health risks predicted to occur. The model predicted exceedances of the threshold for acceptability for chronic non-cancer health risks (based on model predicted concentrations of nitrogen dioxide and acrolein), and particularly for incremental lifetime cancer risks associated with exposure to predicted concentrations of DPM, show a potential for risk with greater certainty as these predicted chronic health risks were based on the annual average of model predicted air contaminant concentrations and emissions associated with typical activity levels for the rail operations. Based on these results, potential human health risks related to diesel emissions from the existing and proposed rail-related operations (with or without the proposed LPV) need further consideration.

8.0 REFERENCES

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9.0 LIMITATIONS

This report is intended and prepared for the City of Pitt Meadows. This report is not for the benefit of any third party and may not be distributed to, disclosed in any form to, used by, or relied upon by any third party without the prior written consent of Envirochem Services Inc. (Envirochem). Any other third-party recipient of this report or user of any content contained herein uses this report and its contents at its sole risk, and by acceptance or use releases Envirochem, its affiliates, officers, employees and subcontractors from any liability for direct, indirect, incidental, consequential or special loss or damage or other liability of any nature arising from its use of the report or reliance upon any of its content.

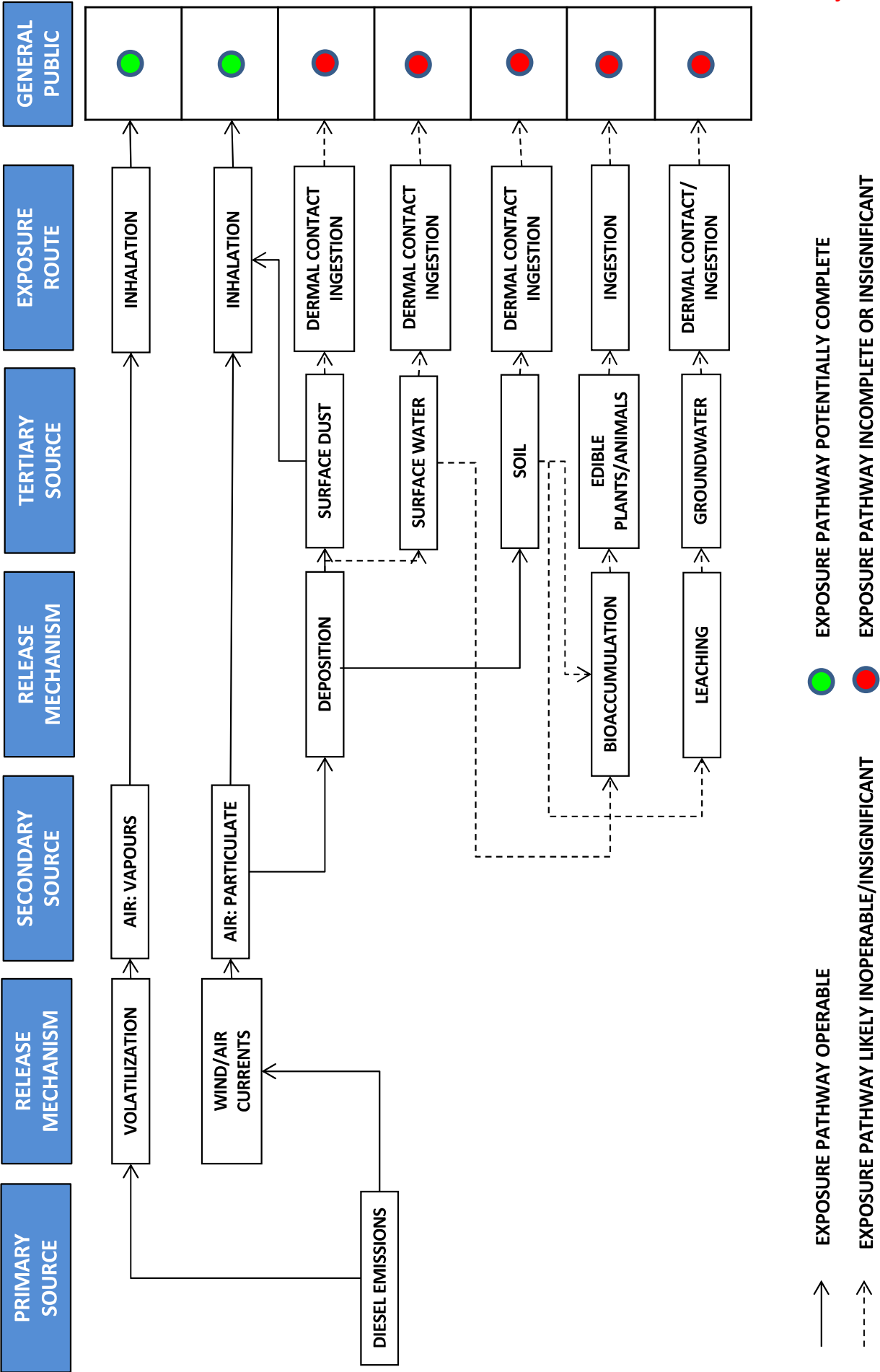
This report involves matters that could be precisely determined at the time of research. Calculations generally depend on conservative judgements and uncertainties that increase as we forecast further into the future. Much of the information available was based on estimates and assumptions made available by CP and third parties. Accordingly, this report does not guarantee a specific result; instead, it is a means of assessing the relative human health impacts of current and planned future projects on the surrounding areas and communities.

Envirochem reserves the right (but will be under no obligation) to review all calculations referred to in this report and, if considered necessary, to revise them in light of new facts, trends, or changing conditions that become apparent to us after the report is published.

Envirochem based many of its findings on provided information and reviews of available files. Envirochem takes no responsibility for the accuracy of provided information. This report was prepared for City of Pitt Meadow's uses only and Envirochem accepts no responsibility for its use by other parties. Envirochem's total liability does not extend beyond the value of the current preliminary HHRA and report preparation contract.

APPENDIX A: HHRA CONCEPTUAL EXPOSURE MODEL

Figure 1 – Conceptual Exposure Model



APPENDIX B:

TOXICITY PROFILES FOR CONTAMINANTS OF POTENTIAL CONCERN

Diesel Particulate Matter (DPM)

Emissions from diesel vehicles may originate from several sources, such as combustion (i.e. exhaust), mechanical wear (e.g. tires, brakes) and fugitive releases. Exhaust emissions are generally the dominant source of emissions. The composition of the exhaust emission mixture is dependent on several factors, such as fuel characteristics and additives, lubricants, engine and vehicle technologies, emission control devices and environmental conditions. Diesel PM generally consists of fine particulate matter (PM_{2.5}) and ultrafine particulate matter (UFP), which are released directly or formed secondarily via gaseous precursors in exhaust and evaporative emissions.

Exposure to diesel exhaust has been shown to be associated with lung cancer (causal relationship), bladder cancer (suggestive of a causal relationship), respiratory effects (causal relationship), cardiovascular effects (likely a causal relationship), immunological effects (likely a causal relationship), reproductive and developmental effects (suggestive of a causal relationship) and central nervous system effects (suggestive of a causal relationship).

Obtained from: Human Health Risk Assessment for Diesel Exhaust, Health Canada. 2016

Nitrogen Dioxide

Nitrogen dioxide (NO₂) belongs to the oxides of nitrogen group of compounds (NO_x) that are formed primarily through the burning of fossil fuels. While transportation sources represent over half of all emissions, energy production and industrial processes also emit significant amounts of NO_x, mainly as Nitric Oxide (NO) and Nitrogen Dioxide (NO₂). NO₂ at higher concentrations has a strong, harsh odour and can typically be seen over large cities as a brownish haze. Once formed, NO₂ can combine with water molecules in the air to form compounds like nitric acid and nitrous acid. Ultimately, these compounds fall to earth through precipitation (such as rain, snow and fog) where they contribute to the acidification and eutrophication of ecosystems.

Short-term exposure to NO₂ can elicit a range of adverse respiratory effects including decreased lung function, increased respiratory symptoms, and airway inflammation, and cause aggravation of respiratory diseases, particularly asthma and chronic obstructive pulmonary disease. Longterm exposure to NO₂ may contribute to allergic responses, asthma development and may increase susceptibility to respiratory infections. Inhalation of NO₂ has also been linked to effects on the cardiovascular system, and some reproductive effects.

Obtained from: <https://ccme.ca/en/air-quality-report>

Fine Particulate Matter (PM_{2.5})

Particulate matter (PM), a major component of smog, consists of airborne particles in solid or liquid form. PM may be classified as primary or secondary, depending on the process that led to its formation. Primary PM is emitted directly into the atmosphere from a source, such as a smokestack or exhaust pipe, or from wind-blown soils or vehicle traffic on a dirt road. Secondary PM is formed in the atmosphere through a series of chemical and physical reactions involving gases such as sulphur oxides (SO_x) and nitrogen oxides (NO_x). PM exists in various sizes and the particles of most concern for human health are those with a diameter of less than 2.5 micrometres (referred to as PM_{2.5}).

Exposures to fine particulate matter (PM_{2.5}) can negatively impact the heart and lungs, and can lead to health issues like asthma attacks, chronic bronchitis, and heart attacks. Exposure to PM_{2.5} is also linked to increased emergency room visits and hospitalization due to respiratory and cardiovascular problems, as well as increased risk of premature mortality. Children and those with pre-existing cardiovascular and respiratory disease have greater sensitivity to effects.

Obtained from: <https://ccme.ca/en/air-quality-report>

This fact sheet answers the most frequently asked health questions (FAQs) about acrolein. For more information, call the ATSDR Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to acrolein occurs mostly from breathing it in air. Cigarette smoke and automobile exhaust contain acrolein. Acrolein causes burning of the nose and throat and can damage the lungs. Acrolein has been found in at least 32 of the 1,684 National Priority List sites identified by the Environmental Protection Agency (EPA).

What is acrolein?

Acrolein is a colorless or yellow liquid with a disagreeable odor. It dissolves in water very easily and quickly changes to a vapor when heated. It also burns easily. Small amounts of acrolein can be formed and can enter the air when trees, tobacco, other plants, gasoline, and oil are burned.

Acrolein is used as a pesticide to control algae, weeds, bacteria, and mollusks. It is also used to make other chemicals.

What happens to acrolein when it enters the environment?

- ☐ Acrolein may be found in soil, water, or air.
- ☐ It breaks down fairly rapidly in the air (about half will disappear within 1 day) by reacting with other chemicals and sunlight.
- ☐ Acrolein evaporates rapidly from soil and water.

How might I be exposed to acrolein?

- ☐ Smoking tobacco or breathing air containing tobacco smoke or automobile exhaust.
- ☐ Working in or living near industries where acrolein is manufactured or used to make other chemicals.
- ☐ Inhaling vapors from overheated cooking oil or grease.

How can acrolein affect my health?

There is very little information about how exposure to acrolein affects people's health. The information we have indicates that breathing large amounts damages the lungs and could cause death. Breathing lower amounts may cause eye watering and burning of the nose and throat and a decreased breathing rate; these effects usually disappear after exposure stops.

Animal studies show that breathing acrolein causes irritation to the nasal cavity, lowered breathing rate, and damage to the lining of the lungs.

We do not know if eating food or drinking water containing acrolein affects your health. However, animals that swallowed acrolein had stomach irritation, vomiting, stomach ulcers and bleeding.

How likely is acrolein to cause cancer?

The Department of Health and Human Services (DHHS) has not classified acrolein as to its carcinogenicity. The International Agency for Research on Cancer (IARC) has determined that acrolein is not classifiable as to carcinogenicity in humans. The EPA has stated that the potential carcinogenicity of acrolein cannot be determined based on an inadequate database.

ToxFAQs™ Internet address is <http://www.atsdr.cdc.gov/toxfaq.html>

How can acrolein affect children?

In general, children are not likely to be affected by acrolein more than adults. However, children who are sensitive to irritants in the air (such as children with asthma) may be more sensitive to lung irritation from acrolein.

In animal studies, ingestion of very large amounts of acrolein during pregnancy caused reduced birth weights and skeletal deformities in newborns. However, the levels causing these effects were often fatal to the mother.

How can families reduce the risks of exposure to acrolein?

You can reduce your family's exposure to acrolein by reducing their exposure to tobacco smoke, smoke from burning wood products or cooking oils and grease, and exhaust from diesel or gasoline vehicles.

Is there a medical test to determine whether I've been exposed to acrolein?

There are tests to detect acrolein or breakdown products of acrolein in blood or urine; however, these tests are not available in a doctor's office because they require special equipment. These tests also cannot be used to determine if you were exposed to acrolein because acrolein can be produced by the breakdown of other chemicals in the body.

Has the federal government made recommendations to protect human health?

The Food and Drug Administration (FDA) has determined that the amount of acrolein used to prepare modified food starch must not be more than 0.6%.

The Occupational Safety and Health Administration (OSHA) has set a limit of 0.1 parts of acrolein per million parts of workplace air (0.1 ppm) for 8 hour shifts and 40 hour work weeks.

The EPA has restricted the use of all pesticides containing acrolein.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2007. Toxicological Profile for Acrolein (Update). Atlanta, GA: U.S. Department of Public Health and Human Services, Public Health Service.

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Environmental Medicine, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-800-232-4636, FAX: 770-488-4178. ToxFAQs Internet address via WWW is <http://www.atsdr.cdc.gov/toxfaq.html>. ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.



Arsenic - ToxFAQs™

CAS # 7440-38-2

This fact sheet answers the most frequently asked health questions (FAQs) about arsenic. For more information, call the CDC Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to higher than average levels of arsenic occur mostly in the workplace, near hazardous waste sites, or in areas with high natural levels. At high levels, inorganic arsenic can cause death. Exposure to lower levels for a long time can cause a discoloration of the skin and the appearance of small corns or warts. Arsenic has been found in at least 1,149 of the 1,684 National Priority List (NPL) sites identified by the Environmental Protection Agency (EPA).

What is arsenic?

Arsenic is a naturally occurring element widely distributed in the earth's crust. In the environment, arsenic is combined with oxygen, chlorine, and sulfur to form inorganic arsenic compounds. Arsenic in animals and plants combines with carbon and hydrogen to form organic arsenic compounds.

Inorganic arsenic compounds are mainly used to preserve wood. Copper chromated arsenate (CCA) is used to make "pressure-treated" lumber. CCA is no longer used in the U.S. for residential uses; it is still used in industrial applications. Organic arsenic compounds are used as pesticides, primarily on cotton fields and orchards.

What happens to arsenic when it enters the environment?

- Arsenic occurs naturally in soil and minerals and may enter the air, water, and land from wind-blown dust and may get into water from runoff and leaching.
- Arsenic cannot be destroyed in the environment. It can only change its form.
- Rain and snow remove arsenic dust particles from the air.
- Many common arsenic compounds can dissolve in water. Most of the arsenic in water will ultimately end up in soil or sediment.
- Fish and shellfish can accumulate arsenic; most of this arsenic is in an organic form called arsenobetaine that is much less harmful.

How might I be exposed to arsenic?

- Ingesting small amounts present in your food and water or breathing air containing arsenic.
- Breathing sawdust or burning smoke from wood treated with arsenic.
- Living in areas with unusually high natural levels of arsenic in rock.
- Working in a job that involves arsenic production or use, such as copper or lead smelting, wood treating, or pesticide application.

How can arsenic affect my health?

Breathing high levels of inorganic arsenic can give you a sore throat or irritated lungs.

Ingesting very high levels of arsenic can result in death. Exposure to lower levels can cause nausea and vomiting, decreased production of red and white blood cells, abnormal heart rhythm, damage to blood vessels, and a sensation of "pins and needles" in hands and feet.

Ingesting or breathing low levels of inorganic arsenic for a long time can cause a darkening of the skin and the appearance of small "corns" or "warts" on the palms, soles, and torso.

Skin contact with inorganic arsenic may cause redness and swelling.

Almost nothing is known regarding health effects of organic arsenic compounds in humans. Studies in animals show that some simple organic arsenic

Arsenic

CAS # 7440-38-2

compounds are less toxic than inorganic forms. Ingestion of methyl and dimethyl compounds can cause diarrhea and damage to the kidneys.

How likely is arsenic to cause cancer?

Several studies have shown that ingestion of inorganic arsenic can increase the risk of skin cancer and cancer in the liver, bladder, and lungs. Inhalation of inorganic arsenic can cause increased risk of lung cancer. The Department of Health and Human Services (DHHS) and the EPA have determined that inorganic arsenic is a known human carcinogen. The International Agency for Research on Cancer (IARC) has determined that inorganic arsenic is carcinogenic to humans.

How can arsenic affect children?

There is some evidence that long-term exposure to arsenic in children may result in lower IQ scores. There is also some evidence that exposure to arsenic in the womb and early childhood may increase mortality in young adults.

There is some evidence that inhaled or ingested arsenic can injure pregnant women or their unborn babies, although the studies are not definitive. Studies in animals show that large doses of arsenic that cause illness in pregnant females, can also cause low birth weight, fetal malformations, and even fetal death. Arsenic can cross the placenta and has been found in fetal tissues. Arsenic is found at low levels in breast milk.

How can families reduce the risks of exposure to arsenic?

- If you use arsenic-treated wood in home projects, you should wear dust masks, gloves, and protective clothing to decrease exposure to sawdust.
- If you live in an area with high levels of arsenic in water or soil, you should use cleaner sources of water and limit contact with soil.

- If you work in a job that may expose you to arsenic, be aware that you may carry arsenic home on your clothing, skin, hair, or tools. Be sure to shower and change clothes before going home.

Is there a medical test to determine whether I've been exposed to arsenic?

There are tests available to measure arsenic in your blood, urine, hair, and fingernails. The urine test is the most reliable test for arsenic exposure within the last few days. Tests on hair and fingernails can measure exposure to high levels of arsenic over the past 6-12 months. These tests can determine if you have been exposed to above-average levels of arsenic. They cannot predict whether the arsenic levels in your body will affect your health.

Has the federal government made recommendations to protect human health?

The EPA has set limits on the amount of arsenic that industrial sources can release to the environment and has restricted or cancelled many of the uses of arsenic in pesticides. EPA has set a limit of 0.01 parts per million (ppm) for arsenic in drinking water.

The Occupational Safety and Health Administration (OSHA) has set a permissible exposure limit (PEL) of 10 micrograms of arsenic per cubic meter of workplace air ($10 \mu\text{g}/\text{m}^3$) for 8 hour shifts and 40 hour work weeks.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2007. Toxicological Profile for Arsenic (Update). Atlanta, GA: U.S. Department of Health and Human Services. Public Health Service.

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30329-4027.

Phone: 1-800-232-4636

ToxFAQs™ Internet address via WWW is <http://www.atsdr.cdc.gov/toxfaqs/index.asp>.

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

Formaldehyde - ToxFAQs™

CAS # 50-00-0

This fact sheet answers the most frequently asked health questions (FAQs) about formaldehyde. For more information, call the CDC Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important that you understand this information because this substance may cause harm to you if you are exposed to it. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Everyone is exposed to small amounts of formaldehyde in air and some foods and products. Formaldehyde can cause irritation of the eyes, nose, and throat and neurological effects. Formaldehyde has been found in at least 29 of the 1,669 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is formaldehyde?

At room temperature, formaldehyde is a colorless, flammable gas that has a distinct, pungent smell. Small amounts of formaldehyde are naturally produced by plants, animals, and humans.

It is used in the production of fertilizer, paper, plywood, and urea-formaldehyde resins. It is also used as a preservative in some foods and in many house-hold products, such as antiseptics, medicines, and cosmetics.

What happens to formaldehyde when it enters the environment?

- Once formaldehyde is in the air, it is quickly broken down, usually within hours.
- Formaldehyde dissolves easily but does not last a long time in water.
- Formaldehyde evaporates from shallow soils.
- Formaldehyde does not build up in plants and animals.

How might I be exposed to formaldehyde?

- The primary way you can be exposed to formaldehyde is by breathing air containing it.
- Releases of formaldehyde into the air occur from industries using or manufacturing formaldehyde, wood products (such as particle-board, plywood, and furniture), automobile exhaust, cigarette smoke, paints and varnishes, and carpets and permanent press fabrics.
- Indoor air contains higher levels of formaldehyde than outdoor air. Levels of formaldehyde measured

in indoor air range from 0.02–4 parts per million (ppm). Formaldehyde levels in outdoor air range from 0.0002 to 0.006 ppm in rural and suburban areas and 0.001 to 0.02 ppm in urban areas.

- Breathing contaminated workplace air. The highest potential exposure occurs in the formaldehyde-based resins industry.

How can formaldehyde affect my health?

Nasal and eye irritation, neurological effects, and increased risk of asthma and/or allergy have been observed in humans breathing 0.1 to 0.5 ppm. Eczema and changes in lung function have been observed at 0.6 to 1.9 ppm.

Decreased body weight, gastrointestinal ulcers, liver and kidney damage were observed in animals orally exposed to 50–100 milligrams/kilogram/day (mg/kg/day) formaldehyde.

How likely is formaldehyde to cause cancer?

The Department of Health and Human Services (HHS) determined in 2011 that formaldehyde is a known human carcinogen based on sufficient human and animal inhalation studies.

How can formaldehyde affect children?

A small number of studies have looked at the health effects of formaldehyde in children. It is very likely that breathing formaldehyde will result in nose and eye irritation. We do not know if the irritation would occur at lower concentrations in children than in adults.

Formaldehyde

CAS # 50-00-0

There is some evidence of asthma or asthma-like symptoms for children exposed to formaldehyde in homes.

Animal studies have suggested that formaldehyde will not cause birth defects in humans.

How can families reduce the risk of exposure to formaldehyde?

- Formaldehyde is usually found in the air, and levels are usually higher indoors than outdoors. Opening windows and using fans to bring fresh air indoors are the easiest ways to lower levels in the house. Not smoking and not using unvented heaters indoors can lower the formaldehyde levels.
- Formaldehyde is given off from a number of products used in the home. Removing formaldehyde sources in the home can reduce exposure. Providing fresh air, sealing unfinished manufactured wood surfaces, and washing new permanent press clothing before wearing can help lower exposure.

Is there a medical test to show whether I've been exposed to formaldehyde?

Formaldehyde cannot be reliably measured in blood, urine, or body tissues following exposure. Formaldehyde is produced in the body and would be present as a normal constituent in body tissues and fluids.

Has the federal government made recommendations to protect human health?

The US EPA has determined that exposure to formaldehyde in drinking water at concentrations of 10 milligrams/liter (mg/L) for 1 day or 5 mg/L for 10 days is not expected to cause any adverse effects in children.

The US EPA has also determined that a lifetime exposure to 1 mg/L of formaldehyde in drinking water is not expected to cause any adverse health effects.

The Occupational Health and Safety Administration (OSHA) has limited workers' exposure to an average of 0.75 ppm for an 8-hour workday, 40-hour workweek.

The U.S. Department of Housing and Urban Development (HUD) has set standards for formaldehyde emissions in manufactured housing of less than 0.2 ppm for plywood and 0.3 ppm for particle board. The HUD standards are designed to provide an ambient air level of 0.4 ppm or less in manufactured housing.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1999. Toxicological Profile for Formaldehyde. Addendum to the Profile for Formaldehyde. 2010. Atlanta, GA: U.S. Department of Public Health and Human Services, Public Health Service.

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30329-4027.

Phone: 1-800-232-4636.

ToxFAQs™ on the web: www.atsdr.cdc.gov/toxFAQs.

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

This fact sheet answers the most frequently asked health questions (FAQs) about nickel. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Nickel is a naturally occurring element. Pure nickel is a hard, silvery-white metal used to make stainless steel and other metal alloys. Skin effects are the most common effects in people who are sensitive to nickel. Workers who breathed very large amounts of nickel compounds developed chronic bronchitis and lung and nasal sinus cancers. Nickel has been found in at least 882 of the 1,662 National Priority List sites identified by the Environmental Protection Agency (EPA).

What is nickel?

Nickel is a very abundant natural element. Pure nickel is a hard, silvery-white metal. Nickel can be combined with other metals, such as iron, copper, chromium, and zinc, to form alloys. These alloys are used to make coins, jewelry, and items such as valves and heat exchangers. Most nickel is used to make stainless steel.

Nickel can combine with other elements such as chlorine, sulfur, and oxygen to form nickel compounds. Many nickel compounds dissolve fairly easy in water and have a green color. Nickel compounds are used for nickel plating, to color ceramics, to make some batteries, and as substances known as catalysts that increase the rate of chemical reactions. Nickel is found in all soil and is emitted from volcanoes. Nickel is also found in meteorites and on the ocean floor. Nickel and its compounds have no characteristic odor or taste.

What happens to nickel when it enters the environment?

- ☐ Nickel is released into the atmosphere by industries that make or use nickel, nickel alloys, or nickel compounds. It is also released into the atmosphere by oil-burning power plants, coal-burning power plants, and trash incinerators.
- ☐ In the air, it attaches to small particles of dust that settle to the ground or are taken out of the air in rain or snow; this usually takes many days.

☐ Nickel released in industrial waste water ends up in soil or sediment where it strongly attaches to particles containing iron or manganese.

☐ Nickel does not appear to accumulate in fish or in other animals used as food.

How might I be exposed to nickel?

- ☐ By eating food containing nickel, which is the major source of exposure for most people.
- ☐ By skin contact with soil, bath or shower water, or metals containing nickel, as well as by handling coins or touching jewelry containing nickel.
- ☐ By drinking water that contains small amounts of nickel.
- ☐ By breathing air or smoking tobacco containing nickel.
- ☐ Higher exposure may occur if you work in industries that process or use nickel.

How can nickel affect my health?

The most common harmful health effect of nickel in humans is an allergic reaction. Approximately 10-20% of the population is sensitive to nickel. People can become sensitive to nickel when jewelry or other things containing it are in direct contact with the skin for a long time. Once a person is sensitized to nickel, further contact with the metal may produce a reaction. The most common reaction is a skin rash at the site of contact. The skin rash may also

ToxFAQs™ Internet address is <http://www.atsdr.cdc.gov/toxfaq.html>

occur at a site away from the site of contact. Less frequently, some people who are sensitive to nickel have asthma attacks following exposure to nickel. Some sensitized people react when they consume food or water containing nickel or breathe dust containing it.

People working in nickel refineries or nickel-processing plants have experienced chronic bronchitis and reduced lung function. These persons breathed amounts of nickel much higher than levels found normally in the environment.

Workers who drank water containing high amounts of nickel had stomach ache and suffered adverse effects to their blood and kidneys.

Damage to the lung and nasal cavity has been observed in rats and mice breathing nickel compounds. Eating or drinking large amounts of nickel has caused lung disease in dogs and rats and has affected the stomach, blood, liver, kidneys, and immune system in rats and mice, as well as their reproduction and development.

How likely is nickel to cause cancer?

Cancers of the lung and nasal sinus have resulted when workers breathed dust containing high levels of nickel compounds while working in nickel refineries or nickel processing plants. The Department of Health and Human Services (DHHS) has determined that nickel metal may reasonably be anticipated to be a carcinogen and that nickel compounds are known human carcinogens. The International Agency for Research on Cancer (IARC) has determined that some nickel compounds are carcinogenic to humans and that metallic nickel may possibly be carcinogenic to humans. The EPA has determined that nickel refinery dust and nickel subsulfide are human carcinogens.

How can nickel affect children?

It is likely that the health effects seen in children exposed to nickel will be similar to those seen in adults. We do not know whether children differ from adults in their susceptibility to nickel. Human studies that examined whether nickel can harm the fetus are inconclusive. Animal studies have found increases in newborn deaths and

decreased newborn weight after ingesting very high amounts of nickel. Nickel can be transferred from the mother to an infant in breast milk and can cross the placenta.

How can families reduce the risks of exposure to nickel?

- ☐ Avoiding jewelry containing nickel will eliminate risks of exposure to this source of the metal.
- ☐ Exposures of the general population from other sources, such as foods and drinking water, are almost always too low to be of concern.

Is there a medical test to determine whether I've been exposed to nickel?

There are tests available to measure nickel in your blood, feces, and urine. More nickel was measured in the urine of workers who were exposed to nickel compounds that dissolve easily in water than in the urine of workers exposed to nickel compounds that are hard to dissolve. This means that it is easier to tell if you have been exposed to soluble nickel compounds than less-soluble compounds. The nickel measurements do not accurately predict potential health effects from exposure to nickel.

Has the federal government made recommendations to protect human health?

The EPA recommends that drinking water should contain no more than 0.1 milligrams of nickel per liter of water (0.1 mg/L). To protect workers, the Occupational Safety and Health Administration (OSHA) has set a limit of 1 mg of nickel per cubic meter of air (1 mg/m³) for metallic nickel and nickel compounds in workplace air during an 8-hour workday, 40-hour workweek.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2005. Toxicological Profile for Nickel (Update). Atlanta, GA: U.S. Department of Public Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. ToxFAQs Internet address via WWW is <http://www.atsdr.cdc.gov/toxfaq.html>. ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.



APPENDIX C: CALMET MODEL EVALUATION

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C. CALMET MODEL EVALUATION

To generate a high-quality and appropriate three-dimensional diagnostic meteorological field by CALMET to resolve the terrain forcing effects and meteorological conditions in the area under study, the following conditions were used:

- Initializing CALMET using WRF prognostic met data with 1 km grid resolution;
- Using a finer 200 m horizontal grid resolution within the CALMET domain to encompass the main topographical features in the modelling domain;
- Supplementing the local observational met station data in the whole domain; and,
- Using high-resolution terrain elevation data, land cover and land use characterization information.

The CALMET model was assessed by reviewing various model outputs and, where possible, comparing to actual meteorological observations. These outputs include: temperature, surface wind roses for various monitoring locations, CALMET derived stabilities and mixing heights and domain wind vector plots under various stability and flow regimes, and precipitation. Evaluation of the following CALMET outputs verified the quality of the input data and the proper CALMET model configuration and implementation for this project.

C.1 Temperature

A comparison of observed and CALMET-derived temperatures at the closest stations: T20 (Pitt Meadows) and T30 (Maple Ridge) are respectively presented in **Figure C-1** and **Figure C-2**. The figures include a box-whisker plot which shows the minimum and maximum temperatures, the 25th and 75th percentiles and the median temperature. The frequency distribution of temperatures is also shown. This comparison indicates that the CALMET-derived temperatures are very similar to the observed temperatures, which indicates the model is performing as expected and properly ingested the input observations. The CALMET-derived temperatures extracted from the centre of the model domain (along the rail line at the Pitt Meadows West Coast Express station) are also compared to observation temperatures at the closest station (T20 – Pitt Meadows) in **Figure C-3**.

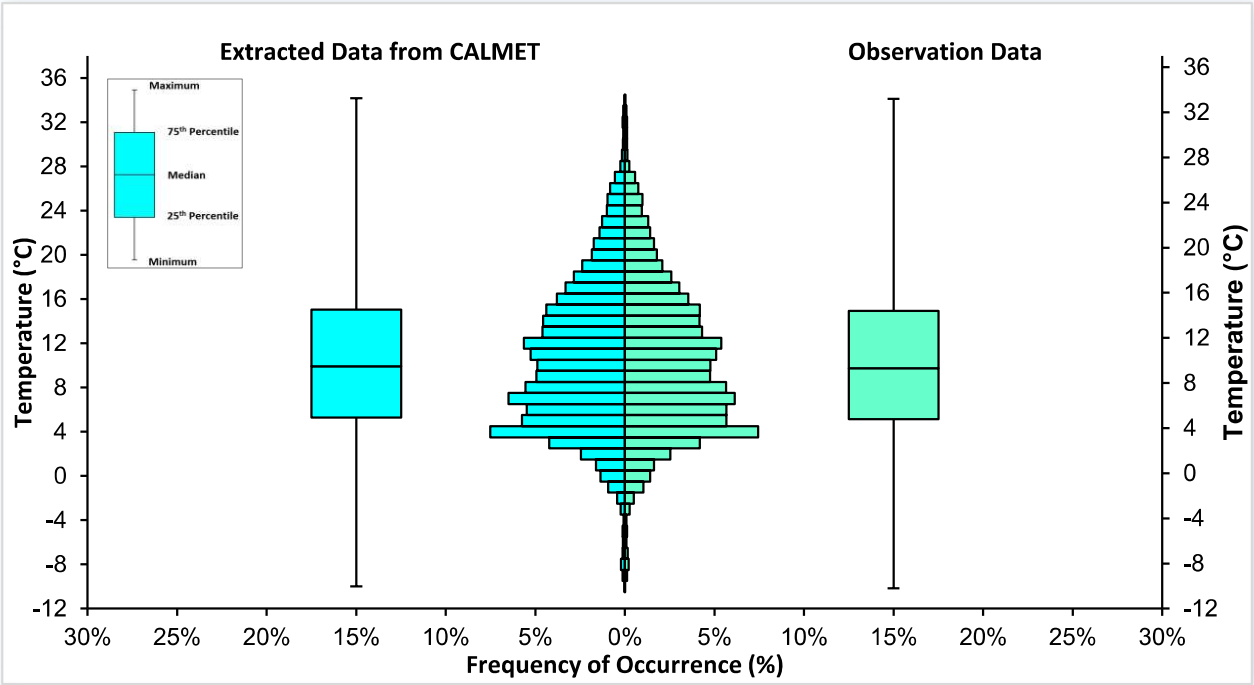


Figure C-1: Comparison of CALMET-derived and observed temperatures at T20 – Pitt Meadows

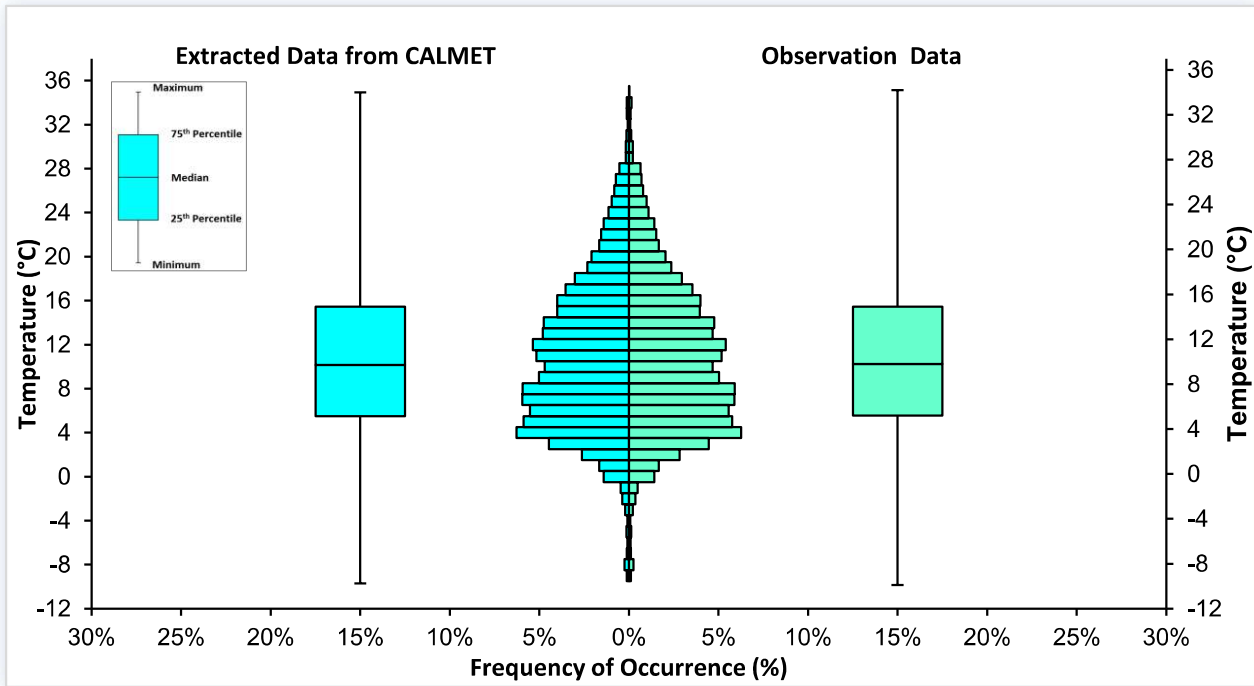


Figure C-2: Comparison of CALMET-derived and observed temperatures at T30 – Maple Ridge

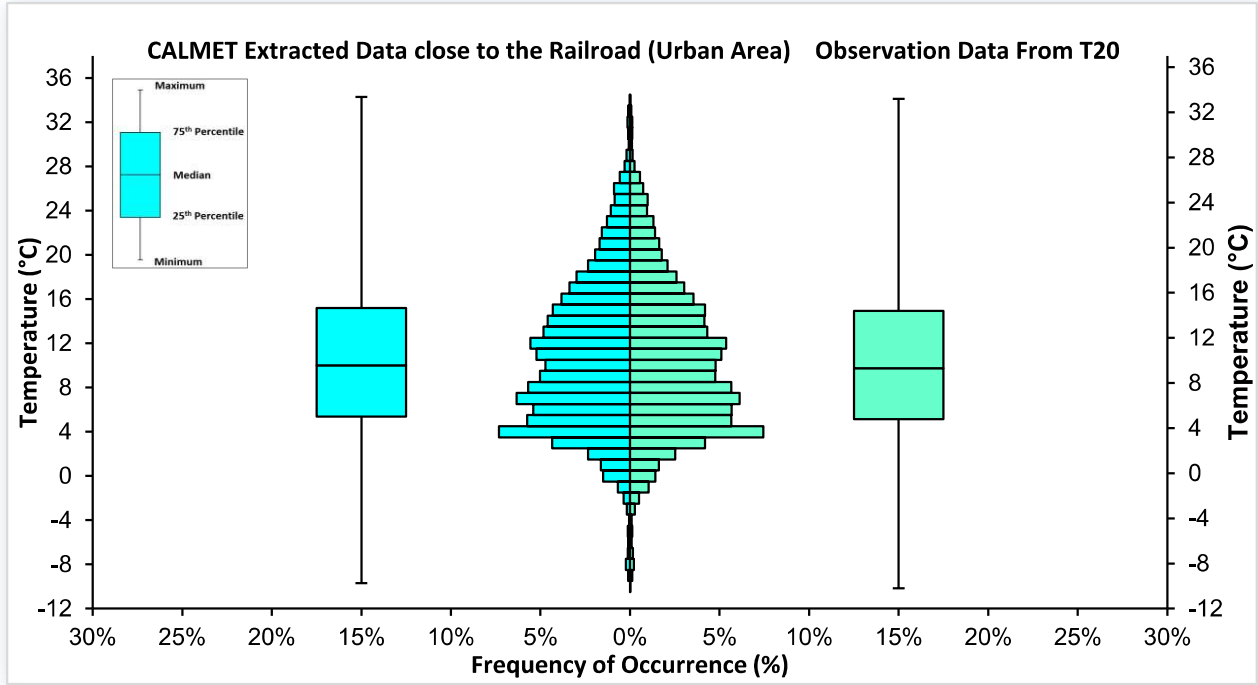


Figure C-3: Comparison of CALMET-derived temperatures at the centre of the model domain (close to Pitt Meadows West Coast Express station) and observed temperatures at the closest monitoring station: T20– Pitt Meadows

Figure C-4 shows CALMET-derived monthly and diurnal variations of temperature at the centre of the model domain (along the rail line at the Pitt Meadows West Coast Express station). As expected, the highest temperature occurred during August afternoons. **Figure C-5** shows the monthly average CALMET derived temperatures at stations T20, and T30, compared with the observed monthly average temperatures at these stations. In addition, **Figure C-6** shows the diurnal variations of the CALMET derived temperatures compared to the observed temperatures at stations T20 and T30.

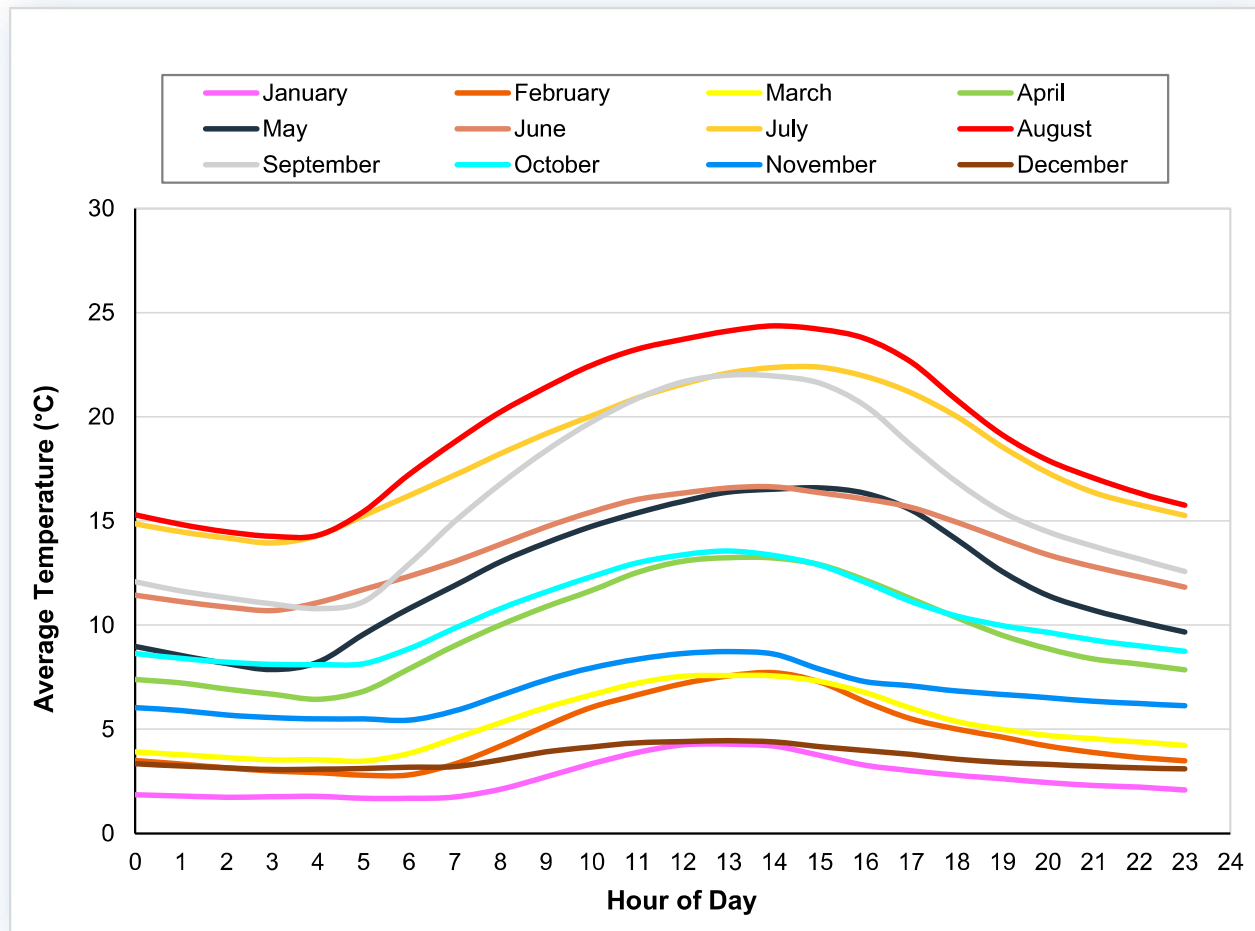


Figure C-4: Average of CALMET-derived diurnal temperatures by month at the centre of the model domain (along the rail line at the Pitt Meadows West Coast Express station)

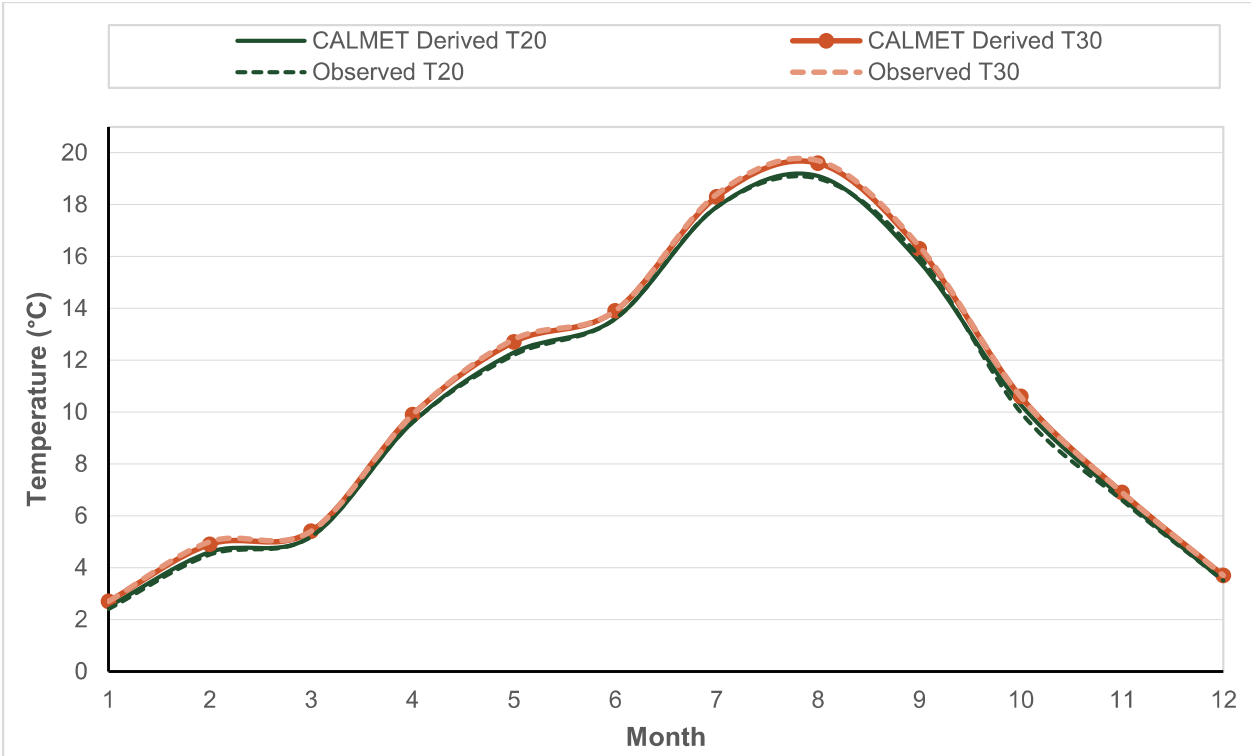


Figure C-5: Comparison of CALMET-derived temperatures with observed temperatures by month at Stations T20 and T30

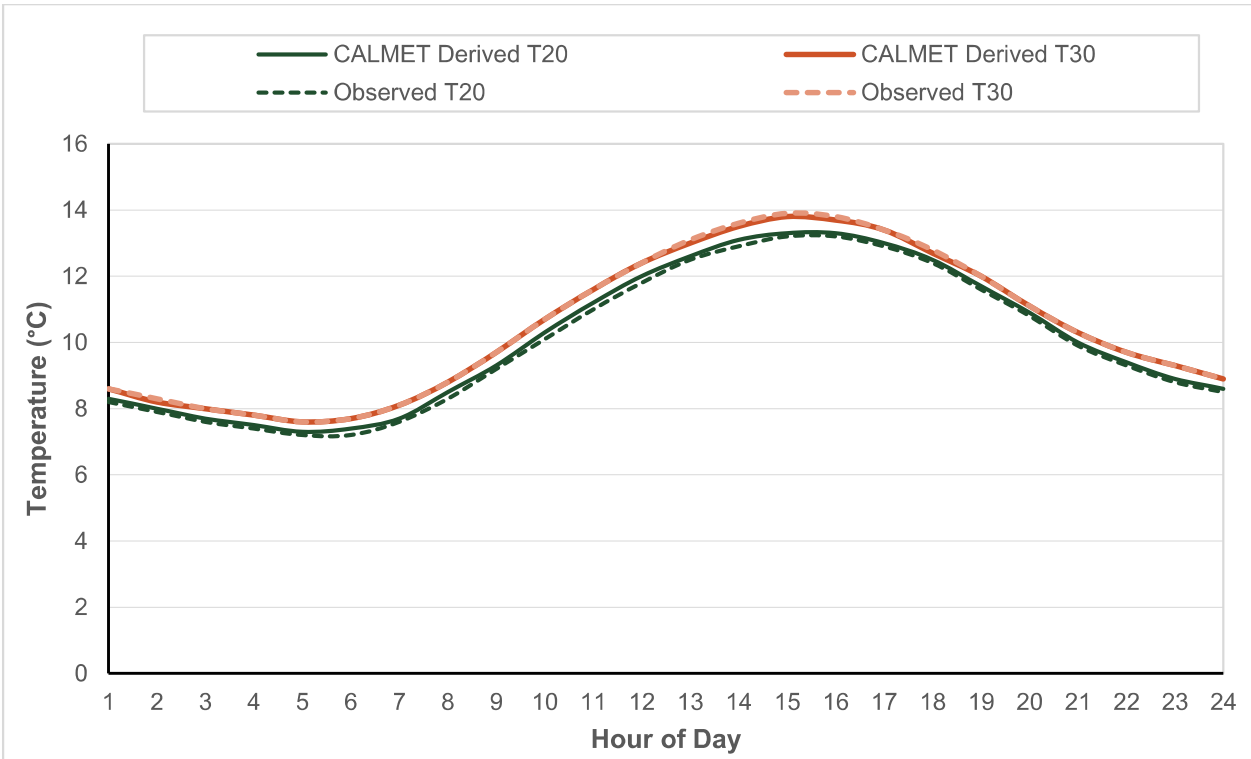


Figure C-6: Comparison of CALMET-derived temperatures with observed temperatures by hour of day at Stations T20 and T30

C.2 Surface Wind Speed and Direction

The dispersion and transport of atmospheric emissions are driven primarily by the wind. A wind rose is often used to illustrate the frequency of wind direction and the magnitude of wind velocity. The lengths of the bars on the wind rose indicate the frequency of occurrence of the various speed of winds, while the direction from which the wind blows is shown by the orientation of the bar in each direction. The observed and CALMET model derived winds (at the first layer, 10m) at: T20 (Pitt Meadows) and T30 (Maple Ridge) stations for 2012 are presented in **Table C-1**. In addition, **Table C-2** and **Table C-3** present the observed and CALMET derived winds at Station T20 and T30 by season. The seasons are separated as identified based on the CALMET surface characteristics seasons. The observed and CALMET model derived surface wind roses are very similar at all selected stations over the modelling period, and during each season at the example station locations.

CALMET-derived and observed wind speeds have also been compared for a 24-hour period at Stations T20 and T30 during which unstable conditions were observed (summer time), shown in **Figure C-7**, and during which stable conditions were observed (winter time), shown in **Figure C-8**. During both 24-hour periods, CALMET-derived and observed wind speeds were similar at both stations, which indicates the model is performing as expected and properly ingested the input observations.

Table C-1: Observed and CALMET model derived wind roses at Stations T20 and T30

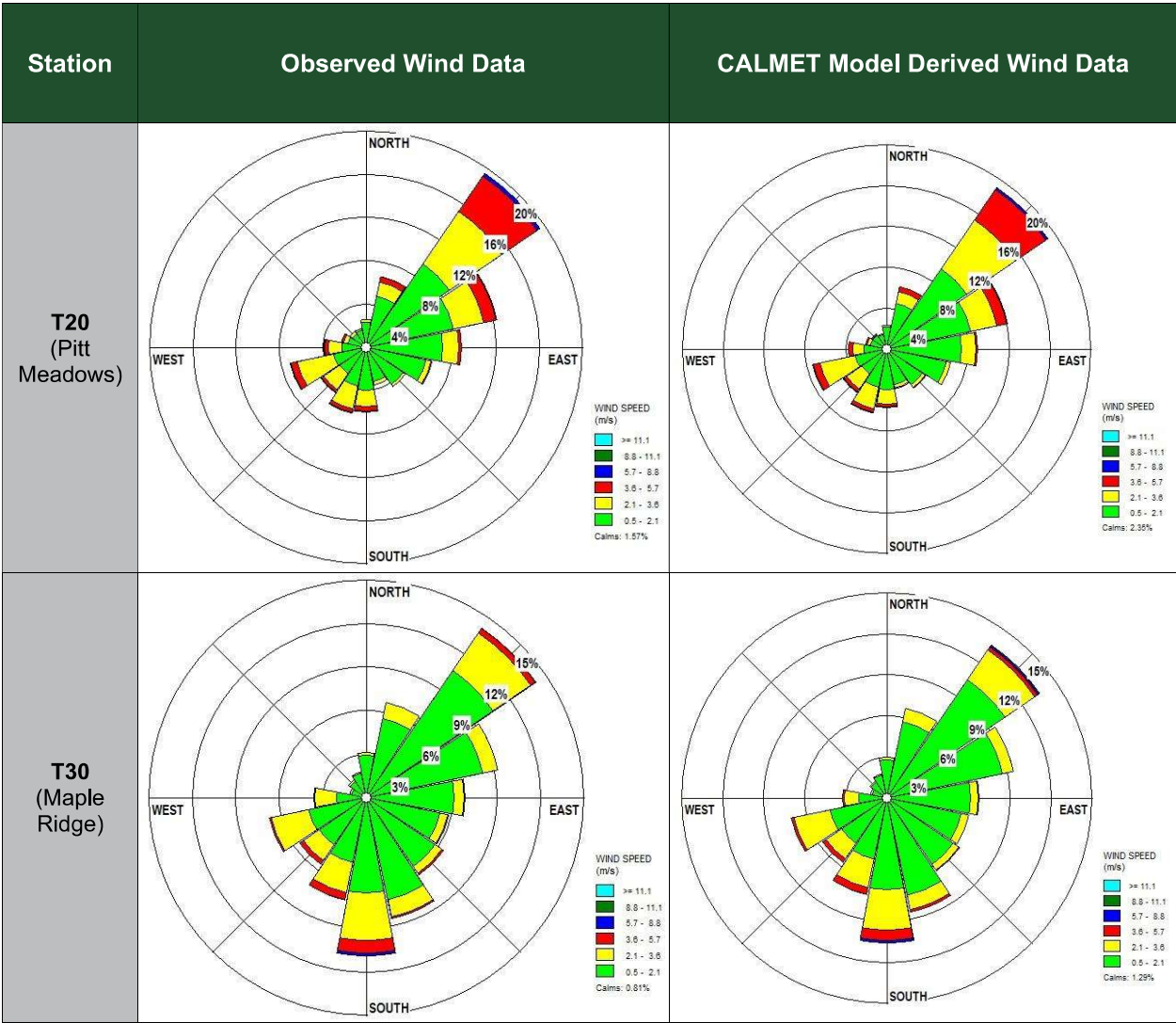


Table C-2: Observed and CALMET model derived seasonal wind roses at Station T20

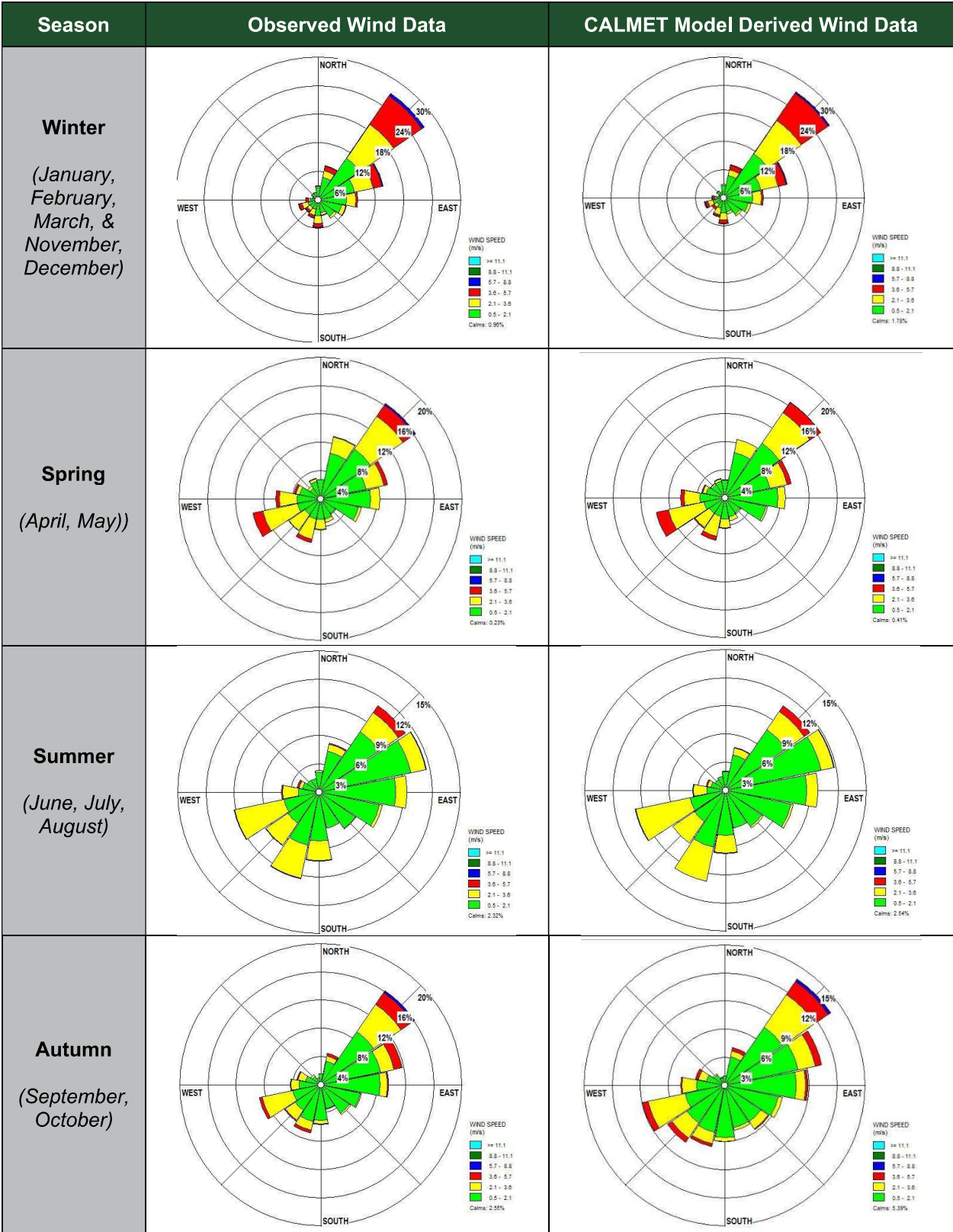
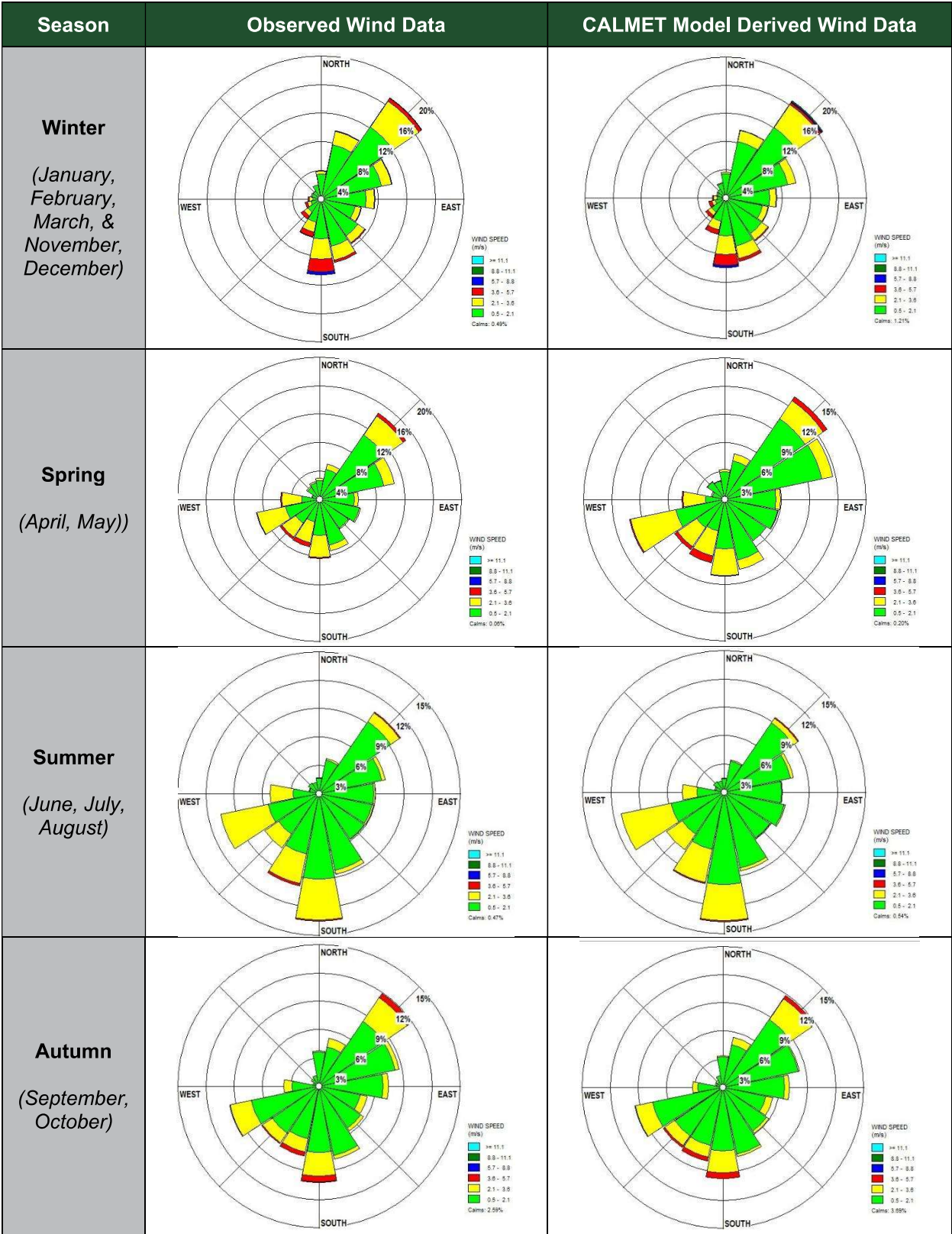


Table C-3: Observed and CALMET model derived seasonal wind roses at Station T30



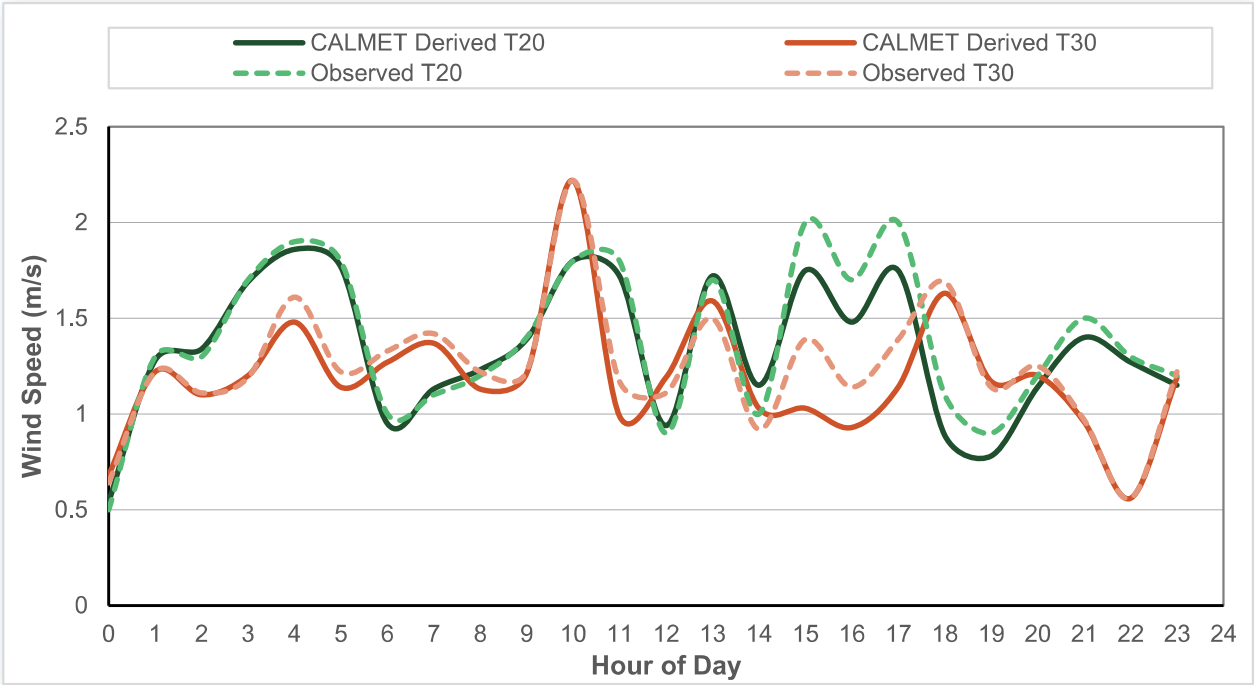


Figure C-7: CALMET-Derived and Observed Wind Speeds for July 20th, 2012 at Stations T20 and T30

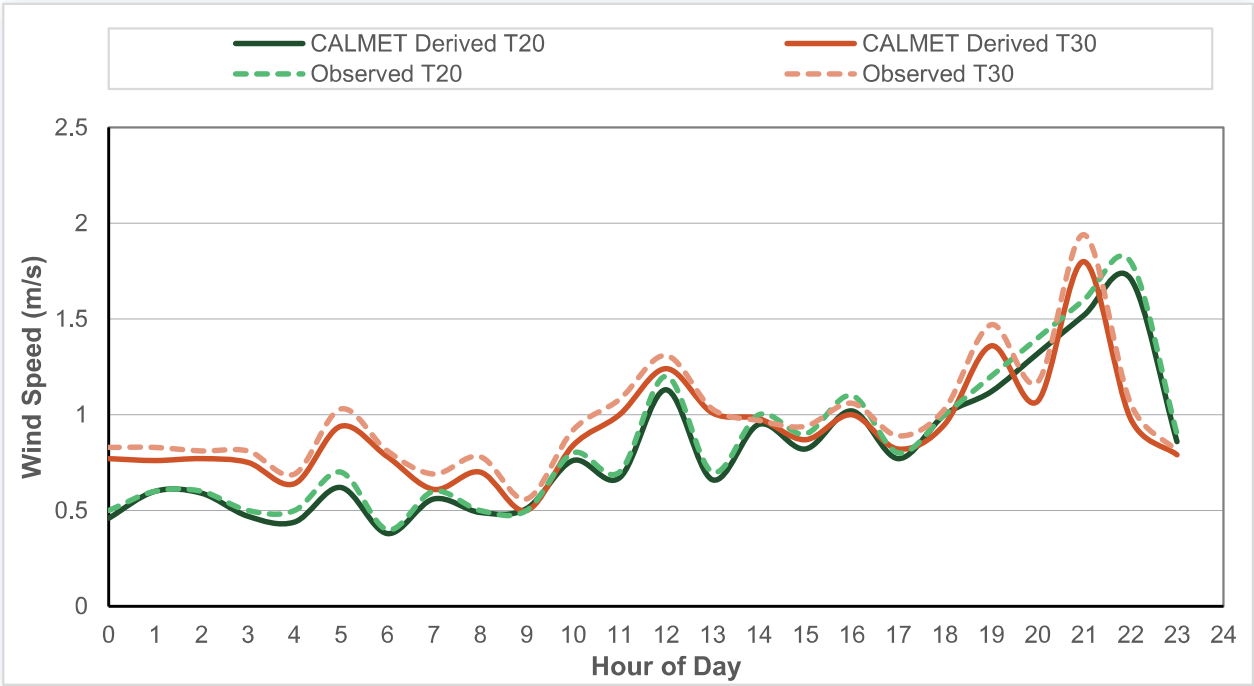


Figure C-8: CALMET-Derived and Observed Wind Speeds for January 13th, 2012 at Stations T20 and T30

C.3 Pasquill-Gifford Stability Class (P-G Classes)

Atmospheric stability can be viewed as a measure of the atmosphere's capability to disperse emissions. The amount of turbulence plays an important role in the dilution of a plume as it is transported by the wind. Turbulence can be generated by either thermal or mechanical mechanisms. Surface heating or cooling by radiation contributes to the generation or suppression of thermal turbulence, while high wind speeds contribute to the generation of mechanical turbulence.

The Pasquill-Gifford (P-G) stability classification scheme is summarized in **Table C-4**.

Table C-4: Atmospheric stability class category description

Atmospheric Stability Class	Category	Description
A	Very Unstable	Low wind, clear skies, hot daytime conditions
B	Unstable	Clear skies, daytime conditions
C	Moderately Unstable	Moderate wind, slightly overcast daytime conditions
D	Neutral	High winds or cloudy days and nights
E	Stable	Moderate wind, slightly overcast night-time conditions
F	Very Stable	Low winds, clear skies, cold night-time conditions

The frequency distributions of occurrence for each stability class for the modelling period as predicted by CALMET at the project location, T20 (Pitt Meadows) and T30 (Maple Ridge) stations are presented in **Figure C-9**. For both locations, the results indicate the most typical condition is neutral stability class "D". The second highest frequency is stability class "F", indicative of highly stable conditions, which is conducive to moderate to low dispersion due to a lack of mechanical mixing.

In addition, **Figure C-10** shows the monthly frequency distribution of the P-G atmospheric stability classes for the modelling period from the centre of the model domain (along the rail line at the Pitt Meadows West Coast Express station).

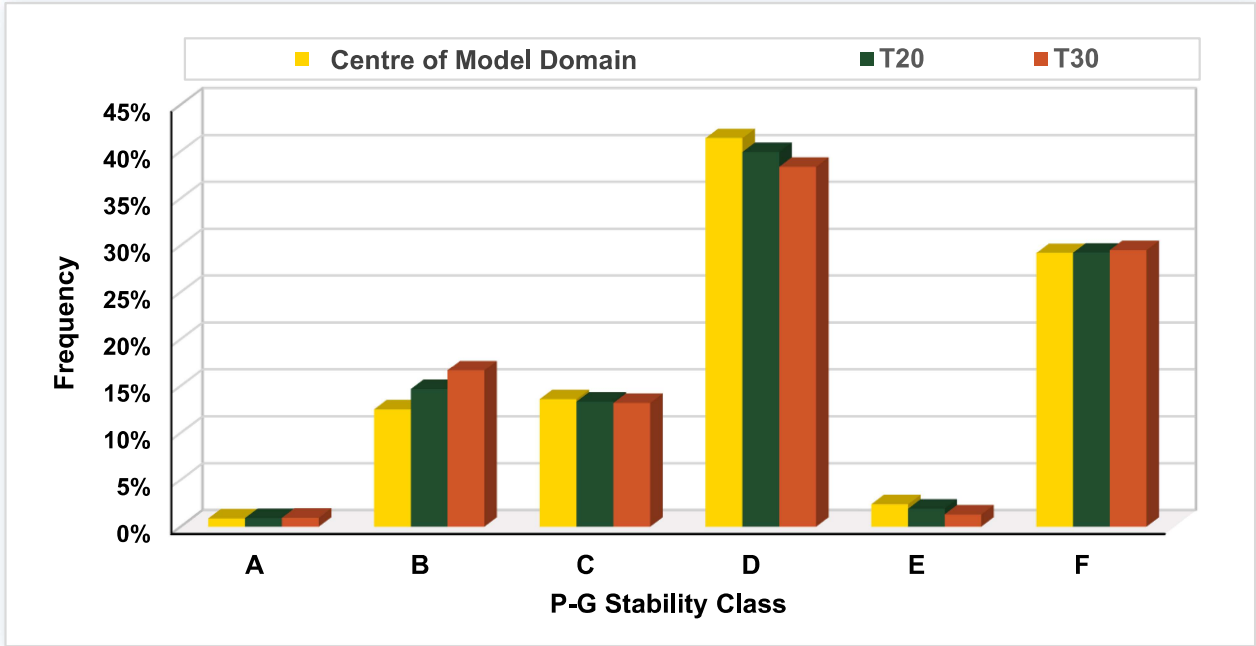


Figure C-9: Frequency Distribution of CALMET Stability Classes at the selected locations

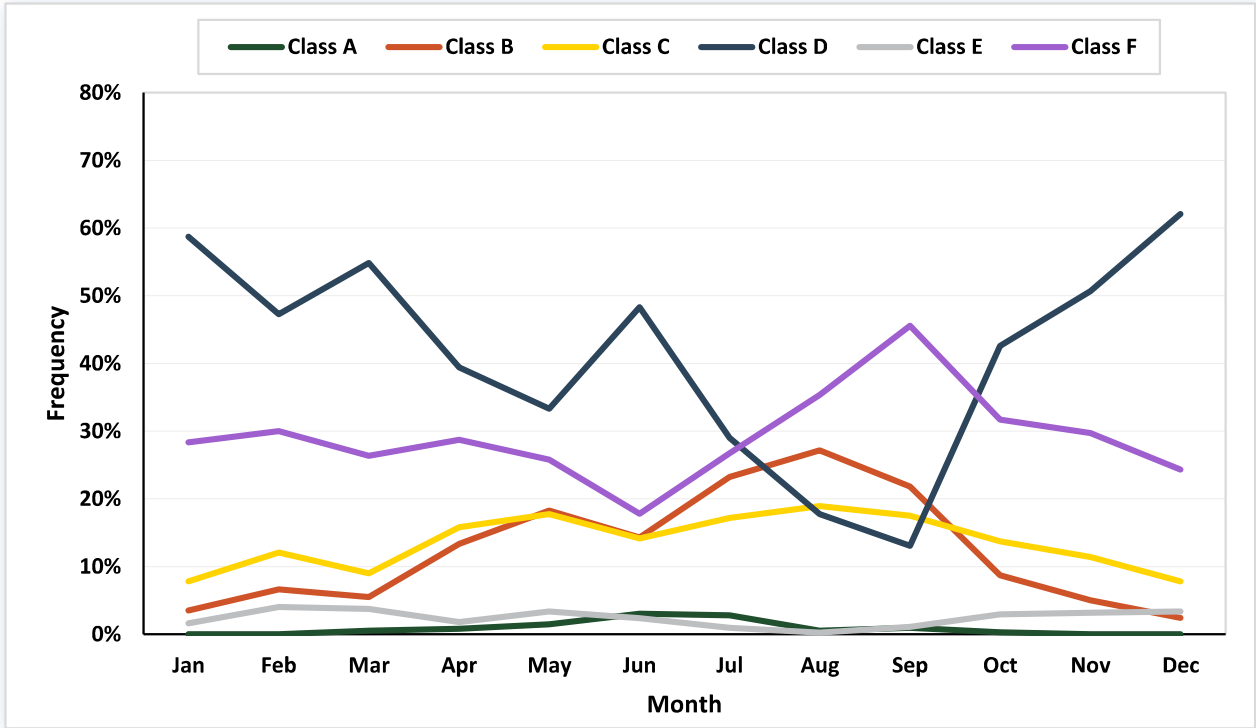


Figure C-10: Monthly variation of P-G stability classes at centre of model domain

C.4 Mixing Height

Mixing height is a measure of the depth of the atmosphere through which mixing of emissions can occur. Mixing heights often exhibit a strong diurnal and seasonal variation: they are lower during the night and higher during the day. Seasonally, mixing heights are typically lower in the winter and higher in the late spring and early summer.

CALMET calculates an hourly convective mixing height for each grid cell from hourly surface heat fluxes and vertical temperature profiles from upper-air data. Mechanical mixing heights are calculated using an empirical relationship that is a function of friction velocity. To incorporate advective effects, mixing height fields are smoothed by incorporating values from upwind grid cells. The higher of the two mixing heights (convective or mechanical) in a given hour is used. A more detailed description of this method is given in the CALMET User's Manual Version 5.0 (Earth Tech 2000).

The frequency of diurnal mixing heights derived by CALMET near railroad in urban area and T20 and T30 stations for the assessment period are shown in **Figure C-11**, **Figure C-12**, and **Figure C-13**. Mixing heights are typically lower at night than during the day.

The median daytime and nighttime mixing height at different locations are summarized in **Table C-5**.

Table C-5: Median daytime and nighttime mixing height at different locations

Location	Median Daytime Mixing Height (m)	Median Nighttime Mixing Height (m)
Centre of Model Domain	598.8	55.8
T20	503.3	51.2
T30	587.4	67.2

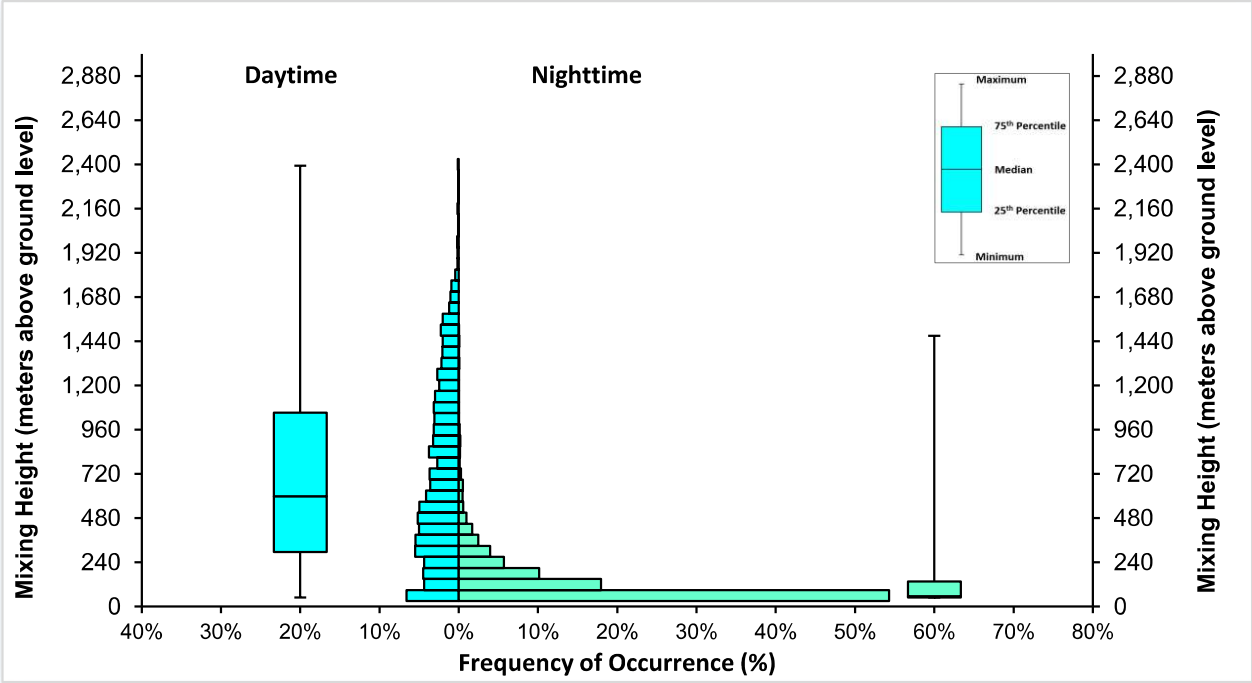


Figure C-11: CALMET-derived mixing heights at the centre of the model domain

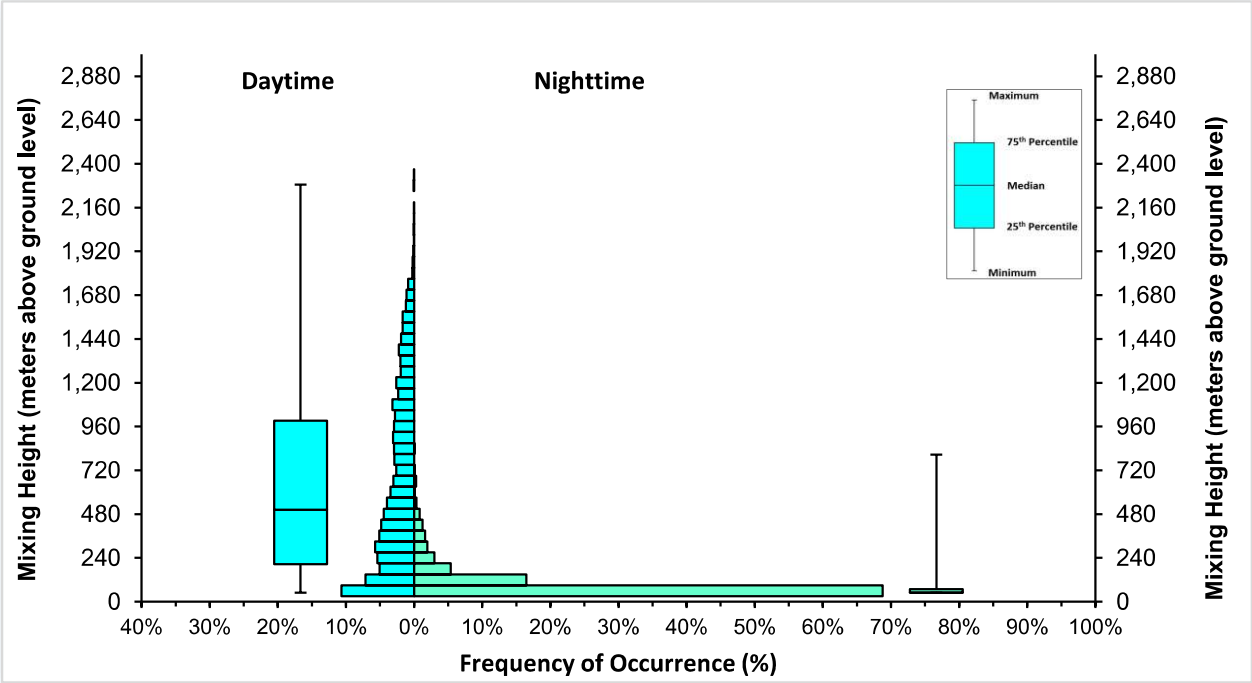


Figure C-12: CALMET-derived mixing heights for T20 – Pitt Meadows

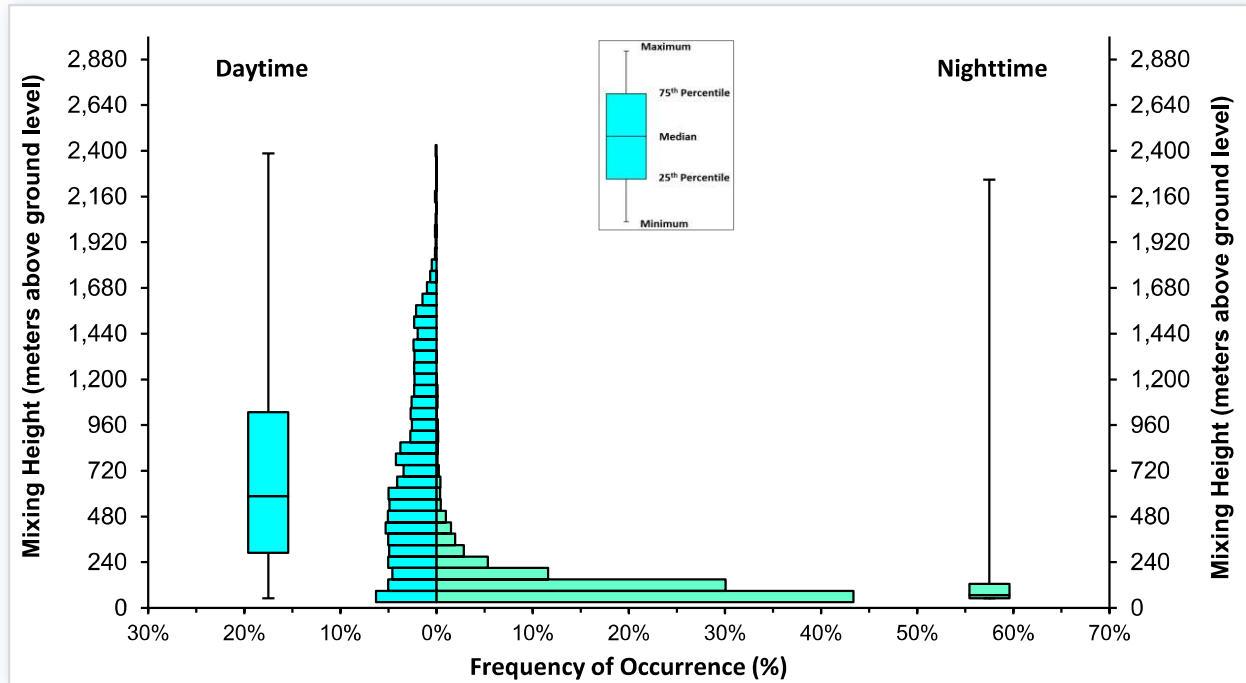


Figure C-13: CALMET-derived mixing heights for T30 – Maple Ridge

Diurnal variation of the median mixing height predicted by CALMET at the centre of the model domain (along the rail line at the Pitt Meadows West Coast Express station) is illustrated in **Figure C-14**. It can be seen that an increase in the mixing height begins during the morning hours due to the onset of vertical mixing following sunrise and that maximum mixing heights occur in the mid to late afternoon due to the dissipation of ground-based temperature inversions and the growth of convective mixing layer. Also, daytime mixing heights may be suppressed during stable winter conditions due to weak solar insolation, high reflectivity of probable snow-covered surfaces, low wind speeds and synoptic subsidence.

Figure C-15 shows the average of mixing heights versus Pasquill-Gifford stability class predicted by CALMET at T20 (Pitt Meadows) and T30 (Maple Ridge) stations. Overall, the highest mixing heights are associated with unstable conditions (Classes A, B and C), while the lowest mixing heights are associated with stable conditions (Classes E and F).

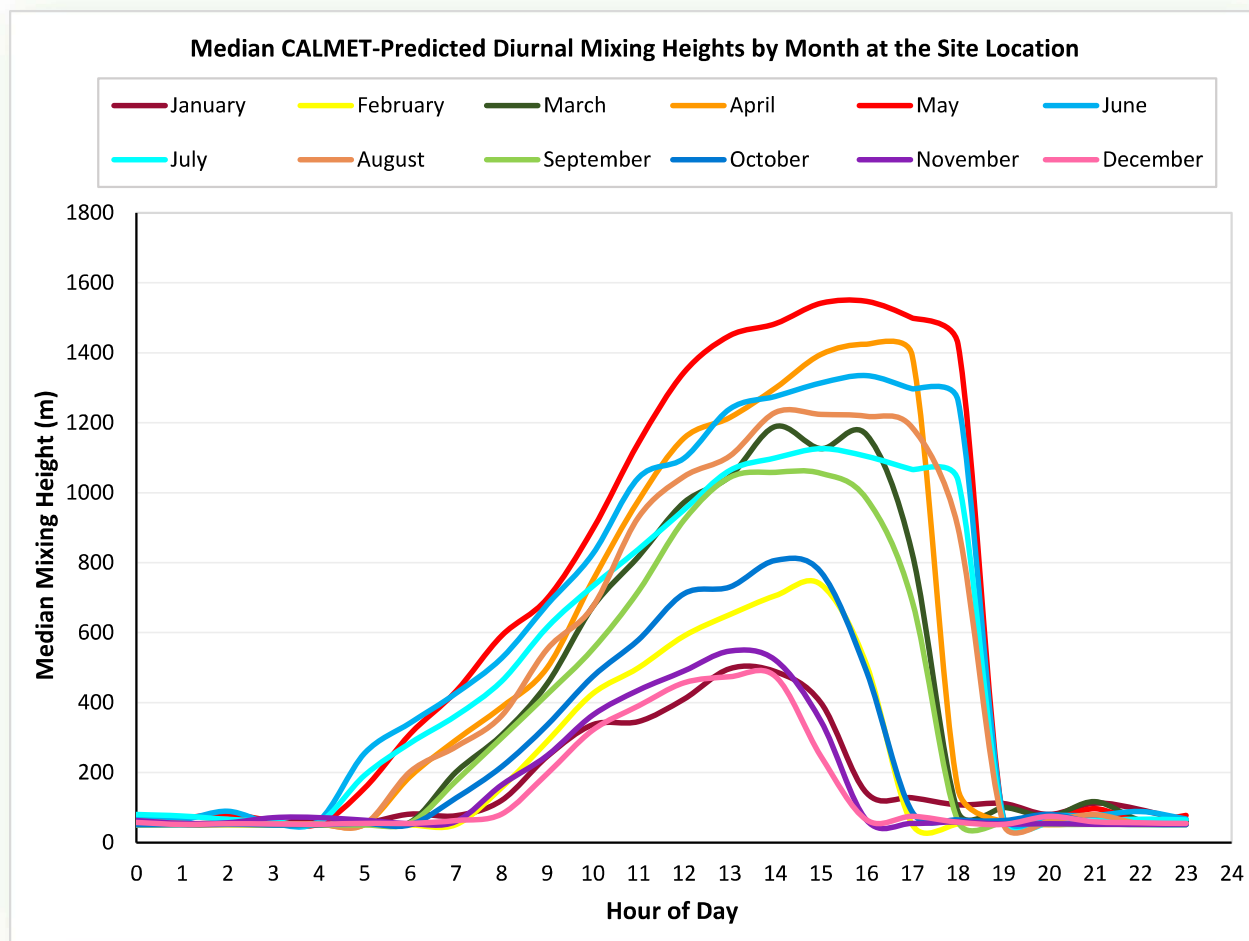


Figure C-14: Median CALMET-derived diurnal mixing heights by month at the centre of the model domain (along the rail line at the Pitt Meadows West Coast Express station)

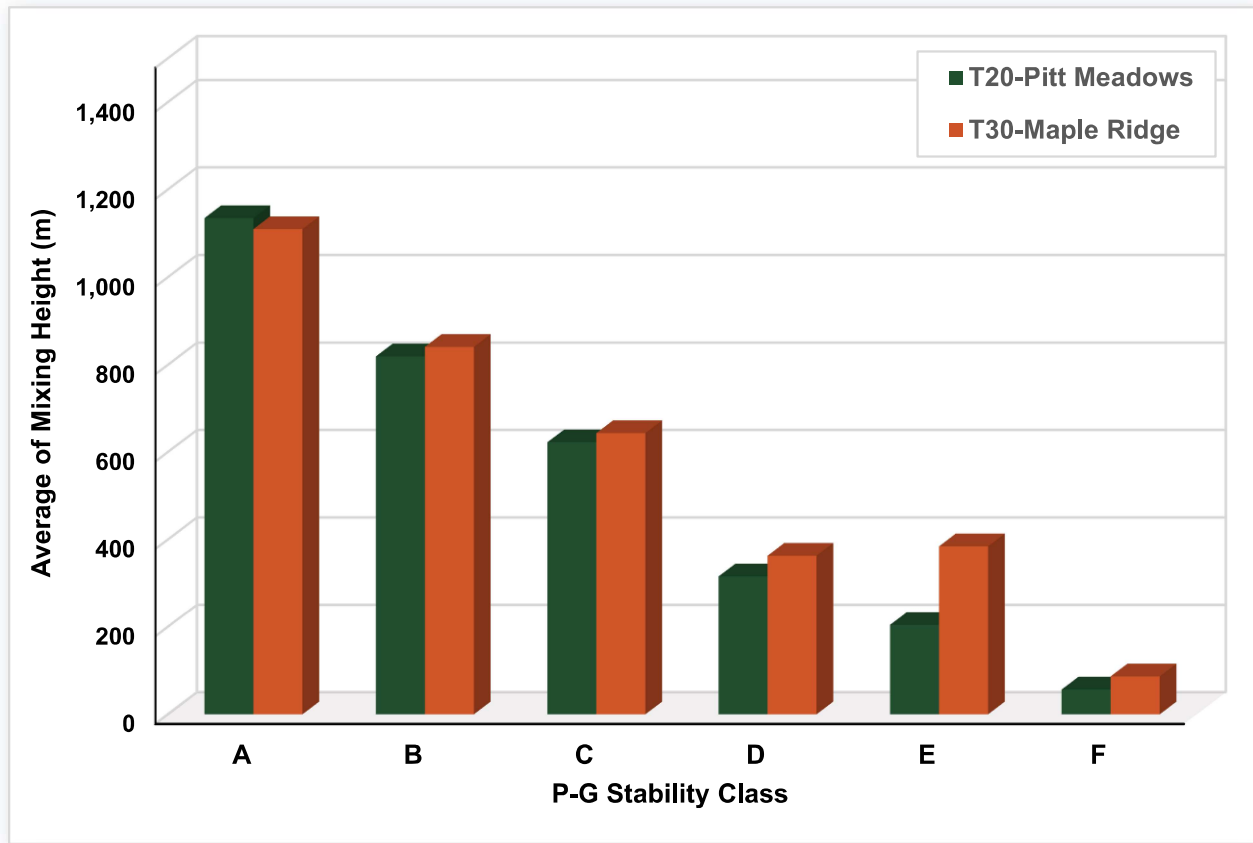


Figure C-15: Average of CALMET-derived mixing heights versus Pasquill-Gifford stability class at selected stations for 2012

The spatial distribution of mixing heights under example unstable, neutral, and stable conditions is shown in **Figure C-16**. Spatial changes in mixing height align with changes in the land use. Mixing height tends to be lowest over water and increases with distance more quickly in areas where surface roughness is greater (i.e., where surface elements are larger) especially in unstable conditions.

Time series of CALMET-derived mixing heights at stations T20, and T30 over the 24-hour period of a summer day (unstable condition during the day) and winter day (stable condition early in the morning) during light winds and clear sky conditions are presented in **Figure C-17** and **Figure C-18**.

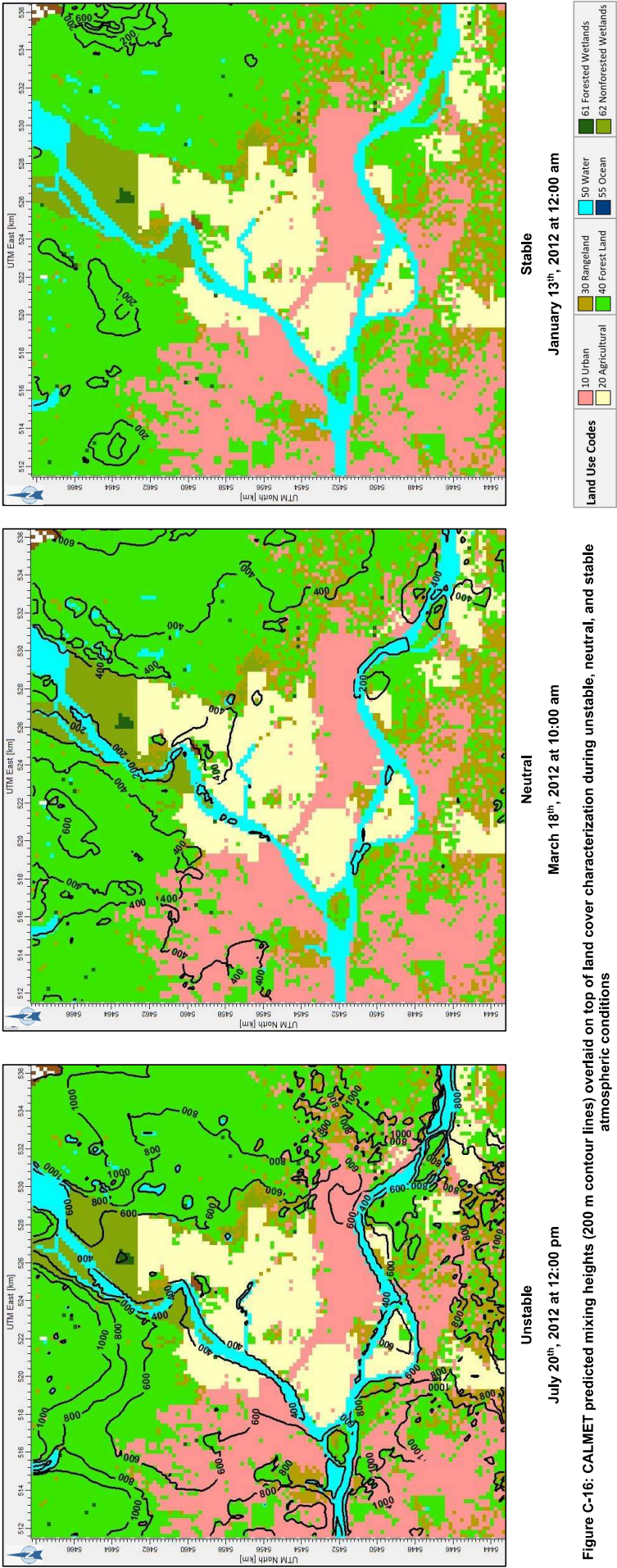


Figure C-16: CALMET predicted mixing heights (200 m contour lines) overlaid on top of land cover characterization during unstable, neutral, and stable atmospheric conditions

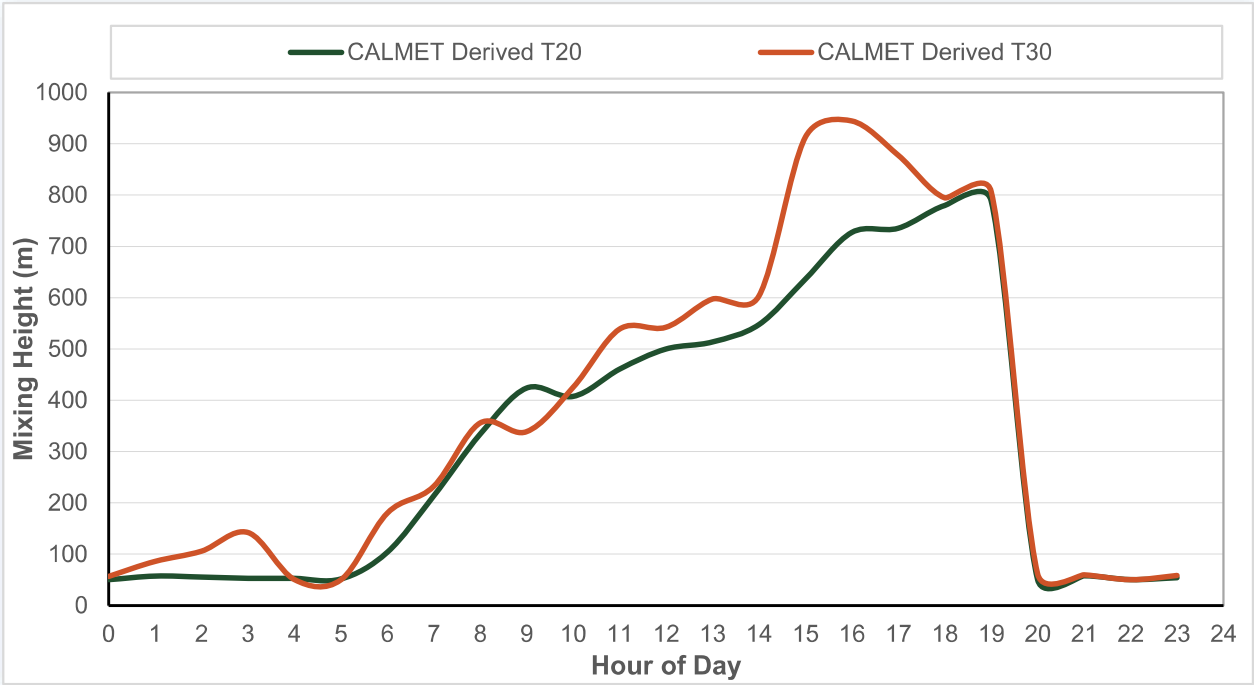


Figure C-17: CALMET-derived mixing heights for July 20th, 2012 at T20 and T30 stations

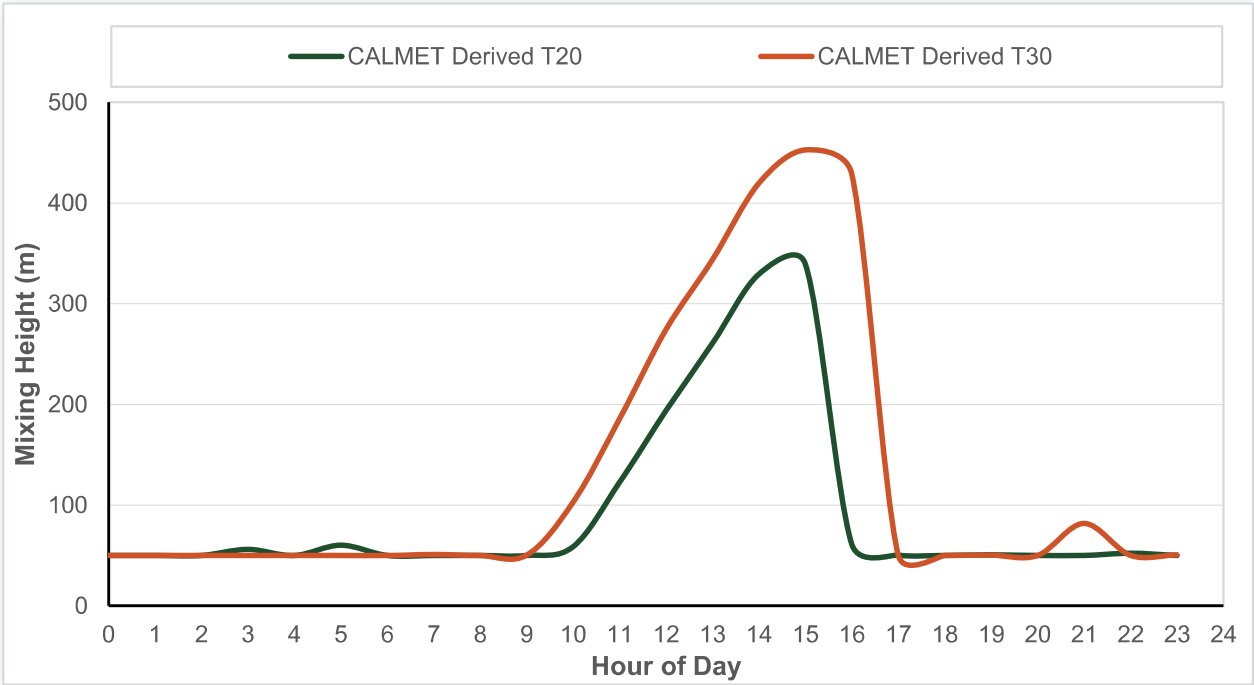
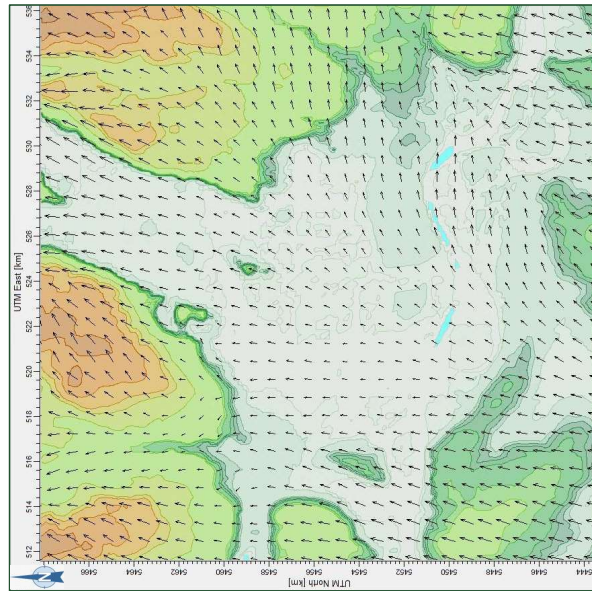


Figure C-18: CALMET-derived mixing heights for January 13th, 2012 at T20 and T30 stations

C.5 Wind Fields

A common approach used to evaluate a meteorological model's ability to replicate wind flow patterns is through the use of wind field plots. Wind fields plots representing unstable, neutral, and stable conditions for the study area are illustrated in **Figure C-19**, **Figure C-20**, and **Figure C-21** for the surface layer, mid-layer and upper layer, respectively to provide an overview of how CALMET performed under different conditions. In general, CALMET-derived wind fields follow the expected terrain flows under various stability and flow regimes, flowing up slope during unstable, daytime conditions and down slope during stable, night-time conditions. Under neutral conditions, the characteristic high wind speeds result in less noticeable terrain effects and wind fields are fairly uniform across the model domain.

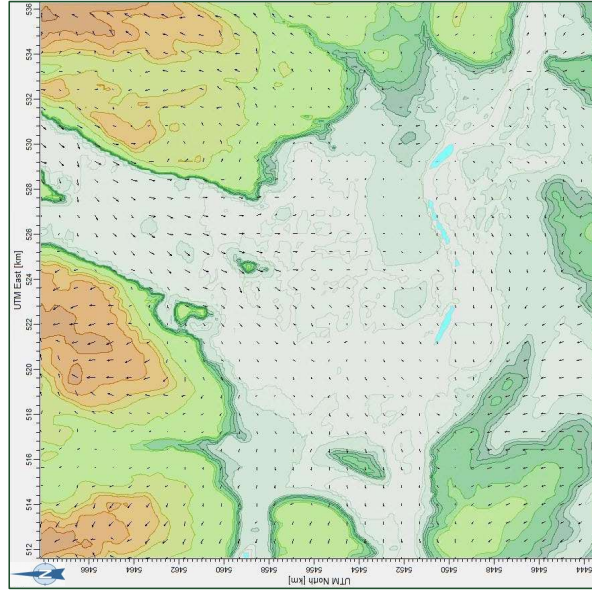
Surface level wind fields show that the model does well in capturing wind flows in the area. In addition, the effects of the elevated areas are well observed in the surface wind fields. Also, upper-level winds are uniform as would be expected for winds in the upper atmosphere that travel approximately parallel with pressure gradients.



Unstable

July 20th, 2012 at 12:00 pm

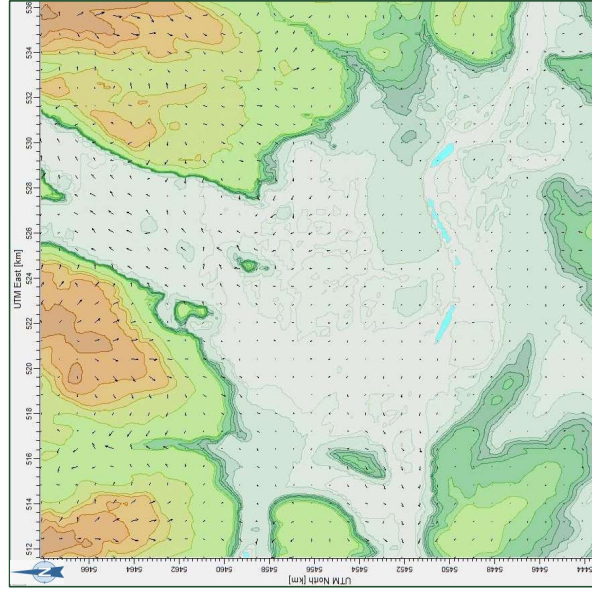
Arrow lengths show relative wind speed from 1.4 to 7.0 m/s.



Neutral

March 18th, 2012 at 10:00 am

Arrow lengths show relative wind speed from 0 to 3.8 m/s.



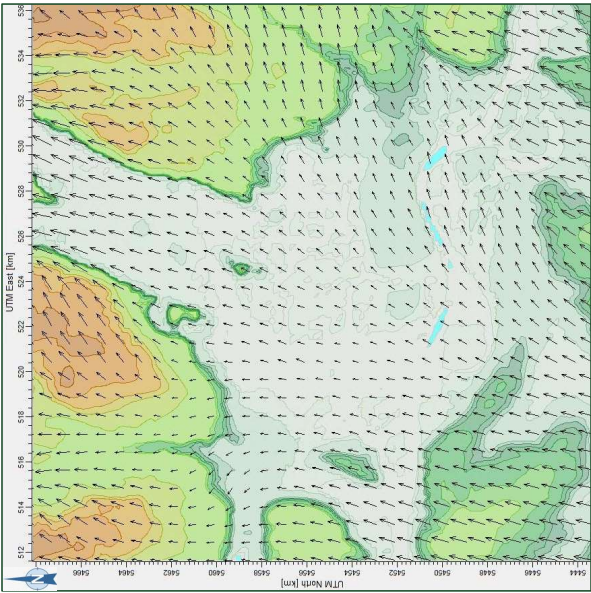
Stable

January 13th, 2012 at 12:00 am

Arrow lengths show relative wind speed from 0 to 4.3 m/s.



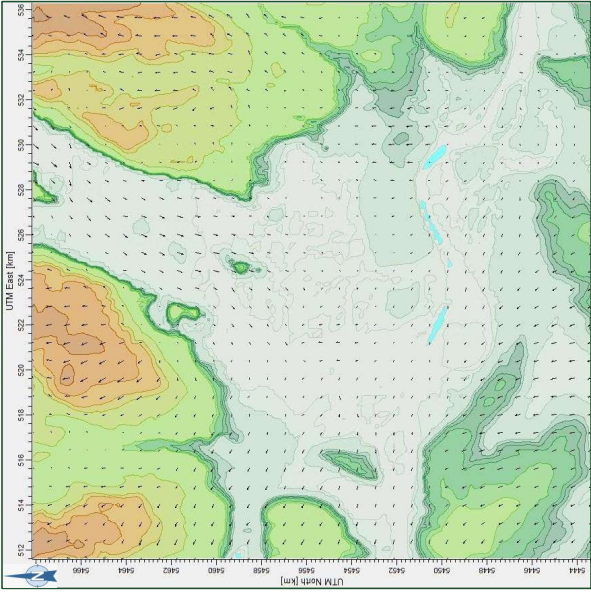
Figure C-19: CALMET predicted wind fields at 10 m (surface layer) above ground level overlaid on top of the terrain elevation data during unstable, neutral, and stable atmospheric conditions



Unstable

July 20th, 2012 at 12:00 pm

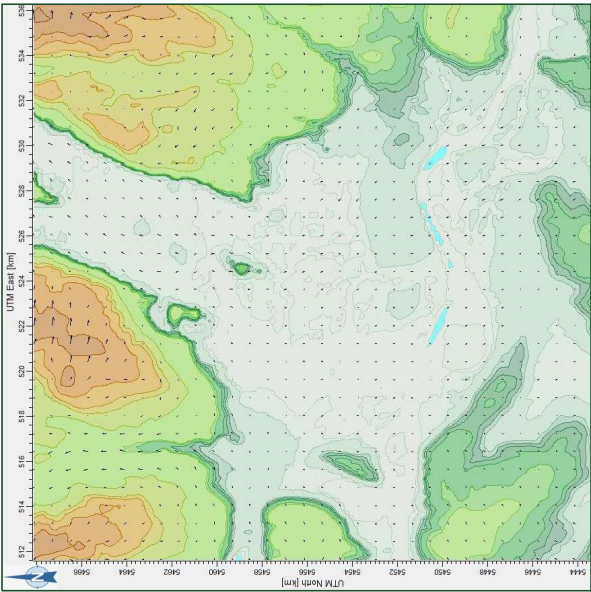
Arrow lengths show relative wind speed from 2.3 to 9.0 m/s



Neutral

March 18th, 2012 at 10:00 am

Arrow lengths show relative wind speed from 0 to 3.6 m/s

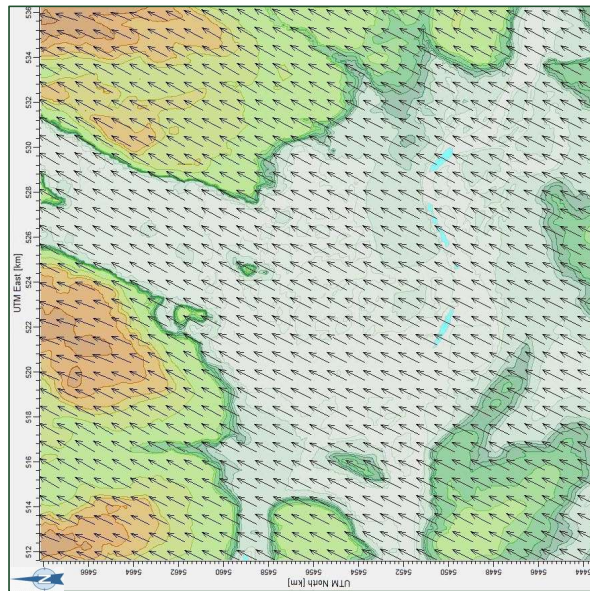


Stable

January 13th, 2012 at 12:00 am

Arrow lengths show relative wind speed from 0 to 5.3 m/s

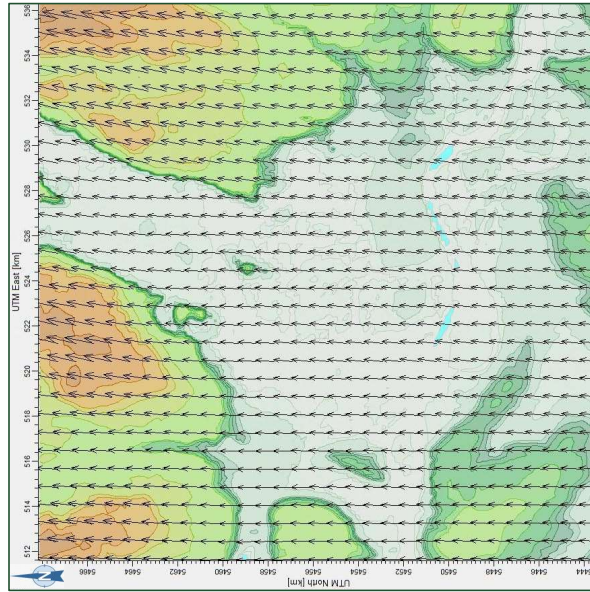
Figure C-20: CALMET predicted wind fields at 170 m above ground level (mid layer) overlaid on top of the terrain elevation data during unstable, neutral, and stable atmospheric conditions



Unstable

July 20th, 2012 at 12:00 pm

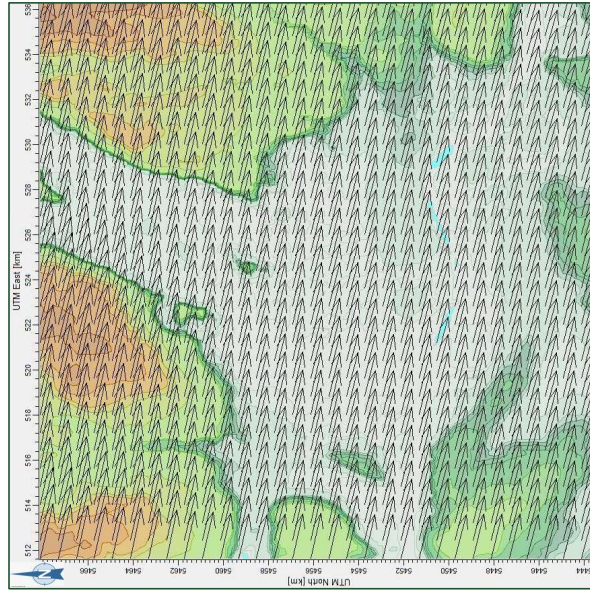
Arrow lengths show relative wind speed from 8 to 9.9 m/s



Neutral

March 18th, 2012 at 10:00 am

Arrow lengths show relative wind speed from 7.5 to 14.7 m/s



Stable

January 13th, 2012 at 12:00 am

Arrow lengths show relative wind speed from 18.4 to 27.1 m/s

Figure C-21: CALMET predicted wind fields at 3500 m above ground level (upper layer) overlaid on top of the terrain elevation data during unstable, neutral, and stable atmospheric conditions

C.6 Precipitation

As mentioned, based on Metro Vancouver guidance, precipitation data from a single station was used for the entire domain: Pitt Meadows (T20) station.

CALMET-derived precipitation patterns and the observed precipitation from T20 (Pitt Meadows) station (as CALMET Input for Entire Domain) and T30 (Maple Ridge) for the same period are compared in **Figure C-22**. The greatest average monthly precipitation occurred in October and the lowest amount of precipitation occurred in August and September. The predicted values appear representative of precipitation in the Metro Vancouver area.

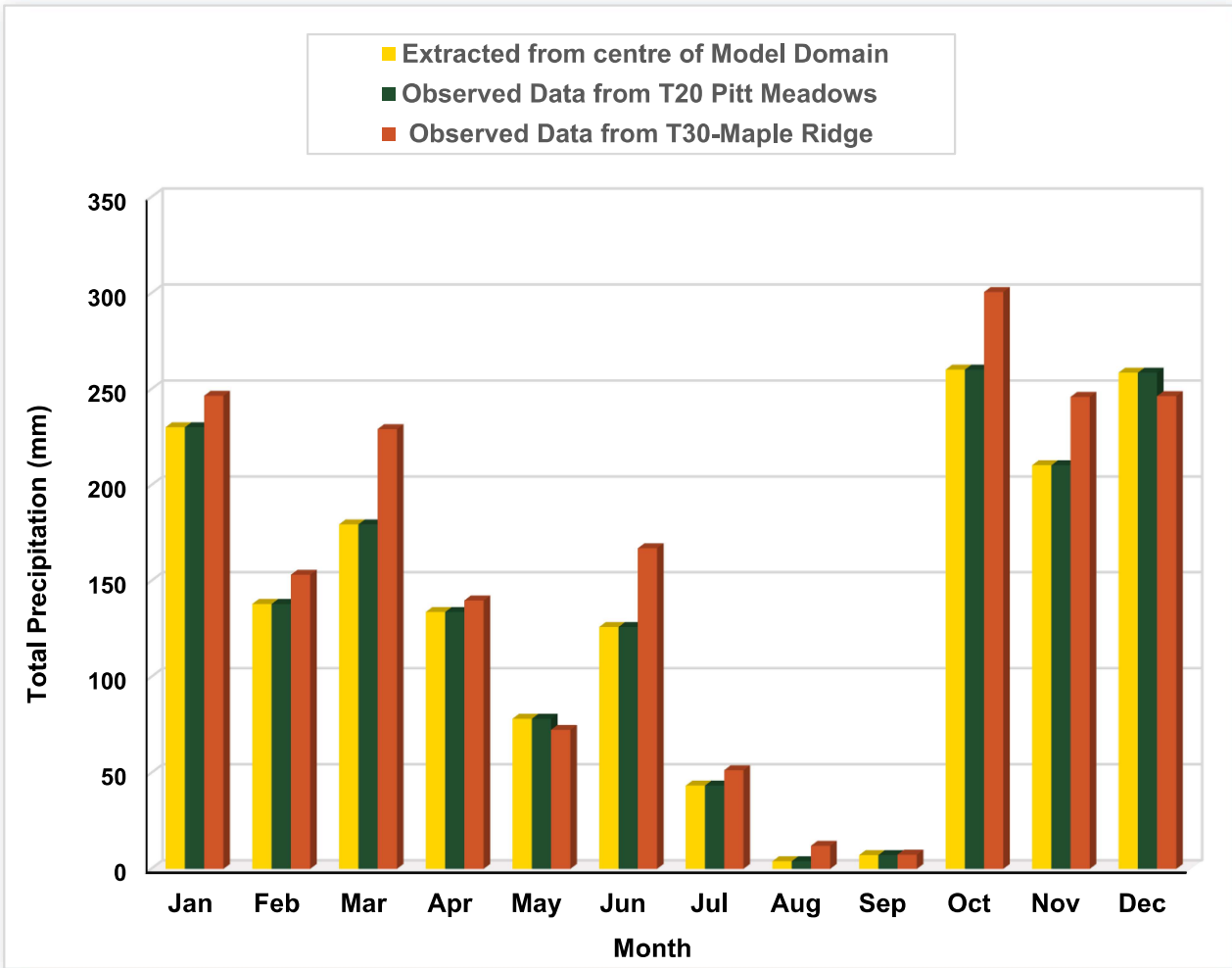


Figure C-22: Average monthly distribution of CALMET-derived and station observed precipitation

Staff Report to Council

Planning and Development

FILE: 01-0125-01/24

REPORT DATE: April 23, 2024 **MEETING DATE:** April 30, 2024
TO: Mayor and Council
FROM: Christine Carter, Manager of Strategic Initiatives
SUBJECT: Public Hearing Procedures Amending Package

CHIEF ADMINISTRATIVE OFFICER REVIEW/APPROVAL:



RECOMMENDATION(S):

THAT Council:

- A. Grant first, second, and third readings to Development Procedures Amendment Bylaw No. 2988, 2024; AND
- B. Approve amendments to the Delegations Before Council Policy C010 as presented at the April 30, 2024 Council meeting; AND
- C. Approve amendments to the Public Engagement at Council Meetings Policy C107 as presented at the April 30, 2024 Council meeting; OR
- D. Other.

PURPOSE

For Council to consider amendments to bylaws and policies to implement provincial changes to public hearing procedures, resulting from Bill 44 - Housing Statutes (Residential Development) Act.

☐ Information Report ☒ Decision Report ☐ Direction Report

DISCUSSION

Background:

On November 30, 2023, *Bill 44 - 2023 Housing Statutes (Residential Development) Amendment* received Royal Assent, and Section 464(3) of the *Local Government Act* (LGA) now prescribes that a local government must NOT hold a public hearing on a zoning bylaw if the:

- bylaw is compliant with the Official Community Plan (OCP);
- bylaw is to permit a development that is, in whole or part, residential; and
- residential component is at least 50% of the gross floor area of all buildings/structures of development.

The legislation does exempt any in-stream zoning application that has received first reading to proceed to public hearing. The legislation also prohibits the local government from holding a public hearing in connection with the Zoning Bylaw amendments necessary to accommodate the Small-Scale Multi-Unit Housing [“SSMUH”] requirements.

It is noted that public hearings will still be permitted for OCP amendments; residential rezoning applications that are not OCP compliant; and non-residential rezoning applications. A summary of the public hearing rules is summarized in Table 1 below.

Public Hearing Requirements – Table 1

OCP Amendment	No Change to process
Zoning Bylaw amendment not compliant with OCP	Refer bylaw to public hearing
Zoning Bylaw amendment – non residential	No Change to process Refer bylaw to public hearing
Zoning Bylaw amendment – residential & OCP compliant	Change to process public hearing prohibited

In early January 2024, an internal Public Hearing Working Group, comprised of staff from the Planning and Development, Legislative Services, and Communications and Civic Engagement departments was formed. Members of the Working Group have reviewed the legislation, relevant City policies and bylaws, and have prepared amendments to implement the Provincially mandated changes.

The prohibition of residential, OCP compliant rezoning applications from going to public hearing is a significant change, and one that citizens may find confusing. However, it is important to note that this change is mandated by the Provincial government. It is also worth noting that while the rules around public hearings have changed, there is still a public process, and residents are able to provide written comments to Council. In addition, many of the

applications prohibited from public hearing will still be subject to Council Policy C015 (Development Information Meetings), and a development information meeting will be required for development applications seeking:

- an OCP amendment;
- a rezoning that will result in five or more dwelling units, or more than 10,000 square feet of commercial or industrial space; or
- when the Director of Planning and Development is of the opinion that the development (e.g., OCP amendment or rezoning application) could have significant impacts on the amenities or character of the surrounding area.

The DIM policy requires that an applicant host a meeting after the introductory report is received by Council and before the application is forwarded to Council for consideration of first reading. Following the meeting, the applicant is required to provide a written summary, comments received, and sign-in sheets to the Planning department, and staff include a summary of the information received in the first reading report.

The public hearing amending package includes a number of amendments to implement the changes to the public hearing procedures as prescribed in the *LGA*. Significant changes resulting from the SSMUH legislation are described in the following section of this report.

a) Changes to Rezoning Process

Local Government Act changes that prohibit OCP compliant, residential rezoning applications from presentation at public hearing, require changes to the City's current rezoning process. Non-residential rezoning applications, and residential applications that are not OCP compliant will continue to be referred to public hearing, and will be subject to the current process, as illustrated in Figure 1 below.

Figure 1:

Pre-Bill 44 & Process for Non-Residential or Residential, Non OCP Compliant Applications



Effective November 30, 2023, residential, OCP compliant applications are prohibited from being referred to public hearing and are now subject to a revised process as illustrated on Figure 2 below.

Figure 2: Post Bill 44 - for Residential, OCP Compliant Rezoning Applications



b) Rezoning Application Introductory Reports

To comply with the *Local Government Act*, and in an attempt to maximize transparency, the Introductory Report that is prepared by the Planning and Development Department will contain an introduction to the rezoning application, and an assessment of OCP compliance. The Introductory Report will also include a section that identifies whether a public hearing is required or prohibited pursuant with Section 464 of the *LGA*.

c) Statutory Notification Process for Residential, OCP Compliant Rezoning Applications

When a public hearing is prohibited, the local government is now required to provide statutory notice before the date where first reading is to be considered by Council (Figure 2 above). The notice is to include information regarding the purpose of the bylaw and lands subject to the bylaw, plus provide details on the date of first reading, and places, times and dates that are available for someone to inspect the bylaw. It is worth noting, that the legislation provides no opportunity for a resident to appear before Council to voice their opinion on a residential, OCP compliant rezoning application.

In recognition that Council may want to hear from its residents, the Public Notice template has been prepared to include an opportunity for comments to be provided in writing to Council. Submissions received before 3:00 p.m. on the Thursday prior to the meeting, will be included in the meeting agenda package. Submissions received after this deadline, up until 3:00 p.m. on the day of the Council meeting, will form part of an on-table circulation. A copy of the updated Public Notice template is attached as Attachment A.

Similar to current processes, the statutory notice is to be published in the newspaper, once each week, for two consecutive weeks, plus written notice is mailed to owners and occupiers within a prescribed distance.

When a public hearing is prohibited, there is now an opportunity for Council to grant three readings to the zone amending bylaw at one time. It is also noted, that because there is no public hearing, there are no longer restrictions limiting when a Council can receive additional information, and Council could receive new information leading up to consideration of final reading. Non residential, and residential non-OCP compliant applications will be subject to the

current public hearing processes and rules, and Council will remain unable to receive information following the close of the public hearing.

d) Development Procedures Bylaw

Section 460 of the *Local Government Act* requires that municipalities have in place a development procedures bylaw under which landowners may apply for an amendment to the Official Community Plan or Zoning Bylaw or for a permit (i.e., development permit, development variance permit, heritage alteration permit). Part 10, Section 34 of the Bylaw contains a table that summarizes the notification requirements for applications by application type, and amongst other things, specifies whether a public hearing is required. The current bylaw acknowledges that Council may waive a public hearing, however does not reflect that the *LGA* prohibits residential, OCP compliant applications from public hearing.

Staff are recommending that Table 1, in Part 10 of the bylaw be amended to clarify that a public hearing will not be held where prohibited by the *LGA*. Specifically, the notation in Table 1 currently reads “NOTES: *Unless the Public Hearing is waived.” Staff recommend that the notation be amended to read: “NOTES: *Unless the Public Hearing is waived or prohibited by the *Local Government Act*.” Refer to Attachment B to view the draft Development Procedures Amending Bylaw.

e) Changes to Council Meetings

Legal advice has cautioned of the risk of a Council hosting a public hearing under a different name, for example, allowing people to comment as a delegation or during question and answer period, on rezoning applications prohibited from a public hearing. For that reason, staff are recommending that there be no opportunity to make an oral submission at a Council meeting on rezoning applications that are prohibited from public hearing. However, local governments may use an alternate form of public engagement to meet their duty of procedural fairness, through the receipt of written submissions.

Legislative Services staff have reviewed the bylaws and policies that refer to public hearing processes, and make the following recommendations:

i. Council Procedures Bylaw:

The Council procedures bylaw is required to establish the rules of procedure for City Council, its standing and select committees, and other advisory committees of the City. The bylaw as written remains accurate, as per section 465 of the *Local Government Act*, and no changes are recommended.

ii. Delegations Before Council – Policy C010:

This policy establishes guidelines for delegation requests, which are requests from members of the public or external bodies to present matters to Council. Under section 5.3(b), the policy currently prohibits a delegation on “...any matter pertaining to a bylaw or zoning application that is the subject of a public hearing and [where the bylaw] has not yet been adopted.”

Because the legislation now prohibits Council from holding public hearings on certain land matters, staff recommend that Council also limit delegations on those same matters, to ensure Council abides by the intent of the recent changes to provincial legislation. It is recommended that an additional bullet be added to section 5.3 of the Delegation Policy that prohibits delegation requests pertaining to any rezoning or land use matter for which a public hearing is prohibited by provincial legislation. Refer to Attachment C Policy C010 with tracked changes.

iii. Public Engagement at Council Meetings – Policy C107

This policy establishes guidelines for public engagement at Council and Engagement and Priorities Committee (EPC) meetings. Under section 8.3(a), the policy currently prohibits questions and comments from the public on “...any matter pertaining to a bylaw or zoning application that is the subject of a public hearing and [where the bylaw] has not yet been adopted.”

The legislation now prohibits Council from holding public hearings on certain land matters, and staff recommend that Council also limit comments during Question & Comment Period on those same matters, to ensure Council abides by the intent of the recent changes to provincial legislation.

It is recommended that an additional bullet be added to section 8.3 of the Public Engagement Policy that prohibits delegation requests pertaining to any rezoning or land use matter for which a public hearing is prohibited by provincial legislation. It is also recommended that the language in sections 7 and 8 clarify the process for Question & Comment Period, and how questions must pertain to items on the agenda for Council’s consideration at any particular meeting. Refer to Attachment D Policy C107 with tracked changes.

iv. Public Hearing Process and Chair Introductory Statement- Policy C041

This policy establishes a fair and equitable process for all public hearings held by the City. It does not speak to how and when public hearings are required or prohibited, as such

provisions are already established under the *Local Government Act*. Changes to this policy are not required in response to the new housing legislation.

f) Communications

In an effort to share information about the provincial housing legislation, Communications and Civic Engagement staff created a New Provincial Housing Legislation page (www.pittmeadows.ca/housing-legislation) on the municipal website. The webpage notes that as a part of the new legislation, municipalities are no longer allowed to hold public hearings for residential properties that fit with the City's Official Community Plan. This subject report will be made available to view/download from the web page as information.

In addition, on April 9, 2024 Council received information about the Communications Strategy for the Provincial Housing Legislation that identifies how changes stemming from the Legislation are being disseminated in the community.

g) In-Stream Applications

The legislation does exempt any in-stream zoning application that has received first reading to continue to public hearing. There are no in-stream applications that have received first reading and have not had a public hearing. Two multi-family rezoning applications, where Council has received an introductory report, are pending first reading. Details on those two multi-family applications are as follows:

Address	Proposal	Status	OCP Designation	Public Hearing
12469 191B St	13 townhouse units	No readings granted	Town Centre Commercial: OCP compliant	Prohibited
19261, 19267, 19275, 19285, 19293 Hammond Rd	57 townhouse units	No readings granted	Residential Medium: OCP compliant	Prohibited

Next Steps

The amending package before Council is required to bring relevant City of Pitt Meadows bylaws and policies into compliance with the legislation. While this amending package is administrative in nature, changes to the public hearing requirements are a deviation from past requirements where residents were provided an opportunity to directly address Council in person. However, it is worth noting that while the rules around public hearings have changed, there is still a public process, and residents remain able to provide written comments to Council. In addition, development information meetings will continue to be required for many

applications prohibited from public hearing, and city staff remain available to answer questions and share information.

COUNCIL STRATEGIC PLAN ALIGNMENT

- ☐ Principled Governance ☐ Balanced Economic Prosperity ☐ Infrastructure
☐ Community Spirit & Wellbeing ☐ Corporate Pride ☐ Public Safety
☒ Not Applicable

The Public Hearing amending package is an administrative amendment, required to bring local bylaws and policies into compliance with recent changes to the Local Government Act that prohibit Residential, OCP compliant applications from being considered at a public hearing.

WORKPLAN IMPLICATIONS

- ☒ Already accounted for in department workplan / no adjustments required
☐ Emergent issue / will require deferral of other priority(ies)
☐ Other

Much of the housing related work related to Provincial legislative changes are contemplated in the Planning and Development Department's 2024 Business Plan. However projects such as the ACC Program, OCP amendments, and Transit Oriented Area designation bylaw were not specifically accounted for, and required some reallocation of staff resources. Staff continue to place a priority on the implementation of the frequently expanding Provincial housing legislation, which may result in some 2024 key initiatives being deferred to future years.

FINANCIAL IMPLICATIONS

- ☒ None ☐ Budget Previously Approved ☐ Referral to Business Planning
☐ Other

This is an administrative amendment to bring local bylaws and policies into alignment with recent changes to the *Local Government Act*.

PUBLIC PARTICIPATION

- ☒ Inform ☐ Consult ☐ Involve ☐ Collaborate ☐ Empower

Comment(s):

The *Local Government Act* no longer allows residential, OCP compliant applications from being referred to public hearing, and the amending package brings City bylaws and policies into compliance with the legislation. While residents will no longer be able to appear before Council on residential, OCP compliant rezoning applications, a public process does remain, and written submissions can be provided to Council.

KATZIE FIRST NATION CONSIDERATIONS

Referral ☐ Yes ☒ No ☐ Other

A referral to the Katzie First Nation is not required or recommended, at this time.

SIGN-OFFS

Written by:

Christine Carter,
Manager of Strategic Initiatives

Reviewed by:

Patrick Ward,
Director of Planning and Development

Kate Barchard,
Corporate Officer

ATTACHMENT(S):

- A. Public Notice Template
- B. Development Procedures Amending Bylaw No. 2988, 2024
- C. Delegations Before Council – Policy C010
- D. Public Engagement at Council Meetings – Policy C107

NOTICE OF COUNCIL CONSIDERATION OF ZONING AMENDMENT BYLAW XXXX, 202X

The City of Pitt Meadows hereby gives notice that an amendment to Zoning Bylaw 2505, 2011 will be considered for first reading by Council as part of its Council meeting on **Tuesday DATE, 2024**, starting at 7:00 p.m.

What is the Intent of the Bylaw?

Bylaw Description & Intent [eg: To zone the property from Zone A to Zone B in order to permit the development of etc....]

Subject Property:

Address:

PID:

Legal Description:

Shown boldly outlined and shaded on the map.

SUBJECT PROPERTY MAP

How Do I Get More Information?

From DATE to DATE, 2024, copies of the respective bylaws, supporting staff reports, and other relevant information can be found by visiting City Hall or online at: pittmeadows.ca/zoningandlanduseconsiderations.

If you require further information on the bylaw or the housing legislation after reviewing the online materials, please contact:

Staff Name | 604.465.1111 |
staffname@pittmeadows.ca

How do I Watch the Meeting?

You can attend the meeting in person or view the livestream at pittmeadows.ca/councilmeetings.

How do I Make Comment?

Written submissions can be emailed to clerks@pittmeadows.ca. Physical letters can be sent to: Legislative Services, City of Pitt Meadows, 12007 Harris Road, Pitt Meadows, BC V3Y 2B5.

Written submissions received BEFORE 3:00 p.m. on the Thursday prior to the Council meeting will be included in the meeting agenda package for Council's consideration. Submissions received AFTER this deadline, up until the start of the meeting, will be provided to Council on table.

As a public hearing is prohibited on this matter under section 464 of the *Local Government Act*, verbal comments or delegations on this matter by members of the public will not be allowed during the meeting.

All written submissions, including names and addresses, will become part of the public record in accordance with the Freedom of Information and Protection of Privacy Act.

If you have questions regarding this process, please contact:

Kate Barchard | Corporate Officer | 604.465.2462 | kbarchard@pittmeadows.ca

CITY OF PITT MEADOWS
DEVELOPMENT PROCEDURES AMENDMENT
Bylaw No. 2988, 2024

Attachment B

A bylaw to amend a portion of Development Procedures Bylaw No. 2740, 2016

WHEREAS it is deemed expedient to amend the City of Pitt Meadows Development Procedures Bylaw No. 2740, 2016;

NOW THEREFORE the Council of the City of Pitt Meadows enacts as follows:

1. This Bylaw may be cited as the "Development Procedures Amendment Bylaw No. 2988, 2024".
2. The City of Pitt Meadows Development Procedures Bylaw No. 2740, 2016 is amended as follows:
 - a) Part 10 – Public Notification, Notification Requirements, Section 34, Table 1 is amended by:
 - (i) Deleting "Notes: *Unless the Public Hearing is waived"; and
 - (ii) Adding "Notes: *Unless the Public Hearing is waived or prohibited by the *Local Government Act*."

READ a FIRST, SECOND and THIRD time on [DATE].

ADOPTED on [DATE].

Nicole MacDonald
Mayor

Kate Barchard
Corporate Officer

COUNCIL POLICY C010

01 - Administration

Delegations Before Council

Effective Date: February 1, 2011
Last Revised: May 28, 2019

1. Policy Statement

Pitt Meadows City Council receives delegations at Council meetings and at Engagement and Priorities Committee meetings, as scheduled by the Corporate Officer and as prescribed in this policy.

2. Purpose

A delegation is a presentation to Council by a member of the public or an organization for the purpose of highlighting topics of municipal interest or concern. This policy provides guidelines and requirements for: the submission of delegation requests; the approval and scheduling process for delegations; and the presentation protocol for delegations.

3. Scope

This policy applies to all requests for delegations to regular Council and Engagement and Priorities Committee (EPC) meetings.

4. Exclusions

This policy does not apply to:

- Question & Comment period during regular Council meetings;
- Community engagement opportunities during EPC meetings; or
- Participation at public meetings of the City's community advisory committees, task forces, round tables, or other advisory bodies.

5. Policy

5.1 Definitions

- a) **Corporate Officer** means the Corporate Officer for the City of Pitt Meadows or their designate.

- b) **Delegate** means a member of the public or an organization that wishes to schedule a presentation before Council.
- c) **Delegation** means a presentation to Council by a member of the public or an organization that has been scheduled onto an agenda after completing the Delegation Request Form.
- d) **Delegation Request Form** means the online or printed application form that the Delegate completes in order to appear before Council at a regular Council or EPC meeting.
- e) **Engagement and Priorities Committee** or "**EPC**" means a standing committee of the whole of Council that meets approximately once a month.
- f) **Meeting** means a regular Council or EPC meeting.
- g) **Regular Council Meeting** means a public meeting held by Council as published in Council's annual meeting schedule.

5.2 Roles and Responsibilities

- h) The Corporate Officer, in consultation with the Mayor and/or Chief Administrative Officer, is responsible for the review and approval of all delegations in accordance with the parameters outlined herein, and the overall administration of this policy.
- i) The Legislative Services Department, under the management of the Corporate Officer, supports the administrative coordination of all delegations.
- j) The Chair of a Council or EPC meeting is responsible for maintaining order and decorum throughout the meeting, including enforcing delegation parameters and protocol as outlined in this policy.

5.3 Parameters

- a) A delegation will only be heard by Council if:
 - a Delegation Request Form is submitted and approved by the Corporate Officer in advance, and the delegation is scheduled onto the agenda of the meeting; or
 - the delegation is approved by the unanimous vote of the Council members present during 'Late Items' at a Council or EPC meeting.

- b) Delegations pertaining to the following topics are not permitted and such requests will be denied:
- Any matter pertaining to a bylaw or zoning application that is the subject of a public hearing and where the proposed bylaw has not yet been adopted;
 - Any rezoning or land use matter for which a public hearing is prohibited by provincial legislation;
 - Any matter that is before the courts or for which legal action is being pursued or is pending;
 - Matters pertaining to publicly tendered contracts for the provision of goods and services for the City, between the time that proposals are called and the time that the contract has been awarded;
 - Any matter that is or has been the subject of a claim for damages against the City;
 - Any matter that involves an application before the Board of Variance that is pending or has been decided;
 - Requests for financial or in-kind support;
 - The promotion of commercial goods or services;
 - Any matter on which the Delegate has already spoken to Council and where no new, significant information is provided;
 - Any matter or initiative that is in conflict with programs or services offered, or values held, by the City;
 - Any matter that may confuse the community as to programs and services offered, or values held, by the City;
 - Other topics deemed inappropriate or of concern by the Mayor and/or Chief Administrative Officer.
- c) There will be a limit of one (1) delegation scheduled per meeting unless special circumstances arise and additional delegations are pre-approved by the Mayor or Chair of the Meeting.
- d) Delegations are restricted to five (5) minutes for the presentation and five (5) minutes for questions and comments from Council. The delegation topic must be restricted to the topic indicated on the original Delegation Request Form.
- e) The Chair of the meeting will preserve order by limiting presentations to their allotted five (5) minute timeframe, unless the Chair so chooses to extend the timeframe. The Chair of the meeting may address a delegation

that deviates from its intended purpose, or becomes disrespectful or disruptive in nature.

- f) If a delegate refuses to comply with directions provided by the Chair, the Chair may order the expulsion and exclusion of the delegate from the meeting, pursuant to section 133 of the Community Charter, or recess the meeting until the situation is resolved.

5.4 Delegation Request Procedures

- a) All delegation requests must be submitted in writing, using:
- the online request form located on the City's website; or
 - the Delegation Request Form in Attachment A.
- b) Delegation requests must include the following details:
- purpose of the presentation;
 - specific request (if any) to be considered by Council or the Committee;
 - contact details for the person who will speak on behalf of the delegation; and
 - confirmation of any PowerPoint or handouts that will be used/provided during the delegation.
- c) The Legislative Services Department will respond to delegation requests as soon as possible with confirmation or declination of the request.
- d) Approved delegations will be scheduled for the first available meeting date, unless other arrangements are made.
- e) Presentation materials, including PowerPoints, videos and handouts, must be received by the Legislative Services Department no later than 12:00 p.m. on the Thursday prior to the scheduled meeting. The City reserves the right to:
- edit the presentation in order to address privacy concerns;
 - deny the right to use presentation materials if content is considered inappropriate; and
 - deny the right to use presentation materials if they are not received by the deadline.

5.5 Delegation Presentation Procedures

- a) Delegates will arrive 10 minutes prior to the start time of their scheduled

- meeting and announce their arrival to Legislative Services Staff in the Council Chamber.
- b) Legislative Services Staff will orient the delegate to the Council Chamber, explain the procedures for the meeting, and how to use the podium microphone and wireless PowerPoint clicker, if required.
 - c) The delegate will take a seat in the gallery until such time as the Chair calls upon the delegate to begin their presentation. At this time, the delegate will proceed to the speaker's podium and begin their presentation.
 - d) Delegations are restricted to five (5) minutes for the presentation and five (5) minutes for questions and comments from Council. The presentation topic must be restricted to the topic indicated in the original Delegation Request Form.
 - e) The Delegate may speak longer only if permitted by the Mayor or Chair of the meeting.
 - f) Protocol for Addressing Council:
 - The Mayor will be addressed as "Your Worship", "Mr. Mayor" or "Mayor <surname>".
 - If the Mayor is not presiding over the meeting, the Chair will be addressed as "Mr. Chair" or "Madam Chair".
 - Councillors will be addressed as "Councillor <surname>".
 - Staff will be addressed either by title or by name (e.g. Director Grant or Ms. Grant).
 - All responses or questions to Council or staff will be addressed through the Mayor or Chair.
 - Delegates will refrain from engaging in improper conduct including disrespectful comments, personal attacks, or abusive language. Such behaviour may result in the termination of the delegation by the Chair. Should the delegate not adhere to the decisions of the Chair, the Chair may order the person expelled from the meeting, or may choose to recess the meeting until the issue is resolved.

6. Related Policies

Council Policy C101 - Respectful Workplace
Council Policy C072 - Grants and Donations

Delegation Request Form

Submit completed forms to the Legislative Services Department at Pitt Meadows City Hall, 12007 Harris Road, Pitt Meadows, V3Y 2B5, by mail or in person, or email to info@pittmeadows.ca.

Submission of this form does not guarantee the approval of your request for a delegation. All delegation requests are subject to the provisions outlined in Section 5.3(b) of Council Policy C010 'Delegations Before Council'. Your delegation will be confirmed by telephone or e-mail upon review.

Please Print. All sections must be completed. (Please use separate sheet, if more space needed).

First Name:	Last Name:
Organization (if applicable):	
Address:	
City:	Postal Code:
Phone:	Email:
Issue or Topic of Delegation (provide specific details about your intended presentation; attach additional information if required):	
Purpose: <input type="checkbox"/> Information Only <input type="checkbox"/> To make a request (If you're making a request, please provide details):	
Will you have a PowerPoint presentation? <input type="checkbox"/> No <input type="checkbox"/> Yes	Will you have handouts for Council? <input type="checkbox"/> No <input type="checkbox"/> Yes

Do you require any accessibility accommodations? ☐ No ☐ Yes

If yes, what do you require?

Appearing Before Council as a Delegation:

1. Persons or organizations wishing to appear before Council as a delegation must submit a written request. You may forward your request using one of the following methods:
 - email: info@pittmeadows.ca
 - mail or hand deliver: City of Pitt Meadows, 12007 Harris Road, Pitt Meadows, V3Y 2B5
2. If your request is approved, you will receive notification from the Legislative Services Department who will schedule your delegation for the first available meeting date, unless other arrangements are confirmed.
3. If you are using an electronic presentation (e.g. PowerPoint), you must provide the Legislative Services Department with the file via email or on a flash drive/memory stick no later than 12:00 p.m. on the Thursday prior to the scheduled meeting.
4. Please include all pertinent background information and related documents with your Delegation Request Form so that all necessary details may be considered.

On the evening of your Delegation:

1. Delegates will arrive ten (10) minutes prior to the start time of their scheduled meeting and announce their arrival to Legislative Services staff in the Council Chamber.
2. Delegations are restricted to five (5) minutes for the presentation (unless otherwise approved by the Chair) and five (5) minutes for questions and comments from Council. The delegation topic must be restricted to the topic confirmed with the Legislative Services Department.
3. Delegates will refrain from engaging in improper conduct including disrespectful comments, personal attacks or abusive language. Such behaviour may result in the termination of the delegation by the Chair and, should the delegate not adhere to the decisions of the Chair, the Chair may order the person expelled from the meeting or have the meeting recessed until the issue is resolved.

I confirm that I have read and understand the above information:

Signature

Date

NOTICE: Delegations are held at public Council meetings, which are broadcast live via the City's website and available as a recorded archive from the City's website following the live event. The name of each delegation and their topic of discussion may become part of the public record in the meeting agenda and minutes, which will be available online at pittmeadows.ca. Personal information collected on this form will be managed in accordance with the Freedom of Information and Protection of Privacy Act. Any questions, or concerns regarding the collection, use, disclosure, or safeguarding of personal information associated with this form can be directed to: FOI Head, City of Pitt Meadows, 12007 Harris Road, Pitt Meadows, BC, V3Y 2B5, or kbarchard@pittmeadows.ca

COUNCIL POLICY C107

01 - Administration

Public Engagement at Council Meetings

Effective Date: September 21, 2021

Last Revised: November 23, 2021

1. Policy Statement

Pursuant to their Procedure Bylaw, Pitt Meadows City Council provides opportunities for public engagement at their regular Council meetings and their Engagement & Priorities Committee (EPC) meetings.

2. Purpose

This policy provides guidelines and protocol for the safe, respectful, and orderly administration of Question & Comment Period during Council meetings and public engagement opportunities during EPC meetings.

3. Scope

This policy applies to regular Council meetings and EPC meetings.

4. Exclusions

This policy does not apply to special or in-camera Council meetings, staff meetings, or other non-Council meetings.

5. Regular Council Meetings

The following procedures and guidelines apply to Question and Comment Period during regular Council meetings:

- (1) Question and Comment Period will:
 - a) be conducted at the beginning and end of each regular Council meeting, according to the published agenda; and
 - b) last no more than fifteen minutes unless otherwise authorized by the Chair.

- (2) Members of the public may:
 - c) attend the council meeting to make their comments in person; or
 - d) submit their question or comment in writing through the process prescribed by the Corporate Officer.
- (3) Each person may speak once during each Question and Comment Period for a maximum of 3 minutes, including the time it takes for Council and Staff to respond to their question and/or comment.
- (4) Questions and comments must pertain to topics on the agenda ~~as approved by Council~~ being considered by Council at that particular meeting.
- (5) Speakers will abide by the general conduct rules outlined in Part 8 [General Conduct] of this policy.
- (6) Written submissions will abide by the guidelines established in Part 7 [Written Submissions] of this policy.
- (7) Question and Comment Period may be added to a special (public) Council meeting agenda at the discretion of the Chair, depending on the purpose and nature of the meeting. If Question and Comment Period is added to a special (public) meeting, the protocol established above will apply.
- (8) Expanded options for public engagement may be incorporated into a Council meeting at the discretion of the Chair.

6. EPC Meetings

The following procedures and guidelines apply to community engagement during EPC meetings:

- (1) For each substantial agenda item, the Chair will invite comments and questions from members of the public once Council and Staff have had the opportunity to discuss the topic as presented.
- (2) A maximum of 30 minutes will be allowed for public engagement per agenda item, or otherwise at the discretion of the Chair.
- (3) Members of the public may otherwise:
 - a) attend the meeting to make their comments in person; or

- b) submit their question or comment in writing through the process prescribed by the Corporate Officer.
- (4) Each speaker may speak once per agenda item and will have an opportunity for up to five (5) minutes of dialogue with Council.
- (5) Questions or comments must pertain to the current agenda item and will not be permitted on items not yet presented or not on the agenda.
- (6) Speakers will abide by the general conduct rules outlined in Part 8 [General Conduct] of this policy.
- (7) Written submissions will abide by the guidelines established in Part 7 [Written Submissions] of this policy.

7. Written Submissions

This Part applies to all written submissions for Council and EPC meetings.

- (1) Written submissions will be read into the record by the Corporate Officer or their designate.
- (2) Lengthy submissions may be summarized.
- (3) Submissions with inappropriate language, comments or content may not be considered.
- (4) Only one question will be considered from each written submission.
- ~~(5) For Question and Comment Period, priority will be given to submissions related to items on the agenda.~~
- ~~(6) For EPC meetings, submissions must pertain to items on the agenda.~~
- ~~(5) Submissions pertaining to topics prohibited under section 8.3 of this policy may be forwarded to Staff for comment.~~
- ~~(7)(6) Any w~~Written submissions regarding topics that are not prohibited under section 8.3, and which ~~that~~ are not addressed during a meeting due to time constraints, ~~or for other reasons~~ will be emailed to Council after the meeting.

8. General Conduct

This Part applies to all public engagement opportunities at Council and EPC

meetings.

- (1) Speakers will be prioritized in the following order:
 - a) if a speaker's list is used, those speakers who have signed up for the opportunity to speak; then
 - b) other in-person speakers; then
 - c) written submissions.
- (2) Speakers will:
 - a) begin by stating their name and city of residence, with the option to include other details such as address or neighbourhood, if it is helpful to the conversation;
 - b) direct their question or comment to the Chair;
 - c) be concise and avoid repeating previous questions;
- (3) The following topics will not be permitted:
 - a) Any matter not included on the agenda for Council's consideration at that particular meeting;
 - ~~a)~~b) any matter pertaining to a bylaw or zoning application that is the subject of a public hearing and where the proposed bylaw has not yet been adopted;
 - ~~b)~~c) Any rezoning or land use matter for which a public hearing is prohibited by provincial legislation;
 - ~~c)~~d) any matter that is before the courts, has been the subject of a claim for damages, or pertains to active requests for proposals;
 - ~~d)~~e) requests for financial or in-kind support;
 - ~~e)~~f) the promotion of commercial goods or services; or
 - ~~f)~~g) other topics deemed inappropriate, vexatious, frivolous, defamatory in nature, or containing abusive language.
- (4) Presentation materials, including PowerPoints, videos and handouts, will not be accepted or presented to Council.
- (5) The Chair reserves the right to limit or defer questions and comments

from the public due to time constraints or inappropriate content.

- (6) In order to create and preserve a safe, respectful and orderly environment for everyone, members of the public will:
 - a) show respect through their words and actions towards members of the public, Council members, and Staff;
 - b) refrain from disruptive behaviour that would impede meeting proceedings;
 - c) comply with the decisions of the Chair in a prompt and orderly fashion; and
 - d) restrict comments and questions to the appropriate time on the agenda.
- (7) As per the *Community Charter*, the Chair must preserve order. If the Chair considers that another person at the meeting is acting improperly or disrupting the Council meeting, that person's behavior will be addressed. The Chair may order the person expelled from the meeting should the person choose to not adhere to the decisions of the Chair.

9. Related Policies

Other related policies include:

- (a) C010 – Delegations Before Council
- (b) C041 – Public Hearing Process

Staff Report to Council

Office of the CAO

FILE: 01-0620-04/24

REPORT DATE: April 15, 2024

MEETING DATE:

April 30, 2024

TO: Mayor and Council

FROM: Mark Roberts, Chief Administrative Officer

SUBJECT: Q2 2024 Strategic Priorities Quarterly Report

CHIEF ADMINISTRATIVE OFFICER REVIEW/APPROVAL:



RECOMMENDATION(S):

THAT Council:

- A. Approve the operational strategies for Q2 2024 as presented to Council on April 30, 2024; OR
 - B. Other.
-

PURPOSE

To seek Council's approval of the operational strategies proposed for Q2 2024 [April – June, 2024].

☐ Information Report

☒ Decision Report

☐ Direction Report

DISCUSSION

Background:

Each quarter, Staff present to Council a Strategic Priorities Quarterly Report to ensure that Staff are properly aligned with Council's vision and goals. The document also serves as a reporting tool to inform the community of key operational strategies.

Staff have drafted the Q2 2024 Quarterly Report [Attachment A] and are now seeking Council's feedback and approval.

Relevant Policy, Bylaw or Legislation:

2023-2026 Corporate Strategic Plan.

Available for viewing at: pittmeadows.ca/city-hall/corporate-strategic-direction.

Key Changes:

The Quarterly Report has been updated to reflect the City's refreshed priorities and objectives. The following is a list of the key changes made to the operational strategies within each priority area.

1. Principled Governance:

Added:

- a) Climate Action Strategy [development of strategy to improve the City's capacity to mitigate and respond to the effects of climate change]
- b) 2023 Audited Financial Statements
- c) 2023 Statement of Financial Information (SOFI) Report
- d) 2024 Five Year Financial Plan Bylaw
- e) KFN Land Acknowledgement Plaques for City Facilities
- f) 2024 Tax Rate Bylaw

Removed:

- a) Alouette River Clean Up [completed]

Modified:

- a) Post Secondary – **Feasibility Study** [updated to reflect current scope of project]
- b) Electric Vehicle Charging **Review** [updated to reflect current scope of project]
- c) Farm Tax Reform (**LMLGA**/UBCM Resolutions) [updated to reflect current scope]

2. Balanced Economic Prosperity:

Removed:

- a) Home-based Business Regulations Review [completed]

3. Community Spirit & Wellbeing:

Added:

- a) Red Dress Day – May 5, 2024
- b) Pitt Meadows Day – June 1, 2024
- c) Youth Week May 1 – 7, 2024
- d) Pitt Meadows Art Gallery; Re-establish Customer Base [strategy to promote new location]

Removed:

- a) Family Day Event [completed]
- b) Easter Fun Day Event [completed]
- c) Program Continuity and Bookings Accommodation [completed]
- d) Community Service Awards Event [completed]
- e) Art Gallery Re-Opening [completed]
- f) Mural at SBCC by sᑭáməx^w Rain Pierre [completed]
- g) Expand Indigenous Arts Program [ongoing]
- h) Building Bylaw Update [completed]

4. Infrastructure:

Added:

- a) Amenity Cost Charge Bylaw [program to collect development funds for community amenities]
- b) PMAP & Grabenhorst Garden Test Wells [explore options for an irrigation water source]
- c) Replacement of the City's three Core Enterprise ESX Servers [new hardware and migration]
- d) Replacement of the City's two Production Storage Appliances [new hardware and migration]

Removed:

- a) Airport Way Widening & Improvements [completed]
- b) Art Gallery Relocation [completed]
- c) North Commons Park Playground Installation [completed]
- d) Aquatics Feasibility Study [completed]
- e) Council Chambers and Meadows Room AV Upgrade [completed]

Modified:

- a) Mitchell Park Playground **Re-Opening** [updated to reflect current status of project]

5. Corporate Pride:

Added:

- a) RCMP IT Planning and Design [begin design and build of information technology solutions for new detachment]
- b) Confined Spaces Review – OH&S [review of the program to ensure compliance with WorkSafe BC]
- c) 2022 Canadian Award for Financial Reporting (CAnFR)
- d) 2023 Annual Report
- e) 2024 Financial Plan Report
- f) 2025 Business Planning Guidelines

Modified:

- a) Equity, Diversity & Inclusion (EDI) – Internal Audit **Implementation** [updated to reflect current status of project]
- b) Microsoft 365 Implementation [updated to reflect current status of project]
- c) DCC **Engagement and Bylaw Amendments** [updated to reflect current status of project]
- d) Collective Bargaining **Preparation – IAFF** [following the successful ratification of CUPE Agreement]

6. Public Safety:**Added:**

- a) Council Policy C014 Complaints and Bylaw Enforcement Update [review policy to incorporate best practices and improve clarity to the public around bylaw enforcement]

Removed:

- a) Onboarding of RCMP Manager of Support Services [completed]
- b) Watering Regulations Enforcement Review [completed]

Modified:

- a) Recruitment of four Flex Firefighters [updated to reflect current status]

COUNCIL STRATEGIC PLAN ALIGNMENT

- ☒ Principled Governance ☒ Balanced Economic Prosperity ☒ Infrastructure
☒ Community Spirit & Wellbeing ☒ Corporate Pride ☒ Public Safety
☐ Not Applicable

WORKPLAN IMPLICATIONS

- ☐ Already accounted for in department workplan / no adjustments required
☐ Emergent issue / will require deferral of other priority(ies)
☒ Other

Resource implications related to specific operational strategies will be flagged for Council as the projects are brought forward for decision making.

FINANCIAL IMPLICATIONS

- ☐ None ☐ Budget Previously Approved ☐ Referral to Business Planning
-

☒ Other

All proposed operational strategies have been considered through the annual business and budget planning process.

PUBLIC PARTICIPATION

☒ Inform ☐ Consult ☐ Involve ☐ Collaborate ☐ Empower

KATZIE FIRST NATION CONSIDERATIONS

Referral ☐ Yes ☐ No ☐ Other

Council and staff view their relationship with ᑭᓴᓴᓴ (Katzie) First Nation (KFN) as a key priority. As rights holders, KFN's input and feedback are integral to several key initiatives, including: KFN Service Agreements and Secondary Access; Flood Management; Land Acknowledgement Plaques on City Buildings; The North Lougheed Area Plan; Environmental Inventory Management Strategy Implementation; Red Dress Day; Transition to Independent RCMP Detachment; CP Logistics Park Opposition; Road & Rail Improvements; Equity, Diversity & Inclusion; and the Accessibility Committee.

SIGN-OFFS

Written by:

Tanya Barr,
Deputy Corporate Officer

Reviewed by:

Kate Barchard,
Corporate Officer

ATTACHMENT(S):

- A. Q2 2024 Strategic Priorities Quarterly Report (NEW report)
- B. Q1 2024 Strategic Priorities Quarterly Report (OLD report)

Strategic Priorities Quarterly Report

April - June (Q2) 2024

Attachment A

PRIORITY

Principled Governance

- First Nations Relationship
- Meaningful Engagement
- Regional Partnerships
- Fiscal Stewardship & Accountability
- Environmental/Climate Stewardship

Council Advocacy

OPERATIONAL STRATEGIES

1. q̓íçəy (Katzie) First Nation Service Agreements / Secondary Access MOU
2. Flood Management
3. Post-Secondary Feasibility Study
4. Electric Vehicle Charging Review
5. Climate Action Strategy
6. 2023 Audited Financial Statements
7. 2023 Statement of Financial Information (SOFI) Report
8. 2024 Five Year Financial Plan Bylaw
9. KFN Land Acknowledgement Plaques for City Facilities
10. 2024 Tax Rate Bylaw

- Road & Rail Improvements Project – Underpass
- Secondary School Replacement
- Lougheed Corridor Transportation Upgrades
- CP Logistics Park Opposition
- Golden Ears Roundabout Infrastructure Improvements (TransLink)
- KFN Secondary Access (province and TransLink)
- CP Rail Corridor Emissions Standards (Air Quality Monitoring Study)
- CP Noise & Vibration Existing Exceedances
- Farm Tax Reform (LMLGA/UBCM)

Balanced Economic Prosperity

- Agriculture
- Business Vitality
- Airport
- Affordability

1. Golden Ears Business Park 3 & 4
2. Airport Zoning Review
3. Agricultural Viability Strategy Implementation [inclusive of detailed irrigation study]
4. Economic Development Strategic Plan Implementation
5. North Lougheed Area Plan Engagement Agreement

Community Spirit & Wellbeing

- Pride & Spirit
- Active Wellness
- Natural Environment
- Housing Diversity
- Recreation

1. CP Logistics Park Opposition Strategy
2. Heron's Nest; Metro Vancouver Non-Market Housing & Childcare
3. Pop Up Art Gallery
4. Housing Initiatives
5. Environmental Inventory Management Strategy Implementation
6. Accessibility Committee & Plan
7. Parks and Facility Naming Policy
8. Sponsorship and Advertising Policy
9. Complete Communities Program
10. Civic Centre Master Plan
11. Zoning Bylaw Updates

	12. Urban Forest Strategy 13. Red Dress Day May 5 14. Pitt Meadows Day June 1 15. Youth Week May 1 - 7 16. Pitt Meadows Art Gallery - Reestablish Customer Base
Infrastructure <ul style="list-style-type: none"> • Investments • Transportation • Active Transportation • Facilities • Preparedness 	1. Culvert Condition Assessment 2. Harris Park Washroom Facility 3. Pitt Meadows Athletic Park 4. Rose Grabenhorst Garden Renovations 5. Mitchell Park Playground Re-Opening 6. Water Services Review 7. Bonson Park Disc Golf Course Design 8. Amenity Cost Charge Bylaw 9. PMAP & Grabenhorst Garden Test Wells 10. Replacement of the City's three Core Enterprise ESX Servers 11. Replacement of the City's two Production Storage Appliances
Corporate Pride <ul style="list-style-type: none"> • Employee Excellence • Corporate Culture • Service Excellence • Resources • Desirable Employee 	1. IT Cyber-Security Recommendations Implementation – Managed Security Operations Centre 2. Equity, Diversity & Inclusion (EDI) – Internal Audit [Implementation] 3. Microsoft 365 Implementation 4. DCC Engagement and Bylaw Amendments 5. Collective Bargaining preparation - IAFF 6. CPM Corporate Intranet – Version 1 Launch 7. Laptop & Mobile Device Replacement Program 8. Exempt Compensation Review 9. Enhanced Access to Mental Health – BCMSA partnership pilot program 10. RCMP IT Planning and Design 11. Confined Spaces Review – OH&S 12. 2022 CAnFR Award 13. 2023 Annual Report 14. 2024 Financial Plan Report 15. 2025 Business Planning Guidelines
Public Safety <ul style="list-style-type: none"> • Police • Fire • Emergency Preparedness • Bylaws • Regulatory 	1. Police Detachment Construction 2. Transition to Independent RCMP Detachment (Admin Support) 3. Recruitment of Four Flex Firefighters 4. Next Generation 911 5. Enhance EOC Technical Capacity 6. Parks Maintenance Policy 7. Cross-Connection Control Program Administration 8. Council Policy C014 Complaints and Bylaw Enforcement Update

Strategic Priorities Quarterly Report

January - March (Q1) 2024

Attachment B

PRIORITY

OPERATIONAL STRATEGIES

Principled Governance

- First Nations Relationship
- Meaningful Engagement
- Regional Partnerships
- Fiscal Stewardship & Accountability
- Environmental/Climate Stewardship

Council Advocacy

1. qíçəy (Katzie) First Nation Service Agreements / Secondary Access MOU
2. Flood Management
3. Post-Secondary Needs Assessment
4. Electric Vehicle Charging Fees

- Road & Rail Improvements Project – Underpass
- Alouette River Clean Up
- Secondary School Replacement
- Lougheed Corridor Transportation Upgrades
- CP Logistics Park Opposition
- Golden Ears Roundabout Infrastructure Improvements (TransLink)
- KFN Secondary Access (province and TransLink)
- CP Rail Corridor Emissions Standards (Air Quality Monitoring Study)
- CP Noise & Vibration Existing Exceedances
- Farm Tax Reform (UBCM Resolutions)

Balanced Economic Prosperity

- Agriculture
- Business Vitality
- Airport
- Affordability

1. Golden Ears Business Park 3 & 4
2. Home-based Business Regulations Review
3. Airport Zoning Review
4. Agricultural Viability Strategy Implementation [inclusive of detailed irrigation study]
5. Economic Development Strategic Plan Implementation
6. North Lougheed Area Plan Engagement Agreement

Community Spirit & Wellbeing

- Pride & Spirit
- Active Wellness
- Natural Environment
- Housing Diversity
- Recreation

1. CP Logistics Park Opposition Strategy
2. Heron's Nest; Metro Vancouver Non-Market Housing & Childcare
3. Pop Up Art Gallery
4. Housing Initiatives
5. Environmental Inventory Management Strategy Implementation
6. Accessibility Committee & Plan
7. Family Day Event
8. Easter Fun Day Event
9. Parks and Facility Naming Policy
10. Sponsorship and Advertising Policy
11. Program Continuity and Bookings Accommodation
12. Community Service Awards Event
13. Art Gallery Re-Opening
14. Mural at SBCC by słáməx[™] Rain Pierre
15. Expand Indigenous Arts Program

	16. Complete Communities Program 17. Civic Centre Master Plan 18. Building Bylaw Update 19. Zoning Bylaw Updates 20. Urban Forest Strategy
Infrastructure <ul style="list-style-type: none"> • Investments • Transportation • Active Transportation • Facilities • Preparedness 	1. Airport Way Widening & Improvements 2. Culvert Condition Assessment 3. Harris Park Washroom Facility 4. Art Gallery Relocation 5. Pitt Meadows Athletic Park 6. Rose Grabenhorst Garden Renovations 7. Mitchell Park Playground Installation 8. North Commons Park Playground Installation 9. Aquatics Feasibility Study 10. Council Chamber and Meadows Room AV Upgrade 11. Water Services Review 12. Bonson Park Disc Golf Course Design
Corporate Pride <ul style="list-style-type: none"> • Employee Excellence • Corporate Culture • Service Excellence • Resources • Desirable Employee 	1. IT Cyber-Security Recommendations Implementation – Launch Managed Security Operations Centre 2. Equity, Diversity & Inclusion (EDI) – Internal Audit 3. Microsoft 365 Road Mapping Implementation/Execution 4. DCC Review 5. Collective Bargaining - CUPE 6. CPM Corporate Intranet – Version 1 Launch 7. Laptop & Mobile Device Replacement Program 8. Exempt Compensation Review 9. Enhanced Access to Mental Health – BCMSA partnership pilot program
Public Safety <ul style="list-style-type: none"> • Police • Fire • Emergency Preparedness • Bylaws • Regulatory 	1. Onboarding of RCMP Manager of Support Services 2. Police Detachment Construction 3. Transition to Independent RCMP Detachment (Admin Support) 4. Transition to 24 Hour Firefighter Coverage 5. Collective agreement negotiations (IAFF) and recruitment of four Flex Firefighters 6. Next Generation 911 7. Enhance EOC Technical Capacity 8. Parks Maintenance Policy 9. Watering Regulations Enforcement Review 10. Cross-Connection Control Program Administration

Staff Report to Council

Financial Services

FILE: 05-1700-01/24

REPORT DATE: April 10, 2024

MEETING DATE:

April 30, 2024

TO: Mayor and Council

FROM: Laura Barroetavena

SUBJECT: 2024 Financial Plan and Utility Fees Bylaws

CHIEF ADMINISTRATIVE OFFICER REVIEW/APPROVAL:



RECOMMENDATION(S):

THAT Council:

- A. Approve updated Policy C049 – Revenue and Taxation for inclusion as an attachment in the 2024 – 2028 Financial Plan Bylaw No. 2979, 2024 as required by the *Community Charter*; AND
- B. Grant first, second, and third readings to the 2024 – 2028 Financial Plan Bylaw No. 2979, 2024; AND
- C. Grant first, second and third readings to the Drainage System Protection Amendment Bylaw No. 2978, 2024; AND
- D. Grant first, second and third readings to the Sanitary Sewer and Drainage Amendment Bylaw No. 2976, 2024; AND
- E. Grant first, second and third readings to the Solid Waste Collection and Disposal Amendment Bylaw No. 2977, 2024; AND
- F. Grant first, second and third readings to the Waterworks Amendment Bylaw No. 2975, 2024; OR
- G. Other.

PURPOSE

The purpose of this report is to obtain Council's approval of the 2024 Utility Fee bylaws and the 2024 to 2028 Financial Plan Bylaw.

☐ Information Report

☒ Decision Report

☐ Direction Report

DISCUSSION

Background:

The 2024 to 2028 budget and business planning process consisted of budget workshops, business plan presentations, and meetings for Council budget deliberations. The process commenced in June 2023 when the budget principles and guidelines were approved and culminated with Council deliberating on and approving the provisional budgets in December 2023.

The Corporate Leadership Team undertook a rigorous budget review process that involved significant scrutiny of operational activities in all City departments. Many staff were involved in the process and significant management feedback occurred at several stages throughout budget development.

The process included assessment of budget resources needed to deliver the same services as in 2023 by utilizing a number of mechanisms including:

- Contemplating new revenue opportunities;
- Reviewing revenue streams to ensure better cost recovery;
- Rationalizing use of staff overtime;
- Extending tool and equipment life where possible;
- Incorporating recommendations from the completed Asset Management Plan Update;
- Changing the way we perform tasks to be more efficient; and
- Matching budget to historical costs.

Relevant Policy, Bylaw or Legislation:

In accordance with Section 165(1) of the Community Charter, the City must adopt a five year financial plan prior to adopting the annual property tax bylaw. The annual property tax bylaw must be adopted by May 15th per the Community Charter Section 197(1).

Analysis:

After taking into consideration the City's key strategic priorities regarding safety and essential services and adjusting the corresponding revenues and expenses, including reserve savings, the combined property tax and utility fee will increase by \$469 for the average single family home (SFH) with a 2023 assessed value of \$1,193,494.

Operating Budget

The financial plan bylaw provides the authority for the City to expend funds in accordance with Council's budget deliberations in November and December 2023. The approved budget provides for continuing to deliver City services to the citizens of Pitt Meadows. The budget increase is mainly due to the increase in uncontrollable costs which include the Metro

Vancouver Water Purchase and Sewer Treatment Costs and Collective Bargaining costs impacting the City, the RCMP, and the Library. Council also approved additional funding for 4 flex firefighters to ensure that the City has four (4) firefighters on the first responding apparatus, 100 percent of the time, meeting WorkSafe BC regulations. Additionally an increase in the asset replacement contributions has been incorporated as per the recommendations from the recently completed 2023 Asset Management Plan (AMP) Report.

Utilities

The breakdown of the single family 2024 annual utility fees supporting the budget approved by Council in December 2023 is summarized below:

Service Type	2024
Diking	\$ 20
Drainage Services	60
Sanitary Sewer Services	432
Solid Waste Services	209
Water Services	817
Subtotal User Fees	\$ 1,538
Drainage Services (mill rate)	100
Total Utility Fees	\$ 1,638

Capital Budget

The 2024 capital budget is \$26.8 million. Significant projects include:

- Completion of Golden Ears Business Park DCC Road Improvements – \$8.5 million
- New RCMP Detachment – \$7 million
includes \$5.5M from Debt and \$1.5M funded from Debt Proceeds Interest Earnings (total project cost \$21.7 million)
- Double Artificial Turf - \$200,000 related to design work (total project cost \$10.6 million)
- Covered Multi Sport Box - \$200,000 related to design work (total project cost \$8.1 million)
- Kennedy Pump Station Replacement – \$1.8 million
- Harris Park Concession and Washroom – \$960,000
- Old Dewdney Trunk Road Paving - \$970,000
- Neaves Road Paving \$378,000

- Detailed Irrigation Study \$300,000
- Server Replacement \$301,000
- Dump Trucks and Backhoe \$630,000

Carry Forward Projects

During the January/February period all 2023 projects were reviewed through the yearend process. Projects that were incomplete at the end of 2023 and carried forward to 2024, including the continuation of the new RCMP detachment, have been incorporated into the 2024 Financial Plan Bylaw and amount to \$24.4 million. These projects are listed in Attachment F.

COUNCIL STRATEGIC PLAN ALIGNMENT

- ☐ Principled Governance ☐ Balanced Economic Prosperity ☐ Infrastructure
☐ Community Spirit & Wellbeing ☒ Corporate Pride ☐ Public Safety
☐ Not Applicable

WORKPLAN IMPLICATIONS

- ☒ Already accounted for in department workplan / no adjustments required
☐ Emergent issue / will require deferral of other priority(ies)
☐ Other

FINANCIAL IMPLICATIONS

- ☐ None ☐ Budget Previously Approved ☐ Referral to Business Planning
☒ Other

As events occur or new information becomes known staff must adjust their plans accordingly. Staff are committed to exercising financial prudence in ensuring the City's budget remains balanced while making these adjustments.

Many of these adjustments will require amendments to the financial plan bylaw. As has been the City's past practice, adjustments will be accumulated throughout the year and one amended financial plan bylaw will be presented to Council after the yearend process is completed.

Council directed staff to bring forward the 2024 Financial Plan and Utility Fee Bylaws based on the budget information referred to earlier in this report. Staff has prepared the bylaw for Council consideration which includes the following attachments:

2024-2028 Consolidated Financial Plan Bylaw (Attachment A)

Includes the general, water, sewer, solid waste, and drainage and diking funds set out in the format as prescribed by section 165 of the *Community Charter*.

Taxation and Revenue Policy C049 (Attachment A)

This policy addresses the requirements of section 165 of the Community Charter which requires the financial plan to establish the objectives and policies of the City for the planning period for:

- The proportion of total revenue that is proposed to come from each funding source;
- The distribution of property taxes among the property classes;
- The use of permissive tax exemptions.

Utility Fee Bylaws (Attachments B to E)

The Utility fee bylaws for drainage, solid waste, sewer and water provide staff with the authority to levy utility fees on properties within the City.

Capital Project Carry Forwards (Attachment F)

Capital projects carried forward from 2023 to 2024 have been incorporated into the 2024 to 2028 Financial Plan Bylaw. Funding for all projects has been provided for in the 2023 approved budget therefore, there is no impact to 2024 taxation or 2024 reserve funding levels.

PUBLIC PARTICIPATION

☒ Inform ☐ Consult ☐ Involve ☐ Collaborate ☐ Empower

Comment(s):

Business and financial plans have been available at City Hall and on the City's website. Throughout the year there have been advertisements with respect to budget meetings and presentations to encourage public attendance and provide the public with opportunities to ask questions and provide comments throughout. Advertisements and promotions of the business and budget planning process have also been provided on the City's website.

KATZIE FIRST NATION CONSIDERATIONS

Referral ☐ Yes ☒ No ☐ Other

SIGN-OFFS**Written by:**

Korey Holtzman,
Manager of Financial Planning and Reporting

Reviewed by:

Laura Barroetavena,
Director of Financial Services

ATTACHMENT(S):

- A. 2024 - 2028 Financial Plan Bylaw No. 2979, 2024
- B. 2978, 2024 Drainage System Protection Amendment Bylaw
- C. 2976, 2024 Sanitary Sewer and Drainage Bylaw Amendment
- D. 2977, 2024 Solid Waste Collection and Disposal Amendment Bylaw
- E. 2975, 2024 Waterworks Amendment Bylaw
- F. 2023 Capital Carry Forward Listing to 2024

CITY OF PITT MEADOWS
2024 – 2028 FINANCIAL PLAN
BYLAW NO. 2979, 2024

A Bylaw to adopt the 2024 to 2028 Financial Plan

WHEREAS in accordance with Section 165 of the Community Charter, the Council of the City of Pitt Meadows is required, by bylaw, to adopt a Financial Plan for the municipality before the annual property tax bylaw is adopted;

NOW THEREFORE the Council of the City of Pitt Meadows enacts as follows:

Citation/Title

1. This Bylaw may be cited as the "2024 – 2028 Financial Plan Bylaw No. 2979, 2024".

Schedules

2. The following Schedules are attached to, and form part of, this Bylaw:
 - (a) Schedule "A", is adopted as the 2024 - 2028 Financial Plan of the City of Pitt Meadows for the period beginning January 1, 2024 and ending December 31, 2028.
 - (b) Schedule "B", specifies the transfers to, and expenditures from, the City Reserve Funds for the period beginning January 1, 2024 and ending December 31, 2028.
 - (c) Schedule "C", is the Revenue and Taxation Policy for the City of Pitt Meadows.

READ a FIRST, SECOND and THIRD time ON

ADOPTED ON

Nicole MacDonald
Mayor

Kate Barchard
Corporate Officer

SCHEDULE "A"

2024 - 2028 Financial Plan

<u>REVENUES</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>
Municipal Property and Other Taxes	\$ 32,640,700	\$ 34,586,100	\$ 36,460,700	\$ 38,451,700	\$ 40,450,300
Utility Charges	14,748,100	15,887,600	16,976,400	17,901,000	18,837,800
Sale of Services	2,612,900	2,682,500	2,741,900	2,808,300	2,875,500
Licenses, Permits, Penalties, Fines	1,882,100	1,594,200	1,681,800	1,705,500	1,720,100
Investment Income	1,016,300	802,300	631,300	679,100	788,500
Other Revenue	643,200	655,100	654,400	662,000	667,700
Government Transfers	3,584,900	694,600	818,100	1,335,600	688,400
Contributions	12,746,500	1,090,300	408,900	177,800	403,600
Total Revenues	69,874,700	57,992,700	60,373,500	63,721,000	66,431,900
<u>EXPENSES</u>					
Operating Expenditures	41,346,200	44,216,700	46,101,400	47,260,300	48,843,300
Debt Interest	1,000,700	998,600	968,600	966,500	963,800
Amortization	5,584,000	5,584,000	5,584,000	5,584,000	5,584,000
Total Operating Expenses	47,930,900	50,799,300	52,654,000	53,810,800	55,391,100
Net Revenues (Expenditure)	21,943,800	7,193,400	7,719,500	9,910,200	11,040,800
<u>ALLOCATIONS</u>					
Net Transfers from/(to) Reserves	24,486,400	17,168,200	(558,100)	(4,736,600)	(7,670,900)
Capital Expenditures	(51,169,700)	(29,077,100)	(12,044,900)	(10,038,100)	(8,214,700)
Unfunded Amortization	5,584,000	5,584,000	5,584,000	5,584,000	5,584,000
External Debt Principle Repayment	(844,500)	(868,500)	(700,500)	(719,500)	(739,200)
Total Allocations	(21,943,800)	(7,193,400)	(7,719,500)	(9,910,200)	(11,040,800)
BUDGET BALANCE	\$ -	\$ -	\$ -	\$ -	\$ -

SCHEDULE "B"

<u>Transfers from Reserves:</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>
Arena Capital Reserve Fund	\$ 230,000	\$ 550,000	\$ 150,000	\$ 150,000	\$ 250,000
Carbon Neutrality Reserve Fund	186,500	15,000	7,500	7,500	-
Community Amenity Fund	246,500	8,993,000	2,779,900	1,555,500	922,300
Diking Capital Reserve Fund	206,800	77,000	77,400	77,800	78,300
Drainage Capital Reserve Fund	3,408,200	874,900	1,320,100	465,700	539,600
Equipment Replacement Reserve Fund	2,364,200	1,386,400	1,362,100	959,300	1,428,400
Facilities & Fixtures Lifecycle Reserve Fund	22,397,700	7,679,500	2,169,300	1,023,200	1,195,500
Future Capital Reserve Fund	75,200	25,000	-	12,500	12,500
Growing Communities Reserve Fund	-	5,170,000	-	-	-
Minor Capital Reserve Fund	14,700	15,400	16,100	817,700	17,700
Operating Reserve Fund	2,396,500	1,592,600	1,384,000	554,300	218,700
Parkland Reserve Fund	-	-	-	-	-
Sanitary Sewer Capital Reserve Fund	761,700	3,459,500	1,272,800	70,700	406,400
South Bonson Amenities Reserve Fund	41,100	38,000	34,800	32,000	28,500
Transportation Infrastructure Reserve Fund	5,446,600	3,037,100	1,852,300	3,802,600	2,112,100
Waterworks Capital Reserve Fund	486,700	2,835,300	2,224,300	1,078,000	2,535,600
Total Transfers from Reserves	38,262,400	35,748,700	14,650,600	10,606,800	9,745,600

<u>Transfers to Reserves:</u>					
Arena Capital Reserve Fund	(376,300)	(387,100)	(392,900)	(405,700)	(418,900)
Carbon Neutrality Reserve Fund	(155,000)	(154,800)	(157,100)	(159,600)	(162,100)
Community Amenity Fund	(110,900)	(4,565,700)	(2,774,900)	(1,550,500)	(917,300)
Diking Capital Reserve Fund	(171,400)	(173,000)	(174,500)	(176,100)	(177,800)
Drainage Capital Reserve Fund	(1,360,000)	(1,513,800)	(1,639,900)	(1,816,200)	(2,009,500)
Equipment Replacement Reserve Fund	(1,620,800)	(1,282,100)	(1,450,400)	(1,441,800)	(1,529,800)
Facilities & Fixtures Lifecycle Reserve Fund	(4,788,800)	(3,967,200)	(2,190,100)	(3,207,000)	(4,296,500)
Future Capital Reserve Fund	(1,200)	(800)	(400)	(400)	(200)
Growing Communities Reserve Fund	-	-	-	-	-
Minor Capital Reserve Fund	(63,800)	(64,700)	(65,400)	(66,300)	(53,900)
Operating Reserve Fund	(168,600)	(151,900)	(146,300)	(137,500)	(134,800)
Parkland Reserve Fund	(5,200)	(5,200)	(5,200)	(5,200)	(5,200)
Sanitary Sewer Capital Reserve Fund	(662,000)	(737,100)	(762,200)	(923,000)	(1,830,100)
South Bonson Amenities Reserve Fund	(14,000)	(13,600)	(13,200)	(12,800)	(12,500)
Transportation Infrastructure Reserve Fund	(2,679,100)	(3,885,400)	(3,717,200)	(3,670,300)	(4,025,400)
Waterworks Capital Reserve Fund	(1,598,900)	(1,678,100)	(1,719,000)	(1,771,000)	(1,842,500)
Total Transfers to Reserves	(13,776,000)	(18,580,500)	(15,208,700)	(15,343,400)	(17,416,500)
Total Transfers from (to) Reserves	\$ 24,486,400	\$ 17,168,200	\$ (558,100)	\$ (4,736,600)	\$ (7,670,900)

SCHEDULE "C"

POLICY NO. C049 – Revenue and Taxation

Policy Statement

1. To comply with the disclosure requirements as set out in section 165 (3.1) of the Community Charter.

Policy

2. Total Revenue

Charter Requirement: Set out the objectives and policies regarding the proportion of total revenue proposed to come from each funding source.

The proportion of funding sources included in the financial plan is as follows:

	2024	2025	2026	2027	2028
Municipal Property and Other Taxes	46.7%	59.6%	60.4%	60.3%	60.9%
Utility Charges	21.1%	27.4%	28.1%	28.1%	28.4%
Sale of Services	3.7%	4.6%	4.5%	4.4%	4.3%
Licenses, Permits, Penalties, Fines	2.7%	2.7%	2.8%	2.7%	2.6%
Investment Income	1.5%	1.4%	1.0%	1.1%	1.2%
Other Revenue	1.0%	1.2%	1.1%	1.0%	1.0%
Government Transfers	5.1%	1.2%	1.4%	2.1%	1.0%
Contributions	18.2%	1.9%	0.7%	0.3%	0.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

3. Property Tax is the City's largest source of revenue and provides funding for the "public type" services provided by the City which cannot be or are undesirable to be funded on a user pay basis such as parks and leisure services, public safety, transportation and general government. Its proportion of total revenue will vary from year to year depending on the capital program and the use of reserves, borrowing or grants for the capital program.
4. **Policy:** The City is committed to, where feasible and for appropriate municipal services, shifting the payment of the services from property taxes to user fees. To this end, the City will review user fees and charges annually and compare to the costs to provide the services and comparative costs from other municipalities.

The City will also regularly review Development Cost Charge rates to ensure that developers who profit from development in the municipality pay an appropriate share of the cost of the municipal infrastructure required to service new developments.

5. **Objective:** That “private type” services provided by the City are charged and paid for on a full cost recovery basis.

6. Taxation Revenue

Charter Requirement: Set out the objectives and policies regarding the distribution of property taxes among the property classes.

The distribution of general property tax revenue across different property taxes is as follows:

	Class	Assessment %	Revenue %
Residential	1	75.92%	53.16%
Utilities	2	0.12%	1.07%
Major Industry	4	0.19%	0.61%
Light Industry	5	3.44%	7.24%
Business & Other	6	19.52%	34.60%
Recreation / Non-Profit	8	0.63%	1.00%
Farm	9	0.18%	2.32%
Total		100.00%	100.00%

The City remains heavily reliant on residential property taxation at 53.16% of total general property tax revenue. For 2024, approximately 46.84% is budgeted to come from non-residential assessment classes which make up only 24.08% of the total assessed value for the City.

7. **Policy:** The City is committed to increasing the overall proportion of revenue from non-residential classes through growth and development while working to ensure that the amount of property taxes paid by business and industry does not harm the ability for existing businesses to operate effectively in the community and is not a deterrent for business considering locating in the community.

The City will regularly review growth in the respective classes of the tax base and compare the City’s tax ratio between residential property owners and business owners relative to other municipalities in Metro Vancouver.

8. **Objective:** That the City has a broad assessment base in which each class share an equitable portion of the general property tax burden.

9. Permissive Exemptions

Charter Requirement: Set out the objectives and policies regarding the use of permissive tax exemptions.

10. **Policy:** The City of Pitt Meadows uses Policy C061 – Permissive Tax Exemptions, which has been approved by Council. The purpose of the policy is as follows:

“A permissive tax exemption is a means for Council to support organizations within the community which further Council’s objectives of enhancing quality of life (economic, social, cultural) and delivering services economically. This policy guides identification of organizations meeting Council’s objectives.”

This policy demonstrates that Council will consider providing permissive exemptions to not-for-profit institutions that form a valuable part of our community. These include religious institutions, historical societies, some recreational facilities, service organizations and cultural institutions.

11. **Objective:** Council will periodically examine its permissive tax exemption policy to determine if changes are necessary.

Related Policies or Bylaws

12. 2024 to 2028 Financial Plan Bylaw No. 2979, 2024

CITY OF PITT MEADOWS
DRAINAGE SYSTEM PROTECTION AMENDMENT
BYLAW NO. 2978, 2024

A Bylaw to amend a section of Pitt Meadows Drainage System Protection
Bylaw No. 2266, 2007

WHEREAS the Council of the City of Pitt Meadows is authorized to enact a bylaw pursuant to section 194 [*municipal fees*] of the *Community Charter*;

NOW THEREFORE the Council of the City of Pitt Meadows enacts as follows:

Citation / Title

1. This Bylaw may be cited as the **"Drainage System Protection Amendment Bylaw No. 2978, 2024"**.

Schedules

2. Schedule "E" of Pitt Meadows Drainage System Protection Bylaw No. 2266, 2007, is repealed and replaced with a revised Schedule "E", which is attached to and forms part of this Bylaw.

READ a **FIRST, SECOND, and THIRD** time on

ADOPTED on

Nicole MacDonald, Mayor

Kate Barchard, Corporate Officer

SCHEDULE "E"
DRAINAGE CHARGES**Urban Areas:**

Residential – single housing*	\$60.02/unit
Residential – multiple housing	\$25.63/unit
Non-residential	\$1683.94/hectare

Rural Areas:

Agriculture**	\$165.27/hectare
Non-agriculture	\$165.27/hectare

* Single housing includes duplex housing, modular homes, mobile homes

** Agriculture includes land zoned agriculture located within urban areas

CITY OF PITT MEADOWS
SANITARY SEWER AND DRAINAGE
AMENDMENT BYLAW NO. 2976, 2024

A Bylaw to amend a section of the Sanitary Sewer and Drainage
Bylaw No. 2890, 2021

WHEREAS the Council of the City of Pitt Meadows is authorized to enact a bylaw pursuant to section 194 [*municipal fees*] of the *Community Charter*;

NOW THEREFORE the Council of the City of Pitt Meadows enacts as follows:

Citation / Title

1. This Bylaw may be cited as the "**Sanitary Sewer and Drainage Amendment Bylaw No. 2976, 2024**".

Schedules

2. Schedule "B" of the Sanitary Sewer and Drainage Bylaw No. 2890, 2021, is repealed and replaced with a revised Schedule "B" which is attached to and forms part of this Bylaw.

READ a **FIRST, SECOND**, and **THIRD** time on

ADOPTED on

Nicole MacDonald, Mayor

Kate Barchard, Corporate Officer

SCHEDULE "B"

The following charges for use of the sanitary sewer system shall apply to all real property served by the sanitary sewers owned, operated and maintained by the Municipality:

	USES	USER RATE
A.	Residential Units Rate per dwelling unit and mobile home space:	\$432.00
B.	Hotel, Motel, Auto Court, Boarding Houses and like units Rate per room available for hire:	\$106.00
C.	Restaurants, Cafes, Eating Establishments Minimum rate for the first 50 seats: Plus – rate per additional 10 seats or any fraction thereof:	\$432.00 \$44.00
D.	Laundromats, Dry Cleaners Minimum rate for the first 5 machines installed therein Plus – rate per additional machine installed	\$717.00 \$85.00
E.	Schools Rate per classroom:	\$344.00
F.	Commercial and Institutional Units (<i>not specified</i>) Rate per unit:	\$432.00
G.	Industrial Units (<i>including ice arenas, golf courses, car washes and warehouses</i>) Minimum rate for the first 1,000,000 gallons of annual water usage recorded by City meters: Plus – rate per additional 1,000,000 gallons or fraction thereof:	\$863.00 \$3,457.00
H.	Per Diem Rates Residential building per dwelling unit: Industrial, Commercial or Institutional building per unit:	\$1.18/day \$1.18/day
I.	Deposit Amounts Multi-family residence	\$100/unit

CITY OF PITT MEADOWS
SOLID WASTE COLLECTION AND DISPOSAL AMENDMENT
BYLAW NO. 2977, 2024

A Bylaw to amend a section of the Pitt Meadows Solid Waste Collection and
Disposal Bylaw No. 2568, 2012

WHEREAS the Council of the City of Pitt Meadows is authorized to enact a bylaw pursuant to section 194 *[municipal fees]* of the *Community Charter*;

NOW THEREFORE the Council of the City of Pitt Meadows enacts as follows:

Citation / Title

1. This Bylaw may be cited as the **"Solid Waste Collection and Disposal Amendment Bylaw No. 2977, 2024"**.

Schedules

2. Schedule "A" of the City of Pitt Meadows Solid Waste Collection and Disposal Bylaw No. 2568, 2012 is repealed and replaced with a revised Schedule "A", which is attached to and forms part of this Bylaw.

READ a **FIRST, SECOND,** and **THIRD** time

ADOPTED on

Nicole MacDonald, Mayor

Kate Barchard, Corporate Officer

SCHEDULE "A"

FEES AND CHARGES

	Class of Property	Charge
A.	Combined Solid Waste Services (Garbage and Green Waste)	
	1. Single family and two-family residence, per dwelling unit	\$209.00
	2. Multi-residential premise #1, per dwelling unit	\$209.00
B.	Green Waste Services only (curbside)	
	3. Mobile home park, per mobile home	\$ 117.00
	4. Multi-residential premise #1(curbside), per dwelling unit	\$ 117.00
C.	Bulk Container Green Waste	
	5. Multi-residential premise #2 (Central Collection), per dwelling unit	\$ 20.00
D.	Garbage (Curbside) and Bulk Container Green Waste	
	6. Garbage (curbside) and Central Collection Green Waste	\$ 112.00
E.	Per Diem Rates provided for in Section 34 and 37	
	7. Single family and two-family residence, per dwelling unit	\$0.57/day
	8. Mobile home park, per mobile home	\$0.32/day
	9. Multi-residential premise #1 (Curbside), per dwelling unit	\$0.32/day
	10. Multi-residential premise #2 (Central Collection), per dwelling unit	\$0.05/day
F.	Multi-residential Deposit provide for in Section 35	
	11. Multi-residential premise #1 and #2, per dwelling unit	\$100/unit
G.	Extra Bag Tag Charge	
	12. Price per tag	\$5.00
H.	New and or Replacement Collection Cart Charge	
	13. Price per 240 Litre Collection Cart	\$138.00+taxes
	14. Price per 120 Litre Collection Cart	\$115.00+taxes
	15. Convert from standard 120 Litre garbage collection cart to 240 Litre garbage collection cart	\$96 – Annual fee pro-rated
	16. Delivery Charge	\$50

CITY OF PITT MEADOWS
WATERWORKS AMENDMENT
BYLAW NO. 2975, 2024

A Bylaw to amend a section of the Waterworks Bylaw No. 2891, 2021.

WHEREAS the Council of the City of Pitt Meadows is authorized to enact a bylaw pursuant to section 194 *[municipal fees]* of the *Community Charter*;

NOW THEREFORE the Council of the City of Pitt Meadows enacts as follows:

Citation / Title

1. This Bylaw may be cited as the "Waterworks Amendment Bylaw No. 2975, 2024".

Schedules

2. Schedule "B" of Waterworks Bylaw No. 2891, 2021 is repealed and replaced with a revised Schedule "B" which is attached to, and forms part of, this Bylaw.

READ a FIRST, SECOND, and THIRD time on

ADOPTED on

Nicole MacDonald, Mayor

Kate Barchard, Corporate Officer

SCHEDULE "B"**USER RATES**

Unless otherwise specified by the Director, pursuant to the conditions of this Bylaw, the uses listed under "Flat Rate Charges" shall be charged on the basis of the Flat Rates so specified. All other uses shall be required to have metered water services.

METER RATE CHARGES

- (1) Each Water connection being charged on a metered basis shall be subject to an annual base charge of \$539 to cover provision and maintenance of Waterworks infrastructure by the City.
- (2) The meter rate shall be \$0.94 per cubic metre for all metered users.
- (3) Water consumption charges for metered services shall be for a continuous period of six (6) months or broken part thereof, the first period from January to June, inclusive, the second period from July to December, inclusive.

FLAT RATE CHARGES (ANNUAL RATES)

	USES	RATES Per Unit
A.	Residential Units Apartments, Motel, Hotel, Boarding House, Trailer Court or like units not otherwise metered. Rate per dwelling unit:	\$622.00
	All other residential units including detached homes, townhouses and like units. Rate per dwelling unit:	\$817.00
B.	Restaurant, Cafes, Eating Establishments not otherwise metered. - Minimum: - Per person for each occupancy above 20:	\$1085.00 \$4.00
C.	Schools - each classroom:	\$412.00
D.	All other commercial or institutional not otherwise metered:	\$817.00
	Where there is occupied living quarters located with units noted in B,C and D add an additional per unit charge:	\$622.00
E.	Multi Family Residential Deposit Amount	\$100/unit

YE 2023 Capital Carry Forward**8110 - GENERAL ADMIN CAPITAL**

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
230025	COUNCIL LOBBY DISPLAY	10,000.00	4,003.47	5,996.53	40%	5,900.00	Q4 Completion
Category Total		10,000.00	4,003.47	5,996.53	40%	5,900.00	

8120 - FINANCE CAPITAL

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
210049	ASSET MANAGEMENT PLAN (AMP)	80,000.00	45,420.20	34,579.80	57%	0.00	Complete
220041	PSAS 3280 ASSET RETIREMENT OBLIG. ARO	7,000.00	505.00	6,495.00	7%	6,400.00	Q1 Completion
230029	INTELLI BATCH EXPORT IMPROVEMENTS	3,000.00	2,240.00	760.00	75%	0.00	Complete
Category Total		90,000.00	48,165.20	41,834.80	54%	6,400.00	

8130 - HUMAN RESOURCES

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
220033	DIVERSITY AND INCLUSION	55,000.00	29,625.00	25,375.00	54%	25,300.00	Q4 Completion
Category Total		55,000.00	29,625.00	25,375.00	54%	25,300.00	

8140 - COMMUNICATIONS

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
170015	WEBSITE REFRESH #15-CM-092	7,800.00	0.00	7,800.00	0%	7,800.00	Ongoing
180005	PUBLIC ENGAGEMENT #18-CM-095	112,800.00	12,177.68	100,622.32	11%	100,600.00	Ongoing
180092	GATEWAY TRANSPRT CF ENGAGEMENT #18-CM-097	21,400.00	0.00	21,400.00	0%	21,400.00	Ongoing
210061	WEBSITE VERSION UPGRADE DRUPAL 7 TO 9	10,000.00	0.00	10,000.00	0%	10,000.00	Ongoing
230027	CITY HALL DIGITAL BOARD REPLACEMENT	55,700.00	52,430.00	3,270.00	94%	0.00	Complete
Category Total		207,700.00	64,607.68	143,092.32	31%	139,800.00	

8150 - IT CAPITAL

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
		0	0	0	0%		
080020	MISC COMPUTER INFR PURCHASE #09-IT-020	62,867.39	48,965.00	13,902.39	78%	9,400.00	Ongoing
080024	IT-SERVER/SAN REFRESH #10-IT-021	2,000.00	1,962.33	37.67	98%	0.00	Ongoing
110021	IT-SMART PHONE REPLACEMENT #11-IT-052	2,500.00	236.48	2,263.52	9%	2,200.00	Ongoing
130007	UPS REPLACEMENT #13-IT-075	0.00	0.00	0.00	0%	0.00	Complete
150002	FIRE RUGGEDIZED LAPTOPS #14-IT-084	3,000.00	2,898.11	101.89	97%	0.00	Complete
150014	TABLET REFRESH #15-IT-077	4800	4757.77	42.23	99%	0.00	Complete
150020	FIBRE MAINTENANCE #14-IT-082	35,420.78	35,420.78	0	100%	0.00	Complete
170002	SERVER/SAN WARRNTY CONTRACTS #16-IT-101N	7,400.00	6,495.47	904.53	88%	0.00	Complete
190018	AV REPLACEMENTS #19-IT-002	39,700.00	4,088.47	35,611.53	10%	35,600.00	Q1 Completion
190019	APPLICATION ENHANCEMENTS FUND	17,200.00	14,968.04	2,231.96	87%	2,200.00	Q4 Completion
200003	PC REPLACEMENT MONITORS #20-IT-001	8,900.00	7,068.24	1,831.76	79%	1,800.00	Ongoing
200004	IPHONE REFRESH #20-IT-002	0.00	0.00	0.00	0%	0.00	

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210006	IT EQUIPMENT FOR NEW FIREHALL #21-IT-00	159,811.83	159,811.83	0.00	100%	0.00	Complete
210008	IT SECURITY SERVICES AND TOOLS #21-IT-00	20,000.00	20,000.00	0.00	100%	0.00	Q2 Completion
230009	COUNCIL CHAMBERS AV SYSTEM REPLACEMENT	217,000.00	14,612.50	202,387.50	7%	202,300.00	Q1 Completion
230010	MICROSOFT 365 IMPLEMENTATION	41,000.00	9,717.18	31,282.82	24%	31,200.00	Ongoing
230011	INTRANET REPLACEMENT	48,500.00	34,508.55	13,991.45	71%	13,900.00	Ongoing
240004		0.00	0.00	0.00	0%		
990040	IT WAN/LAN UPGRD POE SWITCHES #11-IT-003	16,300.00	16,104.30	195.70	99%	0.00	Complete
Category Total		686,400.00	381,615.05	304,784.95	56%	298,600.00	

8160 - GEN GOVT FACILITIES

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
150004	CITY FAC-LIFECYCLE MNTCE #15-FA-083	149,800.00	97,072.99	52,727.01	65%	52,700.00	Ongoing
160023	AIR QUALITY SURVEY-CITY FACLTY #16-FA-092	2,900.00	980.00	1,920.00	34%	0.00	Complete
170013	HAZARDOUS MAT SRVEY-FACILITY #17-FA-100	5,000.00	4,008.53	991.47	80%	0.00	Complete
170016	CIVIC CTR PARKING RESURFACE #17-FA-120	500.00	480.00	20.00	96%	0.00	Complete
170031	FIRE SAFETY PLANS-CITY FAC'S #17-FA-099N	10,000.00	0.00	10,000.00	0%	10,000.00	Deferred
210047	RISK ASSESSMENT - ASBESTOS	8,900.00	0.00	8,900.00	0%	8,900.00	Ongoing
Category Total		177,100.00	102,541.52	74,558.48	58%	71,600.00	

8200 - POLICE SERVICES CAPITAL

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
210055	POLICE SERVICES SITE PREPARATION	9,600.00	9,600.00	0.00	100%	0.00	Complete
220040	NEW RCMP DETACHMENT	12,239,800.00	2,016,421.88	10,223,378.12	16%	10,223,300.00	Ongoing
Category Total		12,249,400.00	2,026,021.88	10,223,378.12	17%	10,223,300.00	

8220 - FIRE SERVICES CAPITAL

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
		0	0	0	0%		
000	ALL / OTHER / NA	0	0	0	0%		
090020	F/F PROTECTIVE CLOTHING/GEAR #16-FS-024	49,600.00	44,350.00	5,250.00	89%	5,200.00	Ongoing
110014	FIREHALL MTG RM/OFF FURN #15-FS-053/064	183,100.00	140,336.76	42,763.24	77%	42,700.00	Q4 Completion
170032	MAIN FIRE HALL REPLACEMENT #17-FA-107	3,171,700.00	2,743,569.28	428,130.72	87%	428,100.00	Q4 Completion
180032	REPLACE FORD F350 FIRE #15-FS-019	116,200.00	114,053.59	2,146.41	98%	0.00	Complete
180035	REPLACE WILDLAND FF SKID SQD1 #17-FS-032	50,000.00	49,435.12	564.88	99%	500	Q1 Completion
180036	REPLACE UTILITY SKID FOR SQD1 #17-FS-033	10,000.00	9,553.57	446.43	96%	0.00	Complete
180037	REPLACE SKID LOAD TROLLEY SQD1 #17-FS-034	11,000.00	10,508.93	491.07	96%	0.00	Complete
190059	VEHICLE EXTRACTION & RESCUE EQ #16-FS-02	93,800.00	88,745.80	5,054.20	95%	0.00	Q1 Completion

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190080	FIREHALL CELL TOWER REVIEW #19-FA-014	2,200.00	0.00	2,200.00	0%	2,200.00	Q4 Completion
200008	FIREHALL TEMPORARY SITE #20-FS-002	85,000.00	84,816.50	183.50	100%	0.00	Complete
210052	UPGRADE RESPONDERS TO EMERGENCY MEDICAL	40,000.00	0.00	40,000.00	0%	40,000.00	Q4 Completion
230022	FIRE EQUIPMENT REPLACEMENT	10,000.00	0.00	10,000.00	0%	10,000.00	Ongoing
230023	HYDROSTATIC TESTING OF SCBA 102 BOTTLES	5,600.00	0.00	5,600.00	0%	5,600.00	Q4 Completion
230026	ADDITIONAL CAREER FIREFIGHTER GEAR/EQUIP	36,000.00	36,000.00	0	100%	0.00	Complete
230033	NEXT GENERATION 911	45,000.00	0.00	45,000.00	0%	45,000.00	Ongoing
990067	FD-MINOR TOOLS & EQUIPMENT #16-FS-025	53,700.00	29,211.32	24,488.68	54%	24,400.00	Ongoing
Category Total		3,962,900.00	3,350,580.87	612,319.13	85%	603,700.00	

8250 - EMERGENCY SERVICES

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
		0.00	0.00	0.00	0%		
200027	FIRESMART PLANNING & DEV #20-EM-001	16,200.00	0.00	16,200.00	0%	16,200.00	Q4 Completion
210056	ESS GROUP LODGING TRAILER	4,700.00	0.00	4,700.00	0%	0.00	Complete
210058	PRIMARY EOC WORKSTATIONS	0.00	0.00	0.00	0%	0.00	Complete
210060	FARMS & RANCH FIRESMART PROGRAM	300.00	0.00	300.00	0%	0.00	Complete
220049	ESS VULNERABLE POPULATION PLANNING	30,600.00	4,467.58	26,132.42	15%	26,100.00	Ongoing
220053	EOC WORKSTATION CHAIRS	25,000.00	19,216.21	5,783.79	77%	0.00	Complete
230031	2023 EOC GRANT - EOC IN PITT MEADOWS	30,000.00	30,000.00	-	100%	0.00	Complete
990040	IT WAN/LAN UPGRD POE SWITCHES #11-IT-003	0.00	0.00	0.00	0%	0.00	
Category Total		106,800.00	53,683.79	53,116.21	50%	42,300.00	

8300 - TRANSPORTATION

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
060005	NEAVES ROAD #16-TR-116	0.00	0.00	0.00	0%		
080012	ACTIVE TRANSPORTATION #09-TR-028	145,300.00	61,306.51	83,993.49	42%	83,900.00	Ongoing
090025	BRIDGE MAINTENANCE - VARIOUS #09-TR-062	43,600.00	0.00	43,600.00	0%	43,600.00	Ongoing
120004	LADNER ROAD BRIDGE #15-TR-102	18,200.00	13,159.37	5,040.63	72%	5,000.00	Ongoing
120018	PAVEMENT MANAGEMENT PLAN #16-TR-115	77,800.00	74,650.50	3,149.50	96%	3,100.00	Q4 Completion
120026	SIDEWALK REPAIR #12-TR-099	56,800.00	32,193.35	24,606.65	57%	24,600.00	Ongoing
130001	MISC ROAD ASSET- REHAB #09-TR-001	106,400.00	0.00	106,400.00	0%	106,400.00	Q4 Completion
160013	WILDWOOD CRES-HAMMOND TO BNSN #15-TR-034	0	0	0	0%		
180007	TRAFFIC CALM ENGAGE & IMPL #18-TR-001	80,000.00	14,638.41	65,361.59	18%	65,300.00	Ongoing
180008	SHARPE TO NEAVES RD - OLD DTR #18-TR-003	0	0	0	0%	0	
190031	188 ST S. ADVENT RD #19-TR-007	205,000.00	171,653.36	33,346.64	84%	33,300.00	Q1 Completion
190033	DCC MJT2-HARRS (HAMM-AIRPORT) #19-TR-016	1,785,900.00	906.85	1,784,993.15	0%	1,784,900.00	Ongoing

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190034	DCC MNT1-MCMYN S/WALK #19-TR-021	40,500.00	0.00	40,500.00	0%	40,500.00	In progress
190035	DCC MNT2-19089 ADVENT S/WALK #19-TR-022	21,900.00	0.00	21,900.00	0%	21,900.00	In progress
190036	DCC MNT4/MNT5-FRSEY WY PED/PKG#19-TR-024	1,075,000.00	0.00	1,075,000.00	0%	1,075,000.00	2025 Completion
190037	DCC MNT7-191 ST S/WALK S.MCMYN 19-TR-026	59,400.00	0.00	59,400.00	0%	59,400.00	In progress
190038	DCC MJT23-AIRPRT WAY AT BAYNES#19-TR-032	282,000.00	0.00	282,000.00	0%	282,000.00	2025 Completion
190039	DCC MJT24-FRASER DIKE RD EXT #19-TR-033	56,600.00	20,531.58	36,068.42	36%	36,000.00	2025 Completion
200011	STREETLIGHT LED PROGRAM DP #20-TR-002	84,600.00	75,962.25	8,637.75	90%	8,600.00	Ongoing
210012	HAMMON RD REPAVING - WILDWOOD TO PM BOUN	744,100.00	535,707.54	208,392.46	72%	208,300.00	Q1 2024 Completion
210032	DCC BYLAW & PROGRAM REVIEW	32,000.00	9,750.00	22,250.00	30%	22,200.00	Q4 Completion
210034	CITY ENTRANCE SIGN NEAR PITT BRIDGE	54,500.00	0.00	54,500.00	0%	54,500.00	2025 Completion
210057	ROAD AND RAIL ACOUSTICAL STUDY	17,000.00	0.00	17,000.00	0%	17,000.00	Ongoing
210059	AIRPORT WAY CORRIDOR IMPROVEMENTS	45,400.00	0.00	45,400.00	0%	0.00	Cancelled
220021	LATECOMER POLICY	10,000.00	0.00	10,000.00	0%	10,000.00	Q4 Completion
220026	LADNER ROAD REPAVE - EAST	0	0	0	0%		
230016	BRIDGES - DECK JOINT REPAIRS	390,000.00	133,181.32	256,818.68	34%	256,800.00	Q4 Completion
230019	HARRIS UNDERPASS - CONSULTANT REVIEW	75,000.00	0.00	75,000.00	0%	75,000.00	Ongoing
990013	MISC ROADS-IMPROVMNTS #09-TR-002	40,000.00	11,709.91	28,290.09	29%	28,200.00	Ongoing
Category Total		5,547,000.00	1,155,350.95	4,391,649.05	21%	4,345,500.00	

8310 - OPERATIONS FLEET

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
180055	REPLACE '10 SERVICE VAN M179 #15-FE-066	165,000.00	0.00	165,000.00	0%	165,000.00	Q1 Completion
180056	REPLACE '16 TRACTOR MF51 M082 #15-FE-067	360,000.00	0.00	360,000.00	0%	360,000.00	Q1 Completion
190065	ANTI ICING SYTEM M401 REPL #18-FE-078	34,729.52	34,058.09	671.43	98%	0.00	Complete
190066	TRAILER GENSET M303 REPL #18-FE-081	35,000.00	0.00	35,000.00	0%	35,000.00	Q1 Completion
210038	FUEL DELIVERY SYSTEM - WORKS YARD	0	0	0	0%	0.00	
210067	NEW BYLAWS VEHICLE	8,970.48	8,970.48	0.00	100%	0.00	
230028	SNOW PLOW W/ SALT AND BRINE ATTACHMENTS	28,000.00	21,968.17	6,031.83	78%	6,000.00	Q4 Completion
Category Total		631,700.00	64,996.74	566,703.26	10%	566,000.00	

8320 - OPERATIONS FACILITIES

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
230020	ADDITIONAL WORKS YARD GATE ENTRANCE	45,000.00	1,922.00	43,078.00	4%	43,000.00	Q4 Completion
Category Total		45,000.00	1,922.00	43,078.00	4%	43,000.00	

8400 - SOLID WASTE CAPITAL

YE 2023 Capital Carry Forward

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
210036	BEAR-PROOF GARBAGE CANS	22,300.00	20,878.01	1,421.99	94%	0.00	Complete
Category Total		22,300.00	20,878.01	1,421.99	94%	0.00	

8410 - WATER CAPITAL

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
180059	AC REP 195A, 195B, 117B AVE #15-WS-049	5,700.00	246.25	5,453.75	4%	0.00	Complete
180060	AC REP 195B, 119A, 120B AVE #15-WS-054	26,300.00	21,065.67	5,234.33	80%	5,200.00	2025 Completion
180062	AC REP 115A AVE, 197A, 197B #15-WS-065	23,800.00	17,028.50	6,771.50	72%	6,700.00	2025 Completion
180065	AC REP 188A, 188B, 119B AVE #16-WS-079	3,000.00	2,946.25	53.75	98%	0.00	Complete
190043	AC REP-196A, 116B AVE #19-WS-006	1,300.00	1,273.95	26.05	98%	0.00	Complete
190044	AC REP-116A, 114B AVE, 198 ST #19-WS-007	-	510.00	510.00	0%	0.00	Complete
190045	DCC W4 FRASER DYKE RD MAIN EXT#19-WS-014	-	-	-	0%	0.00	
190067	AC REP-120, 120B AVE, 189A ST #16-WS-080	14,700.00	14,681.08	18.92	100%	0.00	2025 Completion
190069	CL REP-BONSON RD (SOUTH)& 117A#18-WS-002	7,000.00	4,915.50	2,084.50	70%	2,000.00	2025 Completion
190070	SCADA IMPROVEMENTS #18-WS-003	21,600.00	4,746.11	16,853.89	22%	16,800.00	Ongoing
220028	190A PRV RELOCATION FEASIBILITY STUDY	9,100.00	5,425.10	3,674.90	60%	0.00	Complete
220035	SHERIDAN HILL BOOST STN-UPGRADE/DECOMM	172,600.00	169,641.17	2,958.83	98%	0.00	Complete
230015	2" WATER METER REPLACEMENTS	30,300.00	25,780.70	4,519.30	85%	4,500.00	Ongoing
230017	WATER CONSERVATION	10,000.00	8,867.48	1,132.52	89%	1,100.00	Ongoing
230030	WATERMAIN LEAK DETECTION	45,500.00	45,439.40	60.60	100%	0.00	Complete
990077	VARIOUS WATER REHAB #09-WS-001	52,100.00	40,364.60	11,735.40	77%	11,700.00	Ongoing
Category Total		423,000.00	361,911.76	61,088.24	86%	48,000.00	

8430 - SEWER CAPITAL

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
090016	SEWER PIPE REHAB #09-SS-023	468,300.00	97,201.88	371,098.12	21%	371,000.00	Q4 Completion
100014	SCADA UPGRADES #10-SS-024	19,200.00	8,127.94	11,072.06	42%	11,000.00	Q4 Completion
190046	HAMMOND SLS PMP REPL #18-SS-037	70,000.00	66,018.00	3,982.00	94%	0.00	Complete
190094	DCC S4 - ADVENT ROAD MAIN UPSIZE	5,000.00	4,800.00	200.00	96%	0.00	Complete
990084	SEWER MISC RPRS #09-SS-001	36,400.00	10,468.50	25,931.50	29%	25,900.00	Ongoing
Category Total		598,900.00	186,616.32	412,283.68	31%	407,900.00	

8450 - DRAINAGE ALL AREAS

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
070002	CULVERT REPLACEMENTS #09-DS-015	181,200.00	0.00	181,200.00	0%	181,200.00	Ongoing
090027	STORM MISC RPRS #09-DS-001	76,600.00	0.00	76,600.00	0%	76,600.00	Ongoing
130009	MAJOR SLOUGH CLEANING #13-DS-036	27,300.00	10,700.00	16,600.00	39%	16,600.00	Ongoing

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160036	ISMP MONITORING	37,000.00	16,388.00	20,612.00	44%	20,600.00	Ongoing
180073	FILL SITE REVIEW #15-DS-043	7,800.00	0.00	7,800.00	0%	7,800.00	
180074	DRAINAGE ASSET CONDTN ASSMNT #18-EN-001	144,800.00	144,723.38	76.62	100%	0.00	Complete
190048	DRAINAGE SCADA REPL #19-DS-001	8,700.00	4,784.05	3,915.95	55%	3,900.00	Ongoing
990071	ALL PUMP STATIONS REFURBISH #09-DS-012	27,100.00	18,873.01	8,226.99	70%	8,200.00	Ongoing
Category Total		510,500.00	195,468.44	315,031.56	38%	314,900.00	

8451 - DRAINAGE AREA #1

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
160036	ISMP MONITORING	0	0	0	0%	0	
Category Total		0	0	0	0%	0	

8452 - DRAINAGE AREA #2

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
180007	TRAFFIC CALM ENGAGE & IMPL #18-TR-001	0.00	-3,009.00	3,009.00	0%	0.00	
180072	DRAINAGE PUMP REPL FENTON #15-DS-022	82,900.00	82,812.50	87.50	100%	0.00	Complete
Category Total		82,900.00	79,803.50	3,096.50	96%	0.00	

8453 - DRAINAGE AREA #3

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
110017	TRASH RACKS SYSTEMS #11-DS-038	40,000.00	0.00	40,000.00	0%	40,000.00	In progress
190047	DCC ST7 FRASER WAY STORM SYST #18-DS-005	289,700.00	0.00	289,700.00	0%	289,700.00	In progress
190050	DCC ST10 BAYNES P/S UPGRADE #19-DS-009	860,000.00	0.00	860,000.00	0%	860,000.00	In progress
210037	LOWER HAMMOND AREA - GROUND WATER STUDY	41,200.00	3,924.05	37,275.95	10%	37,200.00	Ongoing
990073	DRAINAGE PMP REPL KENNEDY #15-DS-019	100,000.00	11,079.75	88,920.25	11%	88,900.00	Ongoing
Category Total		1,330,900.00	15,003.80	1,315,896.20	1%	1,315,800.00	

8454 - DRAINAGE AREA #4

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
010011	PITT POLDER (A4) #09-DS-024	2,600.00	2,595.60	4.40	100%	0.00	Complete
Category Total		2,600.00	2,595.60	4.40	100%	0.00	

8470 - DIKING ALL AREAS

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
090028	DIKING - MISC REPAIRS #09-DK-001	176,700.00	43,020.62	133,679.38	24%	133,600.00	Ongoing
170045	DIKE MASTER PLAN #17-DK-047N	12,000.00	0.00	12,000.00	0%	0.00	Cancelled
220055	DIKE BENCH DONATION PROGRAM	33,700.00	33,598.82	101.18	100%	0.00	Ongoing
Category Total		222,400.00	76,619.44	145,780.56	34%	133,600.00	

8473 - DIKING AREA #3 CAPITAL

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
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220034	DIKE IMPROVEMENTS - FRASER	215,000.00	0.00	215,000.00	0%	0.00	Cancelled
Category Total		215,000.00	0.00	215,000.00	0%	0.00	

8480 - ENVIRONMENTAL

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
170019	ENVIRONMENTAL CONSULTANTS #17-ES-002	21,500.00	0.00	21,500.00	0%	21,500.00	2025 Completion
170037	COMMUNITY CARBON OFFSET PROJ #17-ES-004	500.00	0.00	500.00	0%	0.00	Complete
180082	INVASIVE SPECIES MGMNT PLAN #18-PK-094	18,500.00	0.00	18,500.00	0%	18,500.00	2025 Completion
200021	SOIL BYLAW UPDATE #20-ES-002	4,800.00	0.00	4,800.00	0%	4,800.00	Q4 Completion
200044	ENVIR STUDY-CP LOGISTICS PRK #20-ES-004	10,600.00	0.00	10,600.00	0%	10,600.00	2025 Completion
220045	URBAN FORESTRY STRATEGY	20,000.00	16013.25	3986.75	80%	3,900.00	Q4 Completion
Category Total		75,900.00	16,013.25	59,886.75	21%	59,300.00	

8550 - PLANNING AND

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
170024	OFFICIAL COMMUNITY PLAN #17-DE-017N	25,000.00	0.00	25,000.00	0%	25,000.00	2025 Completion
190076	NORTH LOUGHEED AREA STUDY #19-DE-001	64,900.00	0.00	64,900.00	0%	64,900.00	2025 Completion
200023	AAC PROJECT FUNDING #20-DE-001	10,000.00	248.62	9,751.38	2%	9,700.00	Q4 Completion
210062	CHILD CARE FACILITY	2,050,000.00	0.00	2,050,000.00	0%	2,050,000.00	2026 Completion
210063	CP PROP LOGISTICS PARK 3RD PARTY REVIEWS	48,100.00	20,888.00	27,212.00	43%	27,200.00	Q4 Completion
210065	ECONOMIC DEVELOPMENT STRATEGIC PLAN	23,200.00	15,328.75	7,871.25	66%	7,800.00	Q4 Completion
230012	AGRICULTURAL PLAN	80,000.00	79,700.00	300.00	100%	0.00	Complete
230013	ZONING BYLAW REVIEW AND UPDATE	15,000.00	0.00	15,000.00	0%	15,000.00	Q4 Completion
230021	CIVIC CENTRE PLAN SCOPING PROJECT	20,000.00	20,000.00	0.00	100%	0.00	Complete
230032	COMPLETE COMMUNITIES ASSESSMENT AND PLAN	150,000.00	0.00	150,000.00	0%	150,000.00	2025 Completion
Category Total		2,486,200.00	136,165.37	2,350,034.63	5%	2,349,600.00	

8600 - PARKS CAPITAL

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
150026	PARKS-MINOR CAPITAL USER GRPS #14-PK-074	13,574.38	13,375.00	199.38	99%	0.00	Complete
170035	PARK SIGNAGE #17-PK-089	19,798.71	19,798.71	0	100%	0.00	Complete
180002	TREE REPLACEMENT PROGRAM #18-PK-093	43,525.62	43,525.62	0.00	100%	0.00	Complete
180079	EXPANDED WASTE STREAM BINS #18-ES-006	0.00	0.00	0	0%	0.00	
180081	PARK PLAYGROUND UPGRADE #18-PK-091	197,792.90	197,792.90	0.00	100%	0.00	Complete
180083	IRRIGATION UPGRADES-CNTRL SYST #18-PK-095	5,854.16	5,854.16	0	100%	0.00	Complete
210003	SHORELINE PARK - AESTHETIC IMPROVEMENTS	25,000.00	25,000.00	0	100%	0.00	Complete
210051	AMENITY LAND SECURITY AND MAINTENANCE	13,300.00	0.00	13,300.00	0%	13,300.00	2026 Completion

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220048	PARKS SNOW AND ICE EQUIPMENT	0	0	0	0%	0.00	complete
220054	GRABENHORST GARDEN LAND PURCHASE	0	0	0	0%	0.00	complete
230003	PMAP SPACE PLANNING, PRELIMINARY DESIGN	75,000.00	30,922.41	44,077.59	41%	44,000.00	Q4 Completion
230007	PLACE OF REMEMBRANCE IMPROVEMENTS	860,000.00	403,435.57	456,564.43	47%	456,500.00	2026 Completion
230008	UTILITY VEHICLE AND EQUIP GRABENHORST	50,000.00	42,736.47	7,263.53	85%	7,200.00	Q3 Completion
230024	HARRIS RD PARK SPACE PLANNING, DESIGN	75,000.00	42,706.54	32,293.46	57%	32,200.00	Q4 Completion
990031	PARKS INFRASTRUCTURE #10-PK-003	297,154.23	284,802.93	12,351.30	96%	12,300.00	Q4 Completion
Category Total		1,676,000.00	1,109,950.31	566,049.69	66%	565,500.00	

8629 - PARKS FLEET CAPITAL

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
210020	HENDERSON SS SANDER M311	20,000.00	16,638.50	3,361.50	83%	3,300.00	Q2 Completion
220048	PARKS SNOW AND ICE EQUIPMENT	17,700.00	15,681.92	2,018.08	89%	0.00	Complete
Category Total		37,700.00	32,320.42	5,379.58	86%	3,300.00	

8630 - RECREATION CAPITAL

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
000018	RECREATION MISC EQUIPMENT #08-RE-001	49,000.00	48,866.00	134.00	100%	0.00	Q1 Completion
140034	SENIORS CENTRE EQUIPMENT #14-RE-068N	3,500.00	3,313.35	186.65	95%	0.00	Complete
230001	PMFRC SPACE PLANNING, PRELIMINARY DESIGN	67,963.50	0.00	67,963.50	0%	0.00	Cancelled
230002	AQUATICS FEASIBILITY STUDY	82,036.50	82,036.50	0.00	100%		Complete
Category Total		202,500.00	134,215.85	68,284.15	66%	0.00	

8640 - REC & CULT FACILITIES

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
000	ALL / OTHER / NA	-	-	-	0%		
120005	ARENA BLDG & EQUIPMENT #13-AR-100	348,900.00	348,890.58	9.42	100%	0.00	Q1 Completion
170032	MAIN FIRE HALL REPLACEMENT #17-FA-107	0	0	0	0%		
180004	HERITAGE HALL LIFECYCLE #18-FA-092	18,300.00	4,500.00	13,800.00	25%	13,800.00	Ongoing
190001	HARRIS RD POOL MAINTENANCE #19-FA-009	11,500.00	62.50	11,437.50	1%	11,400.00	Ongoing
190055	REC CENTRE HVAC REPL #19-FA-006	53,600.00	13,092.50	40,507.50	24%	40,500.00	Q4 Completion
190056	REC CENTRE ROOF REPL #19-FA-005	1,406,700.00	1,185,380.43	221,319.57	84%	221,300.00	Q4 Completion
220019	HARRIS POOL DRAINAGE REPAIR	9,200.00	0.00	9,200.00	0%	0.00	Cancelled
220020	HERITAGE HALL ACCESSIBILITY	561,300.00	0.00	561,300.00	0%	561,300.00	Q4 Completion
220051	HARRIS PARK CONCESSION AND WASHROOM	1,800,000.00	300,175.42	1,499,824.58	17%	1,499,800.00	Q2 Completion
220052	ART GALLERY RELOCATION	315,700.00	38,111.65	277,588.35	12%	277,500.00	Q1 Completion

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230018	HARRIS SPRAY PARK VAULT REPLACEMENT	37,000.00	375.00	36,625.00	1%	36,600.00	2025 Completion
990028	REC FACILITIES MNTC & UPGRDES #13-FA-069	114,600.00	107,054.00	7,546.00	93%	3,300.00	Ongoing
Category Total		4,676,800.00	1,997,642.08	2,679,157.92	43%	2,665,500.00	

8660 - CULTURE CAPITAL

Project (CC1)	Project (CC1) Name	Budget	Year to Date	Variance	% Used	Carryforward	Status
000	ALL / OTHER / NA	0	25.24	-25.24	0%		
000018	RECREATION MISC EQUIPMENT #08-RE-001	0.00	0.00	0.00	0%		
170008	SPECIAL EVENTS EQUIP PURCH AND REPLACMNT	7,400.00	6,757.09	642.91	91%	600	Q4 Completion
200026	TRUTH AND RECONCILIATION #20-DE-004	18,700.00	3,731.64	14,968.36	20%	14,900.00	Q2 Completion
220050	HARRIS ROAD STREET BANNER ART	43,000.00	24,066.73	18,933.27	56%	18,900.00	Q2 Completion
220052	ART GALLERY RELOCATION	0.00	0.00	0.00	0%		
230034	SBCC MURAL	130,000.00	18,200.00	111,800.00	14%	111,800.00	Q3 Completion
Category Total		199,100.00	52,780.70	146,319.30	27%	146,200.00	

GRAND TOTAL	36,531,700.00	11,701,099.00	24,830,601.00	32%	24,381,000.00
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Staff Report to Council

Financial Services

FILE: 05-1900-01/24

REPORT DATE: April 22, 2024

MEETING DATE:

April 30, 2024

TO: Mayor and Council

FROM: Laura Barroetavena, Director of Financial Services

SUBJECT: 2024 Annual Tax Rates Bylaw

CHIEF ADMINISTRATIVE OFFICER REVIEW/APPROVAL:



RECOMMENDATION(S):

THAT Council:

- A. Grant first, second and third readings to the 2024 Annual Tax Rates Bylaw No. 2980, 2024; OR
- B. Other.

PURPOSE

To receive Council approval to set the 2024 property tax rates.

☐ Information Report

☒ Decision Report

☐ Direction Report

DISCUSSION

Background:

Each year, after the adoption of the financial plan, Council must, by bylaw, impose property value taxes for the year by establishing tax rates for:

- a) the municipal revenue proposed to be raised for the year from property value taxes, as provided in the financial plan, and

- b) the amounts to be collected for the year by means of rates established by the municipality to meet its taxing obligations in relation to another local government or other public body.

Relevant Policy, Bylaw or Legislation:

The *Community Charter* requires the City to have a Revenue and Taxation Policy to disclose the City's objectives for the collection of revenues, including taxation. The *Community Charter*, section 197 (1) requires the annual property tax bylaw be adopted before May 15, 2024.

Analysis:

The budget for property taxation revenue of \$31,897,610 is included within the Municipal Property and Other Taxes and the budget for drainage levy mill rate revenue of \$1,067,700 is included within the Utility Charges in Schedule A of the adopted 2024 Financial Plan Bylaw (Attachment A), representing revenue needed for the City to pay for its operating and capital costs.

The 2024 Annual Tax Rates Bylaw sets the taxation mill rates and provides staff with the authority to collect the property tax revenue required to balance the budget. The tax rates bylaw sets the tax rates for Municipal levies and the Metro Vancouver Regional District. The levies collected through municipal tax notices also include levies which are collected by the City and remitted in full to outside agencies such as to the Province (Schools), BC Assessment Authority (BCA), Greater Vancouver Transportation Authority (TransLink) and the Municipal Finance Authority.

Before the taxation mill rates could be calculated and established by bylaw, the revised roll from BC Assessment Authority and the Metro Vancouver Regional District levy for 2024 were required, both of which have been recently received. As a result, staff have prepared the 2024 Annual Tax Rates Bylaw No. 2980, 2024 (Attachment B) for Council adoption.

Once Council has adopted the 2024 Annual Tax Rates Bylaw No. 2980, 2024, staff will prepare and mail the property tax notices. The notices are scheduled to be mailed the last week of May 2024 and taxes will be due on July 2, 2024.

Taxes paid past the due date are subject to penalty charges, as required under the *Community Charter*. The total penalty charge is 10%, applied in two phases, first 5% applied immediately after the due date and the second 5% penalty 30 days later.

2024 Fire Service Enhancements

The 2024 Fire Service Enhancements levy for the approved cost of four additional full-time flex fire fighters results in the Fire Levy mill rates as displayed within the Annual Tax Rates Bylaw Column B (Attachment B). Consistent with recent years, any incremental Fire levy will appear separately on the tax notice.

Relationship between Assessment Values and Taxation Mill Rates

It is often misunderstood that the annual increase to assessed values translates into revenue windfalls for municipalities. However, this is not the case. There is a relationship between assessed values and taxation mill rates (Mill Rate), where an increase in assessed values from one year to another results in a reduced Mill Rate. This adjustment to the Mill Rate ensures the City does not receive increased tax revenue simply because the assessed value or market value of properties rise.

After the Mill Rate has been adjusted to accommodate market value changes, it is increased to reflect the council approved tax increase to balance the budget.

2024 Property Tax Pre-Payment Plan

In order to assist property owners to save for their 2025 property tax bill, the City offers a monthly pre-payment plan to spread the estimated property tax bill over 10 monthly pre-payments from August to May. Enrollment information is available on the City's website under "Property Taxes: Tax Pre-Payment Plan". There are approximately 843 registrants or 11% of Pitt Meadows property owners in this program.

Provincial Government Administered Programs

Home Owner Grant

As of 2021 residents in municipalities no longer apply for the home owner grant through their municipality. Everyone now applies online or by phone directly to the province. Home owners have the option of visiting the Provincial Home Owner Grant Administration website at gov.bc.ca/homeownergrant or contacting their office at 1-888-355-2700 to claim the grant. Homeowner grant applications are required each year with this year's deadline for application being July 2, 2024 in order to avoid penalty.

Property Tax Deferment

Each year, property owners 55 years of age or over or a person with disabilities who live in their home, or a qualifying homeowner who is financially supporting a dependent child under the age of 18 have the option of applying for the property tax deferment program through the province. This is a low interest loan program to help homeowners pay their property taxes on their principle residence. Full details are available online through the province or by calling 1-855-355-2700. In 2023, approximately 343 Pitt Meadows property owners deferred their property taxes.

COUNCIL STRATEGIC PLAN ALIGNMENT

- ☐ Principled Governance ☐ Balanced Economic Prosperity ☐ Infrastructure
☐ Community Spirit & Wellbeing ☒ Corporate Pride ☐ Public Safety
☐ Not Applicable

The annual tax rates bylaw will generate the revenue to support the Council adopted 2024 5 year financial plan bylaw as needed to maintain an appropriate balance of taxes and service levels provided by the City of Pitt Meadows.

WORKPLAN IMPLICATIONS

- ☒ Already accounted for in department workplan / no adjustments required
☐ Emergent issue / will require deferral of other priority(ies)
☐ Other

FINANCIAL IMPLICATIONS

- ☐ None ☒ Budget Previously Approved ☐ Referral to Business Planning
☐ Other

The average single family home experiencing the 0.18% average residential decrease from the 2023 assessment value of \$1,193,494 will see a \$469 combined municipal property tax and utility increase.

PUBLIC PARTICIPATION

- ☒ Inform ☐ Consult ☐ Involve ☐ Collaborate ☐ Empower

Comment(s):

The annual tax rates bylaw supports the revenue collection needed for the City to pay its operating and capital costs as developed throughout the business planning process which provided opportunities for public comment and feedback.

KATZIE FIRST NATION CONSIDERATIONS

- Referral ☐ Yes ☒ No ☐ Other

SIGN-OFFS**Written by:**

Laura Barroetavena,
Director of Financial Services

Mark Roberts,
Chief Administrative Officer

ATTACHMENT(S):

- A. Schedule "A" from the 2024-2028 Financial Plan Bylaw No. 2979, 2024.
- B. 2024 Annual Tax Rates Bylaw No. 2980, 2024

SCHEDULE "A"

2024 - 2028 Financial Plan

<u>REVENUES</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>
Municipal Property and Other Taxes	\$ 32,640,700	\$ 34,586,100	\$ 36,460,700	\$ 38,451,700	\$ 40,450,300
Utility Charges	14,748,100	15,887,600	16,976,400	17,901,000	18,837,800
Sale of Services	2,612,900	2,682,500	2,741,900	2,808,300	2,875,500
Licenses, Permits, Penalties, Fines	1,882,100	1,594,200	1,681,800	1,705,500	1,720,100
Investment Income	1,016,300	802,300	631,300	679,100	788,500
Other Revenue	643,200	655,100	654,400	662,000	667,700
Government Transfers	3,584,900	694,600	818,100	1,335,600	688,400
Contributions	12,746,500	1,090,300	408,900	177,800	403,600
Total Revenues	69,874,700	57,992,700	60,373,500	63,721,000	66,431,900
<u>EXPENSES</u>					
Operating Expenditures	41,346,200	44,216,700	46,101,400	47,260,300	48,843,300
Debt Interest	1,000,700	998,600	968,600	966,500	963,800
Amortization	5,584,000	5,584,000	5,584,000	5,584,000	5,584,000
Total Operating Expenses	47,930,900	50,799,300	52,654,000	53,810,800	55,391,100
Net Revenues (Expenditure)	21,943,800	7,193,400	7,719,500	9,910,200	11,040,800
<u>ALLOCATIONS</u>					
Net Transfers from/(to) Reserves	24,486,400	17,168,200	(558,100)	(4,736,600)	(7,670,900)
Capital Expenditures	(51,169,700)	(29,077,100)	(12,044,900)	(10,038,100)	(8,214,700)
Unfunded Amortization	5,584,000	5,584,000	5,584,000	5,584,000	5,584,000
External Debt Principle Repayment	(844,500)	(868,500)	(700,500)	(719,500)	(739,200)
Total Allocations	(21,943,800)	(7,193,400)	(7,719,500)	(9,910,200)	(11,040,800)
BUDGET BALANCE	\$ -	\$ -	\$ -	\$ -	\$ -

CITY OF PITT MEADOWS
2024 ANNUAL TAX RATES
Bylaw No. 2980, 2024

A bylaw to levy rates for municipal general, fire, and drainage purposes, and for regional district purposes for the fiscal year 2024

WHEREAS the Council of the City of Pitt Meadows is authorized to enact an annual property tax bylaw pursuant to Section 197 of the Community Charter;

AND WHEREAS the Council of the City of Pitt Meadows may, pursuant to Section 235 of the Community Charter, establish an Alternative Municipal Tax Collection Scheme that establishes one or more dates on which all or part of the property taxes are due and to establish penalties to be applied on taxes unpaid at that date;

NOW THEREFORE the Council of the City of Pitt Meadows enacts as follows:

Citation/Title

1. This Bylaw may be cited as the "**2024 Annual Tax Rates Bylaw No. 2980, 2024**".
2. The following rates are hereby separately imposed and levied for the year 2024:
 - a) for all lawful general purposes of the municipality, on the assessed value of land and improvements taxable for general municipal purposes, fire purposes and drainage purposes, the rates appearing in columns "A", "B", and "C" of Schedule "A";
 - b) for Metro Vancouver Regional District purposes, on the full assessed value of land and improvements taxable for hospital purposes, the rates appearing in column "D" of Schedule "A".
3. Pursuant to the provisions of Section 197 of the Community Charter, the minimum amount of taxation upon a parcel of real property will be one dollar (\$1.00).
4. The taxes or rates imposed or levied pursuant to this Bylaw will be considered to have been imposed as of the 1st day of January 2024 and will be payable to the Collector of the City of Pitt Meadows at City Hall, 12007 Harris Road, Pitt Meadows, BC, V3Y 2B5, or at any other approved designated collection location.
5. The rates and taxes imposed or levied pursuant to this Bylaw are due on or before July 2, 2024.

Imposition and Levying of Penalties

6. The following fees apply under this bylaw:
 - a) After July 2, 2024, the City Collector will add to the unpaid taxes of the current year, for each parcel of land and its improvements on the property tax roll for which taxes have not been paid, 5% of the current

taxes. The unpaid taxes, together with the 5% added, will be deemed to be taxes of the current year due upon those lands and improvements.

- b) After August 1, 2024, the City Collector will add to the unpaid taxes of the current year for each parcel of land and its improvements on the property tax roll for which taxes have not been paid, an additional 5% of the current taxes (exclusive of the 5% authorized by subsection (6(a)).
- c) Where a penalty addition in accordance with section 6(a) would otherwise be applied, and a property owner is eligible for and subsequently claims the current year Home Owner Grant, and applies to the Province for this grant on or before August 1, 2024, the penalty addition will not be applied to the portion of the taxes outstanding which was equal to the years current Home Owner Grant.

Alternative Municipal Collection Scheme

- 7. An owner may make an election to pay property taxes under the tax collection scheme under this Bylaw or the general tax collection scheme established under Section 234 of the Community Charter by giving written notice of the election to the City before July 2 of the year of which the election applies.
- 8. If an owner does not make an election under Section 236 of the Community Charter, the alternative municipal tax collection scheme set out in this Bylaw shall apply.

Schedules

- 9. The following Schedule is attached to, and forms part of, this Bylaw:
 - a) Schedule A – Municipal and Regional District Tax Rates

READ a FIRST, SECOND and THIRD time on [DATE].

ADOPTED on [DATE].

Nicole MacDonald
Mayor

Kate Barchard
Corporate Officer

Schedule A – Municipal and Regional District Tax Rates

Property Class	"A" General Municipal	"B" Fire Levy	"C" Drainage Levy	"D" Metro Vancouver Regional District Levy
<i>2024 Tax Rates (dollars of tax per \$1,000 taxable value)</i>				
1. Residential	2.3655	0.0152	0.0874	0.0588
2. Utility	30.8829	0.1990	1.1414	0.2058
4. Industry	10.9429	0.0705	0.4047	0.1999
5. Light Industry	7.1581	0.0461	0.2648	0.1999
6. Business	5.9405	0.0383	0.2194	0.1441
8. Rec/Seasonal	5.3291	0.0343	0.1967	0.0588
9. Farm	42.5608	0.2742	1.5723	0.0588

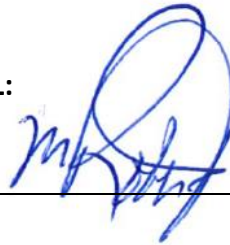
Staff Report to Council

Planning and Development

FILE: 3360-20-2017-04

REPORT DATE: April 11, 2024 **MEETING DATE:** April 30, 2024
TO: Mayor and Council
FROM: Colin O'Byrne, Manager of Planning
SUBJECT: Third Reading Extension for 19476 Hammond Road

CHIEF ADMINISTRATIVE OFFICER REVIEW/APPROVAL:



RECOMMENDATION(S):

THAT Council:

- A. Grant an extension to the completion period for Zoning Amendment Bylaw No. 2899, 2021 for 19476 Hammond Road until the City has amended Zoning Bylaw No. 2505, 2011 to align with the new provincial housing legislation as mandated through Bill 44 Housing Statutes (Residential Development) Amendment Act; AND
- B. Include as a condition prior to adoption of Zoning Amendment Bylaw No. 2899, 2021 a restrictive covenant on title limiting the number of units to one per lot as offered by the developer; OR
- C. Other.

PURPOSE

For Council to consider a third reading extension to an in-stream rezoning application at 19476 Hammond Road, which is impacted by the new provincial housing legislation enacted under Bill 44 Housing Statutes (Residential Development) Amendment Act (also referred to as the Small Scale, Multi-Unit Housing Legislation (SSMUH)).

☐ Information Report ☒ Decision Report ☐ Direction Report

DISCUSSION

Background:

The application is to rezone 19476 Hammond Road from RS (Large Lot Residential) to R-2 (Small Lot Residential) to allow subdivision and development of four single-family homes. The zoning amendment bylaw received first and second reading on July 20, 2021. A public hearing was held on May 3, 2022, and third reading was granted on September 20, 2022.

The City's Development Procedures Bylaw allows applicants up to 12 months following approval of third reading (i.e., the completion period) to satisfy all requirements before Council considers adopting the amendment bylaw. Applicants can apply for up to two extensions to the completion period, each for up to six months. In this case, the initial 12-month completion period ended September 20, 2023. The applicant is seeking an extension to the completion period; however, recent Provincial legislation changes impact the application and delayed the timeline for bringing this request to Council.

Bill 44 - 2023 Housing Statutes (Residential Development) Amendment received Royal Assent on November 30, 2023. In December 2023, the regulations for Bill 44 were deposited, and the Provincial Policy Manual and Site Standards for Small Scale, Multi-Unit Housing (SSMUH) were released. Local governments have until June 30, 2024, to adopt zoning bylaw amendments that will bring their bylaws into compliance with the new housing regulations.

These regulatory changes are intended to increase density and change the land use in single-family and duplex-zoned properties to allow up to three, four, or six units per lot, depending on location and lot size. In other words, local governments can no longer zone exclusively for single-family or duplex dwellings (except for areas exempt from the legislation). Under the terms of the new housing regulations, each of the four parcels resulting from the proposed subdivision would be eligible for up to six residential units for a potential total of 24 units.

The applicant has indicated that they wish to proceed with the subject rezoning application to facilitate subdivision into four lots, and have voluntarily offered to register a restrictive covenant on title that would limit the number of units to one unit per lot, for a total of four, which is consistent with the R-2 zone.

Relevant Policy, Bylaw or Legislation:

1. Development Procedures Bylaw No. 2740, 2016
 - Applicants may apply to Council for an extension to the completion period. Each extension provided by Council may be granted for a maximum of six (6) months. However, in this case, the rezoning must be complete before the Zoning Bylaw is brought into alignment with the provincial legislation.
2. Bill 44 Housing Statutes (Residential Development) Amendment Act

- By June 30, 2024, Zoning Bylaws to permit:
 - Secondary suites and/or accessory dwelling units in all residential and duplex zones;
 - Up to three units of lots smaller than 280m² (3,013 ft²);
 - Up to four units on lots 280m² (3,013 ft²) or larger;
 - Up to six units on lots 280m² (3,013ft²) or larger within 400m to frequent transit stops. No minimum parking requirement permitted;
 - Permitted unit types include secondary/garden suites in single-family/duplexes, house-plexes, and townhomes.

Analysis:

The purpose of Zoning Amendment Bylaw No. 2899, 2021 is to rezone the property from RS (Large Lot Residential) to R-2 (Small Lot Residential) to permit subdivision into four lots. Third reading of the bylaw was granted on September 20, 2022, subject to the following conditions, with the status of each condition noted in *italics*:

- Payment of \$13,500 as Residential Community Amenity Contribution as offered by the developer – *Not complete*
- Registration of a tree protection covenant – *Not complete*
- Payment of \$7,500 for cash-in-lieu related to the trees that cannot be replaced on the property as a result of accommodating the proposed development – *Not complete*

Usually, up to two extensions (six months each) may be granted; however, in this case, the rezoning must be completed before the Zoning Bylaw is brought into alignment with the provincial legislation changes. Following the adoption of new zones that align with provincial requirements, the request for R-2 zoning (which limits dwelling numbers per lot to less than allowed under Bill 44) cannot be approved as the zone would contravene the Province's legislation and the new zones may have different minimum lot sizes.

If an extension is granted, it will be valid until the new zoning is adopted on or before June 30, 2024. At that point, if the conditions are still not completed, the applicant will either need to develop per the zoning changes required by the Province or submit a new application. Before the provincial changes are incorporated into the Zoning Bylaw, the applicant must also apply for subdivision. In accordance with the *Local Government Act*, the applicant will have one year after the zoning changes required by the Province are implemented to complete the subdivision process, after which the new provincially required zoning will apply. The new minimum lot size currently contemplated for the new provincially required zoning would not accommodate the subdivision of the subject property. If rezoning and subdivision are finalized within the noted timeline, four new lots will be created, restricted to one dwelling unit per lot per the proposed restrictive covenant.

Recommendation:

In alignment with the OCP policies and Council's previous motions on the application, the recommended motions are to grant the third reading extension until the provincially required zoning has been implemented and to add as a condition of rezoning registration a restrictive covenant on title, as offered by the applicants, restricting the number of units to one per new lot (for a total of four new single-family homes). This approach will enable the applicants to proceed with their rezoning conditions and ensure the application continues to align with what Council and the public have previously contemplated.

COUNCIL STRATEGIC PLAN ALIGNMENT

- ☐ Principled Governance ☐ Balanced Economic Prosperity ☐ Infrastructure
☒ Community Spirit & Wellbeing ☐ Corporate Pride ☐ Public Safety
☐ Not Applicable

Housing Diversity – Encourage diversity in housing types to foster an inclusive, affordable and multigenerational community.

WORKPLAN IMPLICATIONS

- ☒ Already accounted for in department workplan / no adjustments required
☐ Emergent issue / will require deferral of other priority(ies)
☐ Other

FINANCIAL IMPLICATIONS

- ☒ None ☐ Budget Previously Approved ☐ Referral to Business Planning
☐ Other

There are no financial implications associated with this report.

PUBLIC PARTICIPATION

- ☒ Inform ☐ Consult ☐ Involve ☐ Collaborate ☐ Empower

Comment(s):

This report will be available on the City's website.

KATZIE FIRST NATION CONSIDERATIONS

Referral ☐ Yes ☒ No ☐ Other

SIGN-OFFS**Written by:**

Jaimie Jagpal,
Development Services Technician

Reviewed by:

Colin O'Byrne,
Manager of Planning

Patrick Ward,
Director of Planning and Development

ATTACHMENTS

None.

Staff Report to Council

Planning and Development

FILE: 3360-20-2023-06

REPORT DATE: April 10, 2024 **MEETING DATE:** April 30, 2024
TO: Mayor and Council
FROM: Patrick Ward, Director of Planning and Development
SUBJECT: Zoning Amendment Bylaw for the Pitt Meadows Airport

CHIEF ADMINISTRATIVE OFFICER REVIEW/APPROVAL:



RECOMMENDATION(S):

THAT Council:

- A. Grant third reading and adopt Zoning Text Amendment Bylaw No. 2971, 2024, to permit expanded uses at the Pitt Meadows Regional Airport; OR
 - B. Other.
-

PURPOSE

Following a public hearing, Council to consider granting third reading and adoption of Zoning Text Amendment Bylaw No. 2971, 2024, to incorporate some additional, non-aviation uses at the Pitt Meadows Regional Airport (PID's: 025-907-450, 025-907-468).

☐ Information Report ☒ Decision Report ☐ Direction Report

DISCUSSION

Background:

There are three proposed revisions to the I-5 Airport zone in order to support the Pitt Meadows Regional Airport's economic development goals and objectives (see Figure 1):

1. Add light industrial as a permitted principal use to parcel PID: 025-907-450;
2. Add office, retail, and personal service as permitted accessory uses to the terminal building; and
3. Add banquet facility as a permitted accessory use to the Sky Helicopters building.

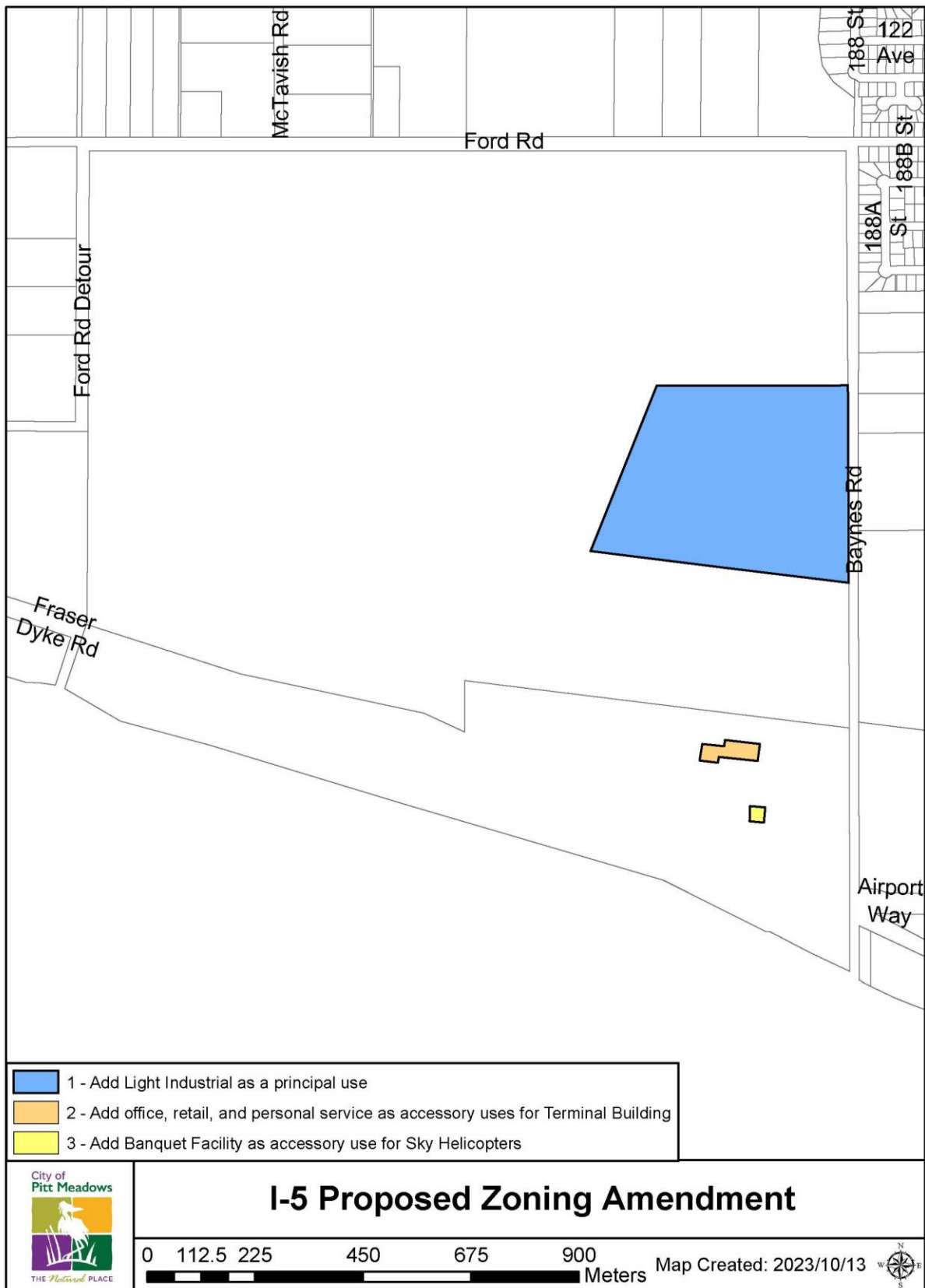


Figure 1: Map of proposed amendments to I-5 zone

First and second readings of the amending bylaw were granted on March 5, 2024, and a public hearing was held on April 9, 2024.

Relevant Policy, Bylaw or Legislation:

The Official Community Plan (OCP) designates most of the airport lands as Airport, which accommodates aviation and related uses. OCP policies also support the airport's continued economic development, including industry and commerce activities that are complementary to the aviation uses, while ensuring that surrounding farmland in the ALR is protected and impacts on the community are mitigated.

Currently, the majority of airport land is zoned I-5 Airport, which accommodates a range of primarily aviation-related uses complementary to its operation. The intent of the I-5 zone is to ensure that the function and business operation of the airport is viable. Agriculture is also a principal use in this zone, reflecting that most of the airport is located within the ALR and is being farmed.

The City's Economic Development Strategic Plan supports development at the airport, including allowing complementary industries and amenities.

Analysis:

A public hearing for the application was held on April 9, 2024. There were no speakers. One written submission was received supporting the application, and noting a desire for increased pedestrian and cycling safety measures in the area.

Recommendation

As the proposed zoning changes support several OCP policies and Economic Development Strategy recommendations, it is recommended that the bylaw amendment be granted third reading and adopted.

COUNCIL STRATEGIC PLAN ALIGNMENT

- ☐ Principled Governance ☒ Balanced Economic Prosperity ☐ Infrastructure
☐ Community Spirit & Wellbeing ☐ Corporate Pride ☐ Public Safety
☐ Not Applicable

Airport. Encourage economic development initiatives for the Pitt Meadows Regional Airport. Recognizing the partnership with the City of Maple Ridge and strengthen sustainability and interface with the City and region.

WORKPLAN IMPLICATIONS

- ☒ Already accounted for in department workplan / no adjustments required
☐ Emergent issue / will require deferral of other priority(ies)
☐ Other
-

FINANCIAL IMPLICATIONS

- ☒ None ☐ Budget Previously Approved ☐ Referral to Business Planning
☐ Other
-

PUBLIC PARTICIPATION

- ☒ Inform ☐ Consult ☐ Involve ☐ Collaborate ☐ Empower

Comment(s):

First and second readings were granted on March 5, 2024. A public hearing was held on April 9, 2024.

KATZIE FIRST NATION CONSIDERATIONS

Referral ☐ Yes ☒ No ☐ Other

SIGN-OFFS**Written by:**

Allison Dominelli,
Planner

Reviewed by:

Colin O'Byrne,
Manager of Planning

Patrick Ward,
Director of Planning and Development

ATTACHMENT(S):

A. Zoning Text Amendment Bylaw No. 2971, 2024

**CITY OF PITT MEADOWS
ZONING TEXT AMENDMENT BYLAW
No. 2971, 2024**

A bylaw to amend applicable sections of Zoning Bylaw No. 2505, 2011

WHEREAS it is deemed expedient to amend the City of Pitt Meadows Zoning Bylaw No. 2505, 2011;

NOW THEREFORE the Council of the City of Pitt Meadows enacts as follows:

1. This Bylaw may be cited as the "Zoning Amendment Bylaw No. 2971, 2024".
2. The Zoning Bylaw No. 2505, 2011 is amended as follows:
 - a) Section 13.5 Airport is amended by replacing 13.5.4 [Site Requirements] with the following:

13.5.4 [Site Specific Provisions]

 - (a) In the case of Lot 1 Sections 2 and 11 Block 5 North Range 1 East New Westminster District Plan BCP9734, light industrial is permitted as a principal use. All light industrial uses shall be sited not less than 7.5 m from the front lot line and 3 m from all other lot lines.
 - (b) In the case of Lot 2 Sections 9, 10, 11 and 14 Block 5 North Range 1 East New Westminster District Plan BCP9734:
 - i. In the terminal building addressed as 1000 – 18799 Airport Way, office, retail, and personal service are permitted as accessory uses.
 - ii. In the building addressed as 170 – 18799 Airport Way, banquet facility is permitted as an accessory use.

READ a FIRST and SECOND time on March 5, 2024.

PUBLIC HEARING held on April 9, 2024.

READ a THIRD time on [DATE].

ADOPTED on [DATE].

Nicole MacDonald
Mayor

Kate Barchard
Corporate Officer

CITY OF PITT MEADOWS
BYLAW NOTICE ENFORCEMENT AMENDMENT
BYLAW No. 2981, 2024

A bylaw to amend a portion of Bylaw Notice Enforcement Bylaw No. 2439, 2009

WHEREAS it is deemed expedient to amend Bylaw Notice Enforcement Bylaw No. 2439, 2009;

NOW THEREFORE the Council of the City of Pitt Meadows enacts as follows:

1. This Bylaw may be cited as the "Bylaw Notice Enforcement Amendment Bylaw No. 2981, 2024".
2. Schedule A [Designated Bylaw Contraventions and Penalties] of Bylaw Notice Enforcement Bylaw No. 2439, 2009 is amended by:
 - a. deleting from the Zoning Bylaw No. 2505, 2011 table the penalties associated with the following sections of that bylaw:

5.3(a)i, 5.3(a)v, 5.3(a)vi, 5.3(a)vii, 5.3(a)viii, 5.3(c)ii, 5.3(d)ii, 5.3(e)ii, 5.3(h)ii;
AND
 - b. adding the following penalties to the Zoning Bylaw No. 2505, 2011 table:

DESCRIPTION	SECTION NO IN BYLAW	DISCOUNTED PENALTY IN \$ (Within 14 Days)	FULL PENALTY IN \$ (After 14 Days)	COMPLIANCE AGREEMENT DISCOUNT
Contravention to Home Based Business [Table 5.3.1]	5.3.1(c) to (m)	400	500	N/A
Produce noise, vibration, smoke, dust, odours, heat, glare, electrical, or radio disturbance	5.3.3(i)	400	500	N/A
Unregistered Massage Therapist(s) conducting Business	5.3.3(iii)	400	500	N/A
Exceeds maximum number of dogs permitted at any one time	5.3.3(vi)	400	500	N/A

READ a FIRST, SECOND and THIRD time on April 9, 2024.

ADOPTED on [DATE].

Nicole MacDonald
Mayor

Kate Barchard
Corporate Officer

CITY OF PITT MEADOWS
WATERWORKS AMENDMENT
Bylaw No. 2984, 2024

A bylaw to amend a portion of Waterworks Bylaw No. 2891, 2021

WHEREAS it is deemed expedient to amend Waterworks Bylaw No. 2891, 2021;

NOW THEREFORE the Council of the City of Pitt Meadows enacts as follows:

1. This Bylaw may be cited as the "Waterworks Amendment Bylaw No. 2984, 2024".

2. The Waterworks Bylaw No. 2891, 2021 is amended as follows:

a) The opening statement is deleted in its entirety and replaced with the following:

Under its statutory powers, including sections 8 [fundamental powers], 15 [licensing and standards authority], 17 [municipal action at defaulter's expense], 18 [authority to discontinue providing a service], and 194 [municipal fees] of the *Community Charter*, the Council of the City of Pitt Meadows enacts as follows:

b) Section 5 [Definitions] is amended by adding the following definition:

AWWA Manual means the American Water Works Association's Canadian Cross-Connection Control Manual;

c) Section 9 [Termination of Water Supply] is amended by adding the following subsection:

9.2 If the Director orders the termination of the water supply to a Consumer pursuant to this bylaw, the Consumer is entitled to have Council reconsider the termination decision.

d) Section 11 [Temporary Reduction or Discontinuance of Service] is amended by deleting subsection 11.1 and 11.2 in its entirety and replacing it with the following:

11.1 If at any time the Director determines it to be in the public interest, they may direct that any or all services provided pursuant to this bylaw be reduced or discontinued for a period of time determined by the Director. The Director will provide 10 days'

written notice to a Consumer impacted by a reduction or discontinuation.

11.1.1 Without limiting the generality of the foregoing, the Director may direct that services be reduced or discontinued to a Consumer:

(a) because of unpaid fees or taxes in relation to the service, or

(b) because of non-compliance with the rules established by bylaw or contract respecting the use of the service.

11.1.2 If the Director directs the temporary reduction or discontinuance of the water supply to a Consumer, the Consumer is entitled to have Council reconsider that decision.

11.2 Nothing in this bylaw limits or restricts Council's authority to limit use of water in cases of water shortages, including any situations addressed in the Drinking Water Conservation Plan Bylaw or otherwise.

e) Section 13 [Right of Entry] is amended by deleting subsection 13.2 in its entirety.

f) Section 24 [Contamination & Cross-Connection] is deleted in its entirety and replaced with the following:

24.1 A person must not connect, cause to be connected, or allow to remain connected any part of a Private System in a manner which allows water, waste water, or any harmful liquid, gas or substance to enter the Waterworks. It is the responsibility of the Owner to advise the City if such a condition exists and to take appropriate and immediate action to discontinue this connection.

24.2 In addition to any other authority granted by this bylaw to the Director, if the Director determines that a connection or cross-connection exists that is prohibited by this bylaw, including a connection or cross-connection that poses a risk to the Waterworks or to public health, the Director may do one or more of the following:

a) direct the Owner to correct the fault within a specified time period;

- b) direct the Owner to install a Backflow Preventer on the Private System within a specified time period; or
- c) disconnect the Water Connection to the Private System.

24.3 Despite Sections 9.1 and 11.1 of this bylaw, if the Director determines that:

- a) a connection or cross-connection prohibited by this bylaw places a person at immediate risk, or
- b) an Owner has failed to correct a connection or cross-connection as required by this bylaw,

the Director may immediately disconnect the supply of water to the Private System, without prior notice, until such time as the connection or cross-connection is corrected to the satisfaction of the Director. The Owner must also pay any shut off fees as shown in Schedule "A".

g) Section 25 [Backflow Prevention] is amended by:

- (i) deleting subsection 25.1 in its entirety and replacing it with the following:

25.1 If the Director and/or Building Official determines that a risk or potential risk exists as a result of a connection or cross-connection to the Waterworks, the Director and/or Building Official may require an Owner to supply and install a Backflow Preventer on their Private System. The type of Backflow Preventer shall be determined in accordance with the hazard classification set out in the AWWA Manual.

- (ii) deleting subsections 25.2 and 25.3 in their entirety and replacing with the following:

25.2 Where the Director or Building Official requires an Owner to install a Backflow Preventer, the Owner must:

- (a) install a Backflow Preventer on the Owner's side of the property line in accordance with the standards prescribed in the Canadian Standards Association Manual for the Selection and Installation of Backflow Preventers and the AWWA Manual, as described in the Cross-Connection Control Policy C022;
- (b) obtain the necessary permit from the City for a Backflow Preventer and coordinate installation;

- (c) maintain a Backflow Preventer in proper working order at all times;
- (d) have a Backflow Preventer tested upon installation and thereafter annually, or more often if required by the Director, Building Official, or by a Certified Backflow Preventer Tester certified by the British Columbia Water and Waste Association, in compliance with the Canadian Standards Association Manual for the Maintenance And Field Testing of Backflow Prevention Devices, to demonstrate that the assembly is in good working condition; and
- (e) submit a report on a form approved by the City, from the Certified Backflow Preventer Tester, within 30 days of tests required in this section, or any other test undertaken, complete with a copy of the tester's certificate.

(iii) adding the following new subsection:

25.6 Without limiting the statutory remedies available to the City for non-compliance with the terms of this bylaw, in the event an Owner fails to comply with the requirements of section 25 of this bylaw, the City may conduct the work required at the expense of the Owner, including but not limited to the installation of a Backflow Preventer on the Private System, and recover the costs incurred from the Owner as a debt.

- h) Section 28 [Combined Fire Domestic Services] is amended by deleting the sentence "See Schedule "D" for standard detail" from subsection 28.2.
- i) Section 47 [Schedules] is amended by deleting reference to Schedules C and D in subsection 47.1.
- j) The following fees in Schedule A [Charges and Fees] are amended accordingly:
 - Water Turn On and Off Fees, 0800 to 1630 Monday to Friday inclusive on regular working days: \$100.00
 - Abandonment Fees – Non-refundable Application Fee: \$150.00
 - Fire Hydrants - Permit Fee: \$150.00

- Permit for Water Connection or Disconnection Charges – Non-refundable Application Fee: \$200.00
- k) Schedule C [Typical Detail for Rural Water Connection] and Schedule D [Combined Fire/Domestic Meter in Chamber] are deleted in their entirety.
- l) Schedule E [Water Meter General Specifications] is amended by:
 - (i) Deleting subsection 1.1 in its entirety and replacing it with the following:

1.1 Supply all labour, materials and equipment to install 19 mm Meters in pit locations as required by the City. Interior meters may be installed only with the City's approval in cases where an exterior Meter installation is not possible.
 - (ii) Deleting subsection 2.3 in its entirety.

READ a FIRST, SECOND and THIRD time on April 9, 2024.

ADOPTED on [DATE].

Nicole MacDonald
Mayor

Kate Barchard
Corporate Officer

Strategic Priorities Quarterly Report

January - March (Q1) 2024

PRIORITY

Principled Governance

- First Nations Relationship
- Meaningful Engagement
- Regional Partnerships
- Fiscal Stewardship & Accountability
- Environmental/Climate Stewardship

Council Advocacy

OPERATIONAL STRATEGIES

1. qíçəy (Katzie) First Nation Service Agreements / Secondary Access MOU
2. Flood Management
3. Post-Secondary Needs Assessment
4. Electric Vehicle Charging Fees

- Road & Rail Improvements Project – Underpass
- Alouette River Clean Up
- Secondary School Replacement
- Lougheed Corridor Transportation Upgrades
- CP Logistics Park Opposition
- Golden Ears Roundabout Infrastructure Improvements (TransLink)
- KFN Secondary Access (province and TransLink)
- CP Rail Corridor Emissions Standards (Air Quality Monitoring Study)
- CP Noise & Vibration Existing Exceedances
- Farm Tax Reform (UBCM Resolutions)

Balanced Economic Prosperity

- Agriculture
- Business Vitality
- Airport
- Affordability

1. Golden Ears Business Park 3 & 4
2. Home-based Business Regulations Review
3. Airport Zoning Review
4. Agricultural Viability Strategy Implementation [inclusive of detailed irrigation study]
5. Economic Development Strategic Plan Implementation
6. North Lougheed Area Plan Engagement Agreement

Community Spirit & Wellbeing

- Pride & Spirit
- Active Wellness
- Natural Environment
- Housing Diversity
- Recreation

1. CP Logistics Park Opposition Strategy
2. Heron's Nest; Metro Vancouver Non-Market Housing & Childcare
3. Pop Up Art Gallery
4. Housing Initiatives
5. Environmental Inventory Management Strategy Implementation
6. Accessibility Committee & Plan
7. Family Day Event
8. Easter Fun Day Event
9. Parks and Facility Naming Policy
10. Sponsorship and Advertising Policy
11. Program Continuity and Bookings Accommodation
12. Community Service Awards Event
13. Art Gallery Re-Opening
14. Mural at SBCC by sḥáməx^w Rain Pierre
15. Expand Indigenous Arts Program

	16. Complete Communities Program 17. Civic Centre Master Plan 18. Building Bylaw Update 19. Zoning Bylaw Updates 20. Urban Forest Strategy
Infrastructure <ul style="list-style-type: none"> • Investments • Transportation • Active Transportation • Facilities • Preparedness 	1. Airport Way Widening & Improvements 2. Culvert Condition Assessment 3. Harris Park Washroom Facility 4. Art Gallery Relocation 5. Pitt Meadows Athletic Park 6. Rose Grabenhorst Garden Renovations 7. Mitchell Park Playground Installation 8. North Commons Park Playground Installation 9. Aquatics Feasibility Study 10. Council Chamber and Meadows Room AV Upgrade 11. Water Services Review 12. Bonson Park Disc Golf Course Design
Corporate Pride <ul style="list-style-type: none"> • Employee Excellence • Corporate Culture • Service Excellence • Resources • Desirable Employee 	1. IT Cyber-Security Recommendations Implementation – Launch Managed Security Operations Centre 2. Equity, Diversity & Inclusion (EDI) – Internal Audit 3. Microsoft 365 Road Mapping Implementation/Execution 4. DCC Review 5. Collective Bargaining - CUPE 6. CPM Corporate Intranet – Version 1 Launch 7. Laptop & Mobile Device Replacement Program 8. Exempt Compensation Review 9. Enhanced Access to Mental Health – BCMSA partnership pilot program
Public Safety <ul style="list-style-type: none"> • Police • Fire • Emergency Preparedness • Bylaws • Regulatory 	1. Onboarding of RCMP Manager of Support Services 2. Police Detachment Construction 3. Transition to Independent RCMP Detachment (Admin Support) 4. Transition to 24 Hour Firefighter Coverage 5. Collective agreement negotiations (IAFF) and recruitment of four Flex Firefighters 6. Next Generation 911 7. Enhance EOC Technical Capacity 8. Parks Maintenance Policy 9. Watering Regulations Enforcement Review 10. Cross-Connection Control Program Administration