Agenda

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Regular Council Meeting

to be held at the City Hall, Council Chambers
171 Main Street, Penticton, B.C.
To view the live broadcast and recordings, visit www.penticton.ca

Tuesday, May 2, 2023
at 1:00 p.m.

1. **Call Regular Council Meeting to Order**

2. **Introduction of Late Items**

3. **Adoption of Agenda**

4. **Recess to Committee of the Whole**

5. **Reconvene the Regular Council Meeting**

6. **Adoption of Minutes:**

6.1	Minutes of the April 18, 2023 Regular Council Meeting	1-4	Adopt

7. **Consent Agenda:**

Recommendation:
THAT Council approve the Consent Agenda: 5-8

1. *Minutes of the April 18, 2023 Committee of the Whole Meeting;*
2. *Minutes of the April 18, 2023 Public Hearing; and*
3. *Release of Items from Closed Meeting:*
   - *THAT Council appoint Kristi Bauman, Randy Boras, Trisha Kaplan, Amanda Lewis, Heather Miller, Grant Pattingale, Leanne Williams, Kona Sankey and Victoria Jaenig to the Accessibility Task Force.*
     THAT Council appoint Councillor Graham as the non-voting Council representative to the Accessibility Task Force.
   - *THAT Council appoint Drew Barnes, Ajeet Brar, Rod Ferguson, Alison Gibson, Nicholas Hill, Nathan Little, Brian Menzies, Dara Parker, Linda Sankey, Chris Schoenne, Nicolas Stulberg, Richard Langfield and Loretta Ghostkeeper or designate to the Official Community Plan – Housing Task Force.*
     THAT Council amend the Terms of Reference for the Official Community Plan – Housing Task Force and appoint two (2) non-voting Council representatives to the Task Force;
     AND THAT Council appoint Councillor Watt and Councillor Konanz as non-voting Council representatives to the Official Community Plan – Housing Task Force.
   - *THAT Council appoint John Archer, Cameron Baughen, Juliana Buitenhuis, Brenda Clark, Joanne Grimaldi, Susan Fraser, Victoria Jaenig, Don Mulhall and Marc Tougas to the Parks and Recreation Advisory Committee.*
     THAT Council appoint Councillor Gilbert as the non-voting Council representative to the Parks & Recreation Advisory Committee.
   - *THAT Council appoint Sheila Hamilton, Wesley Nickel, and Teri McKnight to the Penticton Library Board for a term ending November 30, 2024.*
   - *THAT Council direct staff, before May 5, to contact all the committee applicants that have not been appointed and ask if they would like to be considered for an appointment to the Agriculture Advisory Committee.*

8. **Staff Reports:**

Hamming	8.1	2022 Audited Financial Statements Delegation: Sinéad Scanlon, BDO Canada LLP *Staff Recommendation: THAT Council accept the Financial Statements, as co-presented by BDO Canada LLP, for the year ending December 31, 2022.*	9-51
Jones	8.2	City of Penticton Debt Management Policy *Staff Recommendation: THAT Council adopt the City of Penticton Debt Management Policy CP#2023-05 effective May 2, 2023.*	52-64
Jones	8.3	City of Penticton Investment Policy *Staff Recommendation: THAT Council adopt the City of Penticton Investment Policy CP#2023-04 effective May 2, 2023.*	65-78
Mercier	8.4	Gates for the 300 Block Main Street Breezeway *Staff Recommendation: THAT Council direct staff to install decorative and secure gates on the 300 Block Main Street breezeway (to be closed overnight) at a cost of $10,000 to be funded by a transfer from the Capital Reserve;* *AND THAT the 2023-2027 Financial Plan be amended accordingly.*	79-81
Dixon	8.5	BC Transit2023/2024 Annual Operating Agreement *Staff Recommendation: THAT Council authorize the Chief Financial Officer and Corporate Officer to execute the 2023 - 2024 Annual Operating Agreement Conventional and Custom Transit as contained in Attachment "A".*	82-97
Haddad	8.6	North Gateway Redevelopment & Investment Strategy – Update Report *Staff Recommendation: THAT Council receive into the record the report dated May 2, 2023 titled "North Gateway Redevelopment & Investment Strategy – Update Report".*	98-406
Haddad	8.7	CMHC National Housing Strategy - Housing Accelerator Fund *Staff Recommendation: THAT Council support the use of up to $40,000 from the Online Accommodator Platform Reserve for the purpose of preparing an application and associated community action plan for the CMHC National Housing Strategy's Housing Accelerator Fund;* *AND THAT staff be directed to review any application with the Official Community Plan - Housing Task Force and Council prior to submission.*	407-442
Tanguay	8.8	Zoning Amendment Bylaw No. 2023-16 Re: 517 Alexander Avenue *Staff Recommendation: THAT Council give first reading to "Zoning Amendment Bylaw No. 2023-16", for Lot 9 District Lot 2 Group 7 Similkameen Division Yale (Formerly Yale-Lytton) District Plan 3348, located at 517 Alexander Avenue, a bylaw to rezone the subject from RD2 (Duplex Housing: Lane) to RD3 (Residential Infill);* *AND THAT Council forward "Zoning Amendment Bylaw No. 2023-16" to the May 16, 2023 Public Hearing.*	443-453

9. **Public Question Period**

10. **Recess to a Closed Meeting:**

Resolution: THAT Council recess to a closed meeting of Council pursuant to the provisions of the Community Charter as follows: Section 90 (1)

(e) the acquisition, disposition or expropriation of land or improvements, if the council considers that disclosure could reasonably be expected to harm the interests of the municipality; and

(j) information that is prohibited, or information that if it were presented in a document would be prohibited, from disclosure under section 21 of the Freedom of Information and Protection of Privacy Act.

11. **Reconvene the Regular Council Meeting following the Public Hearing at 6:00 p.m.**

12. **Bylaws and Permits:**

Collison	12.1	Tax Rates Bylaw No. 2023-13	454-457	Adopt
Collison	12.2	Zoning Amendment Bylaw No. 2023-14 Re: 924 Fairview Road	458-459	2nd/3rd
Collison	12.3	Zoning Amendment Bylaw No. 2023-15 Re: 398 Upper Bench Road South	460-461	2nd/3rd/Adopt

13. **Notice of Motion**

13.1 From Councillor Graham, Councillor Gilbert and Councillor Boultbee: 462

THAT Council direct staff to use funds from the *Growing Communities Fund* to install lights at the skate park in Riverside Park;

AND THAT Council direct staff to report on projects that can be funded by the *Growing Communities Fund* and list them in their priorities.

14. **Business Arising**

15. **Public Question Period**

If you would like to ask Council a question with respect to items that are on the current agenda, please visit our website at www.penticton.ca to find the telephone number or Zoom link to ask your question before the conclusion of the meeting. Use the raise hand feature and you'll be given the opportunity to turn on your camera and unmute your microphone and ask Council your questions. Please note that the meeting is streaming live and recorded, access to recordings can be found on the City's website.

16. **Council Round Table**

17. **Adjournment**

Minutes

penticton.ca

Regular Council Meeting
held at City Hall, Council Chambers
171 Main Street, Penticton, B.C.

Tuesday, April 18, 2023
at 1:00 p.m.

Present:	Mayor Bloomfield Councillor Boultbee Councillor Gilbert Councillor Graham Councillor Konanz Councillor Miller Councillor Watt
Staff:	Donny van Dyk, Chief Administrative Officer Angie Collison, Corporate Officer Angela Campbell, Director of Finance & Administration Kristen Dixon, General Manager of Infrastructure Blake Laven, Director of Development Services Paula McKinnon, Deputy Corporate Officer

1. Call to Order

The Mayor called the Regular Council Meeting to order at 1:00 p.m.

2. Introduction of Late Items

3. Adoption of Agenda

162/2023 **It was MOVED and SECONDED**
THAT Council adopt the agenda for the Regular Council Meeting held on April 18, 2023 as presented.

CARRIED UNANIMOUSLY

4. Recess to Committee of the Whole

163/2023 **It was MOVED and SECONDED**
THAT Council recess to a Committee of the Whole meeting at 1:01 p.m.

CARRIED UNANIMOUSLY

5. Reconvene the Regular Council Meeting

Council reconvened the Regular Council Meeting at 1:38 p.m.

6. Adoption of Minutes:

6.1 Minutes of the April 3, 2023 Regular Meeting of Council

164/2023 **It was MOVED and SECONDED**
THAT Council adopt the Regular Council Meeting minutes of April 3, 2023 as presented.

CARRIED UNANIMOUSLY

7. Consent Agenda:

165/2023 **It was MOVED and SECONDED**
THAT Council approve the Consent Agenda:
1. Minutes of the April 3, 2023 Committee of the Whole Meeting.

CARRIED UNANIMOUSLY

8. Staff Reports:

8.1 2023-2027 Five Year Financial Plan Bylaw No. 2023-09

166/2023 **It was MOVED and SECONDED**
THAT Council adopt "2023-2027 Five Year Financial Plan Bylaw No. 2023-09".

CARRIED
Councillor Konanz, Opposed

8.2 Tax Rates Bylaw No. 2023-13

167/2023 **It was MOVED and SECONDED**
THAT Council give first, second and third reading to "Tax Rates Bylaw No. 2023-13", a bylaw that establishes property taxation rates for the 2023 tax year.

CARRIED
Councillor Konanz, Opposed

8.3 Code of Conduct Update

168/2023 **It was MOVED and SECONDED**
THAT Council direct staff to establish a code of conduct that aligns with the provincially prescribed principles of integrity, accountability, respect, leadership and collaboration and that staff continue with a regional model.

CARRIED UNANIMOUSLY

8.4 Zoning Amendment Bylaw No. 2023-14
Development Permit PL2022-9302
Re: 924 Fairview Road

169/2023 **It was MOVED and SECONDED**
THAT Council give first reading to "Zoning Amendment Bylaw No. 2023-14", a bylaw to rezone Lot 1 District Lot 250 Similkameen Division Yale District Plan 37914, located at 924 Fairview Road, from RD1 (Duplex Housing) to RM2 (Low Density Multiple Housing), to facilitate the construction of a 6-unit townhouse development;
AND THAT Council forward "Zoning Amendment Bylaw No. 2023-14" to the May 2, 2023 Public Hearing;

AND THAT Council, prior to adoption of "Zoning Amendment Bylaw No. 2023-14", require a 0.8m road dedication along the frontage of the subject property be registered with the Land Title Office;
AND THAT Council, subject to adoption of "Zoning Amendment Bylaw No. 2023-14", approve "Development Permit PL2022-9302", a permit to approve the form and character of a 6-unit townhouse development.

CARRIED
Mayor Bloomfield and Councillor Miller, Opposed

8.5 Zoning Amendment Bylaw No. 2023-15
Re: 398 Upper Bench Road South

170/2023 **It was MOVED and SECONDED**
THAT Council give first reading to "Zoning Amendment Bylaw No. 2023-15", for Lot 6 District Lot 155 Similkameen Division Yale District Plan 306 Except Plan 21731, located at 398 Upper Bench Road South, a bylaw to add the site-specific provision, within the A (Agriculture) zone, as follows: "Section 9.2.6.13, In the case of Lot 6 District Lot 155 Similkameen Division Yale District Plan 306 Except Plan 21731, located at 398 Upper Bench Road South, a carriage house and a bed and breakfast home shall be permitted;
AND THAT Council forward "Zoning Amendment Bylaw No. 2023-15", to the May 2, 2023 Public Hearing.

CARRIED
Councillors Boultbee and Miller, Opposed

9. Public Question Period

10. Recess to a Closed Meeting:

171/2023 **It was MOVED and SECONDED**
THAT Council recess at 2:18 p.m. to a closed meeting of Council pursuant to the provisions of the *Community Charter* as follows: Section 90(1)

(a) Personal information about an identifiable individual who holds or is being considered for a position as an officer, employee or agent of the municipality or another position appointed by the municipality;
(e) the acquisition, disposition or expropriation of land or improvements, if the council considers that disclosure could reasonably be expected to harm the interests of the municipality;
(g) litigation or potential litigation affecting the municipality;
(j) information that is prohibited, or information that if it were presented in a document would be prohibited, from disclosure under section 21 of the *Freedom of Information and Protection of Privacy Act*; and Section 90 (2)
(b) the consideration of information received and held in confidence relating to negotiations between the municipality and a provincial government or the federal government or both, or between a provincial government or the federal government or both and a third party.

11. Reconvene the Regular Council Meeting following the Public Hearing at 6:00 p.m.

The Mayor reconvened the meeting at 6:09 p.m.

12. Bylaws and Permits

12.1 Official Community Plan Amendment Bylaw No. 2023-10 and
Zoning Amendment Bylaw No. 2023-11
Re: 674 and 686 Martin Street

172/2023 **It was MOVED and SECONDED**
THAT Council give second and third reading to "Official Community Plan Amendment Bylaw No. 2023-10";
AND THAT Council adopt "Official Community Plan Amendment Bylaw No. 2023-10";
AND THAT Council give second and third reading to "Zoning Amendment Bylaw No. 2023-11";
AND THAT Council adopt "Zoning Amendment Bylaw No. 2023-11".

CARRIED UNANIMOUSLY

12.2 Road Closure (portion fronting 674 Martin Street) Bylaw No. 2023-12

Delegations/Submissions: Nil.

173/2023 **It was MOVED and SECONDED**
THAT Council adopt "Road Closure (portion fronting 674 Martin Street) Bylaw No. 2023-12".

CARRIED UNANIMOUSLY

13. Notice of Motion

14. Business Arising

15. Public Question Period

16. Council Round Table

17. Adjournment

174/2023 **It was MOVED and SECONDED**
THAT Council adjourn the April 18, 2023 Regular meeting of Council at 6:31 p.m.

CARRIED UNANIMOUSLY

Certified correct:

_____
Angie Collison
Corporate Officer

Confirmed:

_____
Julius Bloomfield
Mayor

Minutes

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Committee of the Whole
held at City Hall, Council Chambers
171 Main Street, Penticton, B.C.

Tuesday, April 18, 2023
Recessed from the Regular Council Meeting at 1:00 p.m.

Present: Mayor Bloomfield
Councillor Boultbee
Councillor Gilbert
Councillor Graham
Councillor Konanz
Councillor Miller
Councillor Watt

Staff: Donny van Dyk, Chief Administrative Officer
Angie Collison, Corporate Officer
Angela Campbell, Director of Finance & Administration
Kristen Dixon, General Manager of Infrastructure
Blake Laven, Director of Development Services
Paula McKinnon, Deputy Corporate Officer

1. **Call to order**

The Mayor called the Committee of the Whole meeting to order at 1:01 p.m.

2. **Adoption of Agenda**

It was MOVED and SECONDED
THAT the agenda for the Committee of the Whole meeting held on April 18, 2023 be adopted as presented.

CARRIED UNANIMOUSLY

3. **Delegations:**

3.1 CFSOS 30th Anniversary & Operating of Neighbourhood Small Grants

Aaron McRann, Executive Director, and Kim English, Neighbourhood Small Grants Coordinator, Community Foundation of the South Okanagan Similkameen, provided Council with a presentation about the Foundation, which is celebrating its 30th Anniversary on April 20, and reminded Council and the community that the Neighbourhood Small Grants program application opens on April 4, 2023.

Mayor Bloomfield read the proclamation proclaiming April 20, 2023 as 'Community Foundation Day' in the City of Penticton.

3.2 Snpaʔxt̓əntn - Supportive Housing Program

Bob Hughes, Executive Officer, ASK Wellness Society, and Shauna Fox, Executive Director, Ooknakane Friendship Centre, provided Council with information about Snpaʔxt̓əntn (Healing House), Penticton's newest supportive housing program opening in June located at 3240 Skaha Lake Road.

4. **Adjourn to Regular Meeting**

It was MOVED and SECONDED
THAT Council adjourn the Committee of the Whole meeting held April 18, 2023 at 1:38 p.m. and reconvene the Regular Meeting of Council.

CARRIED UNANIMOUSLY

Certified correct:

_____
Angie Collison
Corporate Officer

Confirmed:

_____
Julius Bloomfield
Mayor

Minutes

Public Hearing

held electronically and at City Hall, Council Chambers
171 Main Street, Penticton, B.C.

Tuesday, April 18, 2023
at 6:00 p.m.

Present:	Mayor Bloomfield Councillor Boultbee Councillor Gilbert Councillor Graham Councillor Konanz Councillor Miller Councillor Watt
Staff:	Donny Van Dyk, Chief Administrative Officer Angie Collison, Corporate Officer Angela Campbell, Director of Finance & Administration Blake Laven, Director of Development Services Kristen Dixon, General Manager of Infrastructure Paula McKinnon, Deputy Corporate Officer Nicole Capewell, Planner I

1. Call to order

Mayor Bloomfield called the public hearing to order at 6:00 p.m. for Official Community Plan Amendment Bylaw No. 2023-10 and Zoning Amendment Bylaw No. 2023-11.

The Corporate Officer read the opening statement and introduced the purpose of the bylaw. She then explained that the public hearing was being held in-person and electronically to afford all persons who considered themselves affected by the proposed bylaw an opportunity to be heard before Council. She further indicated that the public hearing was advertised pursuant to the *Local Government Act*.

2. <u>"Official Community Plan Amendment Bylaw No. 2023-10" (674 & 686 Martin Street)</u>

The purpose of "Official Community Plan Amendment Bylaw No. 2023-10" is to amend Official Community Plan Bylaw No. 2019-08 as follows:

> Amend Map 1: Future Land Use by changing the future land use designation for Lot 7 Block 34 District 34 District Lot 202 Similkameen Division Yale District Plan 269 Except Plan KAP58563, located at 674 Martin Street, and Lot 8 Block 34 District Lot 202 Similkameen Division Yale District Plan 269, located at 686 Martin Street, from 'Urban Residential' to 'Downtown Mixed Use'.

"Zoning Amendment Bylaw No. 2023-11" (686 Martin Street)

The purpose of "Zoning Amendment Bylaw No. 2023-11" is to amend Zoning Bylaw No. 2023-08 as follows:

> Rezone Lot 8 Block 34 District Lot 202 Similkameen Division Yale District Plan 269, located at 686 Martin Street, from RD1 (Duplex Housing) to C5 (Urban Centre Commercial).
>
> The applicant is proposing to construct a five-storey, mixed-use development featuring commercial retail space at grade along Martin Street with 18 residential dwelling units on floors 2-4 and a common amenity area on floor 5.

The Corporate Officer advised that no letters have been received since the printing of the agenda and distributed to Council.

DELEGATIONS

Mayor Bloomfield asked the public for the first time if anyone wished to speak to the application.

- Cal Meiklejohn, Meiklejohn Architectural Design, on behalf of applicant, available to answer any questions.

Mayor Bloomfield asked the public for the second time if anyone wished to speak to the application.

- Jordan Shade, Backstreet Blvd, spoke in support of development.

Mayor Bloomfield asked the public for the third and final time if anyone wished to speak to the application.

- Lynn Kelsey, Oakville Street, commented about Penticton Indian Band archaeological assessment, asked for feedback in terms of that request.
- Cal Meiklejohn, Meiklejohn Architectural Design, on behalf of applicant, responded it's new information, have not had any conversations with owner and cannot provide answer at this time.
- Blake Laven, Director of Development Services, responded a lot of Penticton is within area of high to medium archaeological potential, reviews happen at appropriate stage when ground is broken.

The public hearing for "Official Community Plan Amendment Bylaw No. 2023-10" and "Zoning Amendment Bylaw No. 2023-11" was terminated at 6:09 p.m. and no new information can be received on this matter.

Certified correct:

_____
Angie Collison
Corporate Officer

Confirmed:

_____
Julius Bloomfield
Mayor

Council Report

penticton.ca

Date: May 2, 2023 File No:
To: Donny van Dyk, Chief Administrative Officer
From: Elma Hamming, Manager of Finance
Subject: **2022 Audited Financial Statements**

Staff Recommendation

THAT Council accept the Financial Statements, as co-presented by BDO Canada LLP, for the year ending December 31, 2022.

Strategic Priority Objective

Mission: Penticton will serve its residents, businesses and visitors through organizational excellence, partnership and the provision of effective and community focused services.

Organizational Excellence: The City of Penticton will support a culture of service excellence built on good governance, leadership and sound financial decisions.

Background

Per the *Community Charter* Section 167, municipal financial statements for the year must be prepared by the financial officer and presented to Council for acceptance.

Section 171 of the *Community Charter* requires that the municipal auditor report to Council on the annual financial statements of the municipality.

The City's Financial Statements are prepared according to Public Sector Accounting Standards (PSAS) and report the actual use of City resources in the past year in comparison to the original Council approved Financial Plan. Upon consolidation, PSAS requires the City to eliminate entries for transactions including but not limited to inter-fund transactions and reserve transfers. The Financial Statements vary from the City's approved Financial Plan due to the eliminating entries, removal of debt repayments and the recording of Tangible Capital Assets as non-financial assets, including recognition of amortization.

Financial Implication

The Consolidated Surplus for the fiscal year ended December 31, 2022 is $5,989,833, the 2021 consolidated surplus is $12,580,481.

Overall consolidated revenues increased by 7.1% from 2021 to a total of $138,411,275 and consolidated expenditures increased by 13.5% from 2021 to a total of $132,421,442.

Overall the financial position of the City remains strong with net financial assets of $75.9 million and non-financial assets of $323 million.

Financial Analysis

Using ratios to examine trend analysis based on *Statements of Recommended Practice* as defined by the Public Sector Accounting Board, we can understand how the City is performing over a period of time, not just at a specific financial statement date, which helps provide insight into financial health.

Table 1, below, shows the ***Financial Assets to Liabilities*** ratio, which indicates the extent to which government requires future revenues to pay for past transactions. With an increasing ratio greater than 1, it is evident that there are sufficient resources on hand to finance future operations and the City is in a positive position to leverage future capital spending.

Table 1 Financial Assets to Liabilities

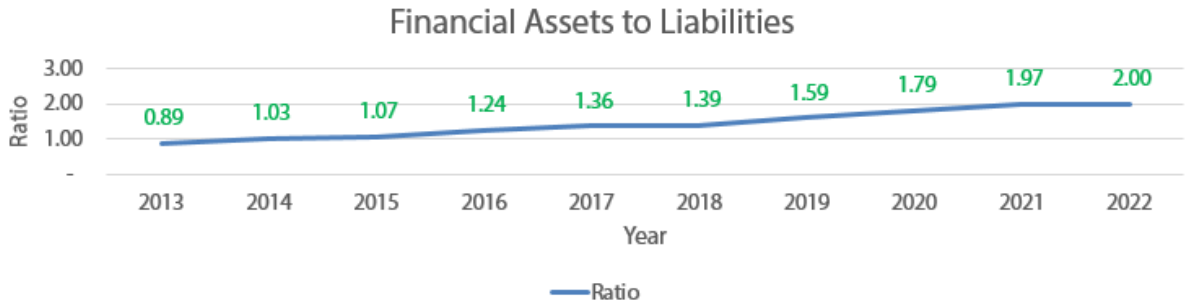
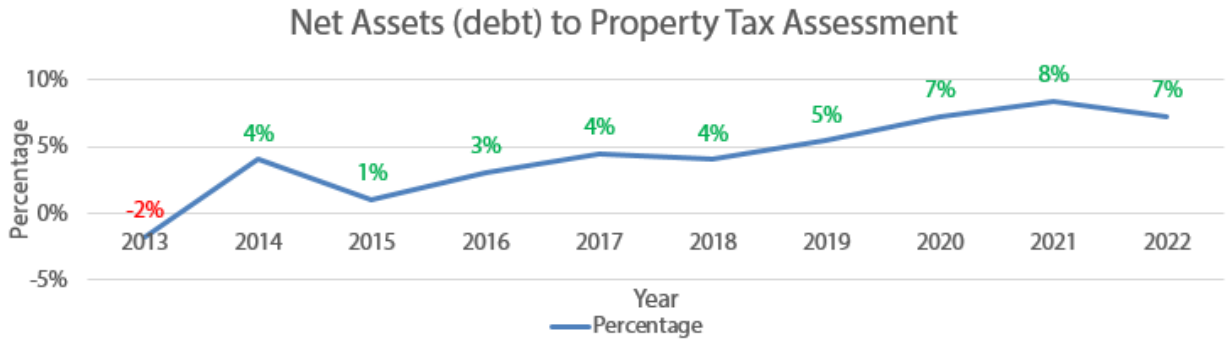


Table 2Table 2, below, shows the Net Assets to Property Tax Assessment ratio which measures municipal net assets (debt) compared to the municipal economic activity measured by assessment value upon which taxation is based. It indicates the City's increasing ability to manage debt within the economy it operates.

Table 2 Net Assets (debt) to Property Tax Assessment



Some significant highlights from the statements include:

- Financial Assets
  - Increase in cash/investments of $4.0M
  - Increase in Accounts Receivable of $5.4M due to government grants outstanding

- Financial Liabilities
  - Increase in Accounts Payable and Accrued Liabilities of $4.4M to reflect capital and operating expenditures completed in 2022
  - Decrease in Deferred Revenues $764k to reflect timing differences in various revenues streams such as prepaid tax installments, grants and recreation revenues
  - Increase in deposits of $2.1M held as security for development work such as landscape deposits and cash-in-lieu
  - Decrease in long term debt of $3.4M

- Non-Financial Assets
  - Increase in inventory of $771k due to pre-ordering of inventory to mitigate longer supply chain lead times

- Revenues
  - Increase in Taxation revenues $2.5M, for budgeted taxation increase as well as realized non market change
  - Decrease in Water User Fees revenues $433k which can be attributed to water conservation as a result of rate increases and climate change awareness
  - Increase in Casino revenues of $1M, a return to pre-pandemic levels
  - Increase in building permit revenues $205k
  - Increase in Hotel Room Tax $446K, due to an increase of MRDT from 2% to 3% effective July 2022 and increased economic activity
  - Increase in Operating and Capital Grants received of $3.3M, including creek rehabilitation and Edmonton Ave Daycare
  - Increase in investment revenues $1.9M

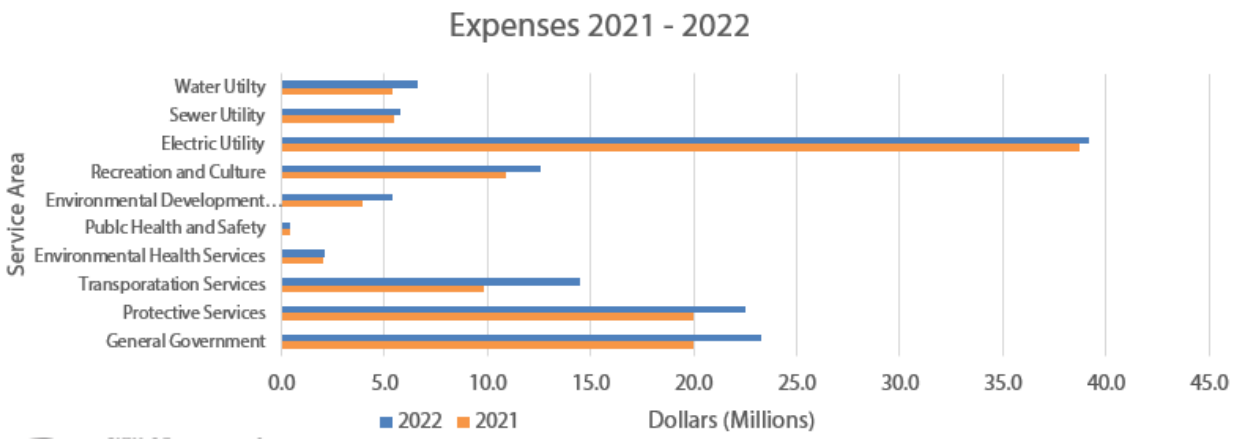
Table 3, below, shows the significant increase in grant funding during the prior 3 years, in particular 2022 which reflects successful conditional grant awards for creek rehabilitation and Edmonton Ave Daycare to leverage tax payer dollars on capital infrastructure projects. During 2022, staff across various City departments managed 41 active grant projects.

Table 3 Government Transfers (Conditional and Unconditional)

- Expenses:
  - Increase in General Government services of $3.4M primarily due to the construction expenses related to the Edmonton Ave Daycare, funded by two grant streams, and represents a contractual right to the asset upon lease maturity
  - Increase in Protective Services costs of $2.5M due to increasing policing costs and increased bylaw service levels
  - Increase in Transportation services of $4.6M primarily due to grant funded creek rehabilitation work which must be recognized as an expense under Public Sector Accounting Standards
  - Increase in Environmental Development Services of $1.5M due to various flow-throughs from increased revenues such as the Business Area Improvement levy and Hotel Room Tax/MRDT, and the completion of various initiatives such as the UBCM Strengthening Services Grants, the Community Safety Review and the online permitting software
  - Increase in Recreation and Culture of $1.6M as level of service returns to pre-pandemic levels

Table 4 shows expenses by service area with comparative data from 2021.

Table 4 Expenses by Service Area 2021-2022



- Reserves:
  - Overall decrease in reserves of $3.0M
  - $3.5M to be repaid by General fund to Electric surplus from 2022-2032
  - Decrease in Own Reserves $4.8M
  - Increase in Statutory Reserves $1.8M

Attachments

Attachment A – Management Letter

Attachment B – Audit Reports

Attachment C – Draft Financial Statements

Respectfully submitted,

Elma Hamming
Manager of Finance

Director of Finance & Administration	Chief Administrative Officer
AMC	DvD

Tel: (250) 492-6020
Fax: (250) 492-8110
Toll free: (800) 928-3307
www.bdo.ca

BDO Canada LLP
101-144 Front Street
Penticton, BC
V2A 1H1

May 2, 2023

The Corporation of the City of Penticton
171 Main Street
Penticton, British Columbia
V2A 5A9

Dear Ms. Campbell, Director of Finance and Administration

The objective of an audit is to obtain reasonable assurance whether the financial statements are free of any material misstatement and it is not designed to identify matters that may be of interest to management in discharging its responsibilities. Accordingly an audit would not usually identify all such matters.

During the course of our audit of the financial statements of The Corporation of the City of Penticton for the year ended December 31, 2022, we did not encounter any significant matters which we believe should be brought to your attention.

This communication is prepared solely for the information of management and is not intended for any other purposes. We accept no responsibility to a third party who uses this communication.

We would like to express our appreciation for the cooperation and assistance which we received during the course of our audit from yourself, Elma Hamming and the whole finance team at the City.

We shall be pleased to discuss with you further any matters mentioned in this report at your convenience.

Yours truly,

Sinéad Scanlon, CPA, CA
Partner
BDO Canada LLP
Chartered Professional Accountants

BDO Canada LLP, a Canadian limited liability partnership, is a member of BDO International Limited, a UK company limited by guarantee, and forms part of the international BDO network of independent member firms.

Management's Responsibility for Financial Reporting

The accompanying financial statements of the Corporation of the City of Penticton are the responsibility of management and have been approved by Mayor and Council.

The financial statements have been prepared by management in accordance with Canadian public sector accounting standards. Certain amounts used in preparation of the financial statements are based on management's best estimate and judgements. Actual results could differ as additional information becomes available in the future. When alternative accounting methods exist, management has chosen those it deems most appropriate in the circumstances, in order to ensure that the financial statements are presented fairly, in all material respects.

The Corporation of the City of Penticton maintains systems of internal accounting and administrative controls of reasonable quality, consistent with reasonable costs. Such systems are designed to provide reasonable assurance that the financial information is relevant, reliable and accurate and the entity's assets are appropriately accounted for and adequately safeguarded.

The Corporation of the City of Penticton is responsible for ensuring that management fulfills its responsibilities for financial reporting and is ultimately responsible for reviewing and approving the financial statements.

The Mayor and Council review the financial statements and recommend their approval. The Mayor and Council meet periodically with management, as well as the external auditors, to discuss internal controls over the financial reporting process, auditing matters and financial reporting issues, to satisfy themselves that each party is properly discharging their responsibilities, and to review the financial statements and external auditor's report. The Mayor and Council also consider the engagement of the external auditors.

The financial statements have been audited by BDO Canada LLP Chartered Professional Accountants in accordance with Canadian generally accepted auditing standards. The independent auditors report expresses their opinion on these statements. The auditors have full and free access to the accounting records as well as Mayor and Council.

Approved on behalf of Mayor and Council

_____ Mayor

Draft - subject to change

Independent Auditor's Report

To the Mayor and Council of the Corporation of the City of Penticton

Opinion

We have audited the financial statements of the Corporation of the City of Penticton and its controlled entities (the "Consolidated Entity"), which comprise the consolidated statement of financial position as at December 31, 2022, and the consolidated statement of operations and accumulated surplus, the consolidated statement of change in net financial assets and the consolidated statement of cash flows for the year then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Consolidated Entity as at December 31, 2022, and its consolidated results of operations, its consolidated change in net financial assets, and its consolidated cash flows for the year then ended in accordance with Canadian public sector accounting standards.

Basis for Opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Consolidated Financial Statements* section of our report. We are independent of the Consolidated Entity in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in Canada, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Unaudited Information

We have not audited, reviewed or otherwise attempted to verify the accuracy or completeness of the unaudited schedules of the Consolidated Entity's financial statements.

Responsibilities of Management and Those Charged with Governance for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with Canadian public sector accounting standards, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Consolidated Entity's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Consolidated Entity or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Consolidated Entity's financial reporting process.

Draft - subject to change

Auditor's Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Consolidated Entity's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Consolidated Entity's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Consolidated Entity to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Consolidated Entity to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Draft - subject to change

Chartered Professional Accountants

Penticton, British Columbia
May 2, 2023

THE CITY OF PENTICTON
CONSOLIDATED STATEMENT OF FINANCIAL POSITION
DECEMBER 31, 2022

	2022	2021
Financial Assets		
Cash	$ 7,582,478	$ 4,417,985
Term Deposits (Note 1)	125,705,069	124,895,292
Accounts Receivable (Note 2)	15,799,143	10,428,556
Cash deposits and demand notes (Note 14)	2,469,052	2,451,025
	151,555,742	142,192,858
Financial Liabilities		
Accounts Payable and Accrued Liabilities	19,671,163	15,285,176
Development Cost Charges (Note 3)	18,760,686	19,049,679
Deferred Revenue (Note 5)	7,746,391	8,510,803
Deposits	6,191,646	4,013,812
Long Term Debt (Note 9)	20,767,185	24,193,133
MFA Debt Reserve (Note 14)	2,469,052	2,451,025
	75,606,123	73,503,628
Net Financial Assets	$ 75,949,619	$ 68,689,230
Non-Financial Assets		
Tangible Capital Assets (Note 11)	$317,798,223	$319,844,994
Inventory	4,314,643	3,543,147
Prepaid Expenses	571,597	566,878
	322,684,463	323,955,019
Accumulated Surplus	$398,634,082	$392,644,249

DRAFT FOR DISCUSSION - COUNCIL MAY 2, 2023

See accompanying notes to the Consolidated Financial Statements.

THE CITY OF PENTICTON
CONSOLIDATED STATEMENT OF OPERATIONS AND ACCUMULATED SURPLUS
YEAR ENDED DECEMBER 31, 2022

	2022 Budget (Note 15)	2022	2021
Revenue			
Taxation (Note 18)	$ 39,384,932	$ 39,122,903	$ 36,561,489
Sales of Services	73,719,679	74,538,279	71,429,332
Government Grants and Transfers (Note 16)	4,182,168	7,431,582	6,141,419
Other Revenue	8,080,381	12,958,012	8,884,115
Other Contributions	10,301,893	3,861,655	5,900,602
Gain on Disposal and Insurance Proceeds	30,000	498,844	265,000
Contributed Asset	-	-	11,335
	135,699,053	138,411,275	129,193,292
Expenditure (Note 12)			
General Government	14,683,878	23,343,357	20,002,040
Protective Services	24,108,187	22,520,374	20,021,970
Transportation Services	5,992,802	14,475,233	9,828,808
Environmental Health Services	2,036,550	2,126,030	1,982,591
Public Health and Safety	376,500	423,727	381,586
Environmental Development Services	5,059,469	5,389,187	3,859,262
Recreation and Culture	12,108,716	12,601,593	10,924,940
Electrical Supply	36,394,395	39,162,231	38,679,454
Sewer System Utility	4,524,019	5,759,689	5,511,624
Water Utility Services	3,971,358	6,620,021	5,420,536
	109,255,874	132,421,442	116,612,811
Annual Surplus	26,443,179	5,989,833	12,580,481
Accumulated Surplus, Beginning of Year	392,644,249	392,644,249	380,063,768
Accumulated Surplus, End of Year	$419,087,428	$398,634,082	$392,644,249

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

See accompanying notes to the Consolidated Financial Statements.

THE CITY OF PENTICTON
CONSOLIDATED STATEMENT OF CHANGE IN NET FINANCIAL ASSETS
YEAR ENDED DECEMBER 31, 2022

	2022 Budget	2022	2021
Annual surplus	$ 26,443,179	$ 5,989,833	$ 12,580,481
Acquisition of Tangible Capital Assets (Note 11)	(46,775,469)	(14,641,140)	(16,152,246)
Amortization (Note 11)	-	14,496,921	14,793,275
Net Disposal of Tangible Capital Assets (Note 11)	-	1,542,179	-
Contributed Tangible Capital Assets (Note 11)	-	-	(11,355)
Asset reclassification (Note 11)	-	648,810	14,989
	(20,332,290)	8,036,603	11,225,144
Change in Prepaid Expenses (Increase)	-	(4,719)	(78,188)
Acquisition of Supplies Inventories	-	(771,495)	(11,114)
	-	(776,214)	(89,302)
Increase in Net Financial Assets	(20,332,290)	7,260,389	11,135,842
Net Financial Assets, Beginning of Year	68,689,230	68,689,230	57,553,388
Net Financial Assets, End of Year	$ 48,356,940	$ 75,949,619	$ 68,689,230

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

See accompanying notes to the Consolidated Financial Statements.

THE CITY OF PENTICTON
CONSOLIDATED STATEMENT OF CASH FLOWS
YEAR ENDED DECEMBER 31, 2022

	2022	2021
Operating Transactions		
Annual Surplus	$ 5,989,833	$ 12,580,481
Change in Non-Cash Operating Items		
Increase in Accounts Receivable	(5,370,587)	(19,332)
Increase (decrease) in Trade Accounts Payable and Accrued Liabilities	4,385,988	(1,485,436)
Decrease in Development Cost Charges	(288,993)	(7,635)
Increase (decrease) in Deferred Revenues	(764,412)	2,494,283
Increase in Deposits	2,177,834	654,625
Increase in Prepaid Expenses	(4,719)	(78,188)
Increase in Inventory	(771,496)	(11,114)
Net Disposal of Tangible Capital Assets	1,542,179	-
Amortization	14,496,921	14,793,275
Contributed Tangible Capital Assets	-	(11,355)
Asset reclassification	648,810	15,187
	16,051,525	16,344,310
Cash Provided by Operating Activities	22,041,358	28,924,791
Capital Transactions		
Cash Used to Acquire Tangible Capital Assets	(14,641,140)	(16,152,246)
Financing Transactions		
Debt Repayment	(3,425,948)	(3,306,989)
Investing Transactions		
Increase in Term Deposits	(809,777)	(33,289,452)
Change in Cash	3,164,493	(23,823,896)
Cash, Beginning of Year	4,417,985	28,241,881
Cash, End of Year	$ 7,582,478	$ 4,417,985

Supplemental Cash Flow Information	2022	2021
Interest Paid	$ 1,206,888	$ 1,178,773

Note: Investment income recognized includes an actuarial addition to the sinking fund

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

THE CITY OF PENTICTON
SIGNIFICANT ACCOUNTING POLICIES
DECEMBER 31, 2022

Management's Responsibility for the Financial Statements

The consolidated financial statements of the City are the responsibility of management. They have been prepared in accordance with Canadian generally accepted accounting principles established by the Public Sector Accounting Board of the Chartered Professional Accountants of Canada. The Corporation of the City of Penticton ("the City") is a municipality in the Province of British Columbia and operates under the provisions of the Community Charter. The City provides municipal services such as fire, public works, planning, parks, recreation and other general government services.

Basis of Consolidation

The consolidated financial statements reflect the assets, liabilities, revenue and expenses of all municipal organizations, committees and Boards which are owned or controlled by the City. All inter-entity transactions and balances have been eliminated. The controlled organizations include:

Penticton Public Library

Deferred Revenue

Funds received for specific purposes which are externally restricted by legislation, regulation or agreement and are not available for general municipal purposes are accounted for as deferred revenue on the Consolidated Statement of Financial Position. The revenue is recognized in the Consolidated Statement of Operations in the year in which it is used for the specified purpose.

Revenue Recognition

Taxation

Taxes are recorded at estimated amounts when they meet the definition of an asset, have been authorized and the taxable event occurs. For property taxes, the taxable event is the period for which the tax is levied. Taxes receivable are recognized net of an allowance for anticipated uncollected amounts.

Government Transfers

Government transfers are recognized as revenue in the consolidated financial statements when the transfer is authorized and any eligibility criteria are met, except to the extent that transfer stipulations give rise to an obligation that meets the definition of a liability. Transfers are recognized as deferred revenue when transfer stipulations give rise to a liability. Transfer revenue is recognized in the Consolidated Statement of Operations as the stipulation liabilities are settled.

Utilities

Charges for sewer and water usage are recorded as user fees. Connection fee revenues are recognized when the connection has been established. Conditional grant revenue is recognized to the extent the conditions imposed on it have been fulfilled.

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

THE CITY OF PENTICTON
SIGNIFICANT ACCOUNTING POLICIES
DECEMBER 31, 2022

Revenue Recognition continued

Fee for Service

Sales of service and other revenue is recognized on an accrual basis.

Inventory

The City holds consumable inventory which is recorded at the lower of cost and replacement value. Cost is determined on a weighted average basis.

Tangible Capital Assets

Tangible capital assets are not available to discharge existing liabilities and are held for use in the provision of goods and services. They have useful lives extending beyond the current year and are not intended for sale in the ordinary course of operations.

Tangible capital assets are recorded at cost, net of capital asset disposals, write-downs and amortization. Cost includes all costs directly attributable to acquisition or construction of the tangible capital asset including transportation costs, installation costs, design and engineering fees, legal fees and site preparation costs. Contributed tangible capital assets are recorded at fair value at the time of the donation, with a corresponding amount recorded as revenue. The City holds several works of art and historic treasures that have not been included in the tangible capital assets, including displays at the museum and various works of art and decorations in the facilities. Amortization is recorded on a straight-line basis over the estimated life of the tangible capital asset commencing once the asset is available for productive use as follows:

Buildings	20 to 70 years
Roads and Sidewalks	25 to 75 years
Machinery and Equipment	5 to 20 years
Water Infrastructure	50 to 100 years
Sewer Infrastructure	10 to 100 years
Electrical Infrastructure	20 to 50 years
Parks and Recreation Infrastructure	10 to 50 years
Vehicles	10 to 20 years
Furniture and Equipment	10 to 20 years
Computer Hardware and Software	4 to 10 years
Books and Library Materials	5 to 13 years
Construction in progress	No amortization taken

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

Retirement and Employee Benefits

The City's retirement contributions due during the period to its multi-employer defined benefit plan are expensed as incurred.

City employees belonging to CUPE local 608 are eligible to accumulate sick leave until termination of employment. Unused sick leave is not eligible for payment upon retirement or termination and may not be used as vacation. Employees may accumulate a maximum of 10 days of sick leave.

Reserve for Future Expenditure

Reserves for future expenditure are non-statutory reserves which represent an appropriation of surplus for specific purposes. Transfers to reserves for future expenditure include funds to finance incomplete projects and accumulations for specific purposes.

Statutory Reserve Funds

The use of these funds is restricted by the Community Charter and associated Municipal Bylaws. Statutory reserve funds are funded 100% by cash and temporary investments.

Use of Estimates

The preparation of consolidated financial statements in accordance with Public Sector Accounting Standards requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from management's best estimates as additional information becomes available in the future. Adjustments, if any, will be reflected in the consolidated financial statements in the period that the change in estimate is made, as well as in the period of settlement if the amount is different.

Collection of Taxes on Behalf of Other Taxation Authorities

The City collects taxation revenue on behalf of other entities. Such levies, other revenues, expenses, assets and liabilities with respect to the operations of entities are not reflected in these consolidated financial statements.

Contaminated Sites

A liability for contaminated sites is recognized when a site is not in productive use and the following criteria are met:

a) An environmental standard exists

b) Contamination exceeds the environmental standard

c) The City is directly responsible or accepts responsibility for remediation

d) It is expected that future economic benefits will be given up; and

e) A reasonable estimate of the amount can be made.

The liability is recognized as management's estimate of the cost of post-remediation including operation, maintenance and monitoring that are an integral part of the remediation strategy for a contaminated site.

As at December 31, 2022 the City has no liability for contaminated sites.

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

THE CITY OF PENTICTON
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
DECEMBER 31, 2022

1. Term Deposits

	Maturity Date	Effective Interest Rate (%)	2022	2021
Valley First	n/a	-	$ 23,432,628	$ 15,270,196
Valley First	Aug 17, 2023	3.05	5,638,937	5,472,039
Valley First	Aug 27, 2024	1.60	5,080,000	5,000,000
Valley First	Dec 14, 2025	5.80	10,000,000	-
Canaccord	Sep 12, 2023	4.45	5,142,275	-
Canaccord	Feb 12, 2024	4.65	5,384,453	-
Canaccord	May 17, 2024	3.80	9,081,900	-
Canaccord	May 17, 2024	3.75	5,877,821	-
Canaccord	Aug 12, 2024	2.80	2,500,000	2,642,157
Canaccord	Aug 12, 2024	2.75	2,500,000	2,500,000
Canaccord	Sept 25, 2025	1.90	5,000,000	5,000,000
Canaccord	Aug 31, 2026	2.20	5,000,000	5,000,000
National Bank Financial	n/a	-	41,067,055	40,210,024
Valley First Redemptions	n/a	-	-	8,212,444
Canaccord Redemptions	n/a	-	-	35,588,432
			$ 125,705,069	$ 124,895,292

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

2. Accounts Receivable

	2022	2021
Property Taxes	$ 1,269,952	$ 1,187,213
Other Receivables	2,996,077	3,281,652
Federal Government	1,389,413	273,137
Provincial Government	3,646,615	391,049
Other Government Agencies	161,154	119,797
Utility Rates Receivable	4,976,929	4,695,834
Accrued Interest Receivable	1,427,983	532,905
Cemetery Trust Fund Receivable (Payable)	(68,980)	(53,031)
	$ 15,799,143	$ 10,428,556

3. Development Cost Charges (DCC)

The City collects development cost charges to pay for a proportionate share of infrastructure related to new growth. In accordance with the Local Government Act of BC, these funds must be deposited into a separate reserve fund. When the related costs are incurred, the DCCs are recognized as revenue.

	2022	2021
DCC by Type		
Roads DCC	$ 2,070,651	$ 1,952,843
Parks DCC	902,011	1,122,459
Drainage DCC	1,127,322	962,925
Waste Water DCC	10,985,760	11,153,100
Water DCC	3,674,942	3,858,352
	18,760,686	19,049,679
DCC Activity		
Balance, Beginning of Year	19,049,679	19,057,314
Return on Investments	527,549	296,810
DCCs Levied in the Year	1,356,681	3,451,464
Transfers	(2,173,223)	(3,755,909)
	$ 18,760,686	$ 19,049,679

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

4. Development Cost Charges Reductions

In 2010, Council adopted Economic Incentive Zone Bylaw and in 2022 adopted an updated Development Cost Charge Bylaw. The purpose of these bylaws was to spur development in key areas of the City, promote sustainable development and promote the development of affordable rental housing. The bylaws also contain provisions to encourage high-end hotel development.

The Development Cost Charges and Economic Incentive tax exemption program have been implemented in accordance with the provisions of Section 933(1) of the Local Government Act and Section 226 of the Community Charter, respectively. In 2022 $295,504 (2021 - $310,897) of Economic Incentive tax exemptions were granted.

5. Deferred Revenue

Funds received for specific purposes which are externally restricted by legislation, regulation or agreement and are not available for general municipal purposes are accounted for as Deferred Revenue on the Consolidated Statement of Financial Position. The revenue is recognized in the Consolidated Statement of Operations in the year in which it is used for the specified purpose. Deferred Revenue is comprised of the following:

	Taxes	Recreation	Other	Total
Balance at December 31, 2021	$ 5,367,750	$ 390,276	$ 2,752,777	$ 8,510,803
Collected	10,173,991	988,823	376,475	11,539,289
Recognized	(9,522,888)	(830,927)	(1,949,886)	(12,303,701)
Balance at December 31, 2022	$ 6,018,853	$ 548,172	$ 1,179,366	$ 7,746,391

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

6. Pension Liability

The City and its employees contribute to the Municipal Pension Plan (the Plan), a jointly trusteed pension plan. The Board of Trustees, representing plan members and employers, is responsible for administering the Plan, including investment of the assets and administration of benefits. The Plan is a multi-employer defined benefit pension plan. Basic pension benefits are based on a formula. As at December 31, 2021, the Plan has about 227,000 active members and approximately 118,000 retired members. Active members include approximately 42,000 contributors from local governments.

Every three years, an actuarial valuation is performed to assess the financial position of the plan and adequacy of plan funding. The actuary determines an appropriate combined employer and member contribution rate to fund the Plan. The actuary's calculated contribution rate is based on the entry-age normal cost method, which produces the long-term rate of member and employer contributions sufficient to provide benefits for the average future entrants to the plan. This rate may be adjusted for the amortization of any actuarial funding surplus and will be adjusted for the amortization of any unfunded actuarial liability.

The most recent actuarial valuation as at December 31, 2021 indicated a $3,761 million funding surplus for basic pension benefits on a going concern basis.

The City of Penticton paid $2,490,003 (2021 - $2,423,278) for employer contributions to the Plan in fiscal 2022.

The next valuation will be as at December 31, 2024 with results available in 2025.

Employers participating in the Plan record their pension expense as the amount of employer contributions made during the fiscal year (defined contribution pension plan accounting). This is because the Plan records accrued liabilities and accrued assets for the Plan in aggregate, resulting in no consistent and reliable basis for allocating the obligation, assets and cost to individual employers participating in the Plan.

7. Contingent Liabilities

a. Regional District of Okanagan Similkameen

Under Section 836 of the Local Government Act, all monies borrowed by a Regional District, shall be upon its credit at large and shall, in the event of any default, constitute an indebtedness of the member municipalities for which they are jointly and severally liable. At December 31, 2022, the long term debt of the Regional District aggregated $81,042,444 (2021 - $68,123,927).

b. General Contingencies

From time to time there are potential claims against the City for incidents which arise in the ordinary course of business. In the opinion of management and legal counsel, the outcomes of the claims are not determinable at this time and cannot be estimated. Should any loss result from the resolution of these claims, such loss will be charged to operations in the year of resolution.

DRAFT FOR DISCUSSION - COUNCIL - MAY 2, 2023

8. Letters of Credit

In addition to the performance deposits reflected in the Consolidated Statement of Financial Position, the City is holding irrevocable Letters of Credit in the amount of $1,726,136 which were received from depositors to ensure their performance of works to be undertaken within the City. These amounts are not reflected in the consolidated financial statements but are available to satisfy liabilities arising from non-performance by the depositors.

9. Long Term Debt

Long term debt reported on the Consolidated Statement of Financial Position is comprised of the following:

	2022	2021
Long Term Debt	$ 20,767,185	$ 24,193,133

Principal repayments relating to long term debt of $20,767,185 outstanding are due as follows (in thousands):

	2023	2024	2025	2026	2027	Thereafter	Sinking Fund
General Fund	$ 1,253	$ 949	$ 862	$ 739	$ 578	$ 1,232	$ 4,121
Sewer Fund	543	543	543	543	543	740	3,066
Water Fund	422	422	422	422	265	397	2,162
	$ 2,218	$ 1,914	$ 1,827	$ 1,704	$ 1,386	$ 2,369	$ 9,349

Long term debt is secured by the assets of the City. The Long Term Debt is held by the Municipal Finance Authority. The principal payments are invested by the Municipal Finance Authority into a Sinking Fund. The principal repayments are currently estimated at between 3-3.75%. The 2022 earnings in the Sinking Fund were calculated to be $1,214,823 and are included in Other Revenue on the Consolidated Statement of Operations.

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

THE CITY OF PENTICTON
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
DECEMBER 31, 2022

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

10. Debt Issued and Outstanding

LIA B Law	S/1 B Law	Issue	Issue Date	Purpose	Issue Amount	Outstanding Amount	Term (Years)	Maturity	Rate (%)	2022 Payments Interest	2022 Payments Principal
General Fund											
2003-15	2268	81	22-Apr-04	Storm Sewer	$ 337,500	$ 50,356	20	2024	2.850	$ 9,619	$ 10,207
2004-16	859-2004	85	25-Oct-04	Parks - Land Acquisition	1,680,000	250,662	20	2024	2.250	37,800	50,807
2004-18	859/2004	85	25-Oct-04	Roads Works -S. Main St.	195,000	29,095	20	2024	2.250	4,388	5,897
2004-19	859/2004	85	15-Oct-04	Road Design-Main St.	150,000	22,381	20	2024	2.250	3,375	4,536
2004-20	859/2004	85	25-Oct-04	Integrated Waterfront	550,000	82,062	20	2024	2.250	12,375	16,633
2004-21	859/2004	93	25-Oct-04	Youth Park	50,000	7,460	20	2024	2.250	1,125	1,512
2004-11	1108/2004	93	06-Apr-05	Wine Information Centre	800,000	147,115	20	2025	5.100	8,692	46,620
2004-20	1108-2004	93	06-Apr-05	Integrated Waterfront	520,000	95,625	20	2025	5.100	5,650	30,303
2004-21	614/2005	95	13-Oct-05	Youth Park	150,000	30,018	20	2025	0.910	1,365	6,112
2005-18	615/2005	95	13-Oct-05	Integrated Waterfront	825,000	165,099	20	2025	0.910	7,508	33,618
2006-15	17/17/2006	99	07-Nov-06	Road Works-Fairview/Ind	1,595,000	426,015	20	2026	1.530	24,404	53,563
2006-17	17/17/2006	99	07-Nov-06	Sportsfields	3,200,000	854,701	20	2026	1.530	48,960	107,462
2006-33	273/2007	102	02-Nov-07	Integrated Waterfront '06	350,000	114,651	20	2027	2.250	7,875	11,754
2006-76	024/2008	103	23-Apr-08	Wellness Centre	3,000,000	1,157,180	20	2028	2.650	79,500	100,745
2007-41	333/2008	104	20-Nov-08	Cemetery-Columbarium	2,500,000	964,314	20	2028	2.900	72,500	83,954
2007-52	333/2008	104	20-Nov-08	Indoor Soccer Facility	1,000,000	385,726	20	2028	2.900	29,000	33,582
2007-57	333/2008	104	20-Nov-08	Integrated Waterfront	530,000	204,435	20	2028	2.900	15,370	17,798
2007-52	638/2009	106	13-Oct-09	Indoor Soccer Facility	415,000	183,281	20	2029	2.250	9,338	13,936
2007-52	15/30/2010	110	08-Apr-10	Indoor Soccer Ph2	586,000	289,066	20	2030	1.280	7,501	21,542
2009-14	15/30/2010	110	08-Apr-10	Pool Upgrades	7,400,000	3,650,323	20	2030	1.280	94,720	272,037
2007-52	B25/2011	116	04-Apr-11	Indoor Soccer Facility	135,000	73,702	20	2031	1.470	1,985	4,963
2009-43	B25/2011	116	04-Apr-11	Road Wrks-Smythe Dr	447,000	244,036	20	2031	1.470	6,571	16,432
26/2018				Downtown 300 Block Main Street	1,530,000	306,000	5		-	12,406	306,000
					27,945,500	9,733,303				502,027	1,250,013

THE CITY OF PENTICTON
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
DECEMBER 31, 2022

10. Debt Issued and Outstanding continued

LIA B Law	S/1 B Law	Issue	Issue Date	Purpose	Issue Amount	Outstanding Amount	Term (Years)	Maturity	Rate (%)	2022 Payments Interest	2022 Payments Principal
Water Fund											
2006-07	17/07/2006	99	07-Nov-06	Naramata Rd. Upgrade	4,670,000	1,247,329	20	2026	1.530	71,451	156,827
2007-83	333/2008	104	20-Nov-08	Water Filtration Plant	4,000,000	1,542,902	20	2028	2.900	116,000	134,327
2007-83	638/2009	106	13-Oct-09	Water Filtration Plant	3,900,000	1,722,403	20	2029	2.250	87,750	130,969
					12,570,000	4,512,634				275,201	422,123
Sewer Fund											
2006-61	273/2007	102	02-Nov-07	Septage Handling Facility	1,050,000	343,951	20	2027	2.250	23,625	35,261
2008-10	332-2008	104	02-Nov-07	Sewer System Upgrade	8,000,000	3,085,805	20	2028	2.900	232,000	268,654
2008-10	638-2009	106	13-Oct-09	Sewer Plant Expansion	7,000,000	3,091,492	20	2029	2.250	157,500	235,072
					16,050,000	6,521,248				413,125	538,987
					$ 56,565,500	$ 20,767,185				$ 1,190,353	$ 2,211,123

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

11. Tangible Capital Assets

The City of Penticton budgets for Tangible Capital Assets (TCA) as well as non-operating repairs and maintenance through the capital budget. During the year, the City incurred $20,916,677 of expenditures that fall within the Capital Budget. Of this amount, $14,641,140 met the TCA capitalization policy criteria while the remaining $6,275,537 was expensed due to the expenditure being outside the TCA capitalization policy criteria or they were related to repairs and maintenance.

	Land	Buildings	Equipment	Sewer Infrastructure	Water Infrastructure	Electrical Infrastructure	Roads	Construction in Progress	2022 Total
COST									
Opening Balance	$ 54,952,999	$ 171,245,111	$ 51,988,121	$ 58,359,846	$ 62,465,696	$ 84,605,031	$100,531,105	$ 5,952,267	$ 590,100,176
Add: Additions	1,848,176	167,480	2,954,977	558,379	1,046,744	1,167,841	3,030,309	3,867,234	14,641,140
Add: Trsf to/from Construction in Progress	-	173,774	103,711	65,632	52,304	212,435	113,026	(720,882)	-
Less: Disposals	1,501,263	-	403,718	-	-	-	-	-	1,904,981
Re-classification	-	-	-	-	-	-	-	(648,810)	(648,810)
	55,299,912	171,586,365	54,643,091	58,983,857	63,564,744	85,985,307	103,674,440	8,449,809	602,187,525
ACCUMULATED AMORTIZATION									
Opening Balance	-	90,977,086	35,846,317	15,073,856	22,824,852	45,231,433	60,301,638	-	270,255,182
Add: Amortization	-	4,988,001	2,707,857	1,213,091	1,001,026	1,605,479	2,981,467	-	14,496,921
Less: Acc Amortization on Disposals	-	-	362,801	-	-	-	-	-	362,801
	-	95,965,087	38,191,373	16,286,947	23,825,878	46,836,912	63,283,105	-	284,389,302
Net Book Value for Year Ended Dec. 31, 2022	$ 55,299,912	$ 75,621,278	$ 16,451,718	$ 42,696,910	$ 39,738,866	$ 39,148,395	$ 40,391,335	$ 8,449,809	$ 317,798,223

THE CITY OF PENTICTON
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
DECEMBER 31, 2022

11. Tangible Capital Assets continued

	Land	Buildings	Equipment	Sewer Infrastructure	Water Infrastructure	Electrical Infrastructure	Roads	Construction in Progress	2021 Total
COST									
Opening Balance	$ 53,892,359	$ 169,950,122	$ 48,775,083	$ 57,442,536	$ 60,880,419	$ 83,701,837	$ 96,612,562	$ 2,760,055	$ 574,014,973
Add: Additions	1,060,640	1,290,893	3,216,229	917,310	1,585,277	889,004	3,523,688	3,669,205	16,152,246
Add: Trsf to/from Construction in Progress	-	11,841	41,114	-	-	14,190	394,855	(462,000)	-
Add: Contributed Assets	-	-	11,355	-	-	-	-	-	11,355
Less: Disposals	-	7,745	55,660	-	-	-	-	-	63,405
Re-classification to Financial Assets	-	-	-	-	-	-	-	(14,993)	(14,993)
	54,952,999	171,245,111	51,988,121	58,359,846	62,465,696	84,605,031	100,531,105	5,952,267	590,100,176
ACCUMULATED AMORTIZATION									
Opening Balance	-	85,997,491	33,322,415	13,887,058	21,860,213	43,015,311	57,442,824	-	255,525,312
Add: Amortization	-	4,987,340	2,579,562	1,186,798	964,639	2,216,122	2,858,814	-	14,793,275
Less: Acc Amortization on Disposals	-	7,745	55,660	-	-	-	-	-	63,405
	-	90,977,086	35,846,317	15,073,856	22,824,852	45,231,433	60,301,638	-	270,255,182
Net Book Value for Year Ended Dec. 31, 2021	$ 54,952,999	$ 80,268,025	$ 16,141,804	$ 43,285,990	$ 39,640,844	$ 39,373,598	$ 40,229,467	$ 5,952,267	$ 319,844,994

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

12. Reporting by Object

	2022	2021
Salaries and Benefits	$ 35,654,039	$ 31,273,173
Goods and Services	64,433,751	55,303,328
Interest	1,206,888	1,178,773
Amortization	14,496,921	14,793,275
Other Expenses	3,069,854	2,047,029
Vehicle & Equipment Maintenance	4,939,604	4,180,720
Policing Agreement	8,620,385	7,836,513
	$ 132,421,442	$ 116,612,811

13. Credit Facilities

a. Line of Credit

The City holds a $5,000,000 line of credit with the Valley First Credit Union. This line of credit has a borrowing rate of prime and is secured by the Revenue Anticipation Borrowing Bylaw 2011 No. 5003.

As of December 31, 2022 there was no balance outstanding.

b. Bank Indebtedness

The City holds a $5,930,000 EFT limit.

14. Municipal Finance Authority

Cash Deposits and Demand Notes - The City issues the majority of its debt instruments through the Municipal Finance Authority. As a condition of these borrowings, a portion of the debt proceeds is withheld by the Municipal Finance Authority as a debt reserve fund. The City also executes demand notes in connection with each debt borrowing whereby the City may be required to loan certain amounts to the Municipal Finance Authority. These demand notes are contingent in nature.

Proceeds on loan requests are 98.40% of the gross amount of the loan. 1% is deducted by the MFA for security against loan default (this is held in trust by the MFA in its Debt Reserve Fund and will be refunded to clients, with interest, at loan expiry). The remaining 0.60% is deducted as an issue expense to cover the costs of administering the Debt Reserve Fund.

	2022	2021
Cash deposits	$ 2,469,052	$ 2,451,025

DRAFT FOR DISCUSSION - COUNCIL MAY 2, 2023

15. Budget

The Financial Plan (Budget) Bylaw No. 2021-45 adopted by Council on December 14, 2021 was not prepared on a basis consistent with that used to report actual results (Public Sector Accounting Standards). The budget figures anticipated use of reserves accumulated in previous years to reduce current year expenditures in excess of current year revenues to Nil. In addition, the budget expensed all tangible capital expenditures rather than including amortization expense. As a result, the budget figures presented in the Consolidated Statements of Operations and change in Consolidated Net Financial Assets represent the Financial Plan adopted by Council with adjustments as follows:

	2022
Financial Plan (Budget) Bylaw surplus for the year	$ -
Add:	
Transfer to Funds/Reserves	20,497,554
Debt Principal Repayments	2,211,126
Budgeted Capital Expenditures - General	16,133,300
Budgeted Capital Expenditures - Electric	8,190,169
Budgeted Capital Expenditures - Sewer	11,004,000
Budgeted Capital Expenditures - Water	11,448,000
Less:	
Budgeted Transfers from Surplus	43,040,970
Budget Surplus per Consolidated Statement of Operations	$ 26,443,179

16. Transfers From Other Governments

	2022	2021
Community Building Fund (Gas Tax)	$ 1,543,768	$ 3,020,636
Capital Grants	2,981,727	1,886,436
Traffic fine revenue sharing	359,030	425,601
Edmonton Avenue Child Care Centre	1,565,671	349,903
Okanagan Basin Water Board grants	152,338	152,338
Local Government Climate Action Program	189,082	-
Library	132,298	160,285
Miscellaneous	507,668	146,220
	$ 7,431,582	$ 6,141,419

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

17. Penticton Public Library

The establishment of a municipal public library in the City of Penticton Bylaw 2639 was passed December 8, 1969. The Bylaw indicates that the City exercises control over the Penticton Public Library and is required to fund its operations as per the Library Act. The Penticton Public Library assets as managed by the Library Board are recorded as assets of the City. The operations of the Penticton Public Library have been wholly consolidated by the City.

18. Taxation

	Budget	2022	2021
Municipal Taxation			
Real Property	$ 38,720,932	$ 38,575,222	$ 35,980,141
Special Assessments	171,000	87,228	86,106
Grants in Lieu	493,000	460,453	495,242
Total municipal taxation	39,384,932	39,122,903	36,561,489
Collections For other Governments			
School	17,100,000	17,989,195	17,055,692
Regional District	2,166,600	2,358,940	2,137,160
Regional Hospital	2,650,000	2,529,865	2,603,596
BCAA	450,000	491,028	451,069
Total collections for other taxing authorities	22,366,600	23,369,028	22,247,517
Transfers to Other Governments	(22,366,600)	(23,353,375)	(22,275,645)
Supplemental Taxation Recovered (Remitted)	-	(15,653)	28,128
Net taxation for municipal purposes	$ 39,384,932	$ 39,122,903	$ 36,561,489

19. Comparative Figures

Certain comparative figures have been reclassified to conform with the current year presentation.

DRAFT FOR DISCUSSION - COUNCIL MAY 2, 2023

20. Contractual Rights

Contractual rights are rights to economic resources arising from contracts or agreements that will result in an asset in the future. The City's contractual rights arise because of contracts entered into for long-term land leases that grant rights to the City, upon termination of the lease, to any Building(s) the Tenant has constructed on the land. The following listing outlines the nature, amount, and timing for each of the City's contractual rights to future assets:

The Penticton Golf & Country Club

The Lease Agreement between The City of Penticton and The Penticton Golf & Country Club dated July 1, 2007, will generate an asset to the City upon expiry of the lease. The Lease Agreement grants the right of ownership of the Golf Clubhouse Building to the City; the current market value for this building is $1,669,000. This is a 26 year, 4 month Lease, due to expire in 2033.

Art Gallery of the South Okanagan (Inc. 9986)

The Lease Agreement between The City of Penticton and the Art Gallery of the South Okanagan (Inc, 9986) dated October 1, 1999, will generate an asset to the City upon expiry of the lease. The Lease Agreement grants the right of ownership of the Art Gallery Building to the City; the current market value for this building is $2,807,000. This is a 5 year Lease, due to expire in 2025.

Penticton Seniors' Drop-in Centre Society

The Lease Agreement between The City of Penticton and the Penticton Seniors' Drop-in Centre Society dated May 31, 2019, will generate an asset to the City upon expiry of the lease. The Lease Agreement grants the right of ownership of the Drop-In Centre Building to the City; the current market value for this building is $5,836,000. This is a 20 year Lease, due to expire in 2039.

Gateway Casinos & Entertainment Limited

The Lease Agreement between The City of Penticton and Gateway Casinos & Entertainment Limited dated May 4, 2016, will generate an asset to the City upon expiry of the lease. The Lease Agreement grants the right of ownership of the Casino Building to the City; the current market value for this building is $11,011,000. This is a 20 year Lease, due to expire in 2036 with two 10-year extension options.

One Sky Community Resources Society

The Lease Agreement between the City of Penticton and One Sky Community Resources Society dated October 1, 2021, will generate an asset to the City upon expiry of the lease. The Lease Agreement grants the right of owenership of the daycare to the City; the current market value for this building is $2,152,000. This is a 60 year Lease, due to expire in 2081.

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

21. Segmented Information

The City is a diversified municipal government institution that provides a wide range of services to its citizens such as transit, police, fire, water and electricity. Distinguishable functional segments have been separately disclosed in the segmented information. The nature of the segments and the activities they encompass are as follows:

General Government Services

General Government operations are primarily funded by property taxation. This segment includes all of the revenues and expenses that relate to the operations of the City itself and cannot be directly attributed to one of the other specific segments including administration, financial services, human resources, information technology, and revenue and collections.

Protective Services

Protection is comprised of police services, fire protection , bylaw services, dog control and building and licensing services. The police services work to ensure the safety and protection of the citizens and their property. The fire department is responsible to provide fire suppression service, fire prevention programs, training and education.

Transportation Services

Transportation is responsible for the delivery of municipal public works services related to the City's public transit services, roads and maintenance, bridges, drainage systems, public works, street lighting and traffic control.

Environmental Health Services

Environmental services consists of providing waste disposal to citizens.

Public Health and Safety

Health services are comprised of public health services; this segment includes the operation of the City's Cemeteries.

Environmental Development Services

This segment includes city planning, land management, economic development and ensures all property development and land use is in line with City Bylaw's and policies and is in the best interest of the community.

Recreation and Culture

This segment provides services meant to improve health and development of the City's citizens. Recreational programs and cultural programs like swimming and skating lessons are provided at the arenas, the aquatic centre and the community centre. Also, the City provides library services to assist with its citizens' informational needs and a museum that houses collections and artifacts. The segment also includes parks, land administration and the City's net contribution to the operations of the South Okanagan Events Centre.

Electrical Utility

The electrical supply system is responsible for distribution of electricity to the City's citizens and businesses. This segment includes all of the operating activities related to the supply of the City's electricity.

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

21. Segmented Information continued

Sewer Utility

The City's sanitary sewer system collects, conveys and treats and disposes of domestic and industrial wastewater. This segment includes all of the operating activities related to the collection and treatment of wastewater (sewage) throughout the City.

Water Utility

The water utility is responsible for planning, designing, building and operating and maintaining the City's water system and includes all of the operating activities related to the treatment and distribution of water throughout the City.

22. Cemetery Perpetual Trust Fund

The Cemetery Trust fund is established in accordance with the Cremation, Interment, and Funeral Services Act, to upkeep the cemetery grounds/facilities upon closure of the cemetery. As per legislation, current interest income earned on the Reserve balance may be used to offset cemetery operating and capital expenditures. Annual cemetery operating and capital expenditures are approved by Council through the annual budgeting process. The trust fund assets and liabilities are not included in the consolidated financial statements. At December 31, 2022, the balance of funds held in trust was $1,197,261 (2021 - $1,152,141).

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

THE CITY OF PENTICTON
SCHEDULE OF SEGMENT DISCLOSURE
DECEMBER 31, 2022

	General Government Services	Protective Services	Transportation Services	Environmental Health Services	Public Health and Safety	Environmental Development Services	Recreation and Culture	Electrical Utility	Sewer Utility	Water Utility	2022 Total
REVENUE											
Taxation	$ 39,122,903	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 39,122,903
Sales of Services	1,929,129	3,519,540	2,003,564	2,873,038	390,607	530,212	2,220,999	42,847,262	8,612,757	9,611,171	74,538,279
Government Grants and Transfers	3,523,541	369,390	2,754,732	-	-	207,399	424,182	-	152,338	-	7,431,582
Other Revenue	9,671,046	1,732,356	-	-	-	1,374,640	172,270	7,700	-	-	12,958,012
Other Contributions	544,339	-	533,651	-	-	-	(500)	663,803	1,318,042	802,320	3,861,655
Gain on Disposal	177,730	-	-	-	-	238,737	82,377	-	-	-	498,844
	54,968,688	5,621,286	5,291,947	2,873,038	390,607	2,350,988	2,899,328	43,518,765	10,083,137	10,413,491	138,411,275
EXPENDITURE											
Salaries and Benefits	6,195,854	11,716,716	2,016,035	207,052	45,227	1,992,643	6,602,374	2,594,734	1,872,726	2,410,678	35,654,039
Goods and Services	6,881,765	1,527,324	7,439,489	1,911,889	298,646	2,225,497	5,081,243	34,635,302	1,796,606	2,635,990	64,433,751
Interest	29,540	-	62,161	-	72,500	-	368,762	-	403,804	270,121	1,206,888
Amortization	8,103,450	-	2,573,875	-	-	-	-	1,605,479	1,213,091	1,001,026	14,496,921
Other Expenses	1,664,633	81,093	19,970	1,285	-	1,160,946	35,895	51,784	6,579	47,669	3,069,854
Vehicle & Equipment Maintenance	468,115	574,856	2,363,703	5,804	7,354	10,101	513,319	274,932	466,883	254,537	4,939,604
Policing Agreement	-	8,620,385	-	-	-	-	-	-	-	-	8,620,385
	23,343,357	22,520,374	14,475,233	2,126,030	423,727	5,389,187	12,601,593	39,162,231	5,759,689	6,620,021	132,421,442
Excess (Deficiency) of Revenues Over Expenditures	$ 31,625,331	$(16,899,088)	$ (9,183,286)	$ 747,008	$ (33,120)	$ (3,038,199)	$ (9,702,265)	$ 4,356,534	$ 4,323,448	$ 3,793,470	$ 5,989,833

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

THE CITY OF PENTICTON
SCHEDULE OF SEGMENT DISCLOSURE
DECEMBER 31, 2021

	General Government Services	Protective Services	Transportation Services	Environmental Health Services	Public Health and Safety	Environmental Development Services	Recreation and Culture	Electrical Supply	Sewer System Utility	Water Utility Services	2021 Total
REVENUE											
Taxation	$ 36,561,489	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 36,561,489
Sales of Services	1,073,945	2,876,286	1,890,377	2,730,999	371,484	621,563	1,189,972	42,056,153	8,577,763	10,040,790	71,429,332
Government Grants and Transfers	3,824,437	3,220	1,886,436	-	-	93,031	181,957	-	152,338	-	6,141,419
Other Revenue	5,309,986	2,194,149	896	-	-	1,184,765	172,960	9,359	-	12,000	8,884,115
Other Contributions	1,142,033	-	166,276	-	-	-	-	868,259	1,292,072	2,431,962	5,900,602
Gain on Disposal	265,000	-	-	-	-	-	-	-	-	-	265,000
Contributed Asset	11,335	-	-	-	-	-	-	-	-	-	11,335
	48,188,225	5,073,655	3,943,985	2,730,999	371,484	1,899,359	1,544,889	42,933,771	10,022,173	12,484,752	129,193,292
EXPENDITURE											
Salaries and Benefits	6,027,389	10,268,300	1,307,819	132,079	28,757	1,607,419	5,582,678	2,367,168	1,856,777	2,094,787	31,273,173
Goods and Services	4,467,956	1,335,755	4,268,570	1,843,374	278,422	1,534,645	4,445,243	33,734,239	1,548,064	1,847,060	55,303,328
Interest	(26,388)	-	64,740	-	72,500	-	393,331	-	396,054	278,536	1,178,773
Amortization	7,972,574	-	2,453,142	-	-	-	-	2,216,122	1,186,798	964,639	14,793,275
Other Expenses	1,145,237	43,514	13,110	-	-	707,647	19,482	89,632	2,097	26,310	2,047,029
Vehicle & Equipment Maintenance	415,272	537,888	1,721,427	7,138	1,907	9,551	484,206	272,293	521,834	209,204	4,180,720
Policing Agreement	-	7,836,513	-	-	-	-	-	-	-	-	7,836,513
	20,002,040	20,021,970	9,828,808	1,982,591	381,586	3,859,262	10,924,940	38,679,454	5,511,624	5,420,536	116,612,811
Excess (Deficiency) of Revenues Over Expenditures	$ 28,186,185	$(14,948,315)	$ (5,884,823)	$ 748,408	$ (10,102)	$ (1,959,903)	$ (9,380,051)	$ 4,254,317	$ 4,510,549	$ 7,064,216	$ 12,580,481

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

THE CITY OF PENTICTON
GENERAL REVENUE FUND
STATEMENT OF OPERATIONS
YEAR ENDED DECEMBER 31, 2022
(UNAUDITED)

	2022 Budget	2022	2021
Revenue			
Taxation	$ 39,384,932	$ 39,122,903	$ 36,561,489
Sales of Services	18,217,654	19,335,956	16,134,107
Government Grants and Transfers	3,619,830	7,279,244	5,989,081
Transfer From Other Funds/Reserves	2,951,838	6,219,921	3,343,881
Other Revenue	8,070,381	12,950,313	8,862,756
Other Contributions	456,712	1,077,490	1,308,309
Sale of Assets	30,000	498,844	265,000
Collections For other Governments	22,366,600	23,369,027	22,247,518
	95,097,947	109,853,698	94,712,141
Expenditure			
Salaries and Benefits	28,177,454	29,428,381	25,696,683
Goods and Services	23,678,641	27,405,404	19,870,200
Interest	495,617	532,962	504,183
Principal Payments	1,250,016	1,250,015	1,246,252
Other Expenses	2,576,723	2,963,821	1,928,989
Vehicle & Equipment Maintenance	1,441,229	3,943,252	3,177,388
Policing Agreement	10,388,000	8,620,385	7,836,513
Transfer to Other Funds/Reserves	4,723,667	11,886,973	11,664,748
Transfers to Other Governments	22,366,600	23,353,375	22,275,645
	95,097,947	109,384,568	94,200,601
EXCESS OF REVENUES OVER EXPENDITURES	-	469,130	511,540
CHANGE IN FUND BALANCES	-	469,130	511,540
FUND BALANCES, BEGINNING OF YEAR	9,646,419	9,646,419	9,134,879
FUND BALANCES, END OF YEAR	$ 9,646,419	$ 10,115,549	$ 9,646,419

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

THE CITY OF PENTICTON
RESERVE FUNDS
STATEMENT OF FINANCIAL POSITION
YEAR ENDED DECEMBER 31, 2022
(UNAUDITED)

	2022	2021
Balance, Beginning of Year	$ 30,069,059	$ 27,862,842
Add		
Transfers from:		
Revenue Funds	6,110,128	9,121,090
Interest Earned	864,483	436,597
Deduct		
Transfers to:		
Capital Funds	5,161,258	7,039,217
Revenue Funds	-	312,253
	$ 31,882,412	$ 30,069,059
STATUTORY RESERVE FUND BALANCES		
Affordable Housing Reserve	260,175	224,043
Alternative Transportation Reserve	219,833	210,578
Asset Sustainability	7,377,259	5,628,860
Capital Reserve Fund	1,644,735	3,276,175
Community Works Reserve	3,064,694	3,292,166
Electric Capital Reserve Fund	5,400,752	5,252,117
Equipment Replacement Reserve	7,314,267	6,584,966
Land Acquisition Reserve	1,235,553	551,116
Local Improvement Reserve	1,278,779	1,227,141
Off-Street Parking Reserve	144,568	130,974
Parkland Acquisition Reserve	221,301	101,793
Public Amenity Reserve	155,621	122,365
Sewer Capital Reserve	1,455,497	1,415,440
Tax Sale Lands Reserve	8,311	8,082
Water Capital Reserve	2,101,067	2,043,243
Balance, End of Year	$ 31,882,412	$ 30,069,059

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

THE CITY OF PENTICTON
RESERVE FUNDS
STATEMENT OF CHANGES IN FUND BALANCES
YEAR ENDED DECEMBER 31, 2022
(UNAUDITED)

	Balance, Beginning of Year	Transfer from General Revenue Fund	Interest Earned	Transfer to/from General Revenue/Capital Fund	2022 Total
Reserve					
Affordable Housing	$ 224,043	$ 29,376	$ 6,756	$ -	$ 260,175
Alternate Transportation	210,578	3,250	6,005	-	219,833
Asset Sustainability	5,628,860	1,886,061	181,469	(319,131)	7,377,259
Capital	3,276,175	-	68,659	(1,700,099)	1,644,735
Community Works	3,292,166	1,543,768	88,694	(1,859,934)	3,064,694
Electric Capital	5,252,117	-	148,635	-	5,400,752
Equipment Replacement	6,584,966	1,201,872	194,031	(666,602)	7,314,267
Land Acquisition	551,116	1,275,000	24,929	(615,492)	1,235,553
Local Improvement	1,227,141	16,674	34,964	-	1,278,779
Off-Street Parking	130,974	9,750	3,844	-	144,568
Parkland Acquisition	101,793	115,000	4,508	-	221,301
Public Amenity	122,365	29,377	3,879	-	155,621
Sewer Capital	1,415,440	-	40,057	-	1,455,497
Tax Sale Lands	8,082	-	229	-	8,311
Water Capital	2,043,243	-	57,824	-	2,101,067
	$ 30,069,059	**$ 6,110,128**	**$ 864,483**	**$ (5,161,258)**	**$ 31,882,412**

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

THE CITY OF PENTICTON
RESERVES
STATEMENT OF CHANGES IN FUND BALANCES
YEAR ENDED DECEMBER 31, 2022
(UNAUDITED)

	Balance, Beginning of Year	Transfers In	Transfers Out	Interest	Inter-fund Borrowing	2022 Total
Non-Statutory						
Asset Emergency	$ 4,249,145	$ -	$ (133,286)	$ -	$ -	$ 4,115,859
Cemetery Land	133,000	-	-	-	-	133,000
Climate Action	560,147	189,082	(80,719)	-	-	668,510
COVID -19 Restart	2,392,938	-	(2,392,938)	-	-	-
Election	90,000	-	(90,000)	-	-	-
Electric Surplus	23,990,874	-	(2,157,808)	-	(3,460,090)	18,372,976
Financial Stabilization	2,743,108	-	-	-	-	2,743,108
Gaming	1,275,583	1,675,594	(1,102,961)	-	-	1,848,216
General Surplus	9,646,419	469,130	-	-	-	10,115,549
Investment Income	1,369,942	-	-	-	-	1,369,942
Marinas	508,254	44,523	(120,373)	-	-	432,404
Multi-Material BC	1,062,831	549,223	(250,000)	-	-	1,362,054
OAP	-	102,624	-	-	-	102,624
Parking & Revitalization	51,765	-	-	-	-	51,765
Public Art	76,771	-	-	-	-	76,771
RCMP	688,000	-	(75,000)	-	-	613,000
Sewer Equipment Replacement	350,000	-	-	-	-	350,000
Sewer Surplus	5,610,219	2,390,098	-	-	-	8,000,317
Storm Water	344,548	364,230	(98,735)	-	-	610,043
Urban Forest	9,450	1,350	-	-	-	10,800
Water Surplus	10,548,680	(540,692)	-	-	-	10,007,988
West Bench Capital	1,185,185	-	-	-	-	1,185,185
West Bench Water	1,331,712	-	(78,336)	-	-	1,253,376
	68,218,571	5,245,162	(6,580,156)	-	(3,460,090)	63,423,487
Statutory	30,069,059	6,110,128	(5,161,258)	864,483	-	31,882,412
DCC	19,049,679	1,356,681	(2,173,223)	527,549	-	18,760,686
	$117,337,309	$ 12,711,971	$ (13,914,637)	$ 1,392,032	$ (3,460,090)	$114,066,585

**inter-fund borrowing to be repaid by general fund (2022-2032)*

DRAFT FOR DISCUSSION - COUNCIL MAY 2, 2023

THE CITY OF PENTICTON
RESERVE
COVID19 RESTART GRANT
YEAR ENDED DECEMBER 31, 2022
(UNAUDITED)

	2022	2021
COVID19 RESTART GRANT FUND		
Balance, Beginning of Year	$ 2,392,938	$ 3,748,276
Deduct:		
COVID impacts on revenue and expenses	2,392,938	1,355,338
Balance, End of Year	$ -	$ 2,392,938

DRAFT FOR DISCUSSION - COUNCIL MAY 2, 2023

THE CITY OF PENTICTON
SEWER REVENUE FUND
STATEMENT OF OPERATIONS
YEAR ENDED DECEMBER 31, 2022
(UNAUDITED)

	2022 Budget	2022	2021
Revenue			
Sales of Services	$ 8,611,580	$ 8,716,757	$ 8,672,873
Government Grants and Transfers	152,338	152,338	152,338
Other Contributions	1,258,133	1,318,043	1,292,072
Transfer From Other Funds/Reserves	-	1,152,102	707,624
	10,022,051	11,339,240	10,824,907
Expenditure			
Salaries and Benefits	1,972,367	1,872,727	1,856,777
Goods and Services	2,308,768	2,784,821	2,456,421
Interest	413,125	403,804	396,054
Principal Payments	538,987	538,987	538,987
Other Expenses	-	6,579	2,097
Vehicle & Equipment Maintenance	816,377	466,883	521,834
Transfer to Other Funds/Reserves	3,972,427	2,875,341	2,053,923
	10,022,051	8,949,142	7,826,093
EXCESS OF REVENUES OVER EXPENDITURES	-	2,390,098	2,998,814
CHANGE IN FUND BALANCES	-	2,390,098	2,998,814
FUND BALANCES, BEGINNING OF YEAR	5,610,219	5,610,219	2,611,405
FUND BALANCES, END OF YEAR	$ 5,610,219	$ 8,000,317	$ 5,610,219

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

THE CITY OF PENTICTON
WATER REVENUE FUND
STATEMENT OF OPERATIONS
YEAR ENDED DECEMBER 31, 2022
(UNAUDITED)

	2022 Budget	2022	2021
Revenue			
Sales of Services	$ 10,262,600	$ 9,666,171	$ 10,099,380
Transfer From Other Funds/Reserves	78,336	2,441,784	2,823,881
Other Revenue	-	-	12,000
Other Contributions	488,379	457,065	2,444,324
	10,829,315	12,565,020	15,379,585
Expenditure			
Salaries and Benefits	2,054,749	2,410,677	2,094,787
Goods and Services	2,261,433	3,643,271	2,773,324
Interest	275,201	270,121	278,536
Principal Payments	422,123	422,123	422,123
Other Expenses	31,200	47,669	26,310
Vehicle & Equipment Maintenance	354,457	254,537	209,204
Transfer to Other Funds/Reserves	5,430,152	6,057,314	7,389,558
	10,829,315	13,105,712	13,193,842
EXCESS OF REVENUES OVER EXPENDITURES	-	(540,692)	2,185,743
CHANGE IN FUND BALANCES	-	(540,692)	2,185,743
FUND BALANCES, BEGINNING OF YEAR	10,548,680	10,548,680	8,362,937
FUND BALANCES, END OF YEAR	$ 10,548,680	$ 10,007,988	$ 10,548,680

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

THE CITY OF PENTICTON
ELECTRIC REVENUE FUND
STATEMENT OF OPERATIONS
YEAR ENDED DECEMBER 31, 2022
(UNAUDITED)

	2022 Budget	2022	2021
Revenue			
Sales of Services	$ 42,567,253	$ 43,049,370	$ 42,233,342
Other Revenue	10,000	7,700	9,359
Other Contributions	-	663,803	868,259
Transfer From Other Funds/Reserves	12,274,758	4,316,109	73,028
	54,852,011	48,036,982	43,183,988
Expenditure			
Salaries and Benefits	1,984,030	2,594,734	2,367,168
Goods and Services	35,601,583	36,177,750	35,171,514
Other Expenses	84,228	51,784	89,632
Vehicle & Equipment Maintenance	265,100	274,932	272,293
Transfer to Other Funds/Reserves	16,917,070	11,095,590	4,168,931
	54,852,011	50,194,790	42,069,538
EXCESS OF REVENUES OVER EXPENDITURES	-	(2,157,808)	1,114,450
CHANGE IN FUND BALANCES	-	(2,157,808)	1,114,450
FUND BALANCES, BEGINNING OF YEAR	23,990,874	23,990,874	22,876,424
FUND BALANCES, END OF YEAR	$ 23,990,874	$ 21,833,066	$ 23,990,874

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

THE CITY OF PENTICTON
STORM WATER
STATEMENT OF REVENUE AND EXPENDITURE
YEAR ENDED DECEMBER 31, 2022
(UNAUDITED)

	2022 Budget	2022	2021
REVENUE			
Sales of Services	$ 966,000	$ 957,387	$ 763,377
Transfer from Other Funds/Reserves	56,173	-	-
EXPENDITURE			
Salaries and Benefits	269,523	264,069	221,197
Goods and Services	161,150	125,388	125,125
Vehicle & Equipment Maintenance	41,500	25,964	21,171
Transfer to Other Funds/Reserves	550,000	177,735	155,904
	1,022,173	593,156	523,397
EXCESS OF REVENUES OVER EXPENDITURES	$ -	$ 364,231	$ 239,980

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

See accompanying notes to the Consolidated Financial Statements.

THE CITY OF PENTICTON
CEMETERY PERPETUAL TRUST FUND
YEAR ENDED DECEMBER 31, 2022
(UNAUDITED)

	2022	2021
ASSETS		
Bank Term Deposits	$ 1,128,282	$ 1,099,110
Less:		
Due From General Revenue Fund	(68,980)	(53,031)
	$ 1,197,262	$ 1,152,141
SURPLUS		
Balance, Beginning of Year	$ 1,152,141	$ 1,108,545
Add:		
Care Fund Contributions	45,120	43,513
Interest Earned	29,420	10,883
	74,540	54,396
Deduct:		
Cemetery Maintenance	29,420	10,800
Balance, End of Year	$ 1,197,261	$ 1,152,141

DRAFT FOR DISCUSSION - COUNCIL MAY 2 2023

Council Report

penticton.ca

Date: May 2, 2023 File No: 1610
To: Donny van Dyk, Chief Administrative Officer
From: Courtney Jones, Financial Planning and Budget Specialist
Subject: **City of Penticton Debt Management Policy**

Staff Recommendation

THAT Council adopt the City of Penticton Debt Management Policy CP#2023-05 effective May 2, 2023.

Strategic priority objective

Mission: Penticton will serve its residents, businesses and visitors through organizational excellence, partnership and the provision of effective and community focused services.

Organizational Excellence: The City of Penticton will support a culture of service excellence built on good governance, leadership and sound financial decisions.

Background

Finance staff have inventoried all finance policies to identify areas where policies require updating and/or creation.

A debt management policy was noted as an area where the City would benefit from having a formal policy that sets forth the parameters for procuring debt and managing the outstanding debt portfolio and provides guidance to decision makers.

All debt incurred by the City is in accordance with Part 6, Division 3 of the *Community Charter*.

Analysis

Debt is used to strategically manage borrowing capacity for future capital assets, maintain maximum flexibility of current operating funds, and consider the users benefit from the useful life of the asset when establishing borrowing terms.

The attached debt management policy outlines guidelines for procuring and managing debt portfolios in the areas of:

<u>Responsibilities</u>

This section details the responsibilities and duties of Council and Staff.

Service Standards and Expectations

This section is broken into seven main areas which provide guidance on terms, types, limits and repayment of debt, along with strategies and administration of the debt. The seven main areas are:

1. Short-term debt
    - All short-term debt in excess of one year shall be subject to City Council approval through the budget process, by bylaw, or by resolution as required.
2. Internal Borrowing
    - Where the City's current and future reserve position allows, and based on the five-year Financial Plan, the City may use internal borrowing to fund capital projects in order to optimize use of available resources and reduce overall net borrowing costs.
3. Long-term debt
    - Long-Term Debt may be considered for capital expenditures for municipal or utility purposes where the expected asset life, or increase to asset life, is greater than five years when the borrowing would support priority capital projects pursuant to the approved Financial Plan and resulting capital budgets and/or emergent needs.
4. Debt Limits (Debt Capacity)
    - Debt financing will only be undertaken in compliance with the relevant sections of the Financial Management Policy (Attachment B), the *Community Charter* Section 174 and *BC Regulation* 254/2004, which sets the total liability servicing limit at 25% of specific municipal revenues of the City for the previous year.
5. Repayment of Debt
    - The City may take advantage of opportunities to retire outstanding debt early if financially beneficial to do so. High interest, tax supported debt shall be given priority consideration for early debt repayment.
6. Strategies
    - The City should adhere to the strategies detailed in the policy to ensure financial stability and flexibility.
7. Administration of Debt
    - Administration of debt assists with interpretation of the policy once applied and as noted in the policy.

The efficient and effective use of debt is recognized as an important component to meet infrastructure requirements that support existing and future residents, businesses, and stakeholders of the City.

Alternate recommendations

THAT Council direct staff to amend the Debt Management Policy based on Council direction.

Attachments

Attachment A – Debt Management Policy CP#2023-05
Attachment B – Financial Management Policy (July 3, 2018)

Respectfully submitted,

Courtney Jones

Courtney Jones
Financial Planning & Budget Specialist

Concurrence

Director of Finance and Administration	Chief Administrative Officer
AMC	DvD

Council Policy CP#2023-05

penticton.ca

Category: FINANCE

Subject: Debt Management Policy

Purpose

To ensure that debt is used strategically to maintain the City's financial strength and stability by providing appropriate guidance for the use of debt financing. The use of debt can support the goal of providing adequate infrastructure, services, and resources to meet the community's ongoing and emergent requirements.

Debt is used to strategically manage borrowing capacity for future capital assets, maintain maximum flexibility of current operating funds, and consider the users benefit from the useful life of the asset when establishing borrowing terms.

Scope

This policy applies to all City departments, boards, agencies and other organizations included within the reporting framework of the City. All debt incurred by the City in accordance with Part 6, Division 3 of the *Community Charter* is considered to be debt of the City.

Policy Statement

The efficient and effective use of debt is recognized as an important component to meet infrastructure requirements that support existing and future residents, businesses, and stakeholders of the City. All borrowing, debt, or liabilities must adhere to legislative requirements.

Responsibilities

Authority to manage the City of Penticton's debt is granted to the Director of Finance and Administration (DFA) and is derived from section 149 the *Community Charter (CC)*.

The DFA works with the members of the Finance Department and with Council on certain aspects of the management of the City of Penticton's debt management. Responsibilities have been allocated as follows:

Council will approve:

- The policy and any updates and amendments to the policy;
- The issuance of new debt through the annual budget process and the approval of required bylaws;
- The Annual Financial Statements which includes details of the City's Debt Issued and Outstanding.

Director of Finance and Administration:

- Reviewing the principles and policy statements and recommending any updates and amendments to the policy;
- The overall responsibility for the debt program of the City;
- Requesting the use of debt funding of a capital project through the Capital Plan.

Manager of Finance:

- Managing, monitoring and reporting on debt levels and capacity;
- Conducting reviews of the debt liability servicing limit and reporting the results through to Council as part of the annual budget process.

Financial Planning and Budget Specialist:

- Preparation of debt related bylaws;
- Ensuring that the Five Year Financial Plan Bylaw details the borrowing requirements and the impacts of debt repayment.

Financial Analyst

- Liaising with City Staff to determine debt requirements.

Service Standards/ Expectations

1. Short-term debt

   All short-term debt in excess of one year shall be subject to City Council approval through the budget process, by bylaw, or by resolution as required. A bylaw is required for revenue anticipation borrowing under Section 177 of the *Community Charter*, short term capital borrowing under Section 178, or temporary borrowing under Section 181. Short term borrowing is for a term of less than 5 years and either from a financial institution or the MFA.

   The City may, from time to time, incur short term debt to:

   - Manage short-term cash flow requirements such as interim financing for capital projects;
   - Provide financing for emergency purposes; or to
   - Offset cash flow timing issues

   Short-term debt shall be financed through:

   - Internal borrowing;
   - A line of credit; or
   - Short-term debt, either conventional bank or Municipal Financing Authority (MFA).

2. Internal Borrowing

Where the City's current and future reserve position allows, and based on the five-year Financial Plan, the City may use internal borrowing to fund capital projects in order to optimize use of available resources and reduce overall net borrowing costs. Under Section 189 (4.1) and (4.2) of the *Community Charter*. Council may use money not currently required under a capital reserve for the purpose of a second reserve.

Where the City chooses to internally borrow, a financing rate shall be applied to funds where prescribed by the City's Reserve Policy.

All internal borrowing shall be subject to City Council approval through the budget bylaw process and by resolution as required.

3. Long-term debt

The City may incur and carry long-term debt only to support priority capital projects pursuant to the approved Financial Plan and resulting capital budgets and/or emergent needs.

The City is required by the *Community Charter* Section 182 to borrow through the MFA to finance the construction, purchase, or major restoration of facilities and infrastructure. The projects shall appear in the approved Financial Plan and as otherwise approved by Council.

Long-Term Debt may be considered for capital expenditures for municipal or utility purposes where the expected asset life, or increase to asset life, is greater than five years. The maximum term of the debt is the lesser of:

(a) 30 years, and
(b) the reasonable life expectancy of the subject capital asset.

The repayment term (amortization) in respect of long-term debt shall not exceed the useful life of the asset being financed by the City.

4. Debt Limits (Debt Capacity)

Debt financing, including incurring of liabilities under contract, will only be undertaken in compliance with the relevant sections of *the Community Charter* Section 174 and *BC Regulation* 254/2004, which sets the total liability servicing limit at 25% of specific municipal revenues of the City for the previous year.

The City's combined external and internal total liability servicing limit should be maintained according to the limits as set out in the City's Financial Management Policy.

5. Repayment of Debt

The City may take advantage of opportunities to retire outstanding debt early if financially beneficial to do so. High interest, tax supported debt shall be given priority consideration for early debt repayment.

Sources of funding for debt repayment must be identified prior to borrowing approval, and be sufficient to cover annual repayment while still maintaining some flexibility in that area in the event of increased interest rates and/or other funding pressures. To finance repayments, Staff will make an effort to utilize existing reserves or, where applicable, build into user rates in advance to fund debt payments.

6. Strategies

The City should adhere to the following strategies to ensure financial stability and flexibility:

a) The City's debt capacity will be preserved by limiting the use of debt to fund major capital projects or major equipment purchases, in accordance with the debt limits set out in this policy.
b) Impacts on overall City debt levels from "self-funded" utilities should be considered to ensure these areas do not inadvertently negatively affect the City's ability to borrow for General Fund purposes.
c) Debt financing can be used as a leveraging tool to secure third party funding for capital investment opportunities.
d) The City may consider public-private partnerships where the agreements reduce City risk and provide for private capital for works, facilities, services, or activities that benefit the City and its residents.

7. Administration of Debt

Administration of debt assists with interpretation of the policy once applied.

a) When required, revenues will be sufficiently increased to accommodate debt servicing and debt obligations will be repaid by annual revenue or reserve draws specific to the fund that the debt is in relation to.
b) Interest costs related to debt obligations will be expensed in the year it is paid or becomes payable and will not be capitalized.
    i. Debenture debt security issuing costs normally deducted from debenture debt proceeds will be capitalized to the project cost the financing relates to.
c) Any monies refunded to the municipality, at the end of the term of a debenture, not related to the respective Debt Reserve Fund, will be placed in a reserve specific to the fund that the debenture was initially undertaken and recorded in initially.
d) Disclosure of the City's outstanding debt obligations will be presented in the annual financial statements in accordance with standards and regulations as outlined by the *Community Charter*.

Related Policies and Legislation

- Reserve Policy (dated Feb 5, 2019 Resolution 39/2019)
- Year End Surplus Policy (dated February 15, 2022 Resolution No. 37/2022)
- Risk Management Policy (dated July 2, 2019 Resolution No. 328/2019)
- Financial Management Policy (dated July 3, 2018 Resolution No. 314/2018)
- "Officers and Delegation of Authority Bylaw No. 2018-75" and any amendments
- CP#2023-04 Investment Policy

Approval History			
Previous revisions/replaces:			
Approved by Council on:		Resolution No.:	

Certified Correct:

_____

Angie Collison, Corporate Officer

Appendix A - Glossary

The following terms are used in this policy and are defined as follows:

Capital Expenditure

Expenditures incurred to acquire, develop, renovate or replace capital assets as defined by Public Sector Accounting Standard section 3150 and are approved in the Financial Plan annually.

Debenture

A formal written obligation to repay specific sums on certain dates. Debentures issued by a municipality are unsecured and are backed by the good faith and credit of the municipality.

Debt

An obligation for the repayment of money. Long term debt normally consists of debentures; short term debt may include notes or loans from financial institutions or from MFA, and may also include purchase agreements or loans from reserves or reserve funds.

Debt Servicing

The annual required debt repayments including principal and interest.

Municipal Finance Authority (MFA)

A collective structure operating under the governance of a Board of Members appointed by the Regional Districts and independent of the Province of BC. The Authority was established in 1970, under its own act, to pool the borrowing and investment needs of BC communities.

Own source revenues

Revenue derived from internally generated programs and services (user fees, license fees, sale of service revenues, etc.) excluding revenue from self-funded cost centres.

Self-Funded

Funding that does not rely on taxation (electrical, storm water, water, and wastewater).

Specific Municipal Revenues

Specific Municipal Revenues are annual calculation revenue determined in Part 1 of the *Community Charter* Municipal Liabilities Regulation 254/2004.

CITY OF Penticton

Council Policy

penticton.ca

Approval date: July 3, 2018 **Resolution No. 314/2018**

Section: **Financial Services**
Subject: **Financial Management Policy**

Goal

A key challenge facing the City of Penticton and many other communities in Canada is being able *to deliver affordable and sustainable services* to the community in a manner that takes into account the impact on the current population as well as the financial effects on future generations.

Sustainable service delivery is achieved by ensuring that decisions made by staff and Council, both today and tomorrow, are guided by a cohesive set of principles and policies that support financial sustainability, as well as Council priorities.

This policy document provides the City with a blueprint for making good financial decisions through changing conditions, and aims to provide clarity to staff, Council and the community with respect to how financial decisions are made today and into the future.

Financial management policy statements have been developed for eight (8) key areas. They are intended to work together cohesively to guide financial planning and decision-making. The policy areas are:

1. Property Taxes
2. Utility Fees
3. Reserve and Surplus Funds
4. Debt
5. Grants
6. Development Financing
7. Asset Renewal
8. New Capital Investment

Financial Management Principles

The financial management policy statements contained within this document are consistent with the principles presented below. These principles serve as a basis against which the financial policies can be tested, reviewed and updated as needed in the future.

ALIGNMENT Council's priorities are aligned with, and supported by, sustainable long term financial planning

Ensuring the City's vision and potential can be successfully realized in a sustainable manner will require foresight and diligent financial planning. New investments will need to be carefully prioritized and balanced with the on-going reinvestment requirements of existing infrastructure.

FLEXIBILTY Financial decisions shall ensure future flexibility to adapt to opportunities and changing circumstances

In an ever-changing world, opportunities and challenges inevitably will present themselves. The City needs the flexibility to take advantage of arising opportunities and to respond to imminent challenges. Resources will need to be accessible for the unforeseen and policy frameworks will need to allow for flexibility and swift action when required.

VITALITY The City shall proactively support economic vitality through the implementation of business friendly policy and the on-going development of strategic partnerships with First Nations, industry and the community

The City of Penticton is blessed with a world class setting and the community facilities that make it an attractive location for tourism and business investment. By leveraging and further developing the City's strengths and regional partnerships the community can ensure it remains vital and economically sustainable over the long term.

VALUE The City shall provide economical and effective services and ensure that public resources are put to the best possible use

The citizens of Penticton expect consistent and quality services from their local government. They also expect that decisions regarding the variety and level of services they receive and pay for make efficient use of their tax dollars and user fees. This requires a careful balance between the level of service and the cost of the service to ensure the needs of the City are met.

TRANSPARENT Financial strategies, plans and processes are accessible and visible

The citizens of Penticton, like in any community, need to understand what their local government is doing. Having information easily available and presented in a form that is easy to understand encourages discussion and engagement, and holds decision-makers accountable. Being transparent ultimately builds trust in the government and benefits the community overall.

Policy

1. PROPERTY TAXES

    1. The setting of Property Tax rates will be informed by the full cost of delivering City services, including asset replacements, and by the long-term investment priorities of the community

    2. The City is committed to funding asset management and will contribute an additional $300,000 from Property Taxes annually to the Asset Sustainability Reserve

3. Property tax increases will be kept as consistent and stable as possible over time so as to allow effective long term financial planning and to avoid the need for large one-time tax adjustments

4. Opportunities to generate revenues from non-taxpayer sources will be proactively explored and leveraged

2. UTILITY FEES

1. The setting of Utility fees will be informed by the full cost of delivering the service, including asset replacements, and by the long-term investment priorities of the community

2. Utility fee increases will be kept as consistent and stable as possible over time so as to allow effective long term financial planning and avoid the need for one-time large rate adjustments

3. Everyone pays a fair amount for the services they benefit from

3. RESERVES AND SURPLUS FUNDS

1. Uncommitted annual surplus will be directed towards: accumulated surplus; asset replacement; and emergency reserves, in accordance with the *City's Year End Surplus Policy* and will not be used to offset property tax increases

2. Annual contributions to reserves will be budgeted for and the amounts will be informed by the long term financial plan and the annual replacement amortization expense for each asset category

3. Target reserve balances will be specified in the *City's Reserve Policy*

4 DEBT

1. The use of debt will be focused on major projects that maintain or increase service levels or are priorities for the community

2. Where practical, acquiring new debt will be timed with the retirement of existing debt

3. The funding to service new debt will, whenever possible, be derived from non-taxpayer revenue sources

4. Maintain no more than a maximum of 40% of our liability servicing limit for debt servicing capacity in order to allow for funding of emergent opportunities and/or emergency situations

5. The use of debt will be considered to leverage available grant funding for priority projects

5 GRANTS

1. Focus the pursuit of conditional grants on strategic priority projects and programs

2. If advantageous adjust the timing of capital and operating projects to align with the grant funding opportunities

3. Advance priority projects to a "grant ready" status to ensure emergent grant opportunities are fully leveraged

6. DEVELOPMENT FINANCING

1. Ensure developers pay their fair share for growth related infrastructure
2. Where advantageous, the deferral or abatement of DCC charges may be considered to encourage economic development and strategic community initiatives in accordance with Provincial legislation authorizing such deferral or abatements
3. The City may consider 'front ending' (City funding) certain development related projects where it is deemed advantageous to the community
4. The associated revenues and ongoing costs, including asset replacement, of the contributed assets will considered prior to approving new development

7. ASSET RENEWAL AND REPLACEMENT

1. Whenever possible, the renewal of linear assets will be financed on a pay as you go basis (i.e. reserves or current revenues rather than debt)
2. Balance asset renewal funding and reserve levels with tolerance for risk and service levels
3. Replacement and renewal projects will be prioritized using a consistent and structured decision-making process that considers risk, life cycle cost and level of service
4. The City will consider the use of *Local Area Service* charges for asset renewal projects when it is deemed appropriate

8. NEW CAPITAL INVESTMENT

1. Capital projects will be prioritized using a consistent and structured decision-making process that is informed by existing City plans and aligned with Council's priorities
2. The impact of each proposed capital project on the City's operating budget will be fully considered including full life cycle costs

Previous revisions N/A

Certified Correct:

Dana Schmidt, Corporate Officer

Council Report

penticton.ca

Date: May 2, 2023 File No: 1610
To: Donny van Dyk, Chief Administrative Officer
From: Courtney Jones, Financial Planning and Budget Specialist
Subject: **City of Penticton Investment Policy**

Staff Recommendation

THAT Council adopt the City of Penticton Investment Policy CP#2023-04 effective May 2, 2023.

Strategic Priority Objective

Mission: Penticton will serve its residents, businesses and visitors through organizational excellence, partnership and the provision of effective and community focused services.

Organizational Excellence: The City of Penticton will support a culture of service excellence built on good governance, leadership and sound financial decisions.

Background

Finance staff have inventoried all finance policies to identify areas where policies require updating and/or creation.

An investment policy was identified as an area where the City would benefit from having a formal policy in place in order for all stakeholders to better understand the process and considerations that Staff undertake when investing the City's funds.

Investment guidelines for municipal funds are provided in Section 183 of the *Community Charter*. This section states "a municipality may invest money that is not immediately required in one or more of the following:

a. Securities of the Municipal Finance Authority;
b. Pooled investment funds under section 16 of the *Municipal Finance Authority Act*;
c. Securities of Canada or of a province;
d. Securities guaranteed for principal and interest by Canada or by a province;
e. Securities of a municipality, regional district or greater board;
f. Investments guaranteed by a chartered bank;
g. Deposits in a savings institution, or non-equity or membership shares of a credit union;
h. Other investments specifically authorized under this or another act."

Analysis

As outlined in the attached Investment Policy, the *Community Charter* places high restrictions on the types of investments that municipalities are able to make in order to ensure that municipalities do not engage in any type of investment that would expose municipalities to an unacceptable level of financial risk.

The Investment Policy will govern the City's investment program, which seeks to optimize risk-adjusted returns for the City's investment portfolio.

Staff have reviewed similar investment policies from other municipalities, the Municipal Finance Authority (MFA), as well as guidelines provided by the Government Finance Officers Association of BC (GFOABC), and the relevant sections of the *Community Charter* to form a comprehensive Investment Policy for the City that covers the following areas:

1. Objectives:
    - The objectives of the investment program, in order of importance, are: adherence to statutory requirements, principal protection, liquidity, and return on investment.

2. Standard of Care
    - Standard of care provides guidance on prudence when investing, outlines ethical and conflict interest activities, and details the delegation of authority of the policy.

3. Authorized Investments
    - Only investments that belong to a classification of securities detailed in Section 183 of the *Community Charter* will be approved.

4. Investment Parameters
    - This section of the Policy discusses principles of diversification and maturity in regards to the City's investment portfolio.

5. Competitive Rates
    - This section gives Staff the ability to obtain current rates for the purchase of investments and to act expeditiously should an acceptable investment opportunity arise.

6. Safekeeping and Custody
    - This section describes the internal controls and safekeeping practices that Staff are performing in order to prevent misappropriation of funds and ensure that the City is properly accounting for its investment activities.

7. Policy Review
    - The policy shall be reviewed periodically on an 'as needed' basis.

8. Reporting
    - Performance of the City's Investment program will be reported to Council annually as part of the financial statement review.

Staff recommend adoption of the attached Investment Policy in order provide all stakeholders assurance that City staff are proactive, prudent financial stewards of public funds.

Alternate recommendations

THAT Council direct staff to amend the Investment Policy based on Council direction.

Attachments

Attachment A – Investment Policy CP#2023-04

Respectfully submitted,

Courtney Jones

Courtney Jones
Financial Planning & Budget Specialist

Concurrence

Director of Finance and Administration	Chief Administrative Officer
AMC	DvD

Council Policy
CP#2023-04

penticton.ca

Category: FINANCE

Subject: Investment Policy

Purpose

The City of Penticton Investment Policy will govern the City's investment program, which seeks to optimize risk-adjusted returns for the City's investment portfolio. The City of Penticton will invest its funds in a manner that will provide for the optimal blend of security and risk-adjusted returns, while meeting current and future cash flow demands and conforming to all statutory requirements.

Scope

The City of Penticton Investment Policy applies to all investment activities involving the assets of the City which are suitable for investment with due consideration of cash flow demands.

Policy Statement

1. Objectives

The objectives of the investment program, in order of importance, are: adherence to statutory requirements, principal protection, liquidity, and return on investment.

1.1 Statutory Requirements

Investment guidelines for municipal funds are provided in Section 183 of the *Community Charter*. This section states "a municipality may invest money that is not immediately required in one or more of the following:

a. Securities of the Municipal Finance Authority;
b. Pooled investment funds under section 16 of the *Municipal Finance Authority Act*;
c. Securities of Canada or of a province;
d. Securities guaranteed for principal and interest by Canada or by a province;
e. Securities of a municipality, regional district or greater board;
f. Investments guaranteed by a chartered bank;
g. Deposits in a savings institution, or non-equity or membership shares of a credit union;
h. Other investments specifically authorized under this or another act."

1.2 Principal Protection

Investments shall be selected in a manner that seeks to ensure the preservation of capital. It is central to this objective that a prospective investment issuer's creditworthiness be considered, and furthermore monitored if an investment is made. Secondly, portfolio diversification must be leveraged, when possible, to limit concentration and other associated risks and provide a greater base of assets to offset potential losses. Identifying, monitoring, and adjusting for additional and foreseeable standard market risks is prudent and necessary for the investment program.

1.3 Liquidity

The investment portfolio shall remain sufficiently liquid to meet all operating and reasonably anticipated cash flow requirements. This will be accomplished by selecting maturity dates that correspond to cash flow requirements and by choosing investments where the principal amount is easily redeemable and that have an active secondary market.

1.4 Return on Investment (ROI)

The Return on Investment (ROI) shall be maximized in the context of the requirements to preserve capital and manage liquidity while adhering to the investment constraints of the *Community Charter* and this Policy. It is prudent to review investment performance on a regular basis, and this may be achieved through considering returns against a benchmark portfolio. Overall, it is the aim to maximize risk-adjusted returns.

2. Standard of Care

2.1 Prudence

Investments shall be made with professional judgement and care with a significant level of due diligence. The objectives of meeting statutory requirements, principal protection, liquidity management, and risk-adjusted returns are integral to the successful stewardship of the City's investment portfolio. Speculative activities are prohibited. Staff must be aware of foreseeable risks, trends and fluctuations in the market that may affect the investment portfolio. When comparing like investments, preference will be given to securities that have 100% deposit insurance, for principal and interest and are guaranteed by a chartered bank or by Canada or British Columbia.

2.2 Ethics and Conflict of Interest

Council members and Staff involved with the investment process shall refrain from personal business activity that could conflict with the proper execution and management of the investment program or may impair their ability to make impartial decisions. Any staff potential conflicts of interest must be disclosed to management and any council member conflict must be addressed in accordance with the requirements of the *Community Charter* and will be considered on a case-by-case basis.

2.3 Delegation of Authority

Authority to manage the City of Penticton's investment program is granted to the Director of Finance and Administration (DFA) and is derived from section 149 the *Community Charter*.
Authorized investments are outlined in section 183 of the *Community Charter* and are further constrained by this Policy.

The DFA has statutory responsibility for investing municipal funds in authorized investments but may not sub delegate this responsibility.

The DFA works with other members in the Finance Department on certain aspects of the management of the City of Penticton's investment portfolio to other members in the Finance department. Responsibilities have been allocated as follows:

DFA Responsibilities

- Review the investment portfolio's performance on a regular basis and provide, or have delegate provide, a report to City Council on an annual basis.
- Select investment dealers and institutions (the "Brokers") to assist in meeting performance objectives for the investment portfolio.

Manager of Finance Responsibilities

- Track and calculate the rates of return on the entire investment portfolio.
- Approve the monthly reconciliation of investment accounts.

Financial Planning and Budget Specialist Responsibilities

- Select specific investments for the investment portfolio.
- Ensure that the funds available are sufficient to cover the disbursements expected to be paid.
- Manage the securities held by the investment program in accordance with this Policy and applicable legislation.
- Throughout the year, assess the investment program to ensure that it is meeting the objectives of this Policy.

3. Authorized Investments

Only investments denominated in Canadian Dollars or, in limited cases, US Dollars, that belongs to a classification of securities detailed in Section 183 of the *Community Charter* will be approved. See Appendix B for details of these approved classifications.

3.1 Portfolio Limitations

The tables in Appendix B (Portfolio Limits) outline the limitations imposed by this Policy on the universe of investments available to the City of Penticton. The portfolio constraints, targeting credit ratings and exposure to assets classes, rank equal and are to be managed concurrently.

3.2 Credit Ratings

Credit ratings shall be obtained from "Recognized Ratings Agencies" as defined in the Credit Rating Equivalency Chart as provided in Appendix A.

3.3 Adherence to Limits

Total securities, or a single security shall not normally exceed the limits outlined in Appendix B. At times, market and operational fluctuations may cause aggregate holdings of a single entity to exceed applicable thresholds, the City of Penticton is not obliged to sell these securities immediately, to remain in compliance with this Policy. Rather, the portfolio must be rebalanced when deemed appropriate.

3.4 Split Ratings

If an issuer or security is rated by more than one Recognized Ratings Agency, the following methodology shall apply:

- If two Agencies rate a security, use the lower of the two ratings;
- If three Agencies rate a security, use the most common;
- If all three Agencies disagree, use the middle rating; and
- If four Agencies disagree, use the average of all four ratings.

3.5 Unrated Securities

If an authorized investment per section 183 of the *Community Charter* is unrated and an internal credit rating has not been determined, it shall be rated as BBB for the purposes of determining adherence to this Policy.

3.6 Unlisted Investments

Investment opportunities not expressly outlined in this Policy, but compliant with applicable legislation may be brought forward by the DFA to the Chief Administration Officer (CAO). If deemed appropriate by CAO, the DFA or delegate may proceed with the investment.

4. Investment Parameters

4.1 Diversification

To reduce the risk of loss resulting from overconcentration of assets in a specific maturity, issuer, or class of securities, all cash and cash equivalents in all funds shall be diversified by maturity, issuer, and security type. Diversification strategies shall be determined and revised periodically by the DFA or delegate.

4.2 Maturity

To the extent possible, the City of Penticton shall attempt to match the maturity of its investments with anticipated cash flow requirements. Due to the imprecise nature of forecasting cash flow needs, a portion of the investment portfolio shall be continuously invested in short term securities. Investments in long- term securities that may be less-liquid requires certainty from the DFA or delegate that those funds will not be needed until after those long term securities mature.

Long-term Investment of Funds Not Needed Within 10 Years

Matching long-term investments with future liabilities is a recognized investment and asset management best practice. If applicable, the City may designate a portion of its reserves as "long-term: 10-years+", and the following exceptions to this Policy apply to those funds:

- The City may acquire *Community Charter* Section 183 fixed income securities with terms equal to or greater than 10 years, conditional on the security having a minimum "A" rating from a Recognized Rating Agency; or

- Any "long investment horizon" MFA Pooled Investment Fund created specifically for investing long-term reserves.

The City recognizes while the long-term investment options are expected to earn a higher return over the long term, it can lead to volatile investment results in the short to medium term due to increased interest rate and credit risk, or the inherent higher volatility of equity returns. As such, the City's intent is to hold long-term investments to maturity and in the case of perpetual Funds (Cemetery), it is the City's intent to hold these investments for 10 years or longer – in alignment with, but redeemed prior to future obligations.

5. Competitive Rates

When possible, the City of Penticton will obtain current rates for the purchase of selected investments to ensure the most cost effective alternative is selected. However, due to the time-sensitive nature of the marketplace, immediate action may be taken. Under such circumstances, market data may be used to substantiate the action taken.

6. Safekeeping and Custody

6.1 Delivery vs. Payment, Safekeeping

All securities purchased by the City of Penticton shall be held in the name of the City of Penticton. All security transactions shall be conducted on a delivery versus payment basis. The DFA or delegate must be satisfied that the security is rightfully in possession of the City of Penticton or by a custodial service.

6.2 Internal Controls

The City of Penticton has developed the following internal controls in order to prevent the loss of public funds arising from fraud, employee error, and misrepresentation by third parties:

- The DFA or delegate is authorized to obtain a reasonable number of quotes prior to reinvesting funds.
- All cash management transactions are recorded, and interest earnings distributed to the various funds, as the case may be, in accordance with City policies and generally accepted accounting principles.
- The DFA must approve all account openings with new financial institutions or brokerages.
- The Manager of Finance, or delegate, must approve any fund transfers between financial institutions or brokerages with which the City has an existing account. All transfers require dual authorization.
- All investments should be confirmed via email by the person initiating the investment.
- Emailed instructions regarding transfers of funds, including for investments, must be verified through direct phone or in-person contact with the party providing the instructions. If the instructions appear to come from a person, the Manager of Finance should contact the individual by using the original phone number in the file. Even if the instructions purport to come from a bank, a law firm, or another government, the Manager should call to confirm that the transfer instructions are legitimate using the number on the City file.
- All investment accounts are reconciled monthly by the City's Accounting department and are reviewed by the Manager of Finance.
- Reinvestments within financial institutions can be carried out by members of the Finance department as directed by the DFA.
- Internal controls must contain the following elements: segregation of duties, authorization controls, reconciliation controls, and IT general and security controls.
- The DFA must review risk profile annually and update internal controls accordingly, in response to recommendations of an investment risk monitoring team. As well, the DFA must review the internal controls as needed including during periodical review of this Policy or when amendments are made to the internal controls.

7. Policy Review

This Policy shall be reviewed periodically on an "as needed basis", by the DFA or delegate to ensure it meets current regulatory requirements and industry best practices.

8. Reporting

During Council's annual review of the City's Financial Statements, the DFA or delegate shall include in their report to Council, at a minimum, the current state of the investment portfolio.

Attachments

Appendix A – Credit Rating Equivalency Chart
Appendix B – Portfolio Limits
Appendix C – General Investment Glossary

Related Policies and Legislation

- Council Policy - Year End Surplus Policy (dated February 15, 2020 Resolution No. 37/2022);
- Council Policy - Risk Management Policy (dated July 2, 2019 Resolution No. 328/2019);

- Council Policy - Financial Management Policy (dated July 3, 2018 Resolution No. 314/2018);
- "Officers and Delegation of Authority Bylaw No. 2018-75" and any amendments.

Approval History			
Previous revisions/replaces: N/A			
Approved by Council on:		Resolution No.:	

Certified Correct:

_____

Angie Collison, Corporate Officer

Appendix A: Credit Rating Equivalency Chart

Credit ratings shall be obtained from "Recognized Ratings Agencies" defined as: Moody's Investors Service (Moody's), Standard & Poor's (S&P), Fitch Ratings (Fitch), and DBRS Morningstar (DBRS).

Credit Quality	S&P		Moody's		DBRS		Fitch	
	Long-term	Canadian CP Scale (Short-term)	Long-term	Short-term	Long-term	Short-Term	Long-term	Short-Term
Superior	AAA	A-1 (high)	Aaa	p-1	AAA	R-1 (high)	AAA	F1+
	AA+	A-1 (high)	Aa1	p-1	AA (high)	R-1 (high)	AA+	F1+
	AA	A-1 (high)	Aa2	p-1	AA	R-1 (mid)	AA	F1+
	AA-	A-1 (high)	Aa3	p-1	AA (low)	R-1 (mid)	AA-	F1+
Good	A+	A-1 (mid)	A1	p-1	A (high)	R-1 (low)	A+	F1
	A	A-1 (mid)	A2	p-1	A	R-1 (low)	A	F1
	A-	A-1 (low)	A3	p-2	A (low)	R-1 (low)	A-	F2
Adequate	BBB+	A-1 (low)	Baa1	p-2	BBB (high)	R-2 (high)	BBB+	F2
	BBB	A-2	Baa2	p-2	BBB	R-2 (mid)	BBB	F3
	BBB-	A-3	Baa3	p-3	BBB (low)	R-2 (low), R-3	BBB-	F3
Speculative	BB+	B	Ba1	Not Prime	BB (high)	R-4	BB+	B
	BB	B	Ba2	Not Prime	BB	R-4	BB	B
	BB-	B	Ba3	Not Prime	BB (low)	R-4	BB-	B
Highly Speculative	B+	C	B1	Not Prime	B (high)	R-4	B+	B
	B	C	B2	Not Prime	B	R-5	B	B
	B-	C	B3	Not Prime	B (low)	R-5	B-	B
	CCC	C	Caa	Not Prime	CCC	R-5	CCC	C

Appendix B: Portfolio Limits

Portfolio Limits by Credit Rating

Credit Rating [1]	Maximum % Share of Total Reserves
AA- or higher [short-term rating R-1 (mid) or higher]	100%
A+/A/A- [short-term rating R-1 (low)]	75%
BBB+/BBB/BBB- or Unrated [short-term rating R-2 (high) or lower]	50%

[1] Subject to 3.3.

Portfolio Limits by Asset Type

Asset Type	Maximum % Share of Total Reserves	Maximum Single Entity % of Total Reserves	Maximum Term
MFA Pooled Investment Funds	100% [2]	100% [2]	366 days to 11 years [2]
Federal Government [1]	100%	100%	50 years
Provincial Governments [1]	100%	25%	20 years
Local Governments [1]	50%	10%	5 years
Financial Institutions [1]	75% [5]	10% [3][4]	5 years

[1] Weighted holdings of this type of security within a Pooled Fund does not count towards limit.

[2] Range based on Pooled Fund type: 15% for Mortgage Fund, 25% for Diversified Multi-Asset Class Fund, 100% for all others. Maximum term ranges for Pooled Funds are in reference to the limits imposed on each Fund by MFA for assets each hold. MFA's DMAC Fund can hold assets of any maturity. MFA Pooled Funds may be held in perpetuity by the unitholder.

[3] Doesn't include monies held in the general operating account.

[4] Total investments in securities of a chartered bank, savings institution, or credit union may not exceed 100% of the financial institution's last year-end reported total deposits.

[5] Short-term portfolio funds (cash needed within 1 year) may be 100% held within Financial Institutions, but subject to Single Entity limits. Further, from time-to-time Single Entity limits may be exceeded per 3.3.

Appendix C: General Investment Glossary

Benchmark

A standard against which the performance of a security, mutual fund or investment manager can be measured. Generally, broad market and market-segment stock and bond indexes are used for this purpose.

Section 149 of *Community Charter*

One of the municipal officer positions must be assigned the responsibility of financial administration, which includes the following powers, duties and functions: (c) investing municipal funds, until required, in authorized investments. The City recognizes the DFA (previously referred to as the Chief Financial Officer) as having this responsibility.

Diversification

A risk management technique that mixes a wide variety of investments within a portfolio. The rationale behind this technique contends that a portfolio of different kinds of investments will, on average, yield higher returns and pose a lower risk than any individual investment found within the portfolio.

Finance Department

The Finance Department at the City as it relates to positions with authority on investments includes the Director of Finance and Administration (DFA), the Manager of Finance (MOF), and the Financial Planning and Budget Specialist (FPBS).

Fixed Income

Investments that have some safety of principal and a potential for capital gains that typically account for 15% to 70% of a balanced portfolio. Examples include bonds and GICs with maturities greater than one year, strip bonds, mortgage-backed securities, private placements and other debt instruments.

Liquidity

Liquidity is the ease of turning an investment to cash without a substantial loss in value. For example, a savings account is more liquid than real estate.

Long-term security

Long-term investments are any securities that are held for more than 5 years, generally. These can include stocks, bonds, real estate, mutual funds, and exchange-traded funds.

Maturity

The date upon which the principal or stated value of an investment becomes due.

Pooled Fund

A pooled fund is a collection of stocks, bonds or other securities managed by professional portfolio managers with a stated investment goal such as growth, income, or some combination of the two. All investors in a particular fund share in both the expenses and the potential profits of the pooled fund.

Securities

Bonds, notes, mortgages, or other forms of negotiable or non-negotiable instruments.

Short-term security

A short-term security are financial investments that can easily be converted to cash, typically within 5 years.

Term Deposits

Deposit instruments most commonly available from chartered banks, requiring a minimum investment at a predetermined rate of interest for a stated term. The interest varies according to the amount invested and term to maturity but is competitive with comparable alternative investments. However, a reduced interest rate will usually apply if funds are withdrawn prior to maturity.

Council Report

penticton.ca

Date: May 2, 2023 File No: 4000/ General
To: Donny van Dyk, Chief Administrative Officer
From: Tina Mercier, Bylaw Services Manager

Subject: **Gates for the 300 Block Main Street Breezeway**

Staff Recommendation

THAT Council direct staff to install decorative and secure gates on the 300 Block Main Street breezeway (to be closed overnight) at a cost of $10,000 to be funded by a transfer from the Capital Reserve;

AND THAT the 2023-2027 Financial Plan be amended accordingly.

Strategic priority objective:

Safe & Resilient: The City of Penticton will enhance and protect the safety of all residents and visitors to Penticton.

Background

Bylaw Services have received several complaints of loitering, graffiti and other unwanted activity in the 300 Block Breezeway, a covered walkway that connects a City owned and managed parking lot with the retail shops on the 300 Block of Main Street. In February 2021, Council supported the installation of gates at the 200 Block Breezeway based on similar concerns in that areas. The installation, which included gates that open in the morning and are closed in the evening and overnight, has been a success, with significant reduction in monitoring, cleaning and maintenance of the breezeway. The City has received positive feedback from the community and downtown businesses since the 200 Block Breezeway gates have been installed. As such, staff are requesting to have the same style of gates at the 300 Block Breezeway.

While the Breezeway provides an important connection to Main Street, loitering and vandalism have been a constant nuisance– as well as, graffiti, persons congregating and sleeping in the breezeway, panhandling, litter, drug use and other undesirable activity. Much of the unwanted activity and damage occurs during hours when the majority of the commercial businesses are closed (nighttime / early morning hours). Fortifying the breezeway with gates that can be closed in the evening and opened in the morning is considered the most effective way to reduce this unwanted activity. This has been proven successful already at the 200 Block Breezeway.

The Downtown Penticton BIA fully supports the installation in the 300 Block. (Appendix A)

Financial implication

The cost to install gates on the breezeway similar to the 200 Block Breezeway gates, is estimated at $10,000 for full design, custom manufacture and installation. Staff is proposing to fund this out of the Capital Reserve, which has estimated available funds of $1.1M.

The City will incur minimal costs for opening and closing the gates on a daily basis as typically Bylaw Services staff will be opening and closing the gates at the same schedule of the 200 block breezeway gates. If there is mornings or evenings where Bylaw staff are not on duty, the gates will be opened/closed by contracted security services.

Some savings should be realized with cleaning and enforcement efforts in the breezeway.

Analysis

The installation of gates on the breezeway will be effective in controlling access during periods when commercial businesses in the downtown are not operating. The use of decorative materials matching the revitalization works will ensure the security aspects do not detract from the downtown experience.

Alternate recommendations

THAT Council not direct funds for the installation of gates on the breezeway.

Attachments

Appendix A: Letter of Support, Executive Director, Downtown Penticton BIA

Respectfully submitted,

Tina Mercier,
Bylaw Services Manager

Concurrence

Director of Development Services	General Manager Community Services	General Manager Infrastructure	Director of Finance & Administration	Chief Administrative Officer
BL	AK	KD	AMC	DvD

Appendix A- Letter of Support, Executive Director, Downtown Penticton BIA

DOWNTOWN PENTICTON BIA

March 27th, 2023

To Whom It May Concern,

This letter is intended to outline our support for the installation of roll shutters in the breezeway located within the 300 Block of Main St in Penticton, BC.

In 2021, roll shutters were installed in a similar breezeway in the 200 Block which has resulted in fewer calls to our office for attendance, as well as Bylaw. Recently, the 300 Block breezeway has become a place which some people are using to hang out, camp and do drugs. While attending to our members calls for help around the issue, we ourselves have been verbally abused and have witnessed illegal drug trading and consumption within this breezeway. In particular, it has become a place for this kind of activity overnight and into the early morning. As our businesses begin to open for the day, and when we are preparing early morning for the Community Market, we are regularly subjected to threats from people within the breezeway.

We feel that installing breezeway roll shutters will help our community keep the area more safe and ultimately result in fewer calls to the area.

Thank you for taking the time to review this letter.

Sincerely,

Brett Turner
Executive Director
Downtown Penticton BIA

Council Report

penticton.ca

Date: May 2, 2023 File No: 8500-05
To: Donny van Dyk, Chief Administrative Officer
From: Kristen Dixon, GM of Infrastructure

Subject: **BC Transit 2023/2024 Annual Operating Agreement**

Staff Recommendation

THAT Council authorize the Chief Financial Officer and Corporate Officer to execute the 2023 - 2024 Annual Operating Agreement Conventional and Custom Transit as contained in Attachment "A".

Strategic priority objective

Mission: Penticton will serve its residents, businesses and visitors through organizational excellence, partnership and the provision of effective and community focused services.

Background

On April 5, 2023, the City received a copy of the 2023 - 2024 Annual Operating Agreement from BC Transit. The agreement sets out how BC Transit and the City of Penticton will work together to provide Conventional and Custom Transit services to the citizens of Penticton and the financial implications, for the remainder of 2023 and the first quarter of 2024 (BC Transit operates on a March to March fiscal, rather than an annual fiscal like the City).

The highlights of the agreement are as follows:

1) The Agreement reflects service levels, revenues and costs for BC Transits fiscal, April 2023 to March 2024;
2) Should the municipality make any changes to service, the Annual Operating Agreement will be amended to reflect the new service level;
3) BC Transit will apply the use of all available operating reserves to assist in mitigating fare revenue shortfalls;
4) Either party to the agreement can terminate it with 180 days' notice;
5) Dispute Resolution includes mediation, then arbitration;
6) Eligible Expenses include operating costs, lease costs and municipal administration costs;
7) The agreement maintains the existing fare structure - these are consistent with Fees and Charges Bylaw 2014-07;
8) Conventional Transit Annual Service Hours and exception days: 23,300 hours (same as previous year);
9) Custom Transit Annual Service Hours and exception days: 4,100 hours (same as previous year);

10) Conventional Transit Budget: Total Cost: $3,515,934; Revenue: $607,980; and Net Local Government Share $1,342,868; and
11) Custom Transit Budget: Total Cost: $475,244; Revenue: $27,697; and Net Local Government Share $142,692.

Analysis

Entering into the Annual Operating Agreement with BC Transit will ensure that the public is provided with the same level of transit service as 2022. The changes from the previous year's costs to provide the same level of service are as follows:

	BC Transit 2022/2023	BC Transit 2023/2024
Conventional:		
Total Transit Costs	$3,146,317	$3,515,934
Revenue	$556,629	$607,980
Net Local Government Share	$1,196,535	$1,342,868
Custom:		
Total Transit Cost	$432,154	$475,244
Revenue	$21,741	$27,697
Net Local Government Share	$134,303	$142,692

Fuel continues to be a key driver influencing BC Transits budget, up almost 50% from the previous year, and BC Transit continues to monitor the volatility of fuel prices regularly. Other inflationary drivers, including insurance and maintenance, are also influencing the increases to the budget. Conversely, ridership continues to recover following COVID, and forecasted revenues for 2023/2024 have been increased to reflect this trend.

The detailed agreement was reviewed by the General Manager of Infrastructure and is now ready for the consideration of Council.

Financial implication

The Annual Operating Agreement amount of $1,342,868 for the Net Local Government Share for Conventional Transit is generally aligned with the City's budget for this service, recognizing the different fiscal periods. This City's budget will be monitored, and will be adjusted along with other City budgets, through the variance process.

The Annual Operating Agreement amount of $142,692 for the Net Local Government Share for Custom Transit also aligns with the City's budgeted amount for this service.

Climate Impact

Passenger vehicles account for almost 50% of Penticton's GHG emissions. This report aligns with "Shift Beyond the Car" and more specifically, "Shift 3: Promote transit ridership," as outlined in the City's Community Climate Action Plan.

As part of a future report on the Network Restructure Plan that is currently under development, further options will be provided to Council and the community on how the City can continue to grow transit ridership.

Alternate recommendations

THAT Council instruct staff to explore cost or service level changes with BC Transit.

Attachments

Attachment A – 2023/2024 Annual Operating Agreement Conventional and Custom Transit

Respectfully submitted,

Kristen Dixon, P.Eng, MBA
GM of Infrastructure

Concurrence

Director of Finance and Administration	Chief Administrative Officer
AMC	DvD

ANNUAL OPERATING AGREEMENT

between

City of Penticton

and

British Columbia Transit

Effective
April 1, 2023

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ANNUAL OPERATING AGREEMENT

April 1, 2023 – March 31, 2024

BETWEEN: **City of Penticton**
(the "Municipality")

AND: **British Columbia Transit**
(the "Authority")

WHEREAS the Authority is authorized to contract for transit services for the purpose of providing and maintaining those services and facilities necessary for the establishment, maintenance and operation of a public passenger transportation system in the Transit Service Area;

WHEREAS the Municipality is authorized to enter into one or more agreements with the Authority for transit services in the Transit Service Area;

WHEREAS the parties hereto have entered into a Transit Service Agreement which sets out the general rights and responsibilities of the parties hereto;

WHEREAS the Municipality and the Authority are authorized to share in the costs for the provision of a Public Passenger Transportation System pursuant to the *British Columbia Transit Act*;

AND WHEREAS the parties hereto wish to enter into an Annual Operating Agreement which sets out, together with the Transit Service Agreement, the specific terms and conditions for the Public Passenger Transportation System for the upcoming term.

NOW THEREFORE THIS AGREEMENT WITNESSETH that in consideration of the premises and of the covenants hereinafter contained, the parties covenant and agree with each other as follows:

SECTION 1: DEFINITIONS

Unless agreed to otherwise in the Annual Operating Agreement, the definitions set out in the Transit Service Agreement shall apply to this Annual Operating Agreement including:

a) *"Annual Operating Agreement"* shall mean this Annual Operating Agreement and any Annual Operating Agreement Amendments negotiated and entered into by the parties subsequent hereto;

b) *"Transit Service Agreement"* shall mean the Transit Service Agreement between the parties to this Annual Operating Agreement, including any amendments made thereto;

c) *"Incurred"* means an event or transaction has taken place for which an obligation to pay exists, even if an invoice has not been received, such that the underlying evidence indicates there is little or no discretion to avoid the obligation. The value of the obligation is to be calculated in accordance with recognized Canadian accounting standards.

SECTION 2: INCORPORATION OF SCHEDULES

All schedules to this agreement are incorporated into the agreement, and form part of the agreement.

SECTION 3: INCORPORATION OF TRANSIT SERVICE AGREEMENT

Upon execution, this Annual Operating Agreement shall be deemed integrated into the Transit Service Agreement and thereafter, the Transit Service Agreement and Annual Operating Agreement shall be read together as a single integrated document and shall be deemed to be the Annual Operating Agreement for the purposes of the *British Columbia Transit Act*, as amended from time to time.

SECTION 4: TERM AND RENEWAL

a) The parties agree that the effective date of this agreement is to be April 1, 2023, whether or not the agreements have been fully executed by the necessary parties. Once this agreement and the associated Transit Service Agreement are duly executed, this agreement will replace all provisions in the existing Transit Service Agreement and Master Operating Agreement with respect to the rights and obligations as between the Authority and the Municipality.

b) Upon commencement in accordance with Section 4(a) of this agreement, the term of this agreement shall be to March 31, 2024, except as otherwise provided herein. It is acknowledged by the parties that in the event of termination or non-renewal of the Annual Operating Agreement, the Transit Service Agreement shall likewise be so terminated or not renewed, as the case may be.

c) Either party may terminate this agreement as follows:

   i. Cancellation by the Authority: In the event that the Authority decides to terminate this Agreement for any reason whatsoever, the Authority shall provide at least one hundred and eighty (180) days prior written notice. Such notice to be provided in accordance with Section 12.

   ii. Cancellation by the Municipality: In the event that the Municipality decides to terminate this Transit Service Agreement for any reason whatsoever, and by extension, the Annual Operating Agreement, the Municipality shall provide at least one hundred and eighty (180) days prior written notice. Such notice to be provided in accordance with Section 12.

SECTION 5: FREEDOM OF INFORMATION AND PROTECTION OF PRIVACY ACT

This Agreement and the parties hereto are subject to the provisions of the *Freedom of Information and Protection of Privacy Act* (FOIPPA). Any information developed in the performance of this Agreement, or any personal information obtained, collected, or stored pursuant to this Agreement, including database information, shall be deemed confidential and subject to the provisions of FOIPPA, including the handling, storage, access and security of such information. Confidential information shall not be disclosed to any third party except as expressly permitted by the Authority or pursuant to the requirements of FOIPPA.

SECTION 6: SETTLEMENT OF DISPUTES

In the event of any dispute arising between or among the parties as to their respective rights and obligations under this Agreement, or in the event of a breach of this Agreement, the parties agree to use their best efforts to find resolution through a mediated settlement. However, in the event that mediation is not successful in finding a resolution satisfactory to all parties involved, any party shall be entitled to give to the other notice of such dispute and to request arbitration thereof; and the parties may, with respect to the particular matter then in dispute, agree to submit the same to a single arbitrator in accordance with the applicable statutes of the Province of British Columbia.

SECTION 7: MISCELLANEOUS PROVISIONS

a) Amendment: This agreement may only be amended in writing as signed by the Municipality and the Authority and specifying the effective date of the amendment.

b) Assignment: This Agreement shall not be assignable without prior written consent of the parties.

c) Enurement: This Agreement shall be binding upon and enure to the benefit of the parties hereto and their respective successors.

d) The parties agree that this agreement is in substantial compliance with all relevant legislative requirements to establish the rights and obligations of the parties as set out in the *British Columbia Transit Act*.

SECTION 8: LOCAL CONTRIBUTIONS AND RESERVES

British Columbia Transit service is provided using a cost-sharing model. Where any transit-related contributions are received and/or third-party revenues are earned that are in excess of expenses, the Authority is required to hold these excess funds in a reserve account for use against transit-related expenditures in future years. When unanticipated expenditures occur that were not included in the budget and cannot be covered by reserves, the Authority will seek to recover these based on the cost-sharing ratios between the Municipality and the Authority.

Eligible Operating Expenses

The Authority will invoice the Municipality and collect on monthly invoices based on incurred eligible operating expenses to provide Transit Service. Eligible operating expenses are comprised of the following costs of providing Public Passenger Transportation Systems:

a) For *Conventional Transit Service:*
   i. the operating costs for providing Conventional Transit Service excluding interest and amortization;
   ii. the amount of any operating lease costs of BC Transit for Conventional Transit Services;
   iii. the amount of the municipal administration charge not exceeding 2% of the direct operating costs payable under an Annual Operating Agreement;
   iv. an amount of the Annual Operating Costs of the Authority not exceeding 8% of the direct operating costs payable under an Annual Operating Agreement.

b) For *Custom and Paratransit Transit Service:*
   i. the operating costs for providing Custom Transit Service excluding interest and amortization, but including the amount paid by the Authority to redeem taxi saver coupons issued under the Taxi Saver Program after deducting from that amount the amount realized from the sale of those coupons;
   ii. the amount of any operating lease costs of the Authority for Custom Transit Service;
   iii. the amount of the municipal administration charge not exceeding 2% of the direct operating costs payable under an Annual Operating Agreement; and
   iv. an amount of the Annual Operating Costs of the Authority not exceeding 8% of the direct operating costs payable under an Annual Operating Agreement.

c) Eligible operating expenses exclude the costs of providing third-party 100%-funded services.

d) Annual operating costs of the Authority are operations, maintenance and administration costs that are for the shared benefit of all transit systems operated by the Authority. These costs are allocated to each transit system on a pro rata basis, based on the nature of the costs.

Lease Fees

The Authority will invoice the Municipality and collect on monthly invoices for lease fees on tangible capital assets owned by the Authority that are used in the provision of transit service. Lease fees are comprised of the following:

a) The Municipality's fee for use of the asset, including for the costs of acquisition, construction, development and betterment of the asset and the costs of installing the asset at the location and condition necessary for its intended use;

b) Debt financing and risk-related charges or costs payable on assets;

c) Payment into a reserve fund for preventative maintenance and major repair of assets owned or leased by the authority;

d) Amounts sufficient for the Authority to recover all other costs relating to the asset, including, but not limited to taxes and administrative charges.

Where lease fees are received that exceed actual asset-related expenses in any given period, these will be placed in a pooled reserve. This reserve will be used to offset against future lease fees as outlined above.

Reserve Funds

The Authority will establish the following for each transit system to record the contributions that have been received but not yet earned as follows:

a) **Local Transit Fund:** Contributions by the Municipality towards eligible operating expenses that have been received but not matched with a Provincial share contribution will be deferred in the Local Transit Fund.
   i. Any expenditure of monies from the Local Transit Fund will:
      1. only be credited towards the Municipality's share of expenses for the transit system for which it was collected.
      2. be applied to reduce Municipal invoices at the discretion of the Municipality as agreed to under the Annual Operating Agreement or amendments as required.
   ii. The Local Transit Fund may be used towards lease fees.
   iii. The Authority will provide a quarterly statement of account of the Local Transit Fund balance including contributions, amounts utilized and interest earned.

SECTION 9: SAFE RESTART CONTRIBUTION

Under the Safe Restart Program, the federal and provincial governments provided joint, non-recurring contributions to transit systems in British Columbia (the "Safe Restart Contribution") in 2020/21 and 2021/22.

The Authority applied the Safe Restart Contributions as follows:

a) As an allocation towards the Municipality's share of eligible operating expenses in the fiscal year of the contribution;

b) After applying the allocation of Safe Restart Contribution, any excess contributions received from the Municipality were deferred to the Local Transit Fund;

c) The Authority will apply the remaining Local Transit Fund balance to reduce 2022/23 and future municipal invoices at the discretion of the Municipality as agreed to under an Annual Operating Agreement or amendments as required.

It is expected that by receiving the Safe Restart contribution, the Municipality will work with the Authority to maintain targeted essential transit service levels by not reducing transit service below existing planned service levels and maintain affordability by limiting annual fare increases to an average of 2.3% from April 1, 2020 through March 31, 2025.

SECTION 10: GOVERNING LAW

This agreement is governed by, and shall be construed in accordance with, the laws of the Province of British Columbia, with respect to those matters within provincial jurisdiction, and in accordance with the laws of Canada with respect to those matters within the jurisdiction of the Government of Canada.

SECTION 11: COUNTERPARTS

This contract and any amendment hereto may be executed in counterparts, each of which shall be deemed to be an original and all of which shall be considered to be one and the same contract. A signed facsimile or PDF copy of this contract, or any amendment, shall be effective and valid proof of execution and delivery.

SECTION 12: NOTICES AND COMMUNICATIONS

All notices, claims and communications required or permitted to be given hereunder shall be in writing and shall be sufficiently given if personally delivered to a designated officer of the parties hereto to whom it is addressed where an electronic signed document is emailed to the parties or if mailed by prepaid registered mail to the Authority at:

British Columbia Transit
c/o Executive Assistant, Strategy and Public Affairs
PO Box 9861
520 Gorge Road East
Victoria, BC V8W 9T5

and to the Municipality at:

City of Penticton
171 Main Street
Penticton, BC V2A 5A9

and, if so mailed, shall be deemed to have been received five (5) days following the date of such mailing.

IN WITNESS WHEREOF, the parties have hereunto set their hand this _____ day of _____, 2023.

City of Penticton

_____

_____

British Columbia Transit

_____
Vice President, Strategy and Public Affairs

_____
Vice President, Finance and Chief Financial Officer

SCHEDULE A: TARIFF AND FARES

Effective as of September 1, 2021

Fare Zones:
The boundaries of fare zones for this Tariff are described as the corporate boundaries of the City of Penticton.

	Local*	**Regional***
a) **Cash:**		
All Fares	$2.25	$4.00
b) **Tickets (sheet of 10):**		
i) All Fares	$20.25	$36.00
c) **Monthly Bus Pass**:		
i) Adult	$45.00	$60.00
ii) Senior/Students**	$35.00	$40.00
d) **DayPASS**	$4.50	$8.00
e) **Child**, 12 and under	Free	Free

f) **BC Bus Pass** valid for the current calendar year and available through the Government of British Columbia BC Bus Pass Program.

g) **CNIB** Identification Card available from the local office of the CNIB.

h) **BC Transit Employee** Bus Pass

* Local refers to trips within the community
* Regional refers to trips between larger communities. Route numbers end in “0”
** Discounted Fares apply to: Seniors over 65 years of age with valid ID, Students 20 or under in full-time attendance to Grade 12 with valid ID, Post-Secondary with proof of attendance. Post-Secondary institution refers to universities, vocational universities, community colleges, liberal arts colleges, institutes of technology and other collegiate level institution, such as vocational schools and career colleges that award academic degrees or professional certifications.

Custom Transit Fares:

Effective as of September 1, 2021

i) Registered User $2.25
ii) Registered User – Children 12 and under - Free
ii) Companion accompanying registered user $2.25
iii) Attendant accompanying registered user Free

SCHEDULE B: SERVICE SPECIFICATIONS

Conventional Transit Service

Transit Service Area: The boundaries of the Penticton Transit Service Area shall be the municipal boundaries of the Corporation of the City of Penticton.

Annual Service Level: for City of Penticton shall be **23,300** Revenue Service Hours

Exception Days recognized annually for City of Penticton are:

Exception Days	**Service Level**
Good Friday	Sunday Service
Easter Monday	Regular Service
Victoria Day	Sunday Service
Canada Day	Sunday Service
BC Day	Sunday Service
Labour Day	Sunday Service
Truth and Reconciliation Day	Regular Service
Thanksgiving Day	Sunday Service
Remembrance Day	Sunday Service
Christmas Day	No Service
Boxing Day	Sunday Service
New Year's Day	Sunday Service
Family Day	Sunday Service

Custom Transit Service

Transit Service Area: The boundaries of the Penticton Transit Service Area shall be the municipal boundaries of the Corporation of the City of Penticton.

Annual Service Level: for the City of Penticton shall be **4,100** Revenue Service Hours

Exception Days recognized annually for the City of Penticton are:

Exception Days	**Service Level**
Good Friday	No Service
Easter Monday	Regular Service
Victoria Day	No Service
Canada Day	No Service
BC Day	No Service
Labour Day	No Service
Truth and Reconciliation Day	Regular Service
Thanksgiving Day	No Service
Remembrance Day	No Service
Christmas Day	No Service
Boxing Day	No Service
New Year's Day	No Service
Family Day	No Service

SCHEDULE C: BUDGET

PENTICTON CUSTOM

	OFFICAL AOA 2023/24
TOTAL REVENUE	27,697
TOTAL OPERATING COSTS	451,465
TOTAL COSTS (including Local Government Share of Lease Fees)	475,244
NET LOCAL GOVERNMENT SHARE OF COSTS	**142,692**

PENTICTON CONVENTIONAL

	OFFICIAL AOA 2023/24
TOTAL REVENUE	607,980
TOTAL OPERATING COSTS	3,247,999
TOTAL COSTS (including Local Government Share of Lease Fees)	3,515,934
NET LOCAL GOVERNMENT SHARE OF COSTS	**1,342,868**

Council Report

penticton.ca

Date: May 2, 2023 File No: 6520-20
To: Donny van Dyk, Chief Administrative Officer
From: Anthony Haddad, General Manager, Community Services
Subject: **North Gateway Redevelopment & Investment Strategy – Update Report**

Staff Recommendation

THAT Council receive into the record the report dated May 2, 2023 titled "North Gateway Redevelopment & Investment Strategy – Update Report".

Strategic Priority Objective

Community Vitality: The City of Penticton, guided by the Official Community Plan, will promote the economic wellbeing and vitality of the community.

Background

The development of the North Gateway Redevelopment and Investment Strategy (the Plan) involved a significant amount of community engagement, technical analysis and stakeholder consultation during each phase of the planning process, beginning with Council's endorsement of the process in February 2021.

On May 17th 2022, Council were presented with the draft plan and endorsed moving ahead with the final round of engagement on the Draft North Gateway Redevelopment & Investment Strategy. The following resolution was passed:

176/2022 ***It was MOVED and SECONDED***

THAT Council receive into the record the report dated May 17th, 2022 titled "North Gateway Redevelopment & Investment Strategy – Proposed Plan";

AND THAT Council direct staff to commence the final round of public engagement and bring back the results with any changes to the June 21, 2022 Council meeting.

CARRIED UNANIMOUSLY

On July 5th 2022, Council were then presented with the results of the final round of engagement and the creation of the Proposed Plan that provided the long term policy and illustrative vision for the North gateway. Council passed the following resolution:

244/2022 ***It was MOVED and SECONDED***

THAT Council receive into the record the report dated July 5, 2022 titled "North Gateway Redevelopment & Investment Strategy – Proposed Plan";

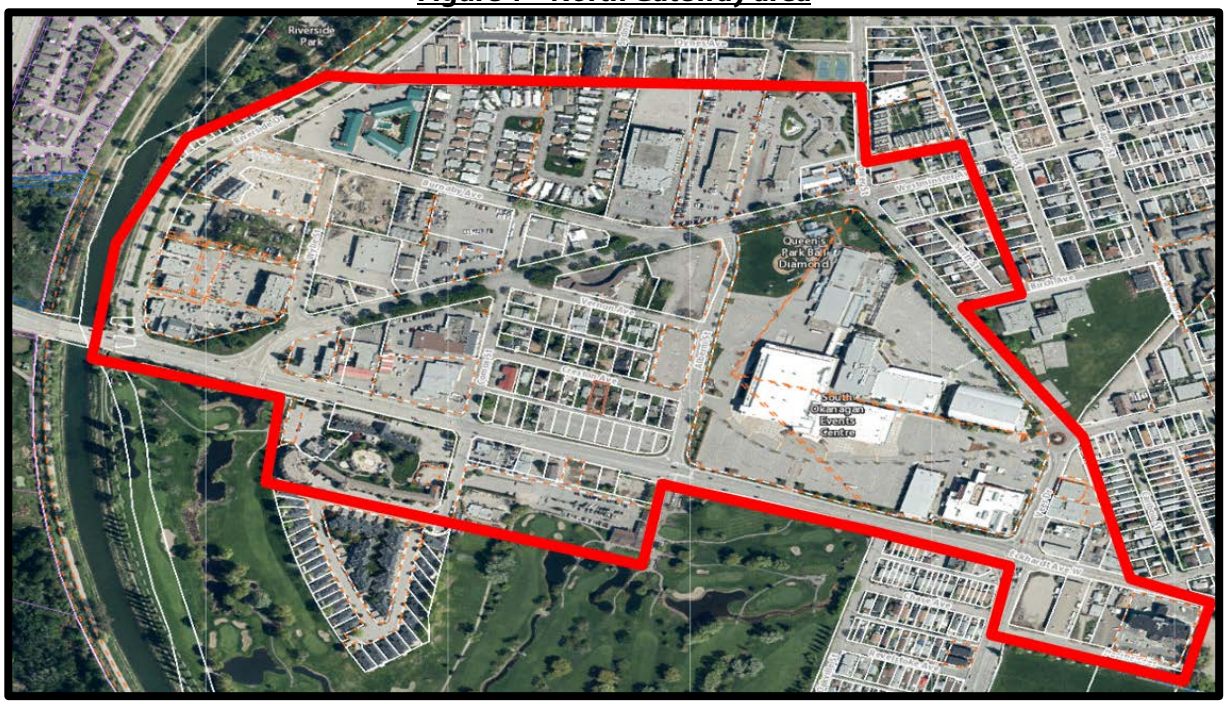
AND THAT Council approve the North Gateway Redevelopment & Investment Strategy and direct staff to move forward with implementation.

CARRIED UNANIMOUSLY

Staff have been moving forward with key implementation components of the strategy with the first major implementation priority for the North Gateway Plan being the Transportation Analysis. Now that review has been completed, staff will be moving ahead with the detailed land use / land assembly design for the area, which will include financing and feasibility components for review with the community this year.

This report provides some background on the process completed to date, the details and solutions being brought forward from a Transportation perspective and outlines of the upcoming design work that will bring the key implementation components together.

Figure 1 – North Gateway area



The Plan

The proposed Plan provided for the long term policy and illustrative visions for the future of the North Gateway lands. The Plan document can be summarized as follows:

- *Parts 1 – 3: Background*

  These sections of the document provide the background information that summarise the location, area analysis, engagement process and technical analysis. It also outlines the First Nations engagement undertaken as part of the planning process, the priorities identified and how they are built into the Plan.

- *Part 4: Vision & Guiding Principles*

The Vision and Guiding Principles provide for the overarching guidance for all of the policy development within the Plan. Figure 2 provides the illustrative vision for the future of the North Gateway.

Figure 2 - North Gateway Vision

- *Part 5: Placemaking Goals & Strategies*

  Urban Design Goals and Strategies provide a thoughtful approach to future development and infrastructure investment within the North Gateway. Images and illustrations provided show examples of the type of public and private infrastructure that should be included in the area as it grows and develops.

  The form of development and public infrastructure supported through the planning process provide clear direction to future investors as to how development will occur, but leaves flexibility for innovation to occur over the life of the plan. As the gateway to our downtown, SOEC complex and the South Okanagan, high quality design throughout this area is expected. The City's Official Community Plan sets out the Form & Character Design Guidelines for future private development in this area, however the following placemaking strategies have been developed specific to the North Gateway area.

  Three distinct layers for the planning process were developed based on the desired future conditions envisioned by the community –Land Use and Density; Experience and Atmosphere; Mobility and Connections. Within each of the layers, targets have been set to ensure the long term land use and mobility vision for the area can be achieved and monitored over the coming years by implementation of the strategies.

- *Part 6: 10 Big Urban Design Changes*

  The North Gateway is a large area and in order to focus public realm and urban design improvements into the future. The area has been divided up into three Districts. Each District contains a range of elements and future investment opportunities that when combined will contribute to creating a connected, complete and sustainable destination.

This section provides an outline of how the Districts have come together, how each are connected through key mobility corridors and gateways, and the key attributes that are required within each District to enable successful implementation of the Plan.

Detailed design projects related to the 10 Big Urban Design Changes will be completed into the future, achieving the vision set out within the Plan. Through the planning and design process it was identified very early on that the North Gateway lacks connection, safe public infrastructure, and vision. The opportunity that presented itself through the planning process is that with improved connections within the areas, both existing and future land uses could be connected through variety of improved pedestrian, cycling, parkland and roadway design solutions.

The South Okanagan Event Centre complex is already established as the economic anchor for the area and with surrounding amenities and such as Okanagan Lake, The River Channel at its doorstep, and with the Downtown being in such close proximity, the opportunity to create a special place within the North Gateway, feeding off the vibrancy of these surrounding community assets is unique.

The cornerstone of the North Gateway Redevelopment & Investment Strategy will focus around 10 major ideas that are shown in the Plan document and the Land Use Concept developed for the area (Figure 3):

- 3 Districts
- 3 Corridors
- 3 Gateways
- 1 Festival Boulevard

Figure 3 – North Gateway Land Use Concept

- *Part 7: Implementation Priorities*

  The first major implementation priority of the North Gateway Redevelopment and Investment Strategy is to complete a review and technical analysis of the vision and concepts. This process will allow for the feasibility analysis, financial strategy and implementation projects timeline to be developed. This will be a critical priority to implementation of the community's vision for the North Gateway. Implementation priorities will be brought forward through the 2024 Capital Budget planning process to ensure the momentum developed as part of the planning process carries forward in a timely manner and shows the City's commitment to the area for other investors to follow.

- *Part 8: Action & Investment Plan*

  At the completion of the Transportation network, costing and feasibility analysis, the following implementation items will take place to allow for the implementation of the Plan. The following items will be important for implementation over the coming years:

  - Official Community Plan Amendments
  - Employee Housing Strategy
  - PTCC Hotel Strategy and Tourism Partnership with Penticton Indian Band
  - Development Cost Charge Bylaw Amendments
  - Wayfinding Signage Plan, Design and Installation
  - Welcome to Penticton Signage Planning, Design and Construction
  - Capital Plan Amendment to include North Gateway Priority Projects

Transportation Network Summary

Working in partnership with the Ministry of Transportation and Infrastructure (MOTI), staff engaged Urban Systems to recommend an integrated transportation infrastructure strategy for Highway 97 and the local roads identified in the North Gateway area. This study builds upon previous work completed in the North Gateway study area, including the Convention Hotel – Alberni Street Closure & North Gateway Area Traffic Study (Urban Systems, 2021) and the Penticton Transportation Master Plan (WSP, 2021).

The analysis completed summarizes the existing conditions review of the North Gateway area, which includes traffic, safety, and multi-modal assessments for the existing and future traffic conditions based on background growth and potential developments, and the option development and recommendations for both highway and local road network improvements that align with the City's vision of the North Gateway area.

Guiding principles for the development of this work were used to develop and generate network concepts and improvement options and are outlined as follows:

• *Multi-Modal Accessibility*	• Implement accessible and convenient multi-modal facilities are accessible for people of all ages and abilities.
• *Network Connectivity*	• Enhance connections for walking, cycling, micro-mobility, and transit.
• *Safety*	• Improve safety conditions for all modes by considering speed, street design, and the urban environment.
• *Vehicle Mobility*	• Optimize vehicle delays and congestion and facilitate goods movement in the network.

• *Integrated Transportation*	• Encourage integration and connections between modes to support mixed-use developments in the North Gateway.

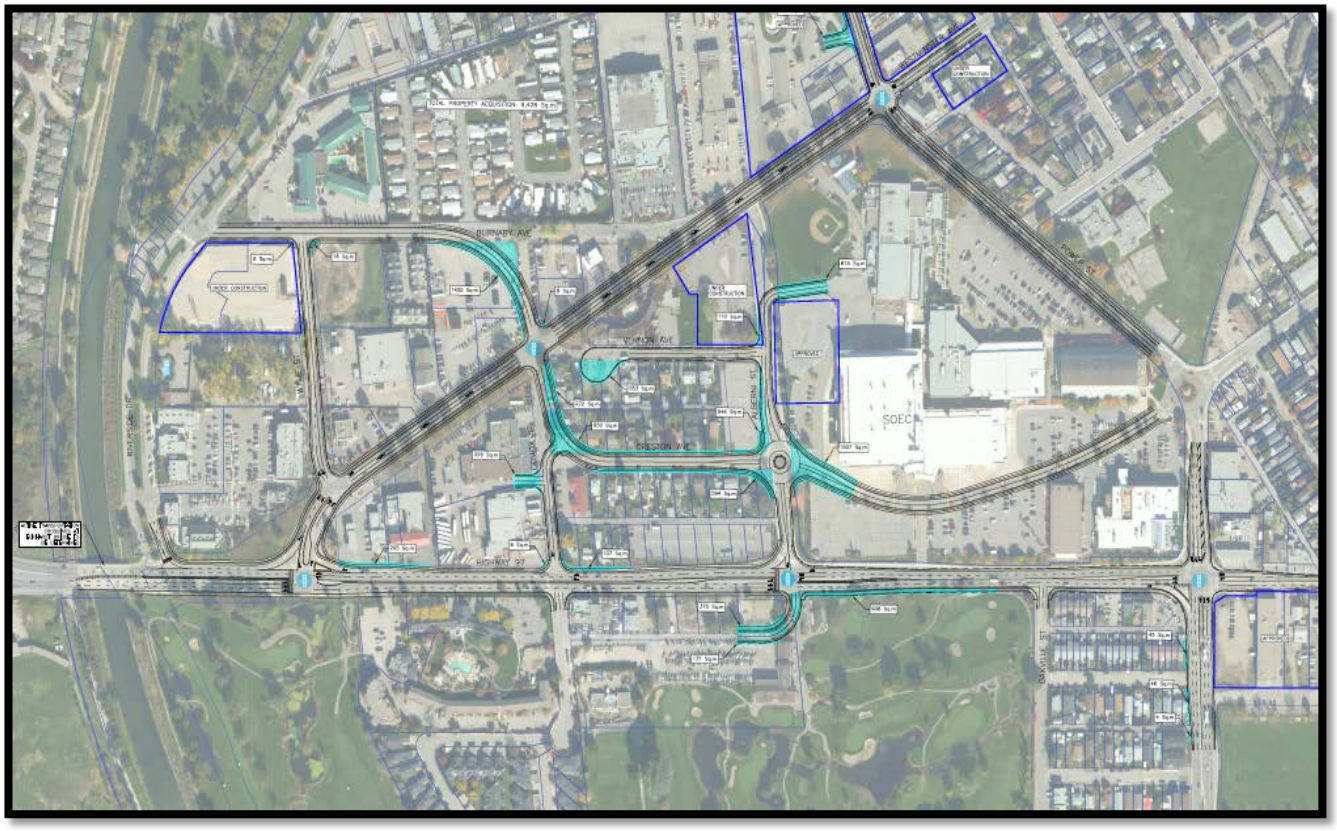
The options for the network were developed working with MOTI and the vision and concepts created through the North Gateway Plan, utilizing the above guiding principles. A number of options were created for eventual implementation and included in that analysis were cost estimates and potential triggers for when these works need to take place. The key components of the proposed network that will require investment over time include the following changes and are shown in Figure 4, which will be refined as detailed design and planning takes place over the coming year:

- **Alberni Street** closure to vehicle traffic, between Vernon Avenue and Westminster Avenue, to facilitate the new hotel that is currently under construction.
- **Realigning Burnaby Avenue** south along Comox Street to tie into Westminster Avenue at the existing intersection with Comox Street and Vernon Avenue. The decommissioned portion of the corridor will become public green space.
- **Highway 97 / Riverside Drive** will changes occur over the coming months with the development of the new Riverside Drive condominium project. As a condition of Building Permit, the left hand turn into Riverside Drive, from Highway 97 will be closed, and the left hand turn lane into Westminster Avenue from Hwy 97 will be extended to enable vehicles to enter the area. The Access to Highway 97, from Riverside Drive will remain open.
- **Highway 97 / Eckhardt Avenue / Vees Drive** intersection laning changes, including maintaining the eastbound free right turn movement by adding a channelized auxiliary merge lane for the eastbound right turn to merge with the southbound downstream travel lane. Of note, the intersection of Highway 97 / Eckhardt Avenue has been investigated previously to identify improvements to mobility and safety. Previous studies recommended implementing dual southbound through lanes, which would involve adding a merge lane on the south leg for the eastbound right-turn movement. This change was found to improve traffic performance at this intersection, so it was included in all the network layout concepts developed through this study. However, implementation of this change would be extremely challenging given existing property constraints, and would be monitored as the North Gateway develops to determine if/when these changes would need to be made.
- **Signalize and addition of a south leg to the Alberni Street / Highway 97** intersection and restricting left turns at Comox Street. This would provide for a safer access to the south side of the highway and allow for a safer egress from the south side to the highway.
- **Centre median on Highway 97** from the channel crossing to Alberni Street. This would result in restricting all minor road accesses and driveways to right-in/right-out movements only.
- **Network improvements** stated in the TMP:
    - Closing the 'Queen's Access" to the South Okanagan Event Centre, and
    - Laning improvements at the Westminster Avenue / Power Street intersection (which have already been completed).
- **Road cross-section improvements for Westminster Avenue** through the North Gateway to incorporate cyclist facilities and potentially traffic calming measures. A "road diet" is proposed which consists of reducing the number of vehicle through-lanes and reducing the width to the minimum required for trucks and transit to operate (i.e. 3.3-meter lane widths). Narrower travel lanes encourage traffic calming and slower vehicle speeds, hence, improving safety for all road users.
- **The Highway 97 and Westminster Avenue intersection** includes proposed geometric changes to improve safety by:
    - Implementing a smart right turn in place of the westbound channelized right turn.

- Removing the eastbound left-turn movement and lane on Highway 97 at Riverside Avenue and extending the left-turn storage lane at Westminster Avenue by 110m, for a total storage length of 180m.

- **Providing safe active transportation facilities along Highway 97** through the North Gateway is desired by the City and MOTI. This includes accommodating access on, and to and from, the channel crossing on the west end of the study area. The north side of the highway was identified for future pedestrian improvements and further work will be required to enhance access from the North gateway to the Okanagan River Channel.
- **Opportunity for transit improvements** were considered at a high-level for the North Gateway area, including the consideration of a transit hub near the SOEC. The transit hub is intended to increase visibility, safety, and comfort of the transit stop to encourage transit ridership. Given the location near the SOEC, the City should focus on serving riders after events by providing additional amenities such as garbage cans, benches, shelter, and lighting. The transit hub would support more frequent transit service to the North Gateway area in the short to medium-term.

Figure 4 – North Gateway Transportation Network



North Gateway Land Assembly / Land Use Design

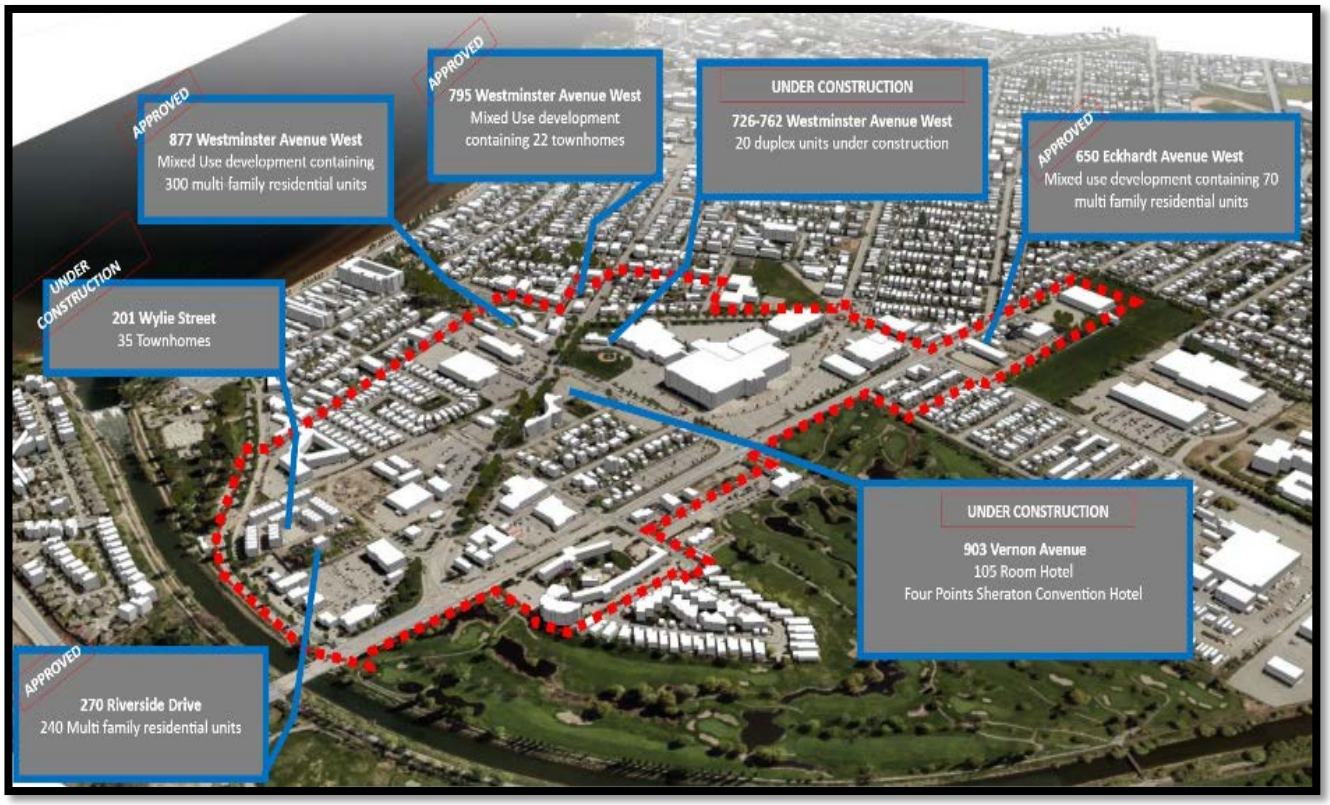
As part of the 2023 budget process, Council endorsed continuing on with the North Gateway as a priority, and staff will be moving ahead with the detailed design and land assembly for the area surrounding the SOEC complex. As part of that process, staff will engage designers and finance specialists to bring together the work completed to date and develop options for the future development and investment in these lands. This work is slated to commence in Q2-Q3 2023. A critical part of the implementation components will be determining how to sequence the transportation changes and how best to finance these priorities.

The transportation network will be further refined as part of this process, utilizing the work completed to date and the future land use work that will be undertaken as part of this deign process.

Development Investment Taking Place

The vision for the area identified increased residential densities, hotel rooms and commercial opportunities. Development is well underway. Figure 5 highlights the range of projects that have been approved or are under construction within the Plan area.

Figure 5 – Development Approval & Construction Projects



Financial

Financing options for the public infrastructure investments in the area will include opportunity for Local Area Improvement projects, developer required frontage improvements and City / Provincial investment. Other funding mechanisms will also be identified though the upcoming design work to be undertaken. Staff will look to prepare this information over the coming months as part of the next phase of detailed design.

Analysis

The redevelopment of an existing established area does come with it's challenges, however the vision brought to light during the planning process in 2021 identified significant interest in how the North Gateway can provide a positive long term contribution to the City's housing supply and continue to be a strategic economic driver for the community.

The transportation analysis has resulted in good long term solutions from both a municipal and Highway road system perspective and opportunities for active transportation will help set this area up for success when supporting the additional density envisioned as the area builds out. The next phase on the implementation process will see further opportunities to support the land use visions for the area and align with the City's strategic needs.

Attachments

Attachment A – North Gateway Redevelopment & Investment Strategy

Attachment B – Highway 97 and North Gateway Interface Planning and Access Improvement Plan

Respectfully submitted,

Anthony Haddad

General Manager, Community Services

Concurrence

Director of Development Services	GM Infrastructure	Chief Administrative Officer
BL	*KD*	DvD

Attachment A

North Gateway Redevelopment & Investment Strategy

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CITY OF Penticton

REIMAGINE THE NORTH GATEWAY

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A BOLD PLAN FOR THE FUTURE

Penticton's first 15 minute neighbourhood

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PART 1:

WELCOME TO THE NORTH GATEWAY

1.1 Acknowledgements

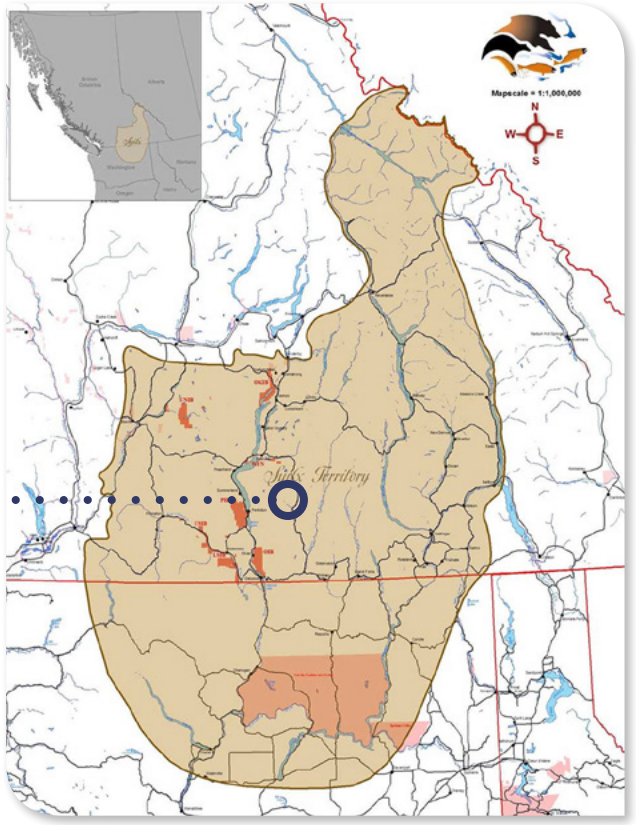
The City of Penticton respectfully acknowledges that our community is located on the traditional and unceded territory of the Syilx Okanagan People and we thank the Penticton Indian Band for their support and ongoing partnership in the future growth and development of the North Gateway.

To the City of Penticton residents who gave their time and shared their ideas in the development of this plan through the workshops, information sessions, and feedback forms – thank you for providing us with your insights and vision. The City would like to also acknowledge the contributions or support of the Penticton City Council, the Economic Prosperity & Development Services Advisory Committee, Parks and Recreation Advisory Committee, Penticton Indian Band Council and staff in the creation of this Plan.

The City would also like to acknowledge the following consultants for their work in support of this plan.

- **Russell Whitehead**: Colliers International
- **Ian Roth**: Urban Systems
- **Michael von Hausen**: MVH Urban Planning + Design Inc.
- **Cal Meiklejohn**: MAD Design Studio Inc.
- **Cal Srigley**: Cal Srigley Design Consulting
- **Chris Allen**: Landform Architecture + Design Build
- **Mark van der Zalm**: VDZ + Associates

SnPink'tn (Penticton)



Acronyms:

The Plan – North Gateway Redevelopment and Investment Strategy

PTCC – Penticton Trade and Convention Centre

SOEC – South Okanagan Events Centre

PIB – Penticton Indian Band

MOTI – Ministry of Transportation and Infrastructure

OCP – Official Community Plan

SOEC Complex – References the SOEC, PTCC, Memorial Arena, Casino, Community Centre Lands

1.2 Why are we here?

To ensure an orderly, strategic and investment ready environment within this area of the City, the North Gateway Redevelopment and Investment Strategy (The Plan) is required to ensure a coordinated approach can be taken to land use, infrastructure needs and economic investment opportunities.

In 2006 the North Gateway was identified as one of the City's Urban Villages where a higher density neighborhood with walkable services and amenities were envisioned, however no comprehensive planning for the area was undertaken at the time. Since then, several new developments have occurred and the 2019 Official Community Plan (OCP) policies provide direction for further investment to take place within the North Gateway – one of the four strategic investment areas identified for future growth and development.

The North Gateway is a desirable place to live and much of the focus with the 2019 OCP was around the provision of more housing opportunities in the community. Supporting additional densification within close proximity to services has been a long term policy goal of the City.

Our community is in the midst of a housing crisis and continuing to grow sustainably will support the City's Climate Action and Housing goals. The lands within the area must be used efficiently to accommodate the growth and sustainable economic activity Penticton needs.

With renewed interest in this area and prior to much of the new investment taking place, the creation of the Redevelopment and Investment Strategy is intended to result in clarity around future vision and desired land use for the community, public realm and urban design priorities, land assembly opportunities and mobility improvements that are required to support community values and set a sustainable path for or future and attract economic development opportunities.

1.3 Getting it Right

Entering the City of Penticton from the north brings focus and attention to the North Gateway, as the entrance to the South Okanagan. First impressions to new residents, visitors and investors have a significant impact on the reputation of our community and the Plan provides an opportunity to make a positive impression through signage, wayfinding and beautification, working with the community, stakeholders, PIB, MOTI and key user groups.

Prior to the development of Highway 97, Westminster Avenue West used to be the main thoroughfare into the downtown. With its wide road right of way, beautifully tree lined boulevard and link to an ever-growing and intensifying downtown commercial core, the Westminster Avenue West corridor provides for an interesting opportunity to not only enhance the Northern Gateway from an access, directional signage and wayfinding perspective, but to reimagine the Westminster corridor for all modes of transportation as the spine of the North Gateway.

The redesign and reinvestment in strategic mobility and activity corridors within this area such as Power Street to Lakeshore Drive, Eckhardt Avenue West and Westminster Avenue West to the downtown core, hold the key to positive transformation of the area.

To support the community's investments in the South Okanagan Events Centre (SOEC) and Penticton Trade and Convention Centre (PTCC), the addition of new hotels, increasing the diversity of residential housing opportunities, entertainment and other complementary uses will allow for these City facilities to succeed and contribute to the economic prosperity of our city.

Large land holdings in this area provide for significant comprehensive redevelopment opportunities to house the right mix of civic uses, tourist accommodations, support commercial and residential densities to sustain our City into the future. When new development comes forward for consideration, having a plan and investment strategy in place will ensure developments leave a positive legacy for the community and contribute to public realm enhancements.

PART 2:

CONTEXT & SITE ANALYSIS

2.1 Location - Penticton's first 15 minute neighborhood

The North Gateway area is located at the north-west corner of the City limits. Bordered by Riverside Drive to the west, Highway 97 and the Penticton Golf and Country Club to the south, Power Street and Vees Drive to the east and Churchill Avenue and Lakeshore Drive to the north, the North Gateway lands are the first point of entry to the City from the north. From east to west, everything is located within a 15 minute walking distance.

The North Gateway area is home to strategic community assets such as the SOEC, PTCC, Community Centre, Okanagan Hockey School, Cleland Theatre, Curling Club and their support infrastructure. Recent investment such as Gateway Casino and Match Public Eatery has helped to increase the commercial activity on these lands, and with the increasing density of uses, the focus of the municipal lands has moved towards a community based complex with both local and regional entertainment value.

Commercial activity has seen the recent addition of the Fairfield Marriott Hotel on Eckhardt Avenue, and the Four Points Sheraton Hotel located directly adjacent to the PTCC. These new investments support the existing Hotel Penticton, Days Inn, Sandman Hotel and other tourist accommodations in the area.

Residential development and densities have slowly increased within the Plan Area, particularly along Power Street and Riverside Drive with the addition of a higher end townhome project adjacent to the highly successful Riverside Village commercial center. Development interest in this area remains high with planning underway for future projects.

Within the Plan area, large underutilized parcels of land have the opportunity to contribute positively to the future growth and development of this area. With its location surrounded by natural amenities such as Okanagan Lake, the Okanagan River Channel and its pathway, and the Penticton Golf & Country Club lands, the North Gateway to Penticton provides a unique opportunity for our community to accommodate the growth and economic activity needed to sustain our city and existing investments into the future.

What is a 15 minute neighbourhood?

The four main guiding principles of the 15-minute Neighbourhood are:

- **Proximity** - Availability of amenities for social functions accessible within 15 minutes by active transportation.
- **Density** - Optimal number of individuals who can support a diversity of amenities in a given area.
- **Diversity** - Mixed land use of residential, commercial and entertainment components, with diverse cultures and people. Provide housing options to accommodate different socioeconomic levels and enable residents to live closer to jobs or work from home.
- **Ubiquity** –Diverse amenities in all neighbourhoods that are accessible and affordable to everyone.

The planning policies and outcomes will help create Penticton's first 15 minute neighbourhood, meeting with City's Official Community Plan and Climate Action objectives.

2.2 Existing City Investments

Contained within the North Gateway area, specifically within the SOEC complex are some of the most valuable publicly funded assets that the City of Penticton owns. The reinvestment into these facilities and the surrounding area is a key goal of the Plan, ensuring that these community assets can be sustained into the future.

These Include:

- Penticton Community Centre
- Memorial Arena
- South Okanagan Events Centre & Okanagan Hockey School Training Centre
- Penticton Trade & Convention Centre
- Cleland Theatre
- Penticton Curling Club
- Bambino Field
- Recent additions to the SOEC Campus include the following:
  - Cascades Casino & Entertainment Centre
  - Match Restaurant

Around the periphery of the complex, the City has over recent years acquired land for the purpose of surface parking and future investment. Land along Highway 97 between Alberni Street and Comox Street has contributed towards parking needs in the short term. The 2019 OCP re-designated much of this area from its previous commercial designation to 'Institutional and Civic', signaling the intention for future expansion of the SOEC complex and supporting uses.

Some of these existing facilities will require change to support the long term vision, including Memorial Arena and Bambino field. Re-visioning of these spaces to support the goals and objectives of the Plan will be required into the future.

PART 3:

PROCESS & ENGAGEMENT

3.1 Process

The development of the Plan involved a significant amount of community engagement, technical analysis and stakeholder consultation during each phase of the planning process. During key milestones, the results of each phase were brought forward to the City's Economic Prosperity and Development Services Advisory Committee, and Council for their review to ensure the evolution of the Plan was on track to meet their objectives.

3.2 Community Engagement

The first phase of engagement was undertaken to get an understanding from the community, landowners and stakeholder organizations around how they use the North Gateway, what issues exist in the area and how they believe the long term vision for this area should take shape. The engagement process allowed the community, landowners and stakeholders to provide direction with an online mapping exercise and idea generation process that provided an understanding of how people use this area, why they use it and how it can be improved.

Engagement Activities

Staff hosted several stakeholder workshops to discuss the need and opportunity with interested stakeholders and landowners. Groups consulted specifically included:

- Parks and Recreation Advisory Committee
- Economic Prosperity & Development Services Advisory Committee
- Arts, Creative and Cultural Innovation Advisory
- Heritage & Museum Advisory Committee
- Penticton Golf & Country Club
- Travel Penticton Society
- Penticton Indian Band
- Spectra Event Management
- Downtown Penticton Association
- Penticton & Wine Country Chamber of Commerce
- School District #67
- The Ministry of Transportation & Infrastructure

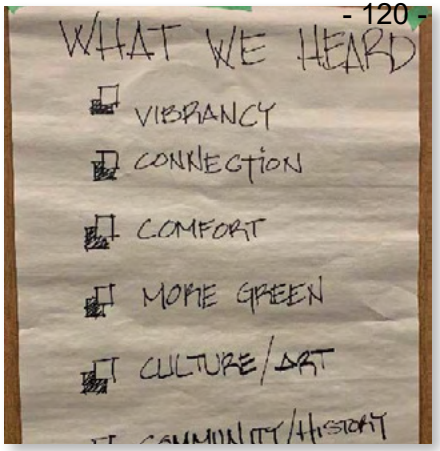
3.3 Design Charrette

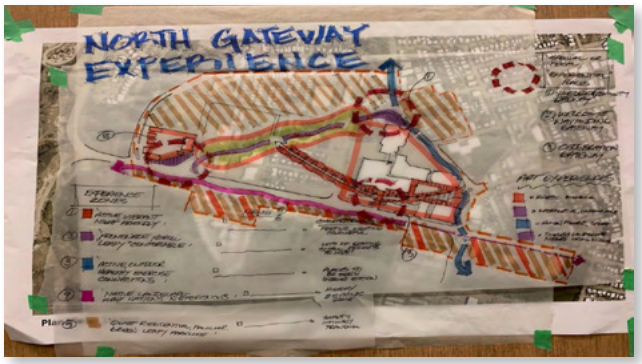
Building upon the feedback received from the community throughout the first phase of engagement and the technical analysis undertaken, the North Gateway Design Charrette was held during the week of September 13 – 17, 2021.

The objectives of the Charrette included capturing the ideas and values from stakeholders early in the process and nurture these ideas into a unified direction for the North Gateway.

Approximately 45 participants involved in the charrette were made up of landowners, businesses, stakeholder organizations and residents. They were led by team of design professionals to create the illustrative and policy vision for the North Gateway, which created ten (10) big ideas coming out of the design process including:

- 3 Districts
- 3 Corridors
- 3 Gateways
- 1 Festival Boulevard





3.4 Dialogue Phase

The dialogue phases of engagement with the community and stakeholder organizations were to ensure that the concepts developed met their expectations based on the earlier engagement and design processes. Feedback was received in a variety of formats including online mapping exercises, on-line workshops, surveys and one-on-one conversations.

Major themes from the feedback received included ensuring that building heights allowed for the densities envisioned, the critical need for affordable housing policy within the Plan and that the design of public spaces allows for a variety of users into the future. Further involvement with Penticton Indian Band was also highlighted by the community, including opportunities for housing, tourism and economic development partnerships.

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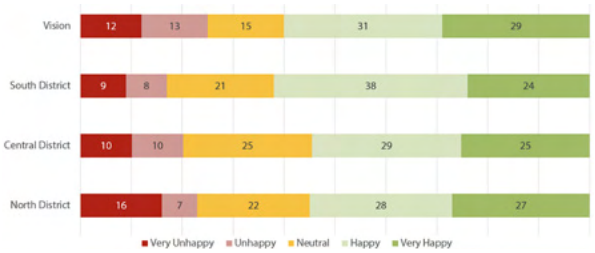


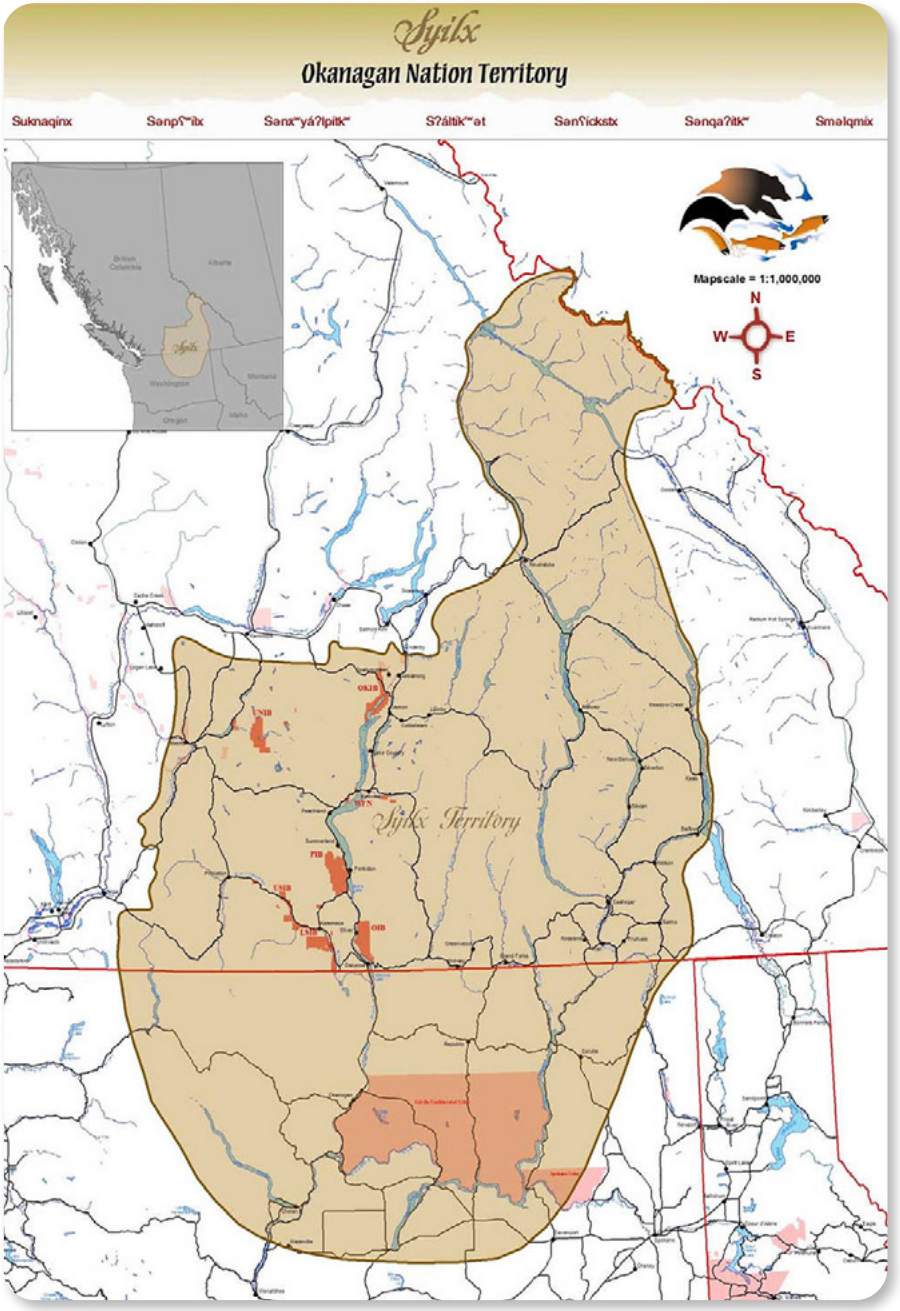
3.5 Indigenous Engagement

Engagement with the Penticton Indian Band occurred in the development of the Plan. Staff attended two PIB Major Projects Committee meetings where a number of issued were identified that have helped in the development of the Plan.

The following are the themes from the engagement. The Plan actions these comments with the development of policy and priority projects.

- Penticton used to be a PIB village and lands are unceded
- Alignment with PIB vision for cultural centre adjacent to Sicamous
- Indigenous tourism opportunities
- Servicing considerations through the North Gateway to the west
- Sustainability for future development and infrastructure
- Opportunity for signage / artwork and entryway enhancements
- Need for affordable housing for Band members

As the planning process and implementation moves forward, more consultation is needed on an ongoing basis as the area develops. The City will work with Penticton Indian Band on these initiatives and more by continuing to engage through the PIB Major Project's Committee and Council-to-Council meetings.



3.6 Technical Analysis

Land Use & Real Estate Analysis

One of the key technical and data gathering components for the development of the North Gateway Redevelopment & Investment Strategy was a Real Estate Demand Analysis that was required to inform the land use plan for the area. Determining the right mix and diversity of housing, tourist accommodation and support comical uses will be critical to the success of the plan.

Colliers International, who undertook the City-wide analysis as part of the development of the 2019 OCP process were retained for the North Gateway process. The work completed by Colliers helped to provide the process with an understanding of numerous factors to help inform the development of the Plan.

Mobility Analysis

Urban Systems Ltd. was retained to assess the mobility impacts resulting from the future vision for the area. Taking into account the population and density projections, infrastructure improvements proposed and mobility improvements, working with MOTI to develop mobility solutions to support the long term vision for the area.

Infrastructure Analysis

The City of Penticton completed it's Integrated Infrastructure Master Plan in 2021 which aligned the existing water, storm, sanitary and transportation master plans with the OCP. It identified the projects needed to achieve the goals and policies in the OCP and provided a prioritized action plan for the next 5, 10, 20 and 25 years. The master also identified where projects were needed to address existing deficiencies or anticipated growth.

Parkland Analysis

The Parks and Recreation Master Plan (PRMP) and the OCP have established guidelines for acquisition of active parkland to improve opportunities at existing parks, provide new recreation options in the community, and to improve connectivity between parks. The PRMP and OCP goals and policies for parks and recreation range from broad topics such as providing sufficient space for parks and trails and protecting existing parkland to some detailed site-specific recommendations. The North Gateway Master Plan intends to follow these guidelines and explore opportunities either to acquire new park land and/or use undeveloped lots for mixed-recreational use.

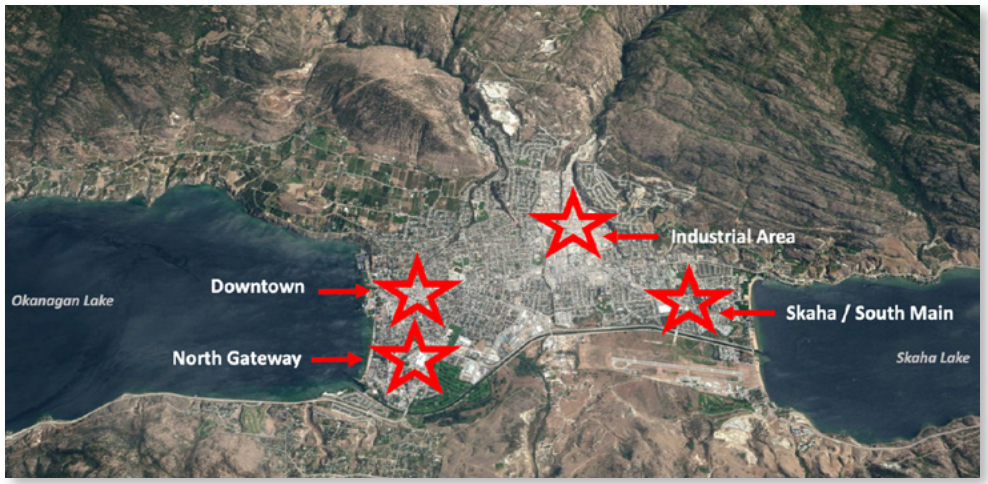
Alignment with the OCP

The process undertaken to develop the new OCP throughout 2016-2019 identified the North Gateway as one of the City's Strategic Investment Areas.

The OCP states that, "As the OCP's Growth and Infill areas redevelop to create sustainable and complete neighbourhoods, a strategic focus will be required on key areas within the City to support implementation of the OCP. The strategic investment focus areas will provide direction for local and regional investors to ensure future development meets the direction and vision created through the OCP. Land use and economic development policies will assist in focusing development into the Downtown, Northern Gateway, Skaha Lake Road and the Industrial area, providing an emphasis on employment growth and increased residential density. Strategic infrastructure investment on the part of the City will be required to support the successful implementation of these strategic areas."

Building upon the economic activity resulting from the SOEC, PTCC and uses within the existing area, the vision highlighted in the OCP for the North Gateway Strategic Investment Area was to support our local and regional economy through increasing the availability of commercial and employment lands.

OCP Strategic Investment Areas



3.7 Alignment with other City Plans

Asset & Amenity Management Plan

Many of our civic buildings and assets are nearing the end of their service life, no longer provide the functionality needed, and the cost to keep them operational exceeds the funds we have available. Rather than simply raise taxes, throughout 2020 and 2021, the City took the opportunity to review these assets and look for opportunities to renew, repair, replace or dispose of them where it makes sense. The goal was to develop a long-term plan that was fiscally responsible, continued delivery of quality services and supported the City's goals for developing a sustainable community.

One of the key recommendations coming out of the process was related to future civic investment in the North Gateway. The recommendation to consolidate the City's ice surfaces on the SOEC complex with the construction of a new twin arena and the demolition of McLaren and Memorial Arenas is intended to support both community recreation needs and drive further economic impact to our community. As part of this recommendation, the conversion of the Memorial Arena site to parking was identified to support this future investment in the North Gateway lands.

SS Sicamous Master Plan

In 2014, the City approved the SS Sicamous Area Master Plan, which after extensive consultation provided the design direction for future improvements around the area, which is located directly north-west of the North Gateway area. The SS Sicamous Plan identifies public realm and infrastructure improvements in and around the ship yards to support revitalization of the area and connections with the Okanagan Lake Promenade and adjacent amenities. The role of the North Gateway Plan is to recognize these improvements and provide a seamless connection to the areas, in particularly along Riverside Drive where a number of improvements are warranted, including links to indigenous cultural opportunities.

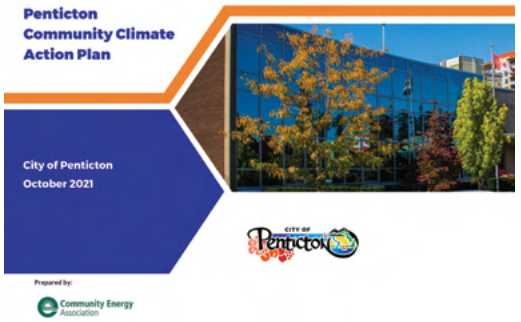
Community & Corporate Climate Action Plans

The City has updated the Community Climate Action Plan in 2020-2021 in order to reduce community-wide greenhouse gas emissions and energy use, and to consider actionable climate adaptation measures.

The Community Climate Action Plan (CCAP) provides policies and actions that provide guidance for future decision-making to help us achieve our targets. Actions include improving the energy efficiency of buildings, improving alternative transportation methods (such as bike routes), and reducing and diverting waste from landfills, to list a few. Implementation of the CCAP will occur through many of the policies and projects incorporated into the North Gateway plan.

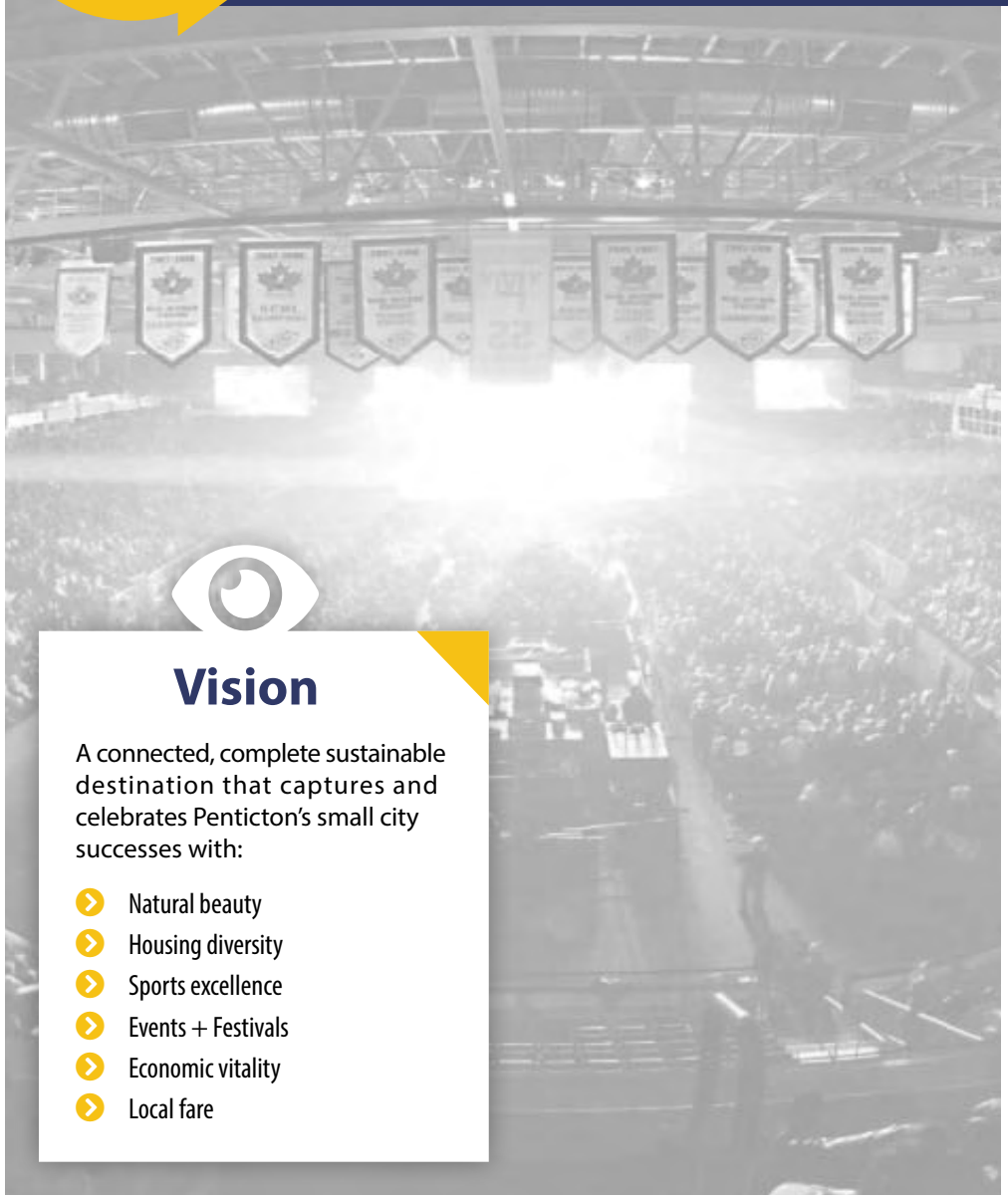
Age-Friendly Action Plan

The City's Age Friendly Action Plan was approved by Council in April 2022 and considers issues and assets identified by residents that affect the day to day lives of older adults, and it assesses and supports the capacity of community partners to take action. The Plan recommends strategies and activities based on best practices from other jurisdictions and local opportunities for intersectoral partnership. This action plan for Penticton is the first step toward the development of a community-based strategic plan with specific tasks and timelines for community partners to integrate into their organizational strategic plans and annual work plans in the longer term. Implementation of the recommendations through the North Gateway analysis will help sustain the area for future generations.



PART 4:

VISION & GUIDING PRINCIPLES



Vision

A connected, complete sustainable destination that captures and celebrates Penticton's small city successes with:

- Natural beauty
- Housing diversity
- Sports excellence
- Events + Festivals
- Economic vitality
- Local fare

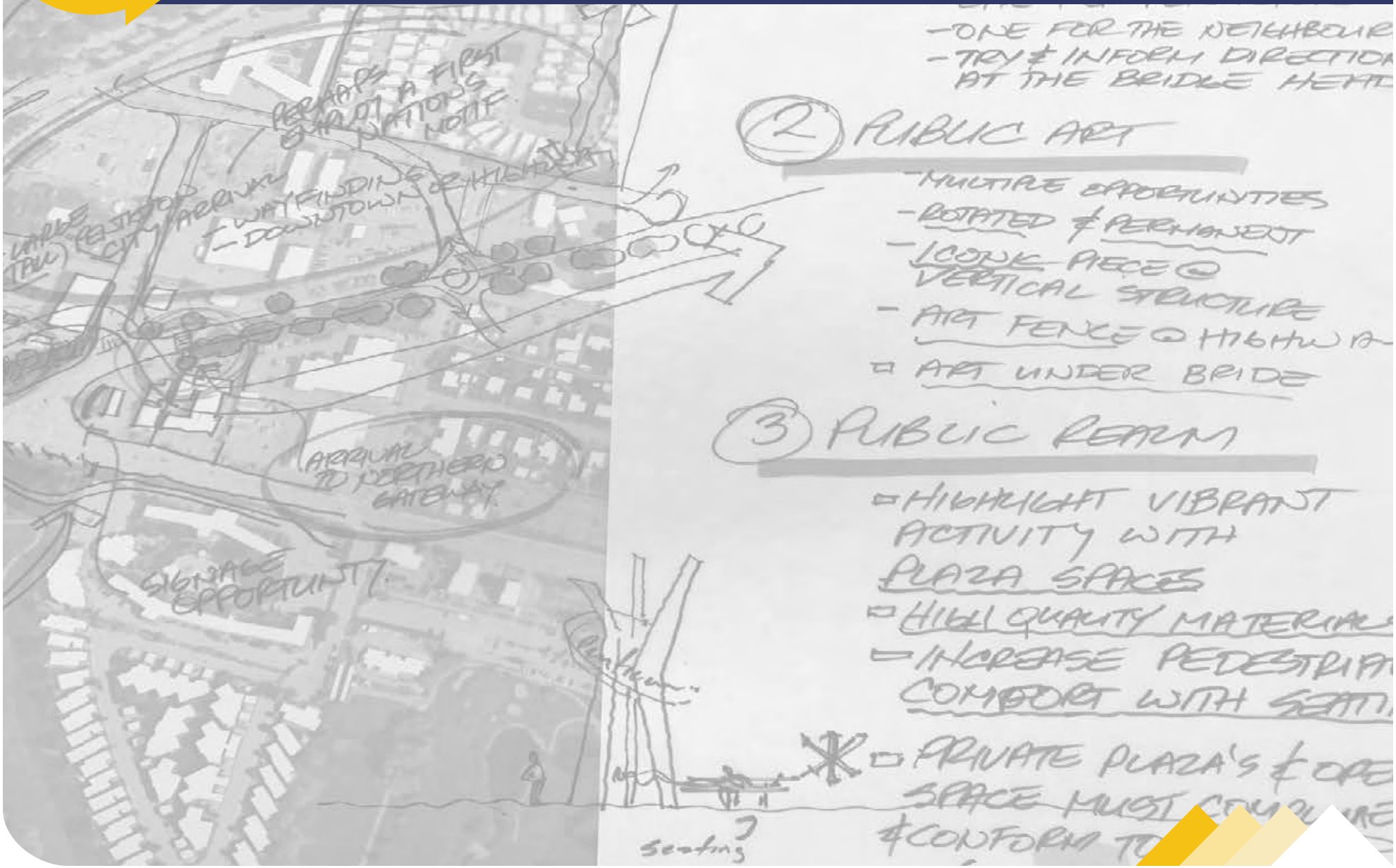
Guiding Principles

The guiding principles support the vision created by the community and provide overall guidance for the development of policies, strategies and priorities within the Plan.

1. **Engaged Community** – Everyone can engage in the decision-making process.
2. **Welcoming Community** – As the gateway to the South Okanagan and in partnership with Penticton Indian Band, we welcome you to our communities.
3. **Pedestrian First** – Prioritize a safe and accessible neighbourhood.
4. **Climate Resilient** – Reduce our reliance on vehicles through active transportation infrastructure and sustainable investment.
5. **Vibrant Economy** – Actively support business and employment growth into the future.
6. **Indigenous Recognition** – Collaborate with PIB to recognize historical and physical significance.
7. **Grey to Green** – Enhance and interconnect the existing parks, boulevards and landscaping.
8. **Diversity and Choice of Housing** – Create a rich housing mix for existing and future residents.
9. **Park Once** – Reduce the need for vehicle use by developing a walkable community.
10. **Pride of Place** – Transform the area into a safe and clean environment for all.
11. **Celebrate Our History** – Recognize the historical contribution of Penticton's sporting excellence
12. **Take Immediate Action** – Prioritize implementation projects to build momentum for public and private investment.

PART 5:

PLACEMAKING GOALS & STRATEGIES



5.1 Goals and Strategies

Urban Design Goals and Strategies provide a thoughtful approach to future development and infrastructure investment within the North Gateway. Images and illustrations provided show examples of the type of public and private infrastructure that should be included in the area as it grows and develops.

The form of development and public infrastructure policy provide clear direction to future investors, and the city as to how development will occur, but leaves flexibility for innovation to occur over the life of the plan. As the gateway to our downtown, SOEC complex and the South Okanagan, high quality design throughout this area is expected. The City's Official Community Plan sets out the Form & Character Design Guidelines for future private development in this area, however the following placemaking strategies have been developed specific to the North Gateway area.

Three distinct layers for the planning process were developed based on the desired future conditions envisioned by the community – Land Use and Density; Experience and Atmosphere; Mobility and Connections. Within each of the layers, targets have been set to ensure the long term vision for the area can be achieved and monitored over the coming years by implementation of the strategies.

Implementation of the goals and strategies will be completed in line with the City's Community Climate Action Planning objectives, include improving the energy efficiency of buildings, improving alternative transportation methods and reducing and diverting waste from landfills.

The Land Use and Density Plan, Experience and Atmosphere Plan and Mobility and Connections Plan provide the conceptual strategies for implementation of the Plan over the coming years.

Land Use & Density

Experience & Atomsphere

Mobility & Connectivity

5.2 Land Use and Density Layer

GOALS

- Ensure a range of medium to high density housing types, sizes, tenures and forms exist throughout the North Gateway to provide housing options for all ages, household types, and incomes.
- Provide affordable housing opportunities for existing and future employees to support economic growth and activity.
- Work with the Penticton Indian Band to seek opportunities for housing and tourism development partnerships.
- Allow for a mix of walkable and accessible retail / commercial uses within the area to support residents, visitors and event/convention delegates.
- Increase the supply of tourist accommodations in strategic locations to support the tourism industry and entertainment and convention expansion within the area and around the community.
- Support the addition of Civic Uses to the areas in line with the Asset and Amenity Management Planning, allowing for public access to new facilities, park land and plaza space within the North Gateway.

TOURIST COMMERCIAL

MEDIUM DENSITY MIXED USE

HIGH DENSITY MIXED USE

GROUND-ORIENTED RESIDENTIAL

URBAN RESIDENTIAL

URBAN HIGH DENSITY RESIDENTIAL

INSTITUTIONAL & CIVIC

RESIDENTIAL ORIENTED LIGHT INDUSTRIAL

PARK

5.2.1 Residential Housing Supply

***Target**: 1750 - 2250 new units within the area*

- The North Gateway neighbourhood has the capacity to accommodate a significant amount of new residential supply. With additional amenities and place making initiatives introduced into the North Gateway, the area will become more desirable to reside in through the approval of high quality and more affordable housing developments.
- Residential developments in the area will for the most part take a form of approximately 6 storeys, however taller buildings will be accommodated in strategic locations to support increasing a diverse range of residential options.
- Ground-oriented townhomes and apartment units with 2+ bedrooms will likely be the preferred housing type for residents that opt to move into the North Gateway area and should be supported in all forms of housing in the area.
- Innovative smaller unit types will also be considered for the area to support more affordable market and non-market housing options including opportunities for reduced or eliminated parking requirements.
- Townhomes with flex units / secondary suites will be supported in the area to increase the supply of smaller, more affordable units types.
- A strong focus and intensification of housing within mixed use developments along Westminster Avenue West will help in creating a key commercial and amenity strip that could facilitate walkable shopping and general livability of the area.
- Riverside Drive and the intersection of Westminster and Eckhardt Avenue offers opportunity for taller buildings to enhance this area as a strategic gateway, providing high quality building design opportunities for the entrance to Penticton.
- It is recognized that the geotechnical constraints in the area will increase the costs of construction, allowing for in some circumstances, the need for taller buildings to make development financially feasible. This will be an important consideration for all future development when considering building heights and any zoning amendments required if the area is to be financially viable for the construction of housing developments.

5.2.2 Employee Housing Supply

Target: *5% - 10% of all units in the North Gateway to be non-market housing developments (5%: 88-112 / 10%: 175-225 units)*

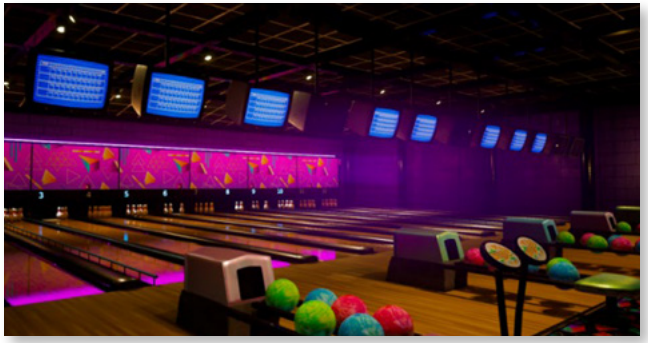
- Employee housing partnerships will need to be investigated to ensure a good mix of lower income housing is provided within the area to support the tourism, hospitality and other industries seeking employment in our community.
- The anticipated growth of convention and tourist activity, as well as the extension of events and festivals into the shoulder season, will drive employment demand up in the North Gateway. Establishing a sustainable housing solution within the area, that is close to both existing and new employment opportunities created, will help improve city-wide economic activity.
- The City will investigate increasing the supply of rental housing in the area including opportunities to use City owned land in partnership for the provision of affordable housing developments.
- Parking requirements for employee housing projects will be considered for significant reductions where cycling facilities and smaller units types are proposed.
- Support smaller suites within townhome developments, incorporating more supply to the current rental market, reducing the strain on demand and the cost of living for employees in the area
- Increasing the supply of smaller housing units (e.g. 1 bedroom, bachelor suites, micro suites) to support increasing densities and affordable housing options within the North Gateway.

- Affordable housing strategies for the North Gateway will form part of the City's wider housing strategy and look to opportunities to preserve and increase the overall supply of affordable rental housing such as:
  - Restricted Housing Programs should be looked at for employee housing opportunities.
  - The use of City owned land as leverage for affordable housing projects will be considered in strategic locations, identifying partnership opportunities to provide housing for the community.
  - Introduction of a Development Construction Cost or Community Amenity Contribution to contribute purpose-built rental units or below-market dwelling options to the community. Alternatively, cash-in-lieu could be collected for future development to be low-market housing, or for the foundation of a Resident Restricted housing program.
  - Investigating the potential for Rental Zoning (Residential Rental Tenure Zoning) as allowed for under Provincial regulations.
  - Updating the City's Density Bonus policies to require contributions from the development community to the creation of affordable housing units in return for additional residential density and building height.

5.2.3 Tourist Accommodation

Target: *Up to 350 new hotel rooms*

- New tourist accommodation developments will include a range of 3-5 Start Hotel accommodations in the North Gateway.
- The needs and desires of PTCC delegates and tourists will be met through the construction of 3-5 star hotels within the North Gateway or adjacent Lakeshore area, particularly if they include additional amenities such as an attractive pool, spa, and restaurant.
- The North Gateway could potentially support up to 350 new hotel rooms over the next 10 years on top of up coming supply, without significantly impacting the performance of existing operators. This would help to ensure that conventions and conferences are choosing Penticton over other cities with equivalent or better hotel room offerings.
- While this demand could potentially be accommodated through the redevelopment of existing underutilized hotel/ motel sites, the PTCC may be better served by a new attached hotel, which would involve the reconfiguration of the existing ball diamond lands and redistribution and addition of greenspace within the planning area.
- The inclusion of a new hotel directly on the PTCC campus or attached to the Casino will help to attract more conventions and conferences while also offering tourists high-quality accommodation near the lakeshore and downtown.
- Identify an appropriate location for such a development, such as directly attached to the PTCC or the Casino, and further examining whether another hotel is needed once the performance of the Four Points is monitored during key conventions and events.
- When deciding whether another hotel should be developed, the City should work with the PTCC operator to examine how the addition or more convention-oriented hotel rooms can be accommodated following the completion of the Four Points Sheraton.
- Partner with PIB in the development of tourism projects that allow for employment opportunities and acknowledgment of indigenous culture and identify in the design of buildings and spaces.



5.2.4 Support Commercial / Retail

Target: *25K– 30K of new commercial floor area*

- The North Gateway presents significant opportunities to host missing commercial and light industrial uses, especially for businesses that require larger lots. These changes will attract more visitation and expenditure per person than the current car dealerships that occupy the large lots of the area.
- The trends experienced in the City's retail market over the past few years are in-line with trends becoming more common throughout the Okanagan including growing demand for experiential food and service-oriented tenants and the North Gateway should support these uses.
- Support commercial uses should be contained along the Westminster Avenue West corridor as part of future mixed use development opportunities.
- Activation of street frontages should occur with ground floor oriented commercial uses, allowing patrons to activate storefront space with patios, cafes and retail offerings. High profile corner sites should present high quality pedestrian oriented design creating active and vibrant spaces.
- Retail uses within the North Gateway that complement, rather than directly competes with, the West Downtown, Downtown Core and lakeshore areas, will provide offerings desired by both nearby residents, event attendees and PTCC delegates. This could include coffee shops, quick-service restaurant, full-service restaurant, brewery, distillery, wine bar, indoor amusement and other similar convenience and experience oriented tenants.
- Both public and private daycare facilities will be supported in the area, within larger developments and also within future civic facilities.

5.2.5 Civic / Entertainment Facilities

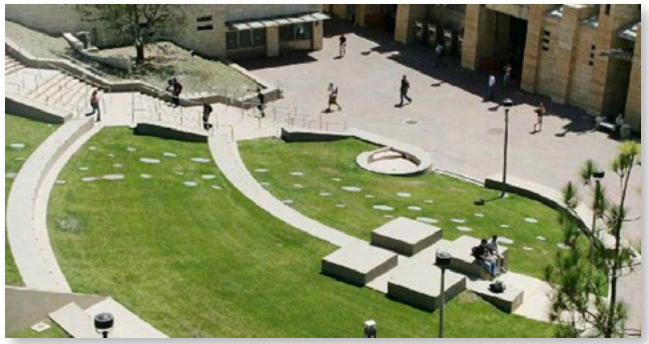
***Target**: Addition of up to two new ice surfaces and expansion of convention space*

- The City's Asset and Amenity Management Plan provides the opportunity for up to two new ice surfaces adjacent to the SOEC. The arenas would provide for a more sustainable facility model for the City's recreation needs and also provide positive economic activity generated by the use of the new facilities through increased tournaments, large scale events and local and regional visitations to Penticton.
- The North Gateway will seek to accommodate up to two new ice arenas adjacent to the SOEC through the undertaking of detailed site analysis and building design.
- With the entertainment focus of the North gateway and increase in residential densities envisioned, the addition of publicly accessible gathering spaces will be required to support increased use.
- Plaza and greenspace design that falls adjacent to event or convention space should be available and accessible for the use by the public.
- The City will continue to acquire lands to the west of the SOEC complex to ensure the availability of land for facility expansion.

5.2.6 Tree Canopy

***Target**: Retain existing City trees and look to double the tree canopy*

- Protection of City trees will be undertaken in consultation with the City's Parks Department and under the guidance of a qualified arborist.
- Tree protection measures such as covenants and appropriately setback buildings will be incorporated into the design of future City infrastructure projects and development proposals.
- Comply with the goals and guidelines set out in the proposed Urban Forest Master Plan and Tree Protection Bylaw.
- Improve the integration of trees and green infrastructure into design plans to improve long term tree health outcomes.
- Recognize climate change adaptations and include appropriate tree selection, suitability, and best management practices as development proposals arise.



5.2.7 Park Land Enhancements

***Target:** Support the OCP Target of meeting the standard of 2.5^{ha} of parkland per 1,000 people as the North Gateway develops*

- There will be no net loss of park land within the area and the strategic realignment of existing greenspace and addition of new space to meet the needs of future developments and densities will be supported through comprehensive engagement and design processes.
- New pedestrian connections within and throughout the North Gateway should encompass green boulevards to enhance the walkable park land environment within the area, linking major facilities with surrounding amenities.
- The redesign and reorientation of the PTCC towards Westminster Avenue should be undertaken in association with the construction of new hotels adjacent to the site. Enclosed walkways through hotels to the reoriented front entrance of the PTCC is encouraged to support delegate comfort and enhancing the physical appearance of the Convention Centre.
- The City will work with partners such as SD#67 to look at relocating Bambino Field, ensuring no loss of fields for the baseball community.
- As opposed to a single use park space that exists with the baseball infrastructure, new green space will be designed to reflect the urbanization of the area, allowing for a mix of active and passive uses within the North Gateway.
- Apply the PRMP's design guidelines to the design of new and upgraded parks.

5.3 Land Use and Density Plan

The Land Use and Density Plan provides for the conceptual land use that will be achieved by implementing of the North Gateway Redevelopment and Investment Strategy. The map provides the conceptual layout for the area, which will be refined and updated through the detailed design of infrastructure and the submission of development applications.

5.4 Experience and Atmosphere Layer

GOALS

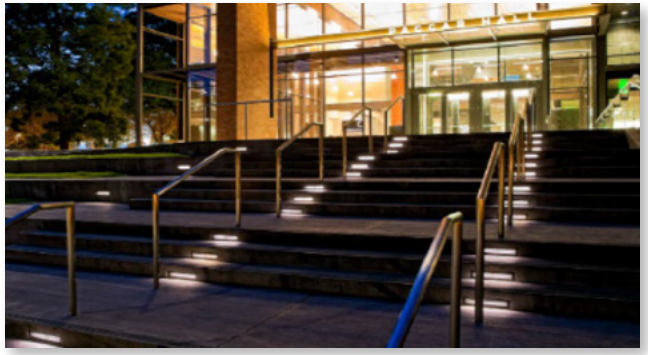
- The North Gateway will be a year-round destination that cultivates culture, sports and entertainment providing unique and memorable experiences for future generations.
- The experience of the area will reflect indigenous cultural and identify.
- The North Gateway will honor our community's history and accomplishments through facility and public realm design, celebrating our past and honoring our future.
- Provide safe and accessible design of buildings and public spaces to ensure inclusion for all residents and visitors.
- Design and build strategic public space and road infrastructure to allow for flexible use during events and festivals.
- Support business expansion in the area to complement the event and conference facilities, ensuring activation of pedestrian spaces.

5.4.1 Pedestrian Experience

- A comfortable pedestrian experience that is designed for people instead of vehicles will activate the North Gateway, focusing on well illuminated, landscaped, spacious and continuous sidewalk connections.
- The speed at which vehicles drive through the area will be reduced through road design ensuring a safe and comfortable pedestrian environment.
- Pedestrian crossings along Westminster Avenue and Highway 97 will be provided to allow for safe access across the road.
- New buildings will connect to the street front through active facades, promoting strong pedestrian connections.
- Surface parking will be provided to the rear of buildings and pedestrian connections through larger parking lots will allow for safe access from vehicles to destinations on foot.
- Accessibility for those seeking active transportation modes will be enhanced through wider sidewalks, the addition of cycling infrastructure and multi-use paths. Curb cuts on every intersection, demarcated pedestrian crossings, and accessible pedestrian signaling will encourage increased use by all pedestrians.

5.4.2 Crime Prevention Through Environmental Design (CPTED)

- CPTED or Crime Prevention Through Environmental Design is a set of design principles that not only works to reduce crime through the layout of physical attributes of a space but also aims to increase perceived safety, activate spaces, and encourage a more inclusive public realm.
- Incorporating safety into the design elements of public spaces will attract users and encourages them to care for the area. These safety measures and the encouragement of the use of space will make public space safer and more welcoming.
- An active and vibrant space aids in establishing the natural surveillance of an area. Ensuring the physical design of space also contributes to natural surveillance is critical in design contributing to the overall safety of an area. Encouraging permeable building frontages that offer "eyes on the street" and continuous sightlines will allow for mutual surveillance between those inside and those outside, establishing mutual safety.
- Lighting that continuously illuminates an area and allows residents and visitors to clearly identify others within a reasonable distance will contribute to the continuous sightlines and natural surveillance. Adequate lighting is also a contributing element to the continuous usage of space through the evenings and winter months.

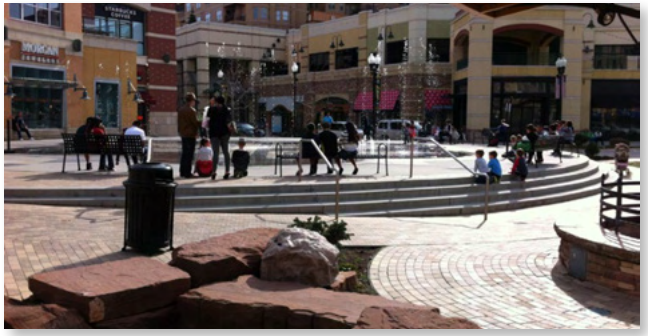


5.4.3 Governance of Space

- Aiding in the efforts of CPTED is a clear delineation in the governance of spaces, including who is responsible for upkeep and rule enforcement.
- Ensuring an area does not fall into disrepair alleviates further damage and nefarious activity. The interface between private and public space will be carefully considered through the design process to ensure conflict areas are resolved before approvals.
- As the area redevelops, in particular around the SOEC/PTCC it will be important to delineate what is a public space where liquor consumption or convention activities are programed to activate the area.
- Clearly define transitions between public and private spaces with access control methods such as vegetation barriers. Less ambiguity through maintenance and governance will help ensure visitors and users know what areas are accessible and usable for them, and ensure the overall area is cherished.

5.4.4 Usage Continuity

- Activating the neighbourhood with more continuous uses regardless of time and season will encourage more activity in the area.
- A continuous and active streetscape will encourage activity at all times of the day and support active transportation in the North Gateway. By infilling vacant or underdeveloped parcels of land in the area and requiring future development to frame the street instead of being set back from the public realm, the North Gateway will become a more attractive and inviting destination for residents and visitors.
- On street level and neighbourhood scale vibrancy will be achieved through providing a range of commercial opportunities to accommodate those of all socioeconomic demographics. Small shops, cafes, restaurants, bars, and unique experiences will enliven an area.
- Particularly for ground floor retail uses, it is essential to provide active rather than inactive storefronts and consistent frontages. Active storefronts are those that spill out onto the sidewalk, helping attract customers while also creating a more diverse streetscape. Elements such as patios, exterior store displays, permeable edges, and pet-friendly areas should be considered.



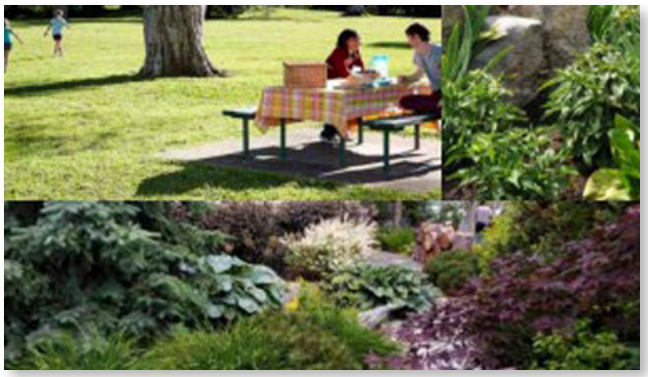
5.4.5 Accessibility

- The North Gateway will strive to be accessible, not only in a physical sense, but also in a broader social sense. With an evermore diverse and aging population, the future design and development of the area will support the imperatives of accessibility, social inclusion, and universal design.
- Through the design of buildings and public space, the accessibility requirements of the BC Building Code will be met, including the following design requirements:
  - Accessible transit
  - Automatic doors to public and private buildings
  - Scooter friendly sidewalks
  - Designated accessible parking / drop-off facilities
  - Universal design and pedestrian considerations
  - Audible walk signs
  - Inclusive recreation
  - Assistive technologies

5.4.6 Landscaping

- Landscaping should be leveraged to create an identity and character for the area, improve public spaces, and contribute to placemaking efforts. Plants and greenery provide attractive elements that make a space more welcoming and hospitable
- Landscaping should contribute to safety and public access control through its use as semi-permeable barriers and borders between areas. At the same time, vegetation should not obscure sightlines or degrade the lighting of an area.
- Well-kept landscaping contributes to the overall sense of governance, care, and ownership in an area in turn improving user experience.
- Greenery and effective landscaping has the additional benefit of reducing urban heat island effects. Pavement and concrete infrastructure tends to absorb and re-emit heat, amplifying the effects of hot weather. This negatively impacts air and water quality and general living conditions for residents. A means to mitigate this is to introduce and maintain natural landscapes as much as possible. Tree-covered areas that offer shade and a cooler area to gather for the public should be encouraged – a crucial element during the hot Penticton summers.
- Street design will include green boulevards with street trees and storm water feature such as rain gardens and will accommodate existing boulevard trees. In some instances it will be necessary to prioritize sufficient width and setbacks to maximize pedestrian use while creating ideal conditions to plant boulevard trees. The street design will also explore sustainable materials and furnishings consistent and complimentary to the area.

- Replacement of concrete surfaces with permeable surfaces will also help to reduce the negative impacts of run-off water, protecting the natural water resources adjacent to the North Gateway.
- Landscaping with indigenous plants and pollinators, introducing comprehensive plans to connect green spaces, as well as replacing non-permeable surfaces (concrete/asphalt) with permeable greenery could drastically improve the local ecosystem, contributing to sustainable and improved landscape.
- A street tree planting program will be administered through the implementation of capital projects in the area, ensuring the greening of the landscape within the area.
- Support the provision of productive landscapes within the green space designed on both public and private land in the form of roof gardens, community gardens to support local food security.
- The inclusion of green roofs and landscaped rooftop patios will be supported as part of development projects in the area.



5.4.7 Human Scale Development

- Human scale development includes ensuring buildings do not overly impose on the landscape or on the people that will be using the areas. This generally means avoiding the development of buildings that are excessively large or do not fit with the area's scale, hinder views, cast extremely large shadows, or buildings that create an intimidating environment for pedestrians due to their height and size.
- Human scale also means ensuring that there is permeability in building facades, so pedestrians are not walking along long blank walls, as well as breaking up long blocks to offer more interest, or simply avoiding long blocks altogether.
- Human scale development also reduces private vehicle prioritization and instead encourages walkability. Improvement of the pedestrian experience will contribute to the improved general use and vibrancy of an area.

5.4.8 Activating the Public Realm

- A North Gateway that is activated at all times of the day and year will be a substantially more attractive community to live, work, and play. In addition, a unique and tailored public realm will assist in creating an identifiable place that is marketable and attractive.
- Strategic locations of commercial uses in the North Gateway will act as a footfall generator drawing greater potential expenditure into the area. The North Gateway will support small businesses that characterize the neighbourhood, the area can generate a personality and identity that is more in alignment with a unique community as opposed to a drive-through area of Penticton.
- The North Gateway has numerous opportunities to improve the public realm through interventions of all sizes, scales, and costs.
- Outdoor recreation opportunities in the form of active public spaces and pedestrian/cycling infrastructure will support a healthy environment for residents and visitors.
- The design of walkways / multi-use paths and cycling infrastructure should support encouraging sporting organizations and recreation programming using these spaces for events and activities.
- Civic space, parkland and connections to the surrounding area will be considered as part of the redevelopment of the Central District lands. Partnership opportunities, park land analysis and land assembly will be incorporated into the future design and planning for the area.

5.4.9 Development Lot / Interim Use Activation

- Existing underutilized spaces in the North Gateway could be better programmed to serve as attractive amenities, helping to draw in a large number of visitors. Large surface parking lots awaiting future redevelopment for example can be a significant opportunity to create a distinct and unique place that is otherwise generally empty and used for vehicle storage.
- Surface parking and vacant development lots could be leveraged into a multi-use space, for example, for performances, art installations, cultural events, and shared dining areas for nearby restaurants and bars to promote greater social interaction.

5.4.10 Signage and Wayfinding

- A signage program will need to be developed for this area, providing directional information to the SOEC campus, and surrounding amenities, including Okanagan Lake, Downtown, Naramata Bench and other key locations within the plan area.
- The "Welcome to Penticton" sign and public art opportunities in partnership with the Penticton Indian Band, at the entrance of the North Gateway will provide an opportunity to better illustrate to those arriving in the area the opportunities within the North Gateway and City of Penticton.
- The addition of clearly designed, attractive, and articulate signage will assist visitors and residents in understanding where they are, increase awareness of the services and amenities within the North Gateway, and direct viewers to places of interest.
- Signage must be large enough to be viewed by those using different modes of transportation, but also must be attractive enough as to not detract from the urban design intent of the area.
- The City of Penticton should consider implementing distinct, eye-catching signage at several vantage points that would be visible to pedestrians in the North Gateway along with vehicles to encourage drivers to remain in the North Gateway as opposed to continuing on to other neighbourhoods such as Downtown Penticton.
- Key location for new directional signage and landscaping enhancements will include:
  - Red Wing median
  - West Bench median
  - Eckhardt / Westminster intersection
  - Alberni Street / Eckhardt Avenue
  - Comox / Westminster – Festival Boulevard
  - Westminster Avenue / Power Street
- Locations for Welcoming Signage will include:
  - Riverside Village Greenspace
  - Bridge / Golf Course
  - Alberni Street / Eckhardt Avenue

5.4.11 Celebrating our Past

- The design of future facilities and infrastructure should include the recognition of Penticton's sporting and cultural heritage.
- Public plazas and multi-use pathways can be designed to incorporate recognition elements such as interpretive signage, public art, banners, pavement details and traffic calming measures for example to showcase our community's history.
- The replacement of Memorial Arena with new ice surfaces should incorporate recognition of its value as a community war memorial from post World War II and its history attached to hockey in the Okanagan.
- Design considerations for future arenas should include opportunities for replication of the half-barrel shaped roof construction and laminated wooden arches within the new building design or retention of elements of the existing Memorial Arena and transfer of them into new facilities.
- Working with historical organizations, the recognition of our community's history will be incorporated into the design of the North Gateway.

5.5 Experience and Atmosphere Plan

The Experience and Atmosphere Plan shows the location of future investment that will be made in wayfinding signage and public amenities that will be added to the area as it develops, including the opportunity for civic land assembly. Through the detailed land assembly, park land needs and ultimate design for the area, the conceptual plan and policies provide for future design considerations.

5.6 Mobility and Connection Layer

GOALS

- All mobility connections within the North Gateway will prioritize pedestrian and cyclists over single occupant vehicle use.
- Support high quality Bus Transit infrastructure in strategic locations to ensure its availability to move large numbers of people directly and efficiently with a low environmental impact.
- A 'park once' strategy should be considered for the North Gateway supporting a Fuel Free approach to accessing the area, events and activities.
- Provide multi-modal connections between destinations and adjacent neighbourhoods.
- Establish a street hierarchy that responds to adjacent uses and balances pedestrian, bicycle, and vehicular needs.

WALKABILITY

Walkability

- 10-15 Minute Walk
- 5-7 Minutes To Centre
- Enhancement Of Food And Beverage Retail Offerings
- Improve Pedestrian Safety and Experience
- Result is A Complete - Live, Work, Play Locally

5.6.1 Mobility Targets

- In support of the City's Community Climate Action Plan objectives and a shift towards a more active transportation focused community, public mobility infrastructure will be designed to reduce kilometres traveled by 13%. Of the 13% reduction in vehicle kilometres traveled, 44% of the reduction will be attributed to active transportation, a 28% reduction from transit, and the remaining 28% due to land use planning.

5.6.2 Reducing Vehicle Dependency

- The significant challenge to making the North Gateway a more attractive place to live, work, and play will be to reduce the presence of fast vehicle traffic, particularly on Westminster Avenue and Highway 97.
- While it is inevitable that vehicles will have to pass through the North Gateway to access and leave the City of Penticton from the west, it is critical that physical and design elements are introduced to reduce vehicle traffic and encourage drivers to stay in the North Gateway. This can include elements such as traffic circles, adding stoplights, reducing permitted speeds, eliminating unnecessary vehicle infrastructure and introducing traffic calming measures such as speed bumps, landscaping and curb extensions.
- With a wider variety of attractive uses in the North Gateway, there will be greater incentive to remain in the area, as opposed to using the roads as a thoroughfare to other parts of the city. This will in turn contribute to reducing vehicle traffic and make the North Gateway more hospitable and comfortable.
- By reducing vehicle lanes and placing greater emphasis on active transportation infrastructure, safety measures will increase pedestrian and cycling activity while also discouraging vehicles from driving dangerously. This will be implemented through the creation of dedicated and separated bike lanes, ensuring pedestrian infrastructure is continuous and comfortable for all ages and abilities, and more clearly demarcating where the various modes of transportation belong.

- Curbside parking should be considered, particularly along Westminster Avenue will help slow vehicle traffic down and encourage a more activated commercial and residential street front.
- By reducing and discouraging vehicular traffic in the North Gateway and improving the ability to access the area through active transportation, there is a significant opportunity to redevelop the substantial supply of surface parking in the area for higher-value uses, as part of a detailed planing and design process.

5.6.3 Linkages

- Introducing active transportation routes, breaking up blocks with cut-thrus, and generally providing additional linkages between key spots throughout the North Gateway will improve the experience for users that are not navigating in private vehicles.
- An improved public realm could also come from creating clear linkages throughout the North Gateway with signage to key destinations such as the Convention Centre, as well as linking the North Gateway to the adjacent lakeshore, Okanagan River Channel and Downtown.

5.6.4 Parking

- To support sustainable transportation solutions within the area, a shared parking approach will be considered as part of the introduction of new facilities and uses to the North Gateway. In recognition of the varied use times for the facilities, the lack of available land to provide large areas of surface parking, and the goal of creating a more sustainable transportation model in the area, parking reductions will be considered as new facilities occur in association with the investment in transit and active transportation solutions.
- Support for active and alternative transportation within the areas will ensure that affordable and cost efficient transportation solutions allow for attendance and visitation within the area.
- The elimination of minimum parking requirements will be considered for the area, in support for market driven parking needs. Lower parking ratios for new development will be considered where alternative transportation options are provided such as bicycle parking, proximity to transit and care share programs.
- The design of small vehicle spaces, care share programs and car pool stalls will be incorporated into site design and reduce the need for large areas of parking to be provided.
- Electrical vehicle charging infrastructure will be strategically located on public and private lands to support the City's Climate Action objectives.

5.6.5 Cycling

- Cycling is increasingly recognized as a clean, sustainable mode of transport and an essential part of an inter-modal plan for travel within the North Gateway.
- It is important to develop an infrastructure of cycling routes and facilities in line with the City's cycling network to provide more transportation options and generate more cycling trips.
- Protected cycling lanes will be include within the redesign of roads within the area.
- Increase bike end-of-trip support infrastructure will be provided at transit facilities.
- Increase the provision of bike racks and secure bike storage facilities at key destinations within the North Gateway.

5.6.6 Transit

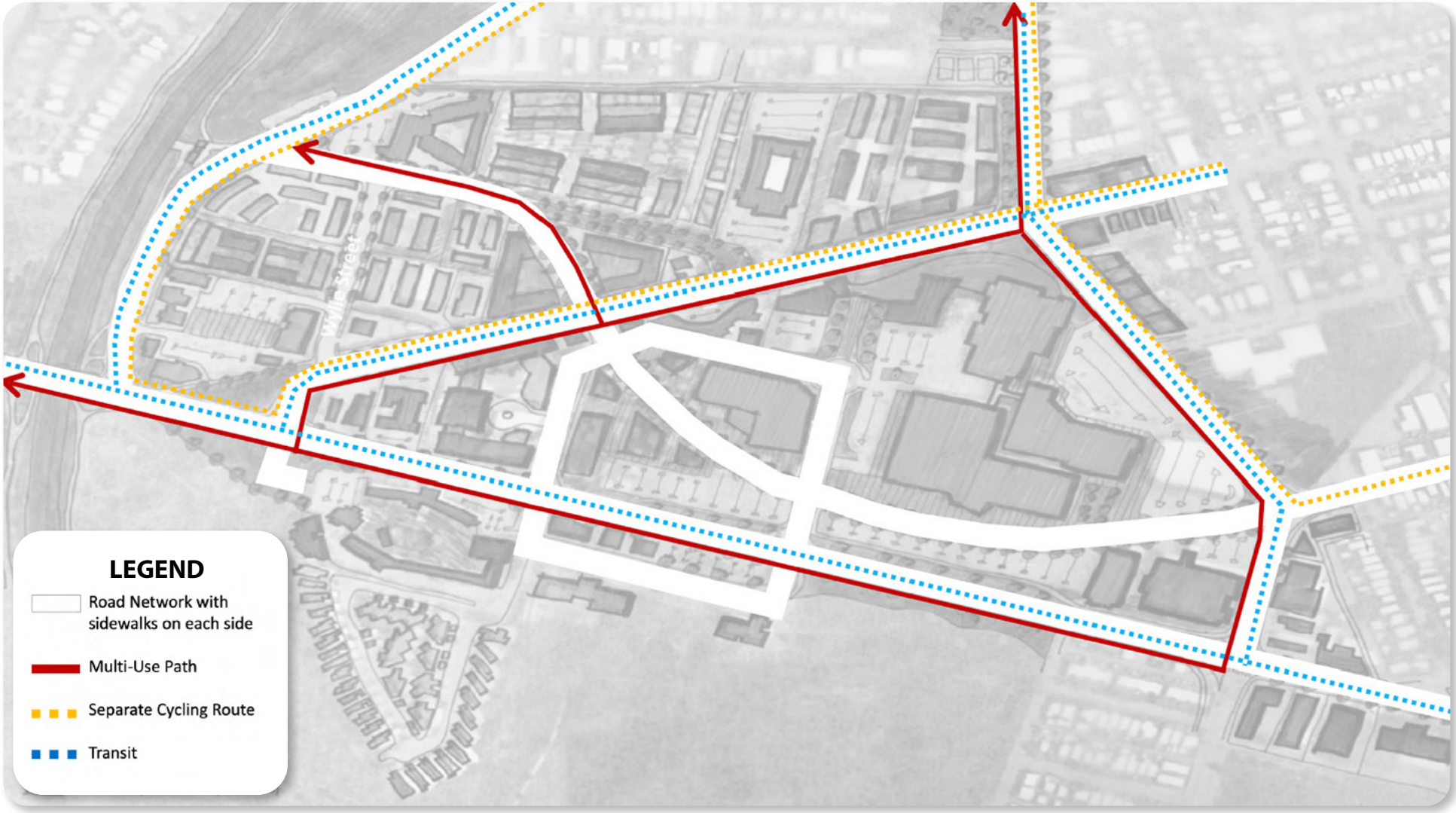
- Design roads to ensure bus transit access is enhanced as densities increase in the area.
- In recognition of the walkability of the North Gateway, opportunities for centralized transit hubs and transit stops for drop-off and pick up within the North Gateway will be accommodated, focusing locations close to key destinations.
- Support the relocation of the regional transit stop that currently exists on the corner of Alberni Street and Eckhardt Avenue West to an alternative location within the North Gateway.

5.6.7 Good Movement / Event Transportation

- Roads should be designed to accommodated goods movement into the downtown and surrounding areas.
- Event loading infrastructure will need to be considered with the redesign of the SOEC complex Gateway and Alberni Street, ensuring that adequate space and turning areas accessing the PTCC and SOEC are retained as new development occurs for larger vehicles.

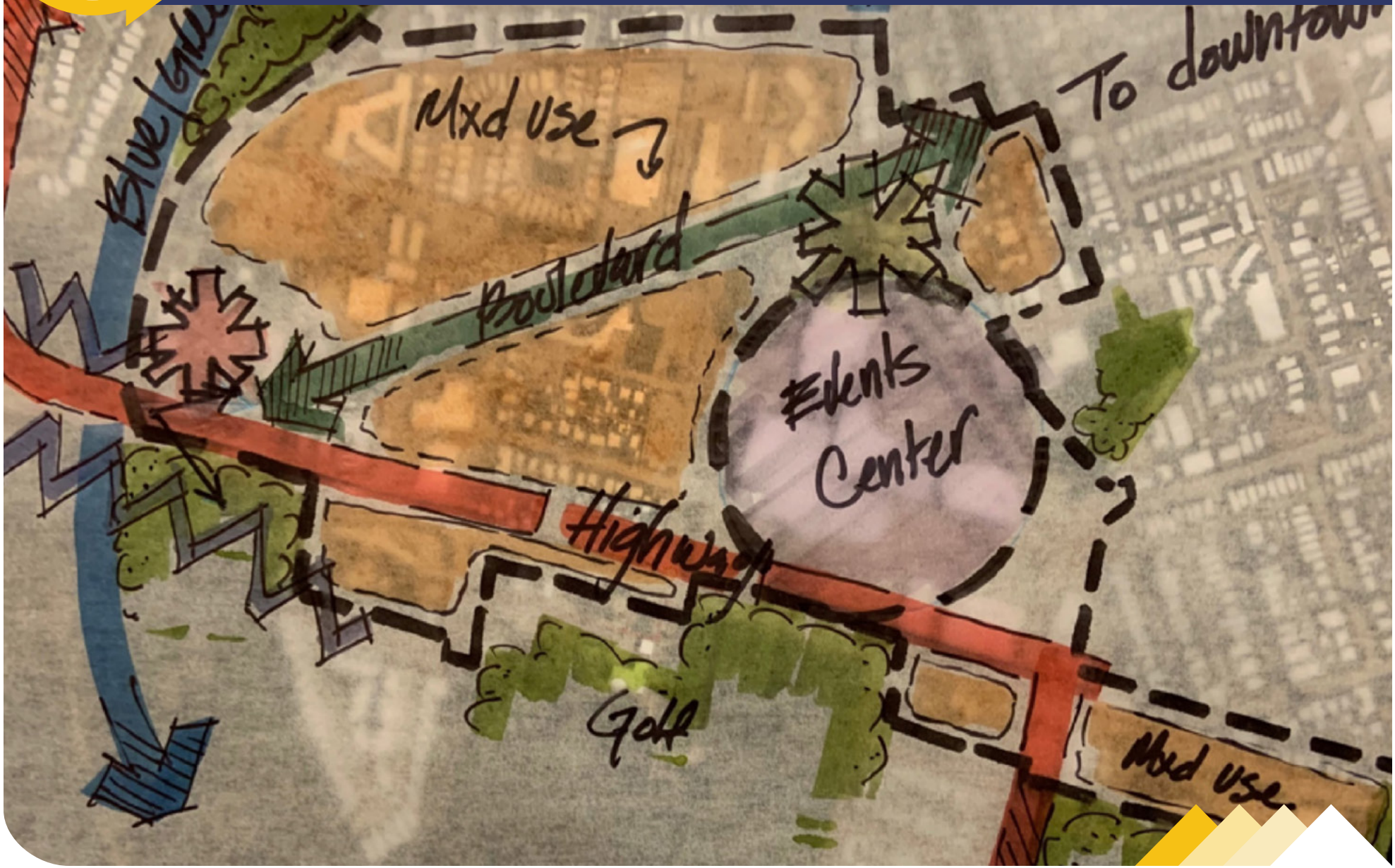
5.7 Mobility and Connections Plan

The mobility and connections plan shows the conceptual road network and supportive transit and active transportation links that will be integrated into the design of future upgrades to the area.



PART 6:

10 BIG URBAN DESIGN CHANGES



10 Major Ideas

The North Gateway is a large area and in order to focus public realm and urban design improvements into the future. The area has been divided up into three Districts. Each District contains a range of elements and future investment opportunities that when combined will contribute to creating a connected, complete, sustainable destination.

The following provides an outline of how the Districts have come together, how each are connected through key mobility corridors and gateways, and the key attributes that are required within each District to enable successful implementation of the Plan.

Detailed design projects related to the 10 Big Urban Design Changes will be completed into the future, achieving the vision set out within the Plan, and in line with the goals and strategies of the Plan.

Through the planning and design process it was identified very early on that the North Gateway lacks connection, safe public infrastructure, and vision. The opportunity that presented itself through the planning process is that with improved connections within the areas, both existing and future land uses could be connected through a variety of improved pedestrian, cycling, parkland and roadway design solutions.

The South Okanagan Event Centre complex is already established as the economic anchor for the area. With surrounding amenities and such as Okanagan Lake, The River Channel at its doorstep, and with the Downtown being in such close proximity, the opportunity to create a special place within the North Gateway, feeding off the connection to these surrounding community assets is unique.

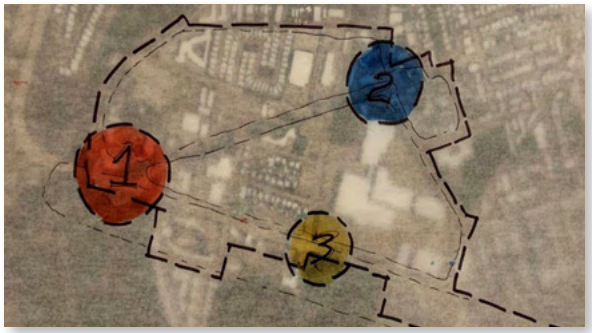
The cornerstone of the North Gateway Redevelopment & Investment Strategy will focus around 10 major ideas:

3 Districts

The three Districts are largely divided by the exiting transportation corridors – Westminster Avenue West and Eckhardt Avenue West (Highway 97). The lands adjacent to the corridors provide for strategic redevelopment opportunities and through partnership between the City of Penticton, Ministry of Transportation and Infrastructure, Penticton Indian Band, landowners and the development community the priorities identified in the Plan will be implemented successfully.

3 Corridors

The three mobility corridors through the North Gateway will allow for multi-modal transportation connections not only within the area, but ensuring connectivity with surrounding areas and amenities.



3 Gateways

The three Gateways within the area will help to signify and strong and welcoming entrance to Penticton and within important intersections within the area.

1 Festival Boulevard

Festival Boulevard will connect Burnaby Avenue to Power Street, linking through the centre of the North Gateway and providing for a unique mobility solution.

1. South District

Existing Conditions:

The South District is defined by its interface with Eckhardt Avenue West (Highway 97) to the north, Penticton Golf and Country Club to the south and the Okanagan River Channel to the west. Contained within the district existing hotels, a mix of commercial uses, vacant underutilized lands, low-medium density residential development and Kings Park sporting facilities.

Future Conditions:

The South District will become a walkable, attractive and mixed use area that allows for safe pedestrian access along Eckhardt Avenue West and connects Kings Park to the Okanagan River Channel through a safe and green multi-use pathway. Safe pedestrian and vehicle crossing of Eckhardt Avenue West will allow for continuity of access from residences and businesses on the south side to the Event Centre Complex and services. Improved multi-use connections from the Channel Parkway to the South District will occur in partnership with PIB and MOTI, allowing for safe and attractive travel underneath the River Channel bridge and connection to surrounding developments and amenities.

Implementation Priorities:

1. Enhance the trail underneath the bridge to allow for appropriate height, safety, illumination and beautification.
2. Creation of a separated multi-use landscaped path along the south side of Eckhardt Avenue West, connecting the Okanagan River Channel to the south side of the road.
3. Utilize the golf course frontage to provide attractive and welcoming signage and entrance features.
4. To improve the development potential of lands on the south side of Eckhardt Avenue West, the City will work with the Penticton Golf & Country Club and landowners to organize the land so that the development potential can be maximized in line with the vision for this area.
5. Rezone lands to allow for a mix of multi-family housing developments within the South District. Support commercial will be supported at ground level where appropriate, ensuring the appropriate setback and interface is provided between the multi-use path and building frontages.
6. Indigenous recognition will occur through the installation of public art and urban design features within the entrance to the area along Eckhardt Avenue West.
7. Entrance signage and design features will be incorporated into the district allowing for wayfinding signage, public art and visitor experience opportunities.
8. Within the Riverside Plaza greenspace, pedestrian access will be diverted from adjacent to the Highway to within the greenspace, allowing for improved safety, increased use of the greenspace and linkages to the surrounding pedestrian network.

2. Central District

Existing Conditions:

The Central District contains some of the most significant publicly funded assets in the City of Penticton. Focused around entertainment, conventions, recreation and culture, these facilities provide for public amenity and economic activity for the community, drawing visitors form home and abroad. Tourist accommodation and support commercial exist in the area as well as older low-medium density housing offerings. Significant land within the Central district also includes surface parking for the events complex.

Future Conditions:

The Central District will become the entertainment and indoor recreation hub of the South Okanagan. With the addition of new recreation facilities, revitalization of the convention centre, increased number of events and addition of new hotels to the area, visitations will increase, economic activity will be generated and new vibrant public space will be created in the heart of the North Gateway. Affordable living options are provided to support employee housing needs for the area and elsewhere in the City.

Implementation Priorities:

1. The addition of two new multi-purpose arenas will be added to the Events complex, adjacent to the SOEC and Memorial Arena will be replaced with surface parking.
2. The PTCC should be reoriented towards Westminster Avenue and provided with an attached hotel and civic space allowing for public access, indigenous partnership and collaboration, parkland use, while retaining the importance of loading facilities for the SOEC and PTCC.
3. New hotel and civic park land will be designed to support public access and integration within the PTCC.
4. Parking facilities will be consolidated into appropriate locations and may include the provision of a strategically located parking structure funded in partnership to support the public and private activities that take place in the Central District.
5. Partnership for affordable housing utilizing city owned land assets will be considered in close proximity to hotels and commercial businesses to support employee retention in the community.
6. Central to the design of the district will be to ensure that public spaces and streets are designed to ensure pedestrian safety, a vibrant and festive atmosphere, and celebration of Penticton's history, culture and sporting excellence.
7. Taller residential buildings will be supported in close proximity to the intersection of Westminster Avenue West and Highway 97.

3. North District

Existing Conditions:

The North District is defined by a mix of lower density housing forms, large underutilized vacant parcels, support retail and commercial uses and hotel / motel developments. Bordered by Power Street to the east, Riverside Drive to the west and Westminster Avenue to the south, the area is underserviced with pedestrian infrastructure.

Future Conditions:

The North District will become a medium-high density neighbourhood supported my mixed use developments along Westminster Avenue West and existing support commercial developments that will service the surrounding area. A diverse range of residential housing types will be accommodated in the district, all contributing to adding more residential density to this area, supporting a walkable, green, sustainable, active and safe community.

Implementation Priorities:

1. Higher density residential developments will be supported along Riverside Drive, creating a focal point of development as an entrance feature for the City.
2. Active frontages along Riverside Drive and adjacent to the Riverside Village commercial development, should provide for small scale commercial where viable and residential forms that provide eyes on the street, increasing surveillance in the area.
3. Mixed use development will be supported along the Westminster Avenue West frontage, ensuring that active uses and facades allow for interest and diverse shopping and service experience.
4. Reinvestment in older hotels will be supported in the district, ensuring the addition of high quality hotel accommodation continues to provide the PTCC with walkable location for delegates.
5. Consider the potential closure of Burnaby Avenue at Westminster Avenue West, allowing for the consolidation of lands with adjacent parcels or for the addition of greenspace within the area.
6. The laneway at the north boundary of the North Gateway will be the primary vehicle access to adjacent developments and opportunities to green the lane through landscaping and permeable surfaces will improve its amenity as an east-west connection from Power Street to Riverside Drive.

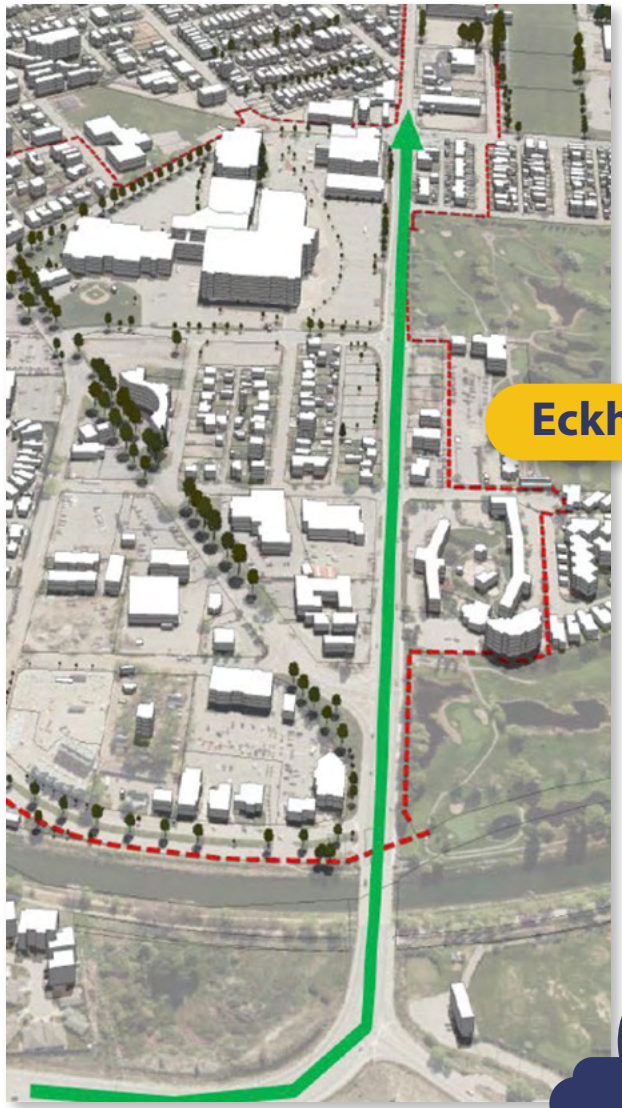
4. West Gateway Corridor

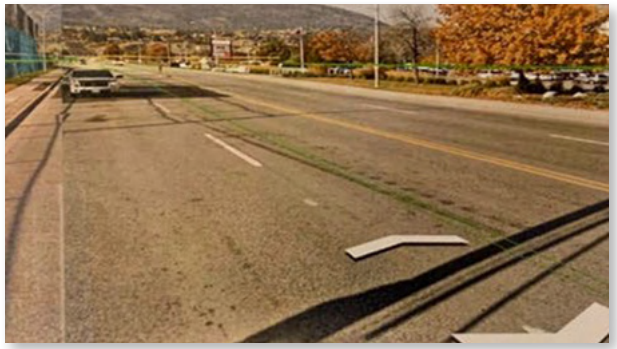
Eckhardt Avenue West (Highway 97)

Arriving into Penticton from the North is the first opportunity to experience Penticton and with enhancements to entrance signage, installation of public art and clear definition of how to access the community and its amenities, the West Gateway Corridor and it's beautifully tree-lined roadway will signal arrival to Penticton.

The following design elements will be included as part of the re-visioning of "**The Gateway**":

- Retain two way / two lane traffic for highway functionality
- Relocate sidewalks from being located directly adjacent to the curb/road, and create a landscape buffer between the road and sidewalks.
- Create a natural pedestrian buffer with native landscaping features including raised buffer, grasses and indigenous trees along both sides of the highway.
- Creation of a wide multi-use path on south side of the highway, working with the golf course to relocate existing fencing and provide the space required for the pathway.
- Add a new pedestrian walkway to the north and south sections of the River Channel bridge, providing a buffer between vehicles and pedestrians.
- Upgrade the pedestrian underpass underneath the River Channel bridge by increasing the distance between the underside of the bridge and the pedestrian level, the addition of lighting and public art opportunities.
- Improve the vehicle and pedestrian crossing opportunities from the north side to the south side of the highway. Key intersections for improvements will include Westminster Avenue, Comox Street and Alberni Avenue, allowing for safe access to the south side of the highway and the lowering of vehicle speed through the North Gateway.





Eckhardt Ave. W (Hwy 97) Corridor

5. Grand Boulevard

Westminster Avenue West

As you access the Grand Boulevard from the Highway, entering the heart of the North Gateway for events and activities and connecting directly into the downtown, the first experience will be one of a beautiful streetscape with mature trees, wide pedestrian thoroughfares and pedestrian and cyclists sharing the boulevard.

The following design elements will be included as part of the re-visioning of the "**Grand Boulevard**":

- Reductions in the width of vehicle travel lanes to one in each direction, but allowing for the appropriate turning movements at intersections.
- Retention of existing boulevard trees through the detailed design process will need to be incorporated into the future streetscape.
- Consider the creation of a wide multi-use path on the south of the boulevard will provide ample space for pedestrians and cyclists.
- The design should take into account how the section between the Highway and Power Street links up with the section between Power Street and the downtown core, allowing for design consistency and ease of connection for pedestrians and cyclists.
- On-street parking should be considered through the design process, in particular along the north side where support commercial frontages are envisioned.
- Pedestrian crossings at all intersections should be provided allowing for safe pedestrian access across the street.
- Comox Street / Festival Boulevard intersection should be assessed for an intersection upgrade to support safe pedestrian, cycling and vehicle movements.
- Raingardens and other sustainable design elements should be included in the boulevard design to support storm water retention.

Westminster Avenue W. Corridor

6. Power Greenway

Power Street

The eastern most north-south corridor makes up an important connection from Wade Avenue to Okanagan Lake. The creation of a healthy pedestrian experience will be enhanced with wide pedestrian infrastructure, landscaped boulevards and continuous connections from the PTCC to Okanagan Lake.

The following design elements will be included as part of the re-visioning of the "**Power Greenway**":

- A wide multi-use greenway on west side of Power Street will provide access along the street from the highway to Lakawanna Park and Okanagan Lake.
- Landscaping of the boulevard will include works within the City right of way and within private property.

Power Street Corridor

7. West Gateway

The Eckhardt Avenue and Westminster Avenue Gateway will provide for an attractive and welcoming entrance to the North Gateway and City of Penticton.

Design elements will include:

- Indigenous recognition as the gateway to the South Okanagan
- Design and relocation of the City of Penticton Welcoming Signage feature
- Installation of Public Art at the entry point.
- Wayfinding / Directional Signage and sidewalk upgrades within the North City Entrance Boulevard
- Landscape design and construction of trees and landscaping within existing concrete medians and boulevards, beginning around the existing Red Wing development and continuing through in front of the events complex where space allows.

8. Downtown Gateway

The Power Street and Westminster Avenue Gateway will provide for a green and enhanced frontage on all four corners, focusing on the revitalization of the PTCC entrance façade, new mixed use developments with active frontages and green street infrastructure.

Design elements will include:

- Reorientation of the PTCC façade to Westminster and Power intersection, in concert with attached civic and hotel developments and surrounding greenspace.
- Partner with the Penticton Indian Band on tourism opportunities that support the PTCC and additional hotel development, indigenous recognition, employment and economic benefit.
- This gateway will support driving pedestrian, cycling and vehicle traffic into the downtown core through consistent design and wayfinding themes.
- Incorporate a safe and secure walkway that provides for a direct connection from adjacent hotels to the PTCC.

9. Event Gateway

The SOEC Complex Gateway along Eckhardt Avenue will provide for a grand and functional entrance to the events complex ensuring a mix of delivery / larger event vehicles can access the facility loading bays and provide safe access from the north side of the highway to the south side.

Design elements will include:

- Eliminate the historical Queens park entrance in front of the SOEC and repurpose the driveway lands.
- Upgrade the Alberni Street and Eckhardt Avenue intersection with traffic solutions allowing for left and right hand turning maneuvers – supporting safe access and egress to the golf course and development on the south side of Eckhardt Avenue.
- Safe pedestrian crossings will be incorporated in the intersection design.
- Ensure that the redesign allows for large truck maneuvers to support the loading / unloads required for the SOEC and PTCC.

10. Festival Boulevard

Festival Boulevard will connect Burnaby Avenue to Power Street, linking through the centre of the North Gateway and providing for a unique mobility solution.

The detailed design of the Festival Boulevard concept will be undertaken as part of the transportation feasibility and network analysis, considering the following design elements:

- This street will be a model of shared space, low-speed limits and traffic calming.
- The road will become a wide social space where pedestrians are encouraged to make use of the entire roadway, move freely from one point to another and participate in recreational activities.
- The boulevard will be lined with street trees and planter boxes.
- Light standards will create a safe and inviting space throughout the evening and winter months and will allow for banner installation recognizing the history attached to the construction and use of Memorial Arena.
- Single lane traffic flow will be provided in each direction.
- Multiple formal pedestrian crossings.
- Road surface treatments that ensure slow vehicle movement.
- Flexible design elements to allow for closures during events and festivals.
- Design elements will be incorporated referencing the history of Memorial Arena through sporting recognition and World War memorialization.
- An option to consider the use of the existing road network to create the 'Festival Boulevard' concept may also be warranted through the transportation analysis, with attention being paid to improving the intersection of Comox and Westminster.

PART 7:

IMPLEMENTATION PRIORITIES

7.1 Transportation Analysis

The first major implementation priority of the North Gateway Redevelopment and Investment Strategy is to complete a review and technical analysis of the vision and concepts. This process will allow for the feasibility analysis, financial strategy and implementation projects timeline to be developed. This will be a critical priority to implementation of the community's vision for the North Gateway.

Transportation Analysis

Working with MOTI, the City will undertake a detailed transportation analysis looking are how the North Gateway vision can be realized. The objectives of the analysis will be to:

- Review work completed to date as part of previous City of Penticton traffic analyses and available MOTI designs, plans and available traffic counts and collision history data. This includes level of service, corridor mobility, traffic control devices and intersection operations.
- Develop and recommend a short to long-term integrated transportation infrastructure improvement strategy for the Highway 97 section between Burnaby Avenue and Power Street and the interfacing road network within the Northern Gateway area, inclusive of an access strategy, intersection upgrades, access modifications, municipal road requirements, active transportation connections and highway crossings, transit and intermodal connections and goods movement considerations
- Investigate and identify feasible options for the study area at a conceptual level and evaluate the potential benefits, drawbacks and considerations for the options identified in the City of Penticton's proposed Northern Gateway road network, envisioned in the design charrette process.
- Identify planning-level cost estimates (Class D), timing, staging, justification, responsibilities and cost recovery opportunities (e.g. DCC's, reserves, grants, etc.) to support the long-term vision for the Northern Gateway area.
- Recommend a "preferred" solution for the Highway 97 corridor study area that can proceed into future design and engineering investigations.

The following design concepts will be assessed as part of the Transportation Analysis

Hwy Median

- Landscaping north of Penticton (Red Wing vicinity) and along Hwy 97 where median width allows

Hwy Bridge

- Pedestrian walkway addition on south side / Channel underpass improvements / pubic art – entrance feature

Hwy & Riverside Drive access

- Closure required as part of previous development proposal on Ogopogo Motel site, and this will need to be reviewed as part of the wider transportation needs.

Highway & Westminster

- Medians / Public art / Landscaping opportunities

Alberni Street / Westminster Avenue

- North bound Alberni section closed

Burnaby Avenue / Westminster Avenue Intersection

- East bound intersection closed

Westminster Avenue

- 1 lane / central turning lane / wider boulevards / design considerations needed

Hwy – Westminster / Comox / Alberni:

- Vehicle access to south side of Westminster / Hwy 97 intersection
- Vehicle Access to south side of Hwy at Alberni Street – as part of larger concept for access improvements on the south side
- Right in/out only for remaining intersections at Comox or full closures

Festival Boulevard:

- A shared vehicle / cycling / pedestrian street design connecting Wade Avenue to Comox Avenue

Existing 'Queens Park' entrance

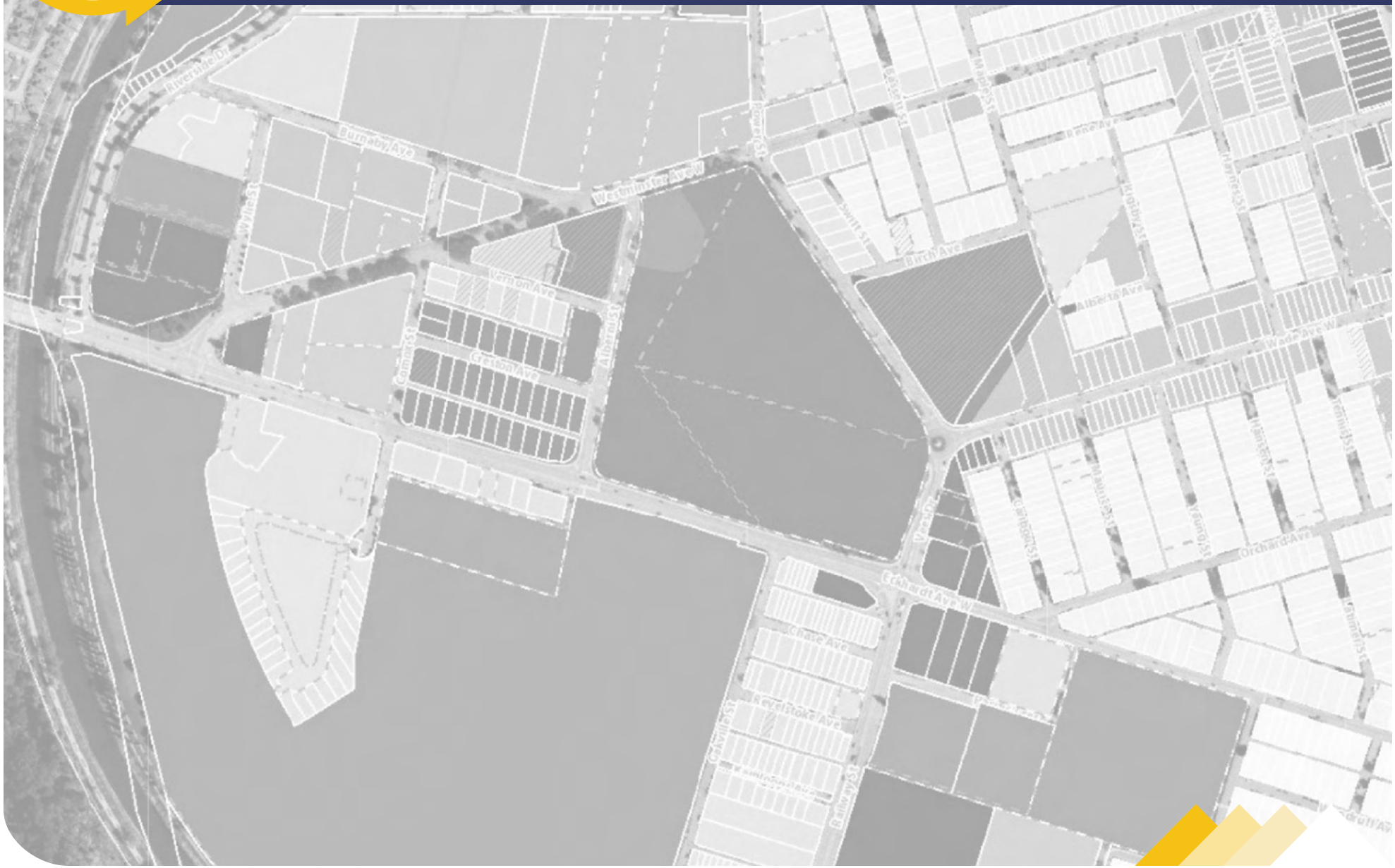
- Elimination of access point and reconfiguration of driveway

Alternative Transportation Enhancements

- Transit / Cycling / Pedestrian movements: Mobility Action Plan & impact on road networks / hwy

PART 8:

ACTION & INVESTMENT PLAN



8.1 Action & Investment Plan

At the completion of the Transportation network, costing and feasibility analysis, the following implementation items will take place to allow for the implementation of the Plan.

The following items will be important for implementation over the coming years:

- Official Community Plan Amendments
- Employee Housing Strategy
- PTCC Hotel Strategy and Tourism Partnership with Penticton Indian Band
- Development Cost Charge Bylaw Amendments
- Wayfinding Signage Plan, Design and Installation
- Welcome to Penticton Signage Planning, Design and Construction
- Capital Plan Amendment to include North Gateway Priority Projects
- Civic Use/Park Land Assessment

Investment Ready Action	Undertaking
Official Community Plan Amendments	The City will work with landowners to amendment the OCP Future Land Use Designation for parcels that requirement amendment following approval of the Plan. The OCP Amendments will be prepared as a larger amendment that encompass a number of parcels to support implementation of the Plan.
Employee Housing Strategy	The Employee Housing Needs Assessment will provide a detailed framework for the eventual development of new employee focused housing projects in the North Gateway. The identification of specific needs, a range of housing types, suitable locations and affordable housing strategies and policies will be an outcome of this process.
PTCC Hotel Strategy and Tourism Partnership with Penticton Indian Band	Work with the Penticton Indian Band, Spectra Event Management and the Hotel Industry on opportunities to enhance the PTCC with an attached hotel. Community engagement will occur as this priority moves forward including an assessment of the park land needs of the North Gateway.
Development Cost Charge Bylaw Amendments	Include capital projects within the City's DCC Bylaw, allowing for new development in the community to help fund implementation of growth related priority projects.
Wayfinding Signage Plan, Design and Installation	Develop and wayfinding strategy for the North Gateway, including the design and installation of new directional signage within and throughout the area.
Welcome to Penticton Signage Planning, Design and Construction	Upgrade existing entry / welcome signage at key locations within the North Gateway. Design and location of new Welcome signage / infrastructure will support the Wayfinding and Signage strategy.
Capital Plan Amendment to include North Gateway Priority Projects	Implementation projects coming out of the Transportation Analysis will be included in the City's 10 Year Capital Plan. Partnership with the Ministry of Transportation and Infrastructure, Penticton Indian Band and the development community will allow for funding contributions towards these projects as implementation is required.
Civic Use/Park Land Assessment	Review future park disposition and acquisition in the area to support resident and visitor's active and passive park needs. Retention of existing trees and exploring financial and spatial opportunities to support the growth of Penticton's urban forest and achieve a doubling of the North Gateway tree canopy will be required to meet the goals and guidelines of the proposed Urban Forest Master Plan and Tree Protection Bylaw.

CITY OF Penticton

Go to **PENTICTON.CA** for more information.

Attachment B

Highway 97 and North Gateway Interface Planning and Access Improvement Plan

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HIGHWAY 97 AND NORTH GATEWAY INTERFACE PLANNING AND ACCESS IMPROVEMENT PLAN

FINAL DRAFT PROJECT REPORT

April 21, 2023

BRITISH COLUMBIA | Ministry of Transportation and Infrastructure

CITY OF Penticton

URBAN SYSTEMS

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EXECUTIVE SUMMARY

INTRODUCTION

Urban Systems Ltd. (USL) was retained by the City of Penticton (the City) to undertake an integrated highway and local roads planning and access improvement plan in partnership with the Ministry of Transportation and Infrastructure (MoTI). The purpose of this assignment is to recommend an integrated transportation infrastructure strategy for Highway 97 and the local roads identified in the Northern Gateway study area. The recommendation considers the existing conditions of the Northern Gateway area, as well as future multi-modal conditions based on background growth and potential developments.

STUDY AREA

The study area includes an almost 2km section of Highway 97 through the North Gateway area and the local roads within the City's North Gateway, as illustrated in the figure below. Highway 97 serves as a regional connection and for local traffic. Six of the twelve study intersections are located on Highway 97 under MoTI jurisdiction while the remaining fall under the authority of the City.

PREVIOUS STUDIES

The following studies and policy documents were reviewed to aid in the preparation for this study:

- PTCC Hotel – Alberni St Closure & Northern Gateway Traffic Study (Urban Systems, 2021)
- Penticton Transportation Master Plan (WSP, 2021)
- Penticton Integrated Infrastructure Master Plan (WSP, 2021)
- Community Climate Action Plan (Community Energy Association, 2021)
- SOEC Parking Strategy & Traffic Management Strategy (Urban Systems, 2019)

EXISTING & FUTURE CONDITIONS ASSESSMENT

Traffic Characteristics

MoTI's short count station on Highway 97 west of the North Gateway area estimates an Average Annual Daily Traffic (AADT) volume of approximately 22,000 vehicles in 2016, the latest date of which traffic volumes were available. The hourly roadway traffic shows typical commuter traffic trends with morning and afternoon peaks.

Land Use & Development

Currently, the North Gateway consists of mostly open area with a small mix of commercial and residential zones south of Highway 97. Between Highway 97 and Westminster Avenue lies the South

Okanagan Event Centre (SOEC), Cascades Casino, and the Penticton Trade and Convention Centre (PTCC). The land surrounding the SOEC is zoned for low-to medium-density housing, hotels, service commercial, and mobile home parking.

Integrated & Multi-Modal Transportation

Data from the 2021 census shows that approximately 83% of the population commutes by private vehicle. However, the City has a significant percentage of people who walk as their primary mode of commuting (10%) compared to the provincial average of 6%.

The North Gateway area includes some existing multi-modal facilities for pedestrians, cyclists, and transit users. BC Transit provides regional and local bus services in the area, with five transit routes through the study area. Most stops within the study area have limited amenities.

Safety Assessment

A safety assessment was completed for the study area based on data provided by MoTI and ICBC. Between 2010 and 2019 a total of 110 collisions occurred on Highway 97 within the study area, with one collision resulting in a fatality. Collisions have historically corresponded with the times of day associated with higher traffic volumes. The most common first contributing factor for collisions occurring the study segment of Highway 97 was “driver inattentive” and “driver error” (including illegal maneuvers and aggressive driving behaviors). The overall corridor collision rate for the study segment is 0.77 collisions per million vehicle kilometers (c/MVK), which is higher than the provincial average of 0.65c/MVK.

Based on data from 2016 to 2020, a total of 212 collisions were reported at intersections on the local roads within the study area. Only two of the reported collisions involved a pedestrian, one at the Highway 97 / Westminster Avenue N intersection, and the other at the Westminster Avenue N / Alberni Street intersection. The figure to the right illustrates the number of ICBC reported collisions at each study intersection.

Existing Traffic conditions

Eight out of the ten study intersections were modeled in Synchro 11 software, while the roundabout on Power Street at Vees Drive / Wade Avenue W and the five-leg intersection on Westminster Ave W at Vernon Drive / Comox Street were modeled in Sidra 8 software. Most intersections experience minimal delays during the existing PM peak period with the following exceptions of higher delays at Highway 97 / Vees Drive – Eckhardt Avenue and Highway 97 / Comox Street intersections.:

Future Traffic Conditions

Future traffic conditions were analyzed for the 25-year horizon period to determine the mobility performance of the existing road network configuration with background traffic growth and future development traffic. The background traffic was projected by applying a growth rate to the existing (2022) volumes and then development traffic was added on. Two background growth rate scenarios were considered:

1. A **modest growth scenario** with low traffic growth rates was used to reflect the City’s goals for future mode switch to greater active transportation and transit use. This scenario includes a 1.25% background traffic growth on Highway 97 through movements. New development trips are added to the network, but no background traffic was added to local roads.
2. A **high growth scenario** was used to reflect a typical growth rate projection. This scenario includes 2.2% background traffic growth on Highway 97 through movements, new development trips, and 1.5% background growth on the local network.

The ITE Trip Generation Manual (11th Edition) was referenced to estimate new trips generated by the proposed developments in the North Gateway area. The potential future developments were provided by the City and include 1,744 to 2,383 new housing units, 370 new hotel rooms, and 25,000 to 30,000 square feet of new commercial space. The new development trips were assigned to the network based on the location of the development areas and key origin/destination generators in the city and region.

The 2047 PM peak hour traffic analysis for the modest traffic growth scenario, traffic conditions are anticipated to worsen at highway intersections due to background growth and potential developments. In the high traffic growth scenario, traffic conditions are expected to worsen at most intersections due to background growth and potential development traffic.

Geometric Review

The roadway geometry, active transportation facilities, and other existing constraints within the study area were reviewed and a BC One Call was completed to establish an understanding of existing underground utilities. Intersection sight triangles throughout the study area are often impeded, required vehicles to creep beyond the stop bars. The skews of the intersection of Westminster Avenue with Comox Street and Vernon Avenue do not fall within the recommended range. Additionally, the spacing between Comox Street and Vernon Avenue effectively make it a five-legged intersection, which is a safety concern for all roadway users.

PROBLEM DEFINITION

The following problem definition summarizes the key issues and concerns:

Mobility: The addition of background traffic growth and future potential developments increases delays at most of the study intersections, resulting in many of the study intersections operating over capacity by 2047.

Safety: Collision frequencies within the study area typically follow traffic volume trends, with more collisions at busier intersections and during peak traffic periods. Collisions also tend to have a first contributing factor of driver inattention and a leading collision type involving rear ends. The overall corridor collision rate is higher than the provincial average for similar facilities. Collision rates and severity are highest near intersections.

Multi-modal: Active transportation facilities in the North Gateway area are limited. Many minor streets don't have sidewalks and/or have poor connectivity between facilities. Cycling infrastructure is also minimal within the study area. Transit stops exist on most roads in the study area; however, transit stop amenities are limited and ridership in Penticton is low compared to the provincial average.

Geometric: Sightlines are challenging for many left and right turns from minor roads onto Westminster Avenue W and from Comox Street and Oakville Street onto Highway 97, requiring vehicles to creep forward beyond the stop bars. Additionally, limited spacing between the intersections of Comox Street and Vernon Avenue on Westminster Avenue W creates a five-leg intersection with challenging and sub-standard skew angles.

GUIDING PRINCIPLES

The following guiding principles were established based on the problem definition to guide the development of improvement options:

Multi-Modal Accessibility	Implement accessible and convenient multi-modal facilities are accessible for people of all ages and abilities.
Network Connectivity	Enhance connections for walking, cycling, micro-mobility, and transit.
Safety	Improve safety conditions for all modes by considering speed, street design, and the urban environment.
Vehicle Mobility	Optimize vehicle delays and congestion and facilitate goods movement in the network.
Integrated Transportation	Encourage integration and connections between modes to support mixed-use developments in the North Gateway.

CONCEPT GENERATION & DEVELOPMENT

The options developed for this study were based on discussions with the City of Penticton, MoTI, and BC Transit staff to build upon the vision concept developed at the North Gateway Design Charrette held in September 2021 (shown in the figure below). The current posted and design speeds are maintained with all concepts developed in the study. Six local network layout concepts were generated, and three connections options were generated for the area south of Highway 97.

In addition, two cross-section options were developed for Westminster Avenue improvements, which both include two through lanes and a centre two-way turn lane, as well as cycle tracks and sidewalks. The first option requires moving the south curb and increasing the right-of-way. The second option is a retrofit of the existing roadway.

City of Penticton's Design Charrette Concept for the North Gateway Area (2021)

Other location specific improvement concepts are described in **Section 5.4** of the report, including Highway 97 / Westminster Avenue intersection improvements, Highway 97 active transportation considerations, Highway 97 / Vees Drive intersection improvements, and Burnaby Avenue extension and channel crossings.

OPTION REFINEMENT AND EVALUATION

The original concept options were presented to the project team, then refined further. This resulted in three option variations, which were evaluated using a Multiple Account Evaluation (MAE). The three options (Option 7, 8, and 9) all include incorporating a connection to the south district by signalizing Alberni Street and Highway 97. Access management improvements including restricting the Highway 97 / Comox Street to right-in / right-out and closing the "Queens Access" to the South Okanagan Event Centre were also incorporated into all three refined options.

Option	Description
Option 7	5-leg roundabout at Westminster Avenue / Burnaby Avenue / Festival Boulevard
Option 8	4-leg roundabout at Westminster Avenue / Burnaby Avenue / Festival Boulevard
Option 9	4-leg signalized intersection at Westminster Avenue / Burnaby Avenue / Festival Boulevard and roundabout at the Alberni Street / SOEC Entrance.

Planning-level (Class D) cost estimates were developed for the proposed improvements on Highway 97 and for the three network improvement options. Each option can be implemented in phasing, as outlined in **Section 6.2** of the report. Option implementation is dependent on property acquisition in the Central District.

	Planning Level Cost Estimate
Highway 97 Improvements	$8.7M
Option 7 (local roads only)	$6.3M
Option 8 (local roads only)	$6.4M
Option 9 (local roads only)	$7.9M

The MAE assessed each of the three options on a financial, customer service, and social / community basis on a five-point scoring scheme. The MAE results are summarized in **Table 6.7** of the report.

RECOMMENDATIONS

Based on the MAE, the option preferences for the North Gateway improvements are as follows:

Preference (MAE)	Option	Description
1.	**Option 9**	4-leg signalized intersection at Westminster Avenue / Burnaby Avenue / Festival Boulevard and roundabout at the Alberni Street / SOEC Entrance.
2.	**Option 7**	5-leg roundabout at Westminster Avenue / Burnaby Avenue / Festival Boulevard
3.	**Option 8**	4-leg roundabout at Westminster Avenue / Burnaby Avenue / Festival Boulevard

In addition to the improvements identified within the network options, the following general improvements are recommended:

- Modifications to the existing road network interface with Highway 97 including
    - Turn restrictions at Riverside Drive,
    - Active transportation improvements at the channel bridge crossing,
    - Closure of the "Queen's Access" to the SOEC
- Westminster Avenue corridor improvements, including traffic calming and improved active transportation facilities.
- Realignment of Burnaby Avenue to intersect with Westminster Avenue at Comox Street.
- Closure of Alberni Street to vehicle traffic between Vernon Avenue and Westminster Avenue (with the new hotel development).
- Implementing a dual southbound lane at Highway 97 / Vees Drive / Eckhardt Avenue, which would involve adding a merge lane on the south leg for the eastbound right-turn movement.
- Expand the eastbound left-turn storage lane at Highway 97 / Westminster Avenue to include the existing storage lane for Riverside Avenue until traffic volumes warrant a dual eastbound left-turn lane.

NEXT STEPS FOR HIGHWAY 97 IMPROVEMENTS

- The MoTI should continue to liaise with the City of Penticton to advance improvements for further design, investigation, and community consultation.
- Depending on additional funding, advance recommended options for further engineering review and detailed design including technical assessments not limited to geotechnical, environmental, property impacts, and archaeological.
- Identify project risks and GBA+ considerations to address through development of detailed design.
- The MoTI and City should clarify maintenance responsibilities with new proposed facilities, including potentially updating maintenance agreements for any developed infrastructure.

NEXT STEPS FOR NORTH GATEWAY NETWORK IMPROVEMENTS

- Identify a preferred network layout based on the three refined Options 7, 8 and 9.
- The City should continue to liaise with the MoTI to advance improvements for further design, investigation, and community consultation.
- Continue to work with BC Transit to identify a preferred location for the transit hub on Alberni Street or Festival Boulevard based on the proposed routing and network configuration.
- The MoTI and City should clarify maintenance responsibilities with new proposed facilities, including potentially updating maintenance agreements for any developed infrastructure.

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1.0 INTRODUCTION

Urban Systems Ltd. (USL) was retained by the City of Penticton (the City) to undertake an integrated highway and local roads planning and access improvement plan in partnership with the Ministry of Transportation and Infrastructure (MoTI). The purpose of this assignment is to recommend an integrated transportation infrastructure strategy for Highway 97 and the local roads identified in the North Gateway study area.

This study builds upon previous work completed in the North Gateway study area, including the *PPTC Hotel – Alberni St Closure & North Gateway Area Traffic Study* (Urban Systems, 2021) and the *Penticton Transportation Master Plan* (WSP, 2021). A summary of the findings and recommendations of this previous studies are summarized below in **Section 1.2**.

This memorandum summarizes the existing conditions review of the North Gateway area, which includes traffic, safety, and multi-modal assessments for the existing and future traffic conditions based on background growth and potential developments, and the option development and recommendations for both highway and local road network improvements that align with the City's vision of the North Gateway area.

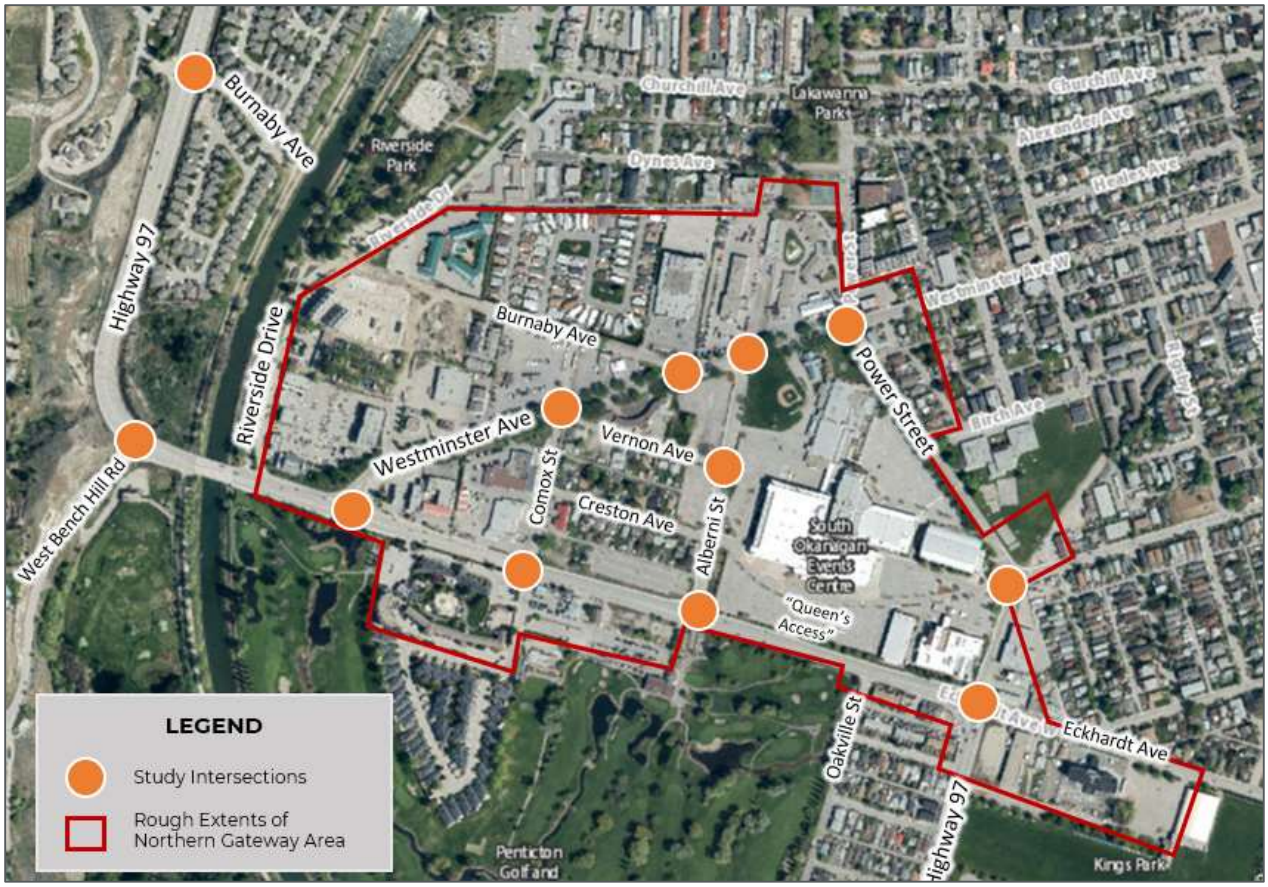
1.1 STUDY AREA

The study area of focus includes an almost 2km section of Highway 97 through the North Gateway area and the local roads within the City's North Gateway, as is illustrated in **Figure 1.1**. Highway 97 is a Primary Highway that runs north-south through the entire province of BC from the USA Border to the Yukon. This segment of Highway 97 links communities including Kelowna, Summerland, Peachland, Penticton, Oliver, and Osoyoos. Within the study area, Highway 97 travels east-west and serves as both a regional connection and for local traffic.

Based on the MoTI's landmark kilometer index (LKI), the study segment of Highway 97 is from Vees Drive (LKI Segment 1214 km 13.52) to Burnaby Avenue (LKI Segment 1214 km 15.15). Six of the 12 study intersections are located on Highway 97 and under the authority of the MoTI. The remaining six intersections are located on local roads and under the authority of the City. The red outline denotes the approximate extents of the North Gateway study area.

Westminster Avenue is designated as a heavy goods movement and is an urban collector road. It provides a key connection from Highway 97 to the Downtown, and provides good backage access to properties north of Highway 97 including the South Okanagan Event Centre. Similarly, Power Street is an urban collector road providing access from Highway 97 on the east side of the SOEC to Lakeshore Drive.

Figure 1.1: North Gateway Study Area Extents



1.2 BACKGROUND CONTEXT AND PREVIOUS STUDIES

All previous studies that were available for review and relevant to the North Gateway are summarized below with specific focus on the area's transportation planning needs.

1.2.1 PTCC HOTEL – ALBERNI ST CLOSURE & NORTHERN GATEWAY TRAFFIC STUDY (URBAN SYSTEMS, 2021)

This study builds on the previous *PTCC Hotel – Alberni St Closure & Northern Gateway Area Traffic Study* report, completed by USL in 2021. The objective of the *PTCC Hotel – Alberni St Closure & Northern Gateway Area Traffic Study* was to assess the potential traffic impacts of a proposed hotel at 903 Vernon Avenue and corresponding potential road closure of Alberni Street from Vernon Avenue to Westminster Avenue W. The analysis forecasted traffic conditions up to the 2045 Official Community Plan horizon year, and concluded with potential transportation network improvements and planning considerations.

The study found that the Alberni Street closure is not expected to have significant impacts to the road network under the existing configuration. However, intersection improvements will likely be required to support the forecasted background traffic growth and new trips associated with anticipated developments within the North Gateway area. The recommended road network improvements identified in this previous study are listed below:

Westminster Avenue W / Power Street: Reconfigure approach lanes on the northbound and southbound approaches to left-turn and through/right-turn and add a protected left-turn phase for the northbound approach.

Westminster Avenue W / Power Street: Add a left-turn lane on the westbound approach.

Westminster Avenue W / Comox Street / Vernon Avenue: Three alternative intersection configurations were proposed as potential improvement options:

- 5-leg roundabout
- 4-leg roundabout with closure of the north leg on Comox Street
- 4-leg signalized intersection with the closure of Vernon Avenue

Highway 97 / Comox Street: Restrict access on the northbound and southbound approaches on Comox Street to right-in/right-out only.

Highway 97 / Oakville Street: Restrict access on the northbound and southbound approaches on Oakville Street to right-in/right-out only.

The traffic analysis completed for the *PTCC Hotel – Alberni St Closure & Northern Gateway Area Traffic Study* and the potential options listed above have not been reviewed by the MoTI.

1.2.2 PENTICTON TRANSPORTATION MASTER PLAN (WSP, 2021)

The 2021 Transportation Master Plan (TMP) specifies the policy surrounding design, investment, and renewal of transportation infrastructure which supports the 2045 Official Community Plan (2045). The TMP outlines six key areas, which are to be prioritized in the following order:

1. Walking, Wheelchairs, Mobility Scooters
2. Biking
3. Transit
4. Goods Movement
5. Multiple-Occupant Vehicles
6. Single-Occupant Vehicles

The TMP prioritizes safety for all users and encourages active transportation and transit as high priority modes. Additionally, the plan outlines geography-based priority areas for transportation investments, which includes the North Gateway area as a location of high priority.

The addition of a third westbound lane on Highway 97 between Alberni Street and Westminster Avenue W is identified as a potential improvement in the City's TMP. The improvement was reviewed in the *PTCC Hotel – Alberni St Closure & Northern Gateway Area Traffic Study* and is expected to increase intersection delays at the Highway 97 / Comox Street intersection. The report recommends that Comox Street be restricted to a right-in/right-out only if a third westbound lane on Highway 97 is implemented.

1.2.3 PENTICTON INTEGRATED INFRASTRUCTURE MASTER PLAN (WSP, 2021)

The *Penticton Integrated Infrastructure Master Plan* (IIMP) was completed in 2021 and considered sanitary, sewer, storm, and transportation related upgrades, which were identified and prioritized through the IIMP.

Sidewalk upgrades identified include high priority sidewalks along Riverside Drive and Power Street, and lower priority sidewalks along the local streets in the north and west sections of the North Gateway

area, including Westminster and Burnaby. Cycling priorities are identified along Burnaby Avenue, Westminster Avenue W, and Power Street, Wade Avenue W, and Eckhardt Avenue W.

Intersection improvements are noted at many of the study intersections within the Gateway area including on Westminster Avenue W at Power Street and Wylie Street, and on Highway 97 at Riverside Drive, Westminster Avenue W, Oakville Street, and Eckhardt Avenue W.

1.2.4 COMMUNITY CLIMATE ACTION PLAN (COMMUNITY ENERGY ASSOCIATION, 2021)

Penticton's Community Climate Action Plan (CCAP) was created with the intention to reduce carbon emissions through various policy, infrastructure, and engagement action plans. Relevant to the project, the CCAP identifies strategies to encourage active and accessible transportation and transit. The three strategies include:

- Optimize land use planning for compact community growth through OCP policies, development permit guidelines, and zoning bylaws,
- Increase walking, cycling, and other forms of zero emission mobility through plans and policies, building safe routes, outreach strategies, normalizing car-free zones, and by promoting e-mobility and on-demand mobility services, and
- Increase transit ridership by promoting transit ridership by offering free transit days and celebrating new routes, as well as exploring universal free transit with transit providers.

The City aims to remove 30 commutes per person-year through more accessible active transportation, transit, and shifts in land use by 2030 through the action plan. Additionally, the CCAP outlines the provincial action target to double the percentage of trips taken with active transportation by 2030.

1.2.5 SOEC PARKING STRATEGY & TRAFFIC MANAGEMENT STRATEGY (URBAN SYSTEMS LTD., 2019)

The purpose of the *South Okanagan Events Centre (SOEC) Parking Strategy and Traffic Management Plan* was to update the 2015 SOEC Parking Strategy as it was completed before the construction and opening of the Cascades Casino and Match Restaurant in 2017. The objective was to develop a short to medium-term parking strategy and traffic management plan to address parking and traffic issues experienced by visitors at the SOEC which is located at the north end of Penticton and is the core of the Gateway area. The study also considered pedestrian safety and connectivity, parking impacts to adjacent areas and residential streets, and traffic operation and circulation within and around the SOEC site.

The study included an existing inventory and conditions assessment, option development and evaluation, and recommendations and implementation strategy. Community engagement was also conducted to support each phase of the project and ensure effective and feasible improvements were recommended.

The final implementation strategy included short-, medium-, and long-term projects related to:

- parking policies and management,
- wayfinding,
- pedestrian facilities, and
- parking reconfiguration and addition.
- Other considerations included shared parking with nearby businesses and accessible parking.

1.2.6 GATEWAY CASINO DEVELOPMENT TIA (URBAN SYSTEMS LTD., 2016)

The City of Penticton retained USL to conduct a Traffic Impact Assessment (TIA) for the Gateway Casino Development at the South Okanagan Event Centre (SOEC) site. The Lake City Casino was planned for relocation to the south-east corner of the SOEC site, along with several associated uses. The scope of this TIA included multiple transportation aspects related with the size and scale of the proposed development. The outcome of TIA study recommended that the City consider the implementation of Option 1B improvements at the intersection of Eckhardt Avenue / Highway 97 intersection. These improvements consisted of adding a second through approach lane on Vees Drive with a second receiving lane on Highway 97 downstream and providing a new eastbound right-turn auxiliary added lane with merge to maintain the existing Highway 97 southbound free-flow movement. Option 1B was expected to maintain desirable traffic capacity at this intersection and the existing Highway 97 southbound and northbound traffic movements and capacity.

While the study findings indicated the improvements may be needed at the time of the proposed development's opening, it was noted that it may be more practical for the improvements to be installed after opening. These improvements have not yet been implemented.

1.2.7 PARKING STRATEGY AND TRAFFIC MANAGEMENT PLAN FOR THE SOUTH OKANAGAN EVENTS CENTRE (URBAN SYSTEMS LTD., 2015)

The *Parking Strategy and Traffic Management Plan for the South Okanagan Events Centre* (SOEC) was completed in 2015 by USL to investigate the potential parking impacts of the proposed Gateway Casino Development at the south-east corner of the SOEC site, including mitigation measures to reduce the overall demand for parking. The study was conducted to develop a thorough understanding of the parking supply and demands at the SOEC site and to identify alternative parking solutions to accommodate the parking displaced by the proposed development.

While alternative parking solutions were explored and considered, the final recommendations of the study supported limiting the development of additional parking and optimizing use of the existing parking facilities.

1.2.8 2015 TRANSIT FUTURE PLAN (BC TRANSIT)

The Transit Future Plan builds on the Okanagan-Similkameen land use and transportation policies and includes an implementation strategy for transit investments. It envisions what the transit network should look like by 2040 and allows BC Transit to inform local governments and the province about the transit investments and changes being worked towards and the order in which these changes will happen. These planning initiatives developed will ensure that the future of transportation in the Okanagan-Similkameen communities is economically vibrant, livable, and sustainable by considering factors such as:

- Consolidation of medical services,
- Mobility for individuals who do not have access to other modes of travel,
- Population growth and an aging demographic, and
- Climate change.

The 25-year network vision for Penticton outlined in the document includes a frequent transit network for medium-to high-density mixed land use corridors, a local transit network connecting neighbourhoods to local destinations, regional and inter-regional transit, on-request services, and expanded local services.

2.0 EXISTING & FUTURE CONDITIONS ASSESSMENT

The existing and future conditions of the study area were reviewed and are summarized below. This assessment considered traffic and multi-modal conditions, safety, land use, and geometry of the existing road network in the North Gateway area, including Highway 97 and the local network.

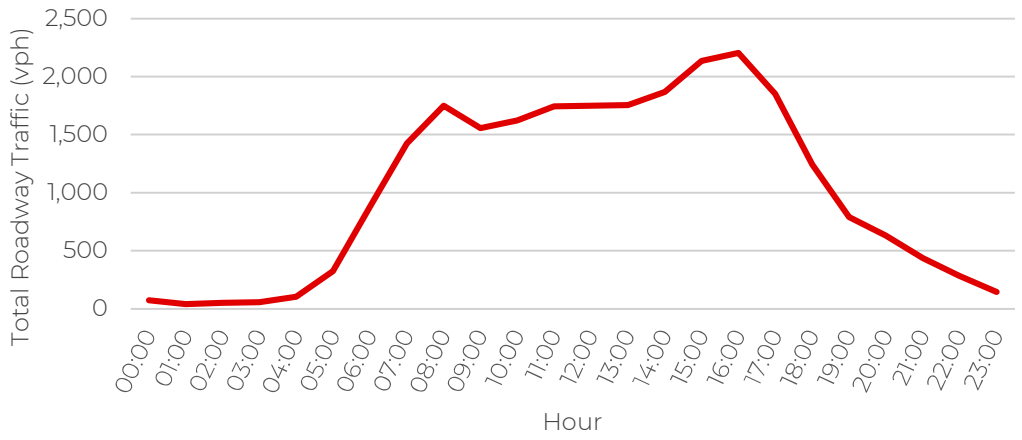
2.1 TRAFFIC CHARACTERISTICS

The study segment of Highway 97 is classified as having seasonal traffic characteristics based on MoTI's Traffic Data Program.

MoTI has one short count station west of the study area, just after Eckhardt Avenue Bridge on Highway 97. The most recent traffic counts available from this count site are from 2016 which estimated an Average Annual Daily Traffic (AADT) volume of approximately 22,000 vehicles per day, based on two days of data on weekdays in September 2016.

The average hourly roadway traffic based on the short count in September 2016 is illustrated below in **Figure 2.1**, which shows typical commuter traffic trends with morning and afternoon/evening peaks. The peak hour of traffic on Highway 97 in the study area occurred at about 4:00pm with approximately 2,200 vehicles per hour in September 2016.

Figure 2.1: Highway 97 Hourly Roadway Traffic (September 2016, 26-011NS)



2.1.1 HISTORIC TRAFFIC GROWTH

A variety of sources were reviewed to determine the historic and projected traffic growth in the area. These sources and findings are summarized below:

- The most recent study completed by USL (PTCC Hotel Alberni St. Closure, 2021) used a 1.5% growth rate on local road movements and a 2.2% growth rate on highway through movements.
- Other previous studies (2018 and older) in the Penticton area used a 1.0% growth rate.

- The nearest MoTI short count station (Eckhardt Ave Bridge 26-011NS) shows an annual growth rate of 1.6% from 2012 to 2016. The next two closest short count stations showed 4.4% and 4.5% annual growth. The counts are based on only two to three days of data per year. [1]
- Census Canada Statistics reported a 9.3% population increase between 2016 and 2021, or an annual growth rate of 1.8%.
- The Penticton OCP (2019) predicted a population growth rate of 0.65% per year to 2046, however, since then the 2021 census data has been released and shows a much greater population growth over the previous five years.

2.2 LAND USE & DEVELOPMENT

Land use in the North Gateway area was reviewed and is described below based on the City's Zoning Bylaw No. 2021-01. The future land use was also reviewed, as identified in the October 2021 North Gateway Design Charrette and the City's OCP.

2.2.1 EXISTING LAND USE

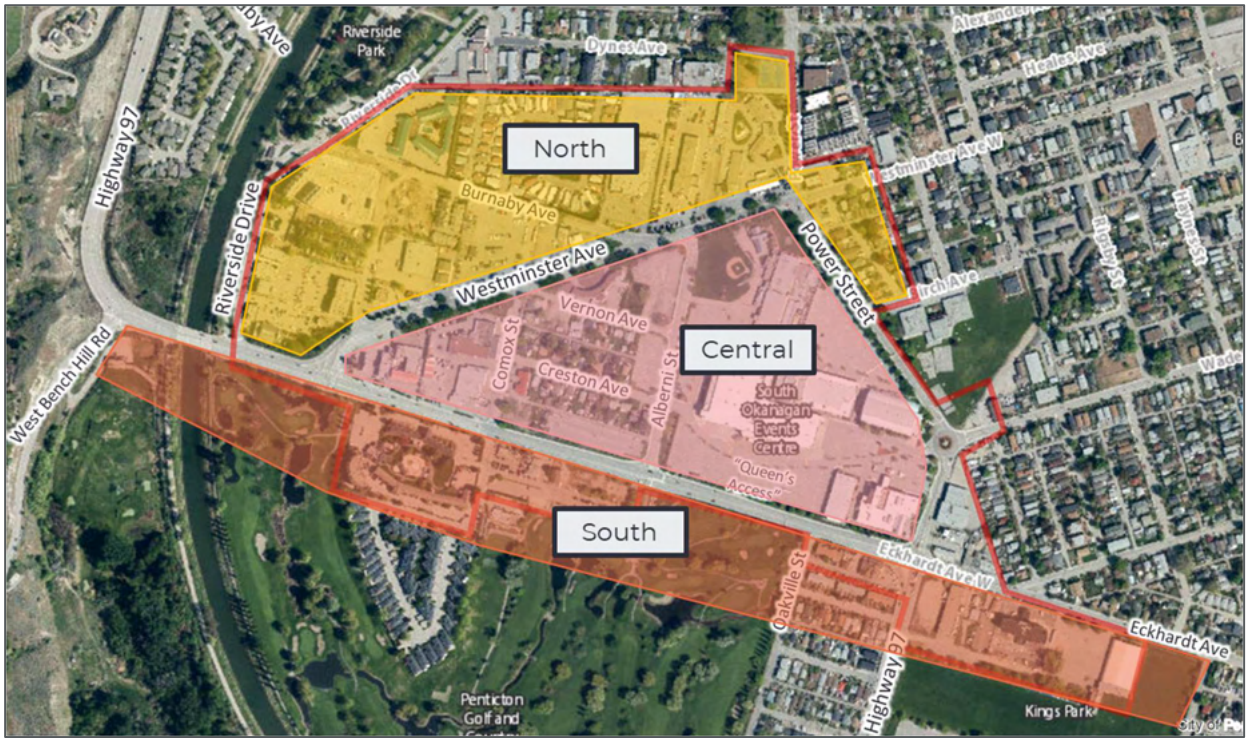
Currently, the North Gateway consists of 22% building area, 57% open area, and 21% road area. South of Highway 97 is a mixture of hotel resort, small lot residential, and commercial properties. The land between Highway 97 and Westminster Avenue includes a large space zoned for public assembly, which holds the SOEC, Cascades Casino, and the Penticton Trade and Convention Centre. To the west of the SOEC are small residential housing, hotel resort, parking, and service commercial properties. The land use north of Westminster Avenue is currently zoned for low- to medium-density housing, hotel resort, service commercial, and mobile home parking.

2.2.2 FUTURE LAND USE & DEVELOPMENT

Preliminary development options provided by the City (dated October 5th, 2021), divide the North Gateway into three areas: The North, Central, and South Districts, as shown below in **Figure 2.2**. The proposed development concept for each district is described below.

[1] Due to limited days of data collection at short count stations, the estimated AADT and growth rates can be skewed depending on what time of year the counts were taken.

Figure 2.2: North Gateway Districts



North District

This area is focused on residential, commercial, and mixed-use developments. The future potential land use includes the following:

- Two existing hotels to remain, and
- Approximately 1,200 residential units at 75 units per acre, replacing existing residential and commercial properties.

Central District

The Central District includes the SOEC and Penticton Trade and Convention Centre. The future potential land use includes the following:

- Two proposed hotels with a total of 180 rooms plus an additional 40 hotel rooms added to the existing Hotel Penticton and a 75-room hotel addition to the Cascades Casino,
- Approximately 200 medium-to high-density residential units replacing existing commercial properties, and
- A possible addition of 100 units of employee housing replacing existing residential properties and parking.

South District

The South District includes the Penticton Golf and Country Club as well as residential and commercial properties. The future potential land use includes:

- A proposed multi-use trail and additional redevelopment opportunity, and
- A new hotel with 75 rooms.

2.3 INTEGRATED & MULTI-MODAL TRANSPORTATION

Mode split data from the 2021 census shows that most of the population (83%) commutes by private vehicle (as a driver or passenger). Penticton's 2021 commuting mode split, as shown below in **Table 2.1,** is consistent with the 2016 mode split. A key highlight of the data in Penticton is the high percentage of people who walk as their primary mode of commuting (10%) compared to the provincial average of 6%. This is perhaps offset by the lower percentage of people who take transit; however, the result is significant and is likely a reflection of the compact size of the city and the flat topography.

Table 2.1: Commuting Mode Split (2021 Census)

	City of Penticton	British Columbia
Car, truck, van as a driver	76%	73%
Car, truck, van as a passenger	7%	6%
Public Transit	2%	9%
Walk	10%	6%
Cycle	2%	2%
Other method	3%	2%

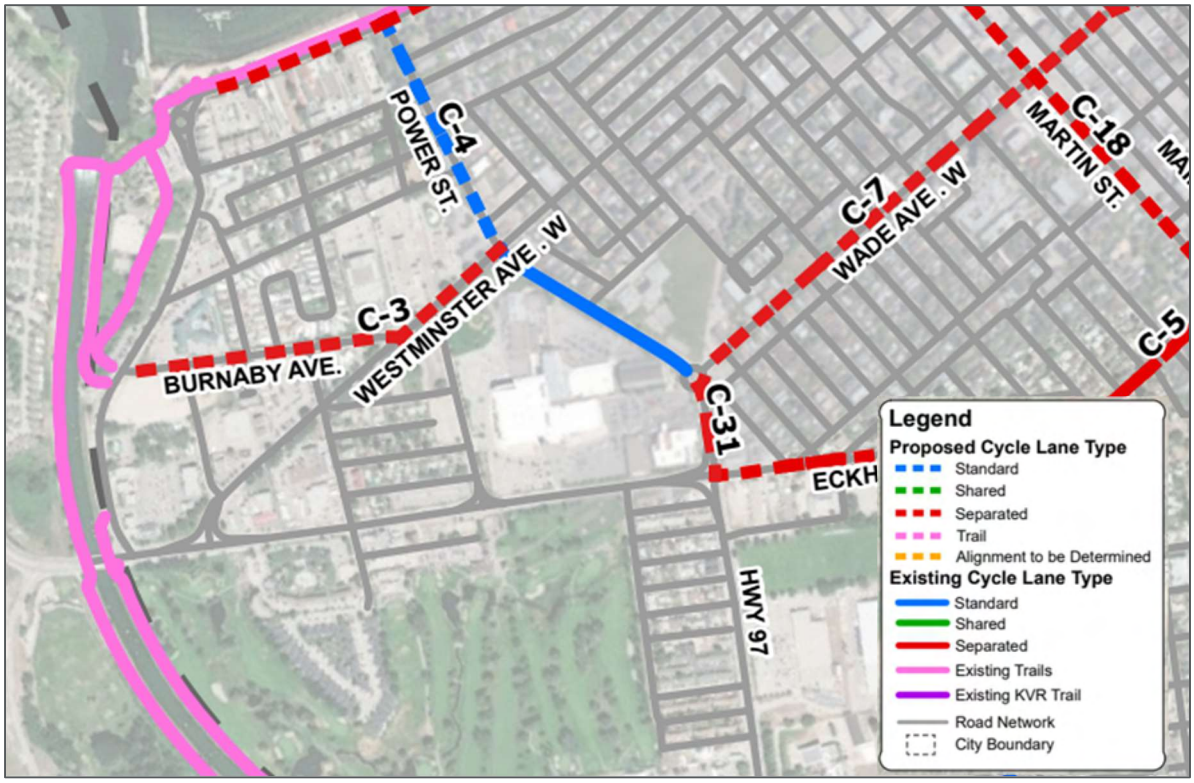
The City of Penticton's 2021 Transportation Master Plan (TMP) identifies the need for the City to prioritize and invest in infrastructure that supports active transportation and transit modes over private vehicle travel. The existing multi-modal transportation infrastructure in the North Gateway area was reviewed to identify any gaps, issues, and/or concerns for pedestrians, cyclists, transit, and heavy vehicle and goods movement.

2.3.1 ACTIVE TRANSPORTATION

The City's Existing and Proposed Cycle Network map from the 2021 TMP identifies a standard bike lane on Power Street from Wade Avenue to Westminster Avenue as the only existing cycling infrastructure in the study area. Future proposed bike lanes include an extension of the existing standard bike lane on Power Street to continue north, a separated bike lane on Burnaby Avenue and Westminster Avenue W, and a separated bike lane on Vees Drive as part of a larger proposed route connecting Wade Avenue W and Eckhardt Avenue W. The existing and future cycling infrastructure is shown below in **Figure 2.3**. The current Bike Score[2] index for residents on Creston Avenue is 71 out of 100, meaning biking is convenient for most trips from this address.

[2] The Bike Score index is based on data from www.walkscore.com and is measured based on the presence of bike lanes and hills on routes to nearby amenities, destinations and road connectivity within the city, and the existing cycling mode share.

Figure 2.3: North Gateway Existing and Proposed Cycle Network (2021 TMP)



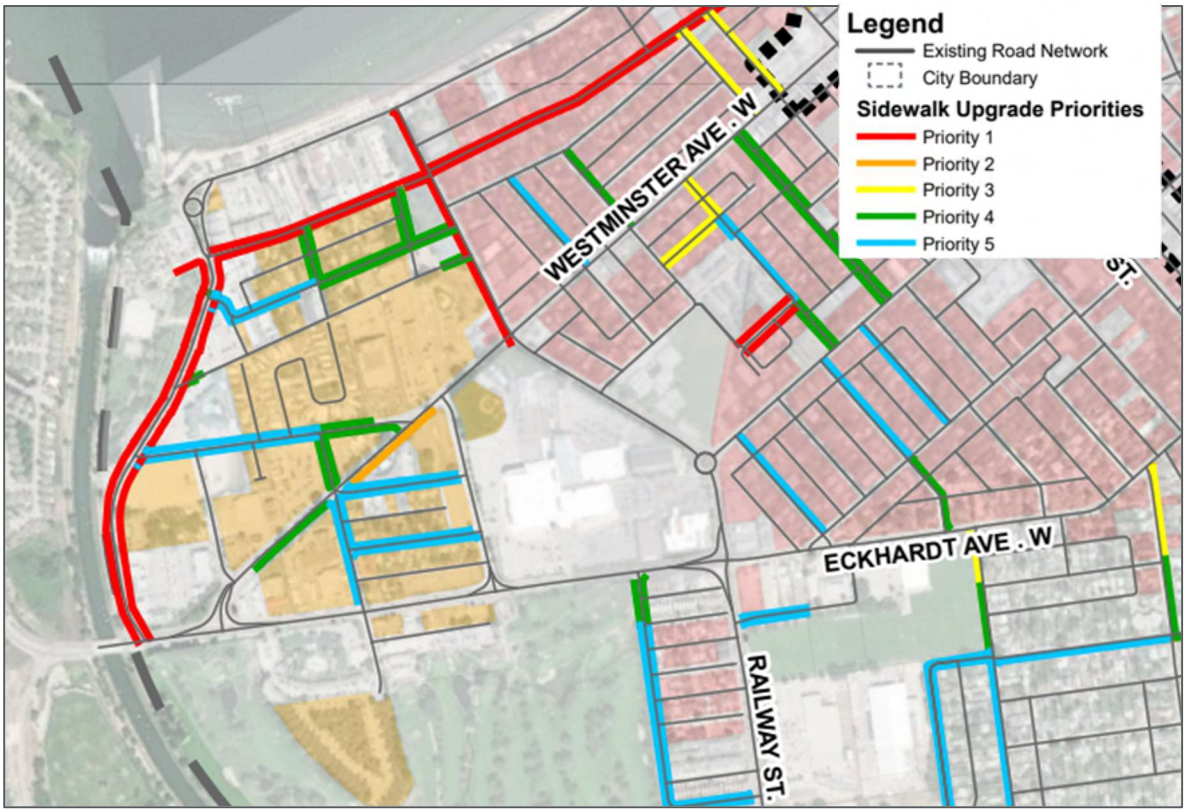
There are limited pedestrian facilities in the North Gateway area. Sidewalks are present on both sides of the road on Highway 97, Alberni Street, Power Street, Vees Drive, and Westminster Avenue W; however, there is an almost 400m gap of sidewalk on the south side of Westminster Avenue W between Wylie Street and Burnaby Avenue, as shown below in **Figure 2.4** and **Figure 2.5**. Wylie Street and the western portion of Burnaby Avenue have recently been upgraded to include pedestrian facilities. Riverside Drive features a sidewalk on the west side of the road. Vernon Avenue, Creston Avenue, Comox Street, and the eastern segment of Burnaby Avenue do not have pedestrian facilities.

Figure 2.4: Westminster Ave W Sidewalk Termination at Wylie St (facing southeast)

Figure 2.5: Westminster Ave W Sidewalk Termination at Burnaby Ave (facing southwest)

Penticton's TMP identifies sidewalk upgrade priorities within the North Gateway area, as illustrated below in **Figure 2.6**. Many of the existing sidewalk gaps in the North Gateway area will be filled with the completion of the plan below. Some roads have upgraded pedestrian facilities since the creation of this map in 2021, such as segments of sidewalk on Burnaby Avenue and Churchill Avenue.

Figure 2.6: North Gateway Sidewalk Upgrade Priorities (2021 TMP)

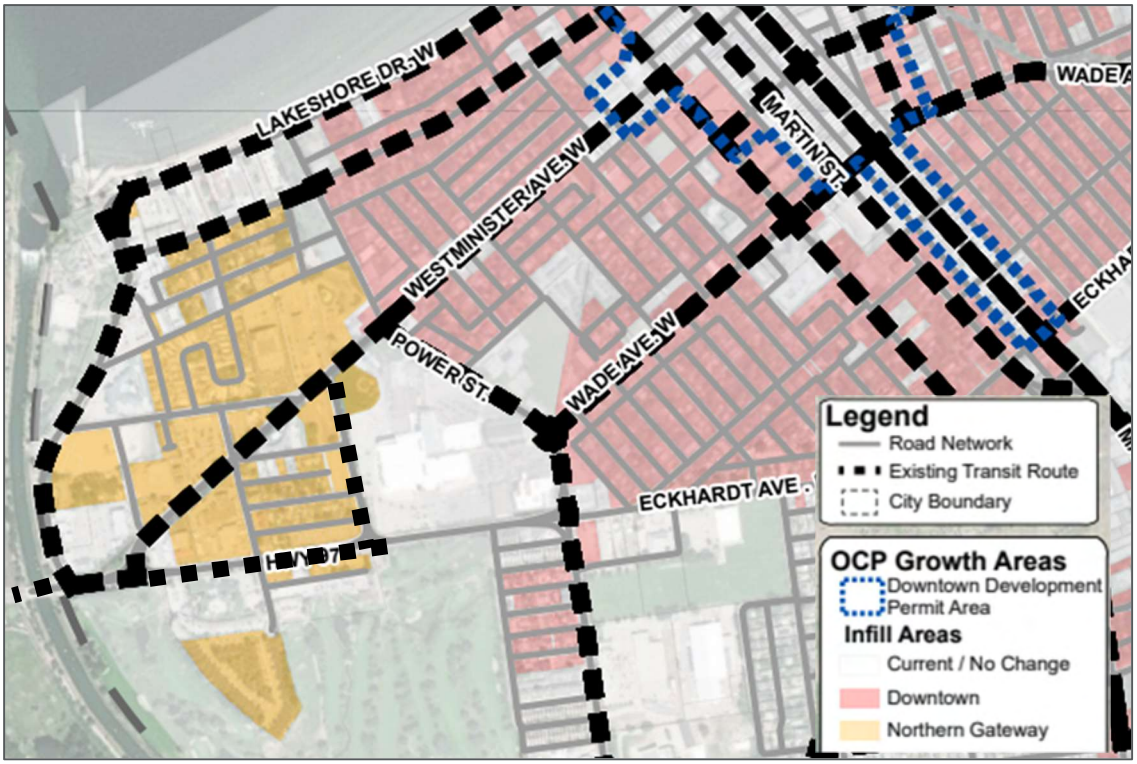


The current Walk Score[3] ranking for residents on Creston Avenue is 43 out of 100, which means that most errands from this address require a vehicle. The Walk Score for Comox Street in Penticton is high for trips for dining and grocery, but low for shopping, errands, schools, and entertainment.

2.3.2 TRANSIT

BC Transit provides regional and local bus services connecting Penticton to communities including Kelowna, Summerland, Naramata, and Osoyoos. Within the study area, seven transit routes currently operate along with stops on Riverside Drive, Westminster Avenue W, Power Street, Vees Drive, and Alberni Street. The City's TMP identifies these roads, except Alberni Street, as existing designated transit routes, as shown below in **Figure 2.7**.

Figure 2.7: North Gateway Transit Routes (2021 TMP, modified based on new information)



The 2015 Transit Future Plan identifies a future local transit route on Highway 97 between Westminster Avenue N and Vees Drive for the Penticton 25-year network vision. The City's 2021 TMP does not include this route as an existing connection.

Most bus stops in the North Gateway area are denoted by signage and have designated waiting areas between the roadway and sidewalk. Only one stop (W Westminster at Wylie) has a bench. Typical bus stops in the North Gateway area are shown below in **Figure 2.8** and **Figure 2.9**.

[3] The Walk Score index is based on data from www.walkscore.com and is measured based on distance to nearby amenities, with the maximum points given for amenities within a five-minute walk and no points for amenities over a 30-minute walk.

Figure 2.8: W Westminster at Wylie Bus Stop

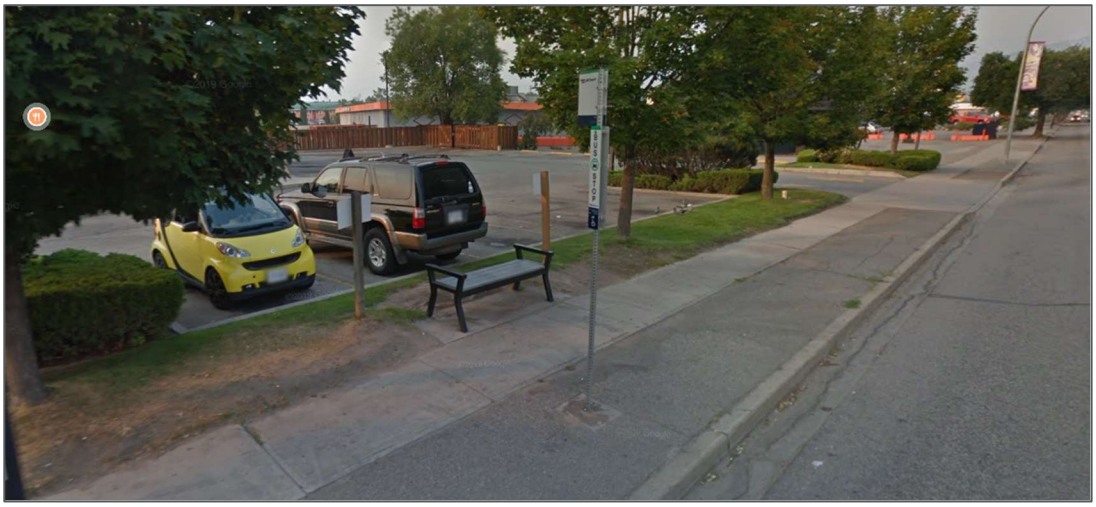
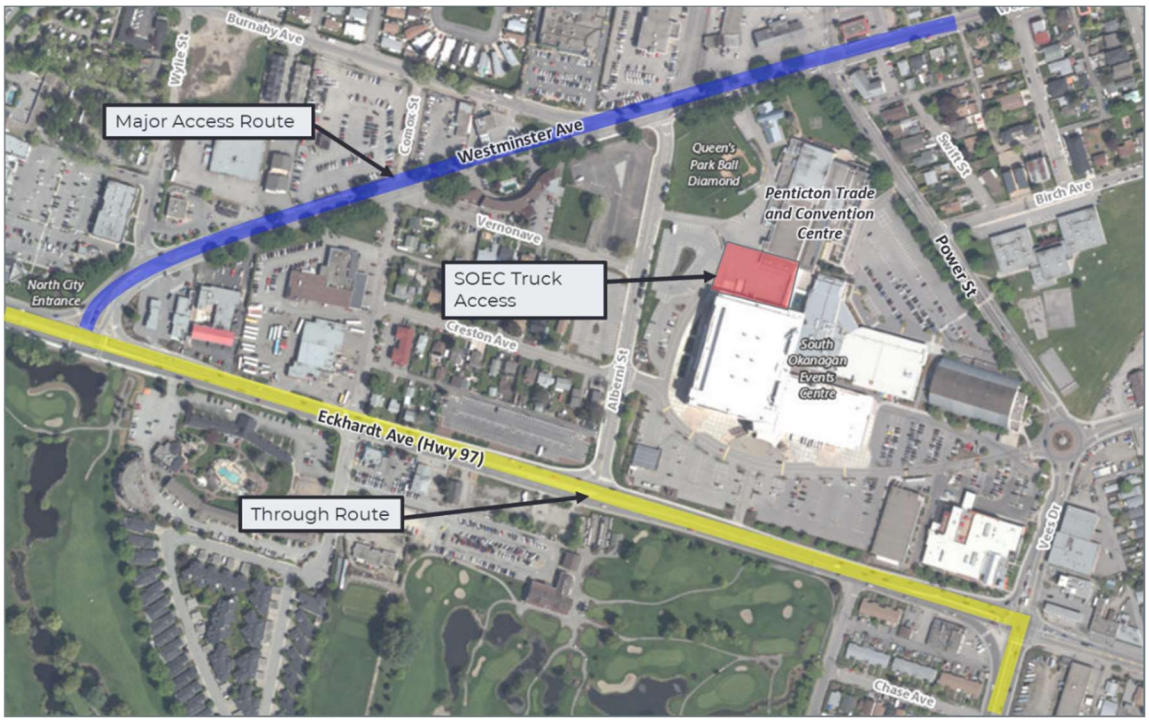


Figure 2.9: Power Street at Wade Ave with Bus Stop before Protected Bike Lanes

2.3.3 GOODS MOVEMENT & HEAVY VEHICLES

Highway 97 and Westminster Avenue W are the only two designated truck routes within the North Gateway area, based on the City's Goods Movement Network identified in their TMP. The SOEC generates frequent truck traffic. Heavy vehicles typically access the northwest area of the SOEC property to deliver goods via Alberni Street, as illustrated below in **Figure 2.10**.

Figure 2.10: North Gateway Truck Routes and SOEC Truck Access



2.4 SAFETY ASSESSMENT

The following sections describe the road network safety based on historic collision data provided by the MoTI and ICBC.

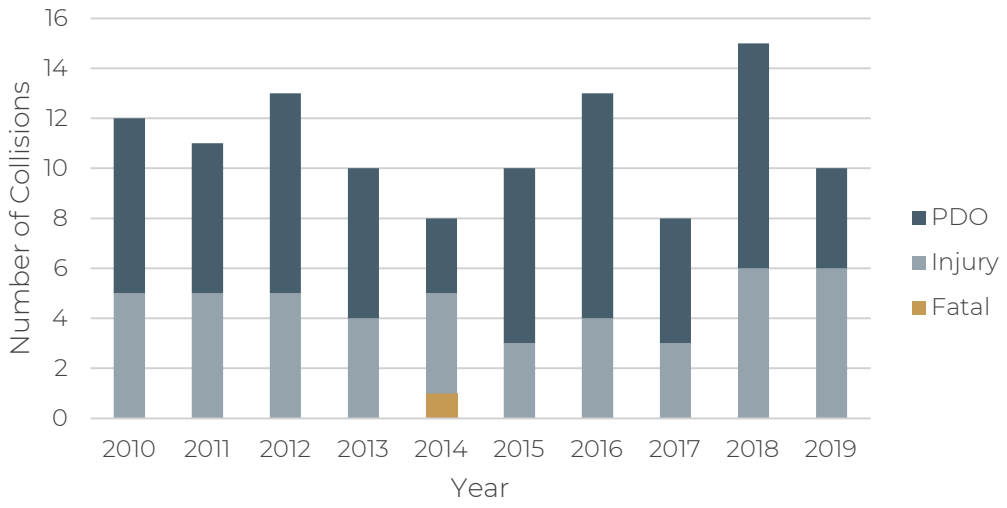
2.4.1 HIGHWAY 97 COLLISION HISTORY

The safety performance of Highway 97 within the study area was reviewed and assessed based on historic collisions over a 10-year period between 2010 to 2019. Historic collision data was obtained from the MoTI's Collision Information System (CIS) which is based on police reports. The CIS data includes information on each collision including the date and time, location, severity, contributing factors, and other attributes such as road condition. This data was reviewed and screened to confirm all reported locations correspond with other reported attributes.

OVERALL COLLISION TRENDS

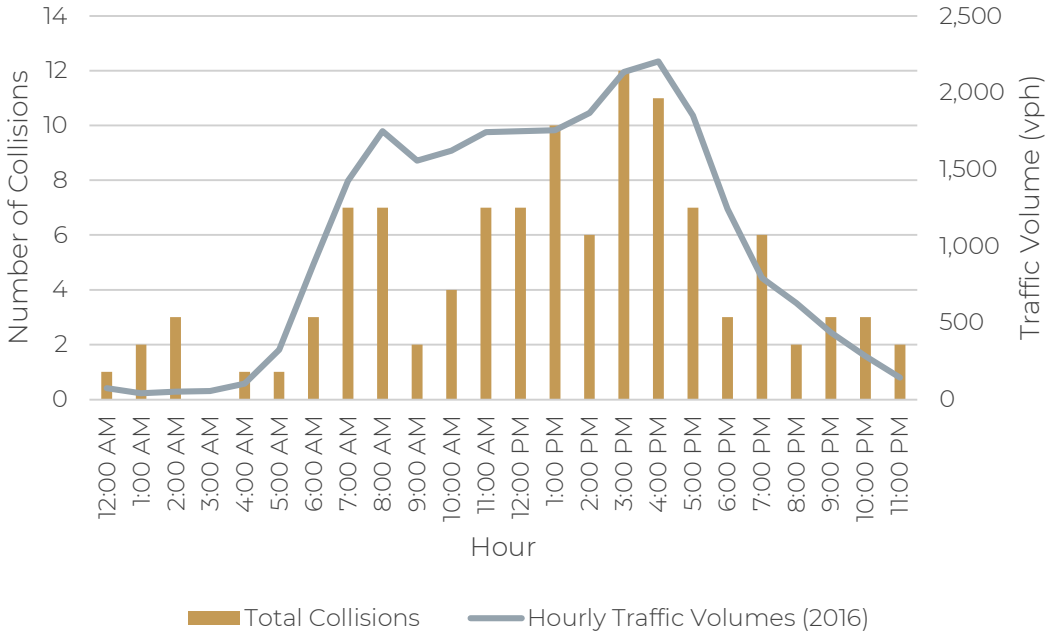
Between 2010 and 2019, a total of 110 collisions occurred on Highway 97 within the study area. As illustrated below in **Figure 2.11**, 64 of the collisions resulted in property damage only (PDO), 45 resulted in personal injury, and one collision resulted in a fatality. The fatal collision occurred at 1:50am on August 16th, 2014, on wet road conditions at Eckhardt Avenue W between intersections. Other details, such as configuration and contributing factors are reported as "Other."

Figure 2.11: Collision Frequency by Year - Highway 97 Through Study Area (2010-2019)



Collisions have historically corresponded with the times of day that have higher traffic volumes, as illustrated below in **Figure 2.12**.

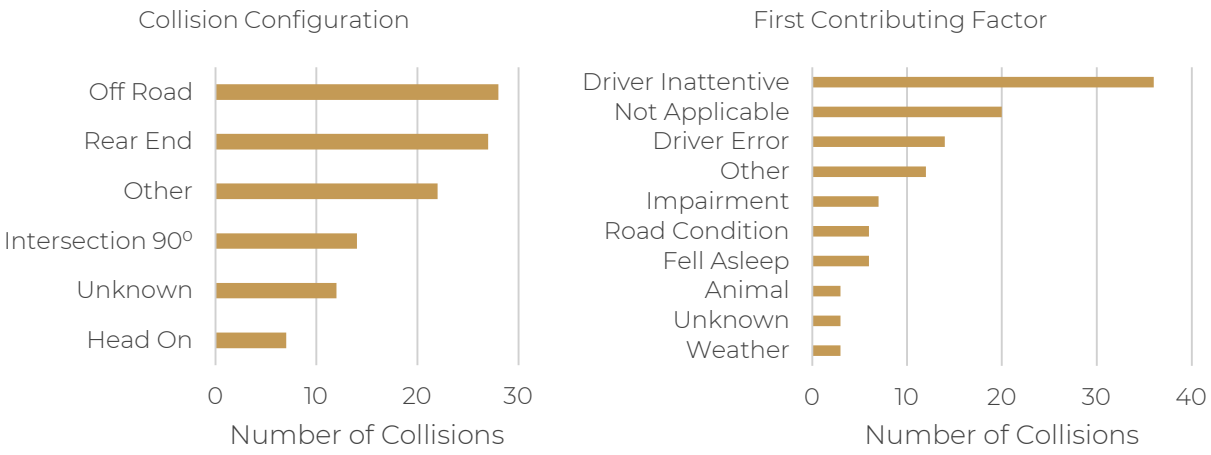
Figure 2.12: Collision Frequency by Hour (2010-2019) and Hourly 2016 Traffic Volumes on Highway 97



Two or more vehicles were involved in 63% of all collisions. The most common collision configurations were reported as "off-road" and "rear end" over the 10-year period, as illustrated below in **Figure 2.13**. The rear end configurations are dominant at the Highway 97 intersections between Westminster Avenue N and Eckhardt Avenue/Vees Drive, which may be an indirect result of congestion ("stop-and-go traffic patterns) at signalized intersections and shared through and turning lanes at unsignalized intersection. The off-road collision configuration was dominant west of Eckhardt Ave Bridge, between Riverside Drive and Burnaby Avenue.

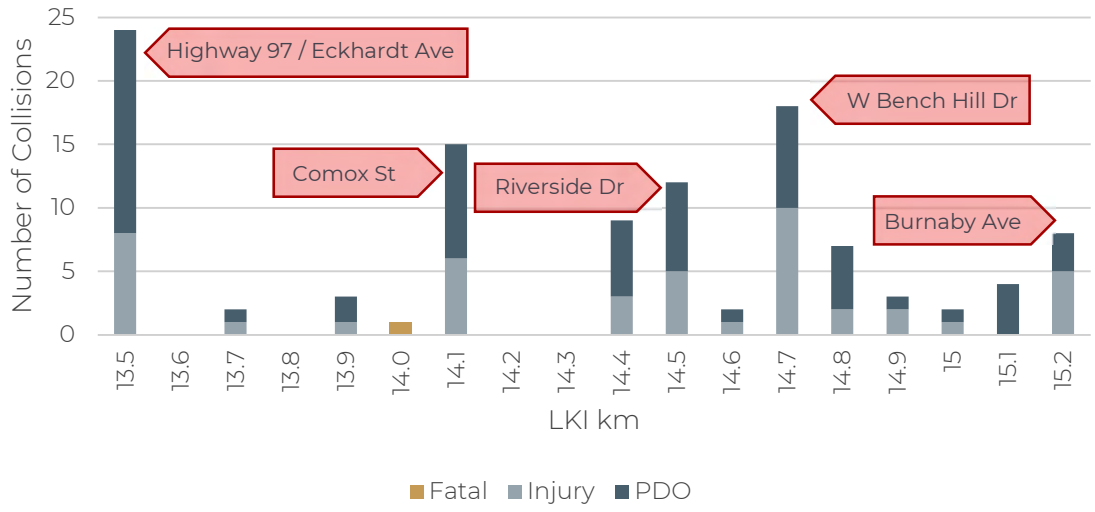
The most common first contributing factors for collisions occurring in the study segment of Highway 97 was “driver inattentive” and “driver error” (including illegal maneuvers and aggressive driving behaviors), accounting for 33% and 13% of collisions, respectively.

Figure 2.13: Highway 97 Collision Trends (2010-2019)



Of the 110 collisions, 60 were labelled as having occurred at an intersection within the study area. **Figure 2.14** below illustrates the frequency of collisions to the nearest 100m LKI mark. The Highway 97 / Eckhardt Avenue W intersection (LKI 13.5) had the highest number of collisions, with 17 collisions reported as occurring within the intersection. Half of the Highway 97 / Eckhardt Avenue W intersection collisions had a first contributing factor of “driver inattentive”, and half of the collision configurations were “rear end.”

Figure 2.14: Collision Locations (2010-2019)



HIGHWAY SEGMENT COLLISION ANALYSIS

Key safety performance indicators for Highway 97 through the study area was compared to the provincial benchmarks for similar facilities. The 5-year analysis includes the most recent five years of collision data in the study segment (2015-2019) and the most recent available provincial collision rate (2012 to 2016).

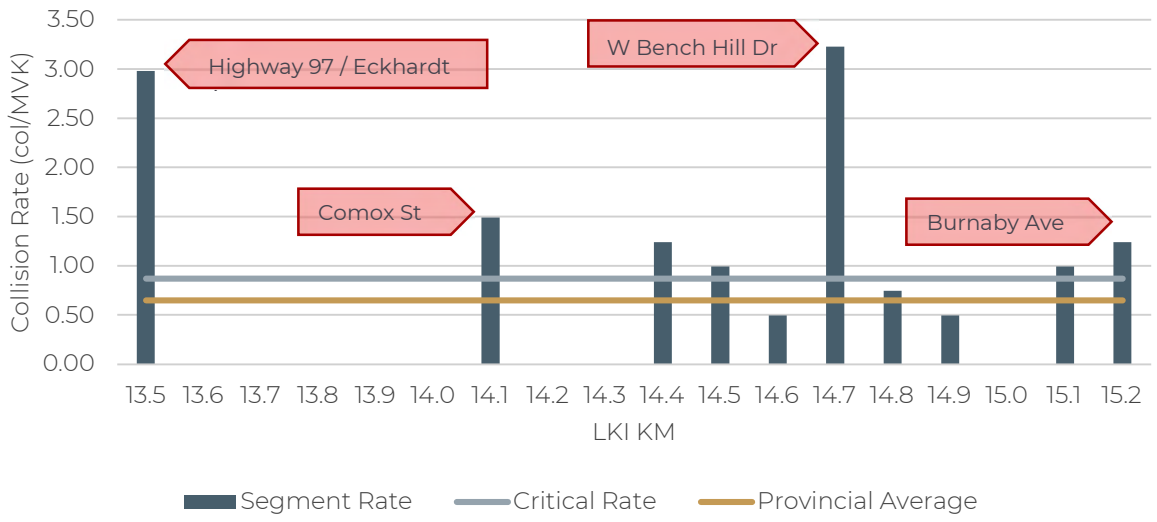
Highway 97 through the study area is classified as 'Urban Arterial Undivided 4 Lanes' (UAU4). Within the 5-year analysis period, 56 collisions occurred on Highway 97 between Vees Drive and Burnaby Avenue; 34 of which were PDO and 22 involving injury. No fatal collisions occurred in the 5-year period. The overall corridor collision rate is 0.77 collisions per million vehicle kilometers (c/MVK), which is less than the overall critical collision rate of 0.81 c/MVK, and higher than the provincial average of 0.65 c/MVK for UAU4 facilities. The corridor performance indicators are summarized below in **Table 2.2**.

Table 2.2: Safety Performance Indicators (2015-2019)

Performance Indicator	Highway 97 (Segment 1214, LKI KM 13.5 to KM 15.2)	Provincial Average (UAU4) Over 20,000 vpd
Collision Rate (c/MVK)	0.77	0.65
Critical Collision Rate	0.81	-
Collision Severity Index	4.54	6.44

Of the 1.8km highway segment, eight 100m segments have a collision rate above the provincial average and seven segments above the critical collision rate. Most of these segments occur at or within 100m of an intersection. A summary of the collision rate for each LKI KM segment in the study area is shown below in **Figure 2.15**.

Figure 2.15: Highway 97 Corridor Collision Rates (2015-2019)



Two LKI segments in the study area have a Collision Severity Index (CSI) higher than the provincial average of 6.44, as summarized below in **Table 2.3**. Both segment locations are associated with an intersection, however, the collisions are not necessarily intersection related. LKI KM 14.7 has 13 total collisions, 10 of which have a location description of 'at intersection'. However, the most common collision configuration is 'off-road right' by southbound vehicles. This indicates that the frequency of

collisions at this LKI segment may be due to the curve on Highway 97 just west of W Bench Hill Drive rather than the intersection itself.

Table 2.3: Segments Exceeding Provincial Average CSI

Segment 1214 LKI KM	Total Injury Collisions	Total PDO Collisions	Segment CSI
14.7 (West Bench Hill Drive)	9	4	7.23
15.2 (Burnaby Avenue)	4	1	8.20

HIGHWAY INTERSECTION COLLISION ANALYSIS

Key safety performance indicators for intersections on Highway 97 were also compared to provincial collision rates for similar intersection facilities. Only collisions labelled as occurring at an intersection are included in this analysis, resulting in a total of 36 collisions consisting of 19 PDO and 17 collisions resulting in injury. All intersections are classified as UAU4 and either signalized or unsignalized. All intersections except W Bench Hill Drive are lower than the critical collision rate and average provincial rate. The collision rate at W Bench Hill Drive is equal to the critical rate and higher than the average provincial rate, as summarized below in **Table 2.4**.

Table 2.4: Highway 97 / W Bench Hill Dr Collision Rates

Highway 97 / W Bench Hill Drive	
Intersection Collision Rate (c/MVK)	0.25
Critical Collision Rate (c/MVK)	0.25
Provincial Average Rate (c/MVK)	0.33

The Collision Severity Index (CSI) was calculated for each intersection and compared to the provincial average for similar intersection facilities. All intersections have a CSI below the provincial average CSI except the three intersections summarized below in **Table 2.5**.

Table 2.5: Intersections Exceeding Provincial Average CSI

Highway 97 Intersection	Total Injury Collisions	Total PDO Collisions	Collision Severity Index (CSI)	Average Provincial CSI
Westminster Ave N	3	2	6.40	5.95
W Bench Hill Dr	8	2	8.20	5.39
Burnaby Ave	3	1	7.75	5.95

2.4.2 LOCAL ROAD COLLISION HISTORY

Historic collision data was also obtained from ICBC's database and was used to assess safety conditions on the local roads within the North Gateway area. Based on data from 2016 to 2020, a total of 212 collisions were reported at intersections within the study area. Mid-block collision locations are not specified and therefore are not included in the analysis, as it is unknown whether they occurred within the study area boundaries. Any collision that was reported to occur in a parking lot was also removed from the analysis.

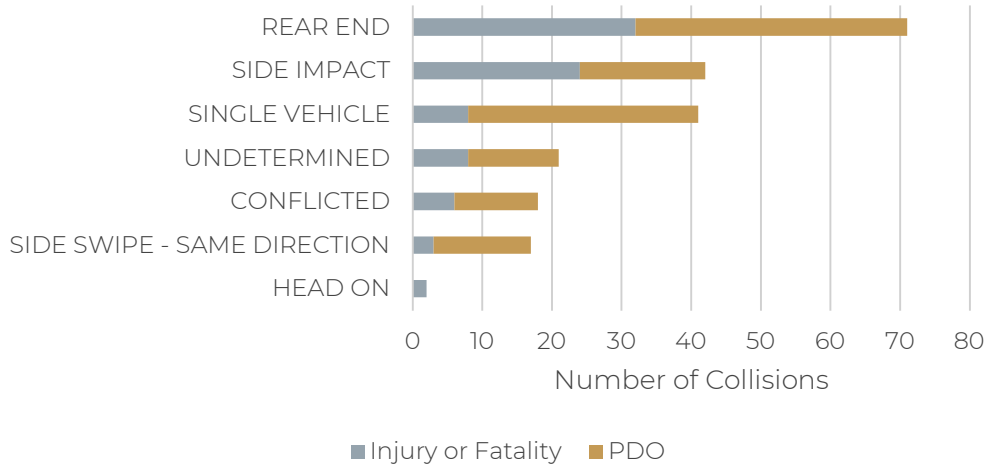
Only two of the reported intersection collisions within the five-year period involved a pedestrian. One pedestrian collision occurred during a left turn at the Highway 97 / Westminster Avenue N intersection,

which resulted in personal injury. The other was at the Westminster Avenue N / Alberni Street intersection, with no additional information provided. PDO collisions accounted for 129 of the 212 collisions, with the remaining collisions resulting in injury or fatality. The highest collision rates occur at intersections with Highway 97 and at Westminster Avenue W / Power Street, as illustrated below in **Figure 2.16**.

Figure 2.16: ICBC Reported Intersection Collisions (2016-2020)

Annual collisions in the study area were consistent between 2016 and 2020. The most frequent reported collision configuration was rear ends, followed by side impacts and single vehicle collisions. This is consistent with the CIS data reporting for the Highway 97 segment in the study area. **Figure 2.17** below summarizes the reported collision configurations for all collisions within the study area.

Figure 2.17: ICBC Reported Collision Configuration (2016-2020)



2.5 EXISTING TRAFFIC CONDITIONS

The existing (2022) traffic mobility conditions are summarized below, including traffic volumes, analysis assumptions, and performance results.

2.5.1 TRAFFIC VOLUMES

Existing traffic data is available for seven (7) out of the ten (10) study intersections. The data sources include 2020 turning movement counts (TMCs) provided in the City's TMP Synchro file, and 2015 TMCs from the previous Gateway Casino TIA project. Traffic volumes for the three (3) remaining intersections were previously estimated in the *PTCC Hotel – Alberni St Closure & Northern Gateway Area Traffic Study*.

The traffic volumes used in the analysis were factored up to represent existing (2022) conditions using the growth rates identified in the assessment summarized above in **Section 2.1.1**. The PM peak period was found to be the critical time period, so the PM peak hour is the focus of this mobility analysis. A summary of existing, development, and future traffic volumes for the ten study intersections are included in **Appendix A**.

2.5.2 TRAFFIC MODELLING ASSUMPTIONS

Eight of the ten intersections were modeled in Synchro 11 software. The remaining two intersections, the roundabout on Power Street at Vees Drive and Wade Avenue W and the five-leg intersection on Westminster Avenue W at Vernon Drive and Comox Street, were modeled in Sidra 8 software. The mobility performance measures were calculated based on the Highway Capacity Manual (HCM) 6th Edition methodology in Synchro and based on Sidra methodology in Sidra.

The performance measures assessed in this analysis include the volume to capacity ratio (v/c ratio), the 95th percentile queue length (queue length) and the average vehicle delay and corresponding level of service (LOS). The v/c ratio is used as a measurement of the traffic capacity for a particular traffic lane or lane group. The LOS is directly related to the average vehicle delay. The six levels of service and corresponding delay thresholds are illustrated below in **Table 2.6**.

Table 2.6: Traffic Level of Service Thresholds

Level of Service (LOS)	Control Delay (s)	
	Unsignalized	Signalized
A	0-10	0-10
B	<10-15	>10-20
C	>15-25	>20-35
D	>25-35	>35-55
E	>35-50	>55-80
F	>50	>80

It should be noted that HCM methodology does not calculate an overall intersection LOS for two-way stop control intersections as the overall delay is typically biased by the free flow through movements.

The Peak Hour Factor (PHF) for intersections with known traffic volumes were taken from their respective data source. The City's Synchro model default PHF for unsignalized intersections was used where traffic volumes were estimated, assuming 0.82 in the PM peak. Similarly, heavy vehicle percentages were taken from known traffic volumes sources and assumed to be 3% and 2% for through movements along Highway 97 and Westminster Avenue W, respectively, at intersections without data. Movements on minor roads are assumed to have no heavy vehicle traffic.

The existing signal timing in the City's 2020 Synchro model was used for the existing conditions (2022) traffic analysis.

2.5.3 EXISTING 2022 TRAFFIC MOBILITY PERFORMANCE

The existing 2022 PM peak hour traffic analysis results are summarized below and in **Table 2.7**. The complete model output reports for existing traffic conditions are included in **Appendix B**.

Most intersections experience minimal delays during the existing PM peak period with the following exceptions:

- The intersection of Highway 97 / Vees Drive-Eckhardt Avenue operates at LOS E and the critical movement has a v/c ratio above one, indicating the traffic volume is above capacity.
- The intersection on Highway 97 at Comox Street operates at LOS F and the northbound and southbound approaches both experience significant delays and have v/c ratios above one.

Table 2.7: North Gateway Mobility Performance Summary - PM Peak Hour (2022)

Intersection			Overall Int	Critical Movement			
			LOS (delay, s)	Mvmt	LOS (delay, s)	v/c Ratio	95th % Queue (veh)
Highway		Hwy 97 / Westminster Ave W	B (11.7)	SBL	C (27.9)	0.78	5.3
		Hwy 97 / Eckhardt Ave W / Vees Dr	E (59.0)	WBR	F (95.2)	1.06	23.7
	STOP	Hwy 97 / Comox St	F (>500)	NBTLR	F (>500)	49.39	14.6
	STOP	Hwy 97 / Oakville St	A (4.5)	NBLR	C (18.7)	0.33	1.4
	STOP	Hwy 97 / W Bench Hill	A (8.7)	NBL	F (240.5)	0.83	3.2
	YIELD	Hwy 97 / Alberni St	A (0.3)	SBR	C (16.5)	0.10	0.3
Local		Westminster Ave W / Power St	B (12.7)	NBL	B (14.2)	0.40	3.8
		Power St / Vees Dr / Wade Ave W	A (6.8)	WBL	B (12.6)	0.32	2.1
	STOP	Westminster Ave W / Comox St / Vernon Ave	A (4.8)	SBL	B (12.3)	0.05	0.2
	STOP	Westminster Ave W / Burnaby Ave	A (1.2)	SBLR	B (14.3)	0.11	0.4
	STOP	Westminster Ave W / Alberni St	A (1.4)	NBL	C (16.2)	0.06	0.2
	STOP	Alberni St / Vernon Ave	A (0.7)	EBLR	A (8.7)	0.01	0.0

2.6 FUTURE TRAFFIC CONDITIONS

Future traffic conditions were analyzed for the 25-year horizon period to determine the mobility performance of the existing road network configuration with background traffic growth and future development traffic. The 25-year horizon (2047) results are summarized below. The same assumptions and modelling parameters used in the existing traffic analysis were used for the future conditions traffic analysis. The existing signal timing was optimized in Synchro 11. The complete model output reports for future traffic conditions are included in **Appendix C**.

The previous traffic forecasting and assumptions used in the *PTCC Hotel – Alberni St Closure & Northern Gateway Area Traffic Study* were reviewed and updated based on the most recent potential future land use scenario in the North Gateway area provided by the City. Future traffic conditions were estimated by applying background traffic growth as well as trips associated with future potential developments in the North Gateway area.

The 2047 background traffic volumes were projected by applying the growth rates identified in the assessment summarized above in **Section 2.1.1** to the existing (2022) traffic volumes noted above in **Section 2.5.1**. Development trips were estimated based on the anticipated developments in the area and then added to the future background traffic to determine the total 2047 traffic volumes used in the future traffic conditions analysis.

The projected 2047 traffic volumes are presented in **Appendix A**, including background, development only, and total volumes.

2.6.1 TRAFFIC GROWTH

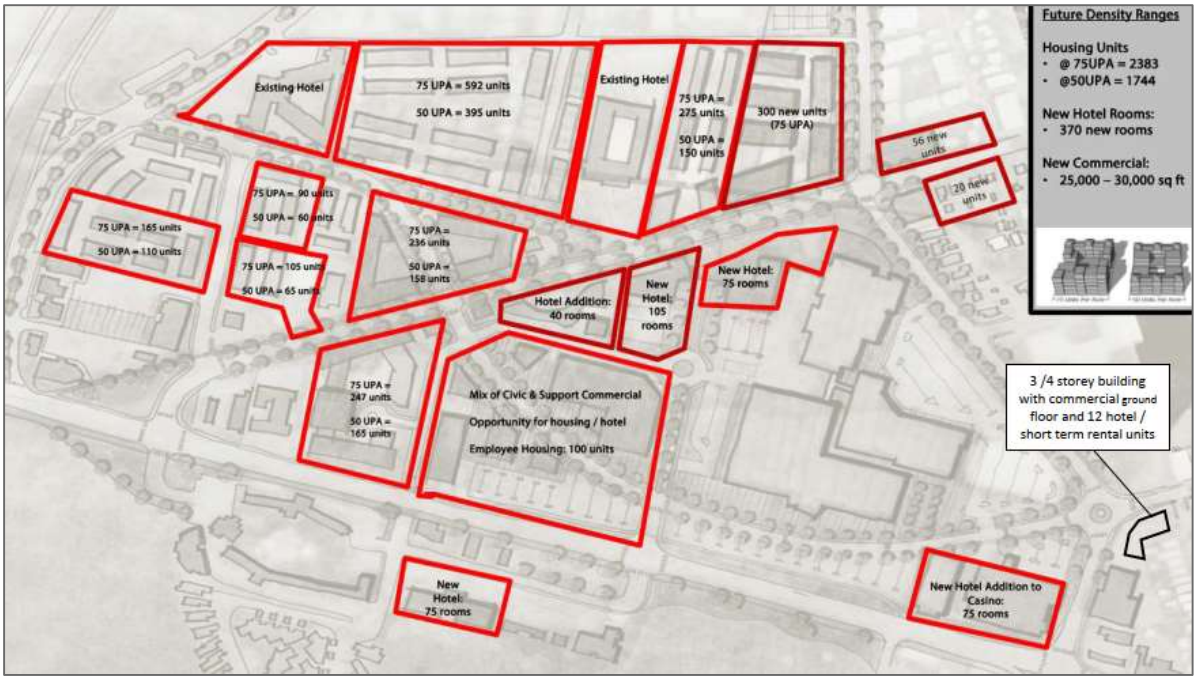
Two background traffic growth scenarios were modelled for the 2047 horizon year:

1. A **modest growth** scenario with low traffic growth rates was used to reflect the City's goals for future mode switch to greater active transportation and transit use. The modest growth scenario includes 1.25% background traffic growth on Highway 97 through movements, the development trips identified in the following sections, and no background traffic growth on the local road network.
2. A **high growth** scenario was used to reflect a typical growth rate projection, which was determined based on the historical traffic growth and population growth. The high growth scenario includes 2.2% background traffic growth on Highway 97 through movements, the development trips identified in the following sections, and 1.5% background traffic growth on the local road network.

2.6.2 TRIP GENERATION

The ITE Trip Generation Manual (11th Edition) was referenced to estimate new trips generated by the proposed developments in the North Gateway area. The potential future developments were provided by the City and are shown below in **Figure 2.18**. The development density ranges include approximately 1,744 to 2,383 new housing units, 370 new hotel rooms, and 25,000 to 30,000 sq ft of new commercial space. The trip generation rates for all mixed-use and residential developments use the 'Dense Multi-Use Urban' context setting to reflect the City's goal for a 15-minute city in the North Gateway.

Figure 2.18: North Gateway Potential Developments



New trips generated by the developments were assigned to the network and added to the background traffic volumes using the ITE trip generation rates for the PM peak hour of adjacent street traffic are outlined below in **Table 2.8**.

Table 2.8: ITE Land Use Trip Rates for the PM Peak Hour of Adjacent Street Traffic

ITE Code	Description	Average Trip Rate (trips/hour)	Unit	% In	% Out
220	Multi-Family Low-Rise Housing	0.51	Dwelling Units	63%	37%
221	Multi-Family Mid-Rise Housing (Dense Multi-Use Urban)	0.26	Dwelling Units	73%	27%
231	Mid-Rise Residential with Commercial Ground Floor (Dense Multi-Use Urban)	0.28	Dwelling Units	44%	56%
240	Mobile Home Park	0.58	Dwelling Units	62%	38%
310	Hotel	0.59	Rooms	51%	49%
311	All Suites Hotel	0.36	Rooms	49%	51%
320	Motel	0.36	Rooms	54%	46%
437	Bowling Alley	1.16	1000 sqft GFA	65%	35%
840	Automobile Sales (New)	2.42	1000 sqft GFA	40%	60%
841	Automobile Sales (Used)	3.75	1000 sqft GFA	47%	53%
942	Automobile Care Centre	2.25	1000 sqft GFA	48%	52%

The number of trips generated for each development is summarized below in **Table 2.9**, **Table 2.10**, **Table 2.11**, and **Table 2.12** for the North, West, Central, and South areas of the North Gateway, respectively. The four areas are illustrated below in **Figure 2.19**. In addition to generating trips for each new development, trips were removed from the network based on the existing land use that will be replaced by the new development.

Figure 2.19: North Gateway Trip Generation Areas

Table 2.9: North Area Development Trip Rates (PM Peak Hour)

Development (ITE Code)	GFA or Units	Trip Rate	Trips In	Trips Out
New Developments				
Mid-Rise Residential (221) (Dense Multi-Use Urban)	275 Dwelling Units	0.26	52	19
	592 Dwelling Units	0.26	112	42
	20 Dwelling Units	0.26	4	1
Mid-Rise Residential with Commercial Ground Floor (231) (Dense Multi-Use Urban)	56 Dwelling Units	0.28	7	9
	300 Dwelling Units	0.28	38	48
Removed Developments				
El Rancho Motel (320)	74 Rooms	0.36	-14	-12
Mobile Home Park (240)	72 Dwelling Units	0.58	-26	-16
		Net Addition	**173**	**91**

Table 2.10: West Area Development Trip Rates (PM Peak Hour)

Development (ITE Code)	GFA or Units	Trip Rate	Trips In	Trips Out
New Developments				
Mid-Rise Residential (221) (Dense Multi-Use Urban)	165 Dwelling Units	0.26	31	12
	90 Dwelling Units	0.26	17	6
	105 Dwelling Units	0.26	20	7
	236 Dwelling Units	0.26	27	34
Low-Rise (220) (Riverside Penticton Development)	35 Dwelling Units	0.51	11	7
Removed Developments				
Ogopogo Motel (320)	10 Rooms	0.36	-2	-2
Ogopogo RV Park (240)	20 Dwelling Units	0.58	-7	-4
Commercial/Bowling Alley (437)	21,000 sqft	1.16	-16	-9
Used Car Sales Lot (841)	1,000 sqft	3.75	-2	-2
		Net Addition	**79**	**49**

Table 2.11: Central Area Development Trip Rates (PM Peak Hour)

Development (ITE Code)	GFA or Units	Trip Rate	Trips In	Trips Out
New Developments				
Mid-Rise Residential (221) (Dense Multi-Use Urban)	247 Dwelling Units	0.26	47	17
Hotel Penticton Expansion (310)	40 Rooms	0.59	12	12
New Hotel (310)	105 Rooms	0.59	32	30
New Hotel (310)	75 Rooms	0.59	23	22
Cascades Casino Hotel Addition (310)	75 Rooms	0.59	23	22
Removed Developments				
Commercial Area/Car Care Centre (942)	12,000 sqft	3.11	-21	-23
Car Dealership (840)	20,000 sqft	2.42	-19	-29
		Net Addition	**97**	**51**

Table 2.12: South Area Development Trip Rates (PM Peak Hour)

Development (ITE Code)	GFA or Units	Trip Rate	Trips In	Trips Out
New Developments				
New Hotel (310)	75 Rooms	0.59	23	22
		Net Addition	**23**	**22**

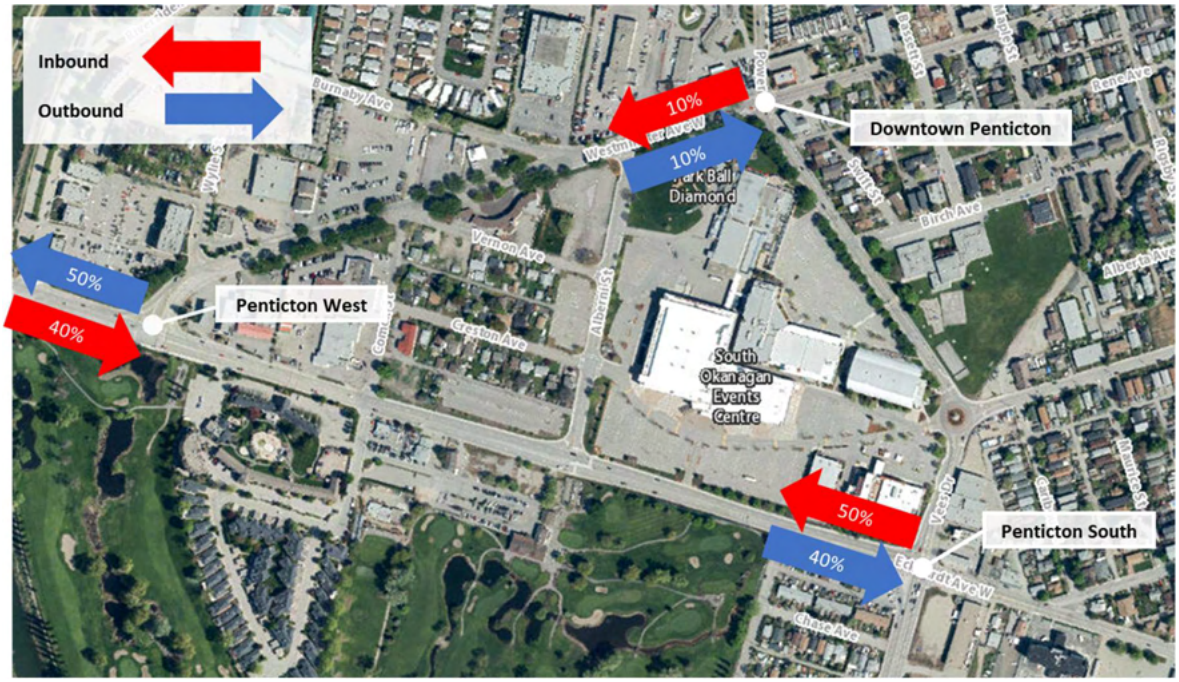
2.6.3 TRIP ASSIGNMENT

Trip assignment methodology and assumptions previously developed in the *PTCC Hotel – Alberni St Closure & Northern Gateway Area Traffic Study* were applied. New trips were assigned to the network based on the location of the development areas and key origin/destination generators in the city and region. The percentages of all entering / exiting traffic for each major origin point are based on the existing volume of traffic observed to enter and exit the study area from these origins. The distribution of trips by major origin point is summarized below in **Table 2.13** and **Figure 2.20**. The existing road network was assumed for the future mobility analysis.

Table 2.13: Major Origin Points for Trip Assignment

Major Origin Point	Observed Intersection
Penticton West	Hwy 97 / Westminster Ave W
Penticton South	Hwy 97 / Eckhardt Ave / Vees Dr
Downtown Penticton	Westminster Ave W / Power St

Figure 2.20: Distribution of PM Trips by Major Origin Point



2.6.4 FUTURE 2047 TRAFFIC MOBILITY PERFORMANCE (NO IMPROVEMENTS)

The 2047 PM peak hour traffic analysis results for the modest and high growth scenarios are summarized below in **Table 2.14** and **Table 2.15**, respectively.

In the modest traffic growth scenario, traffic conditions are anticipated to worsen at highway intersections due to background growth and the potential developments identified in **Section 2.6.1**, as identified below:

- Significant delays at the northbound and southbound approaches at Highway 97 / Comox Street and the southbound approach at Westminster Avenue W / Alberni Street prevent Synchro from computing the v/c ratio and queue lengths at the intersection.
- Highway 97 / Comox Street continues to operate at LOS F with anticipated delay over 500 seconds.
- The southbound approach at Westminster Avenue W / Burnaby Avenue operates at a LOS F.
- The northbound left turns from Vernon Street and Comox Street to Westminster Avenue W operate at LOS F.

Table 2.14: North Gateway Mobility Performance Summary - PM Peak Hour (2047, Modest Growth)

		Overall Int	Critical Movement			
	Intersection	LOS (delay, s)	Mvmt	LOS (delay, s)	v/c Ratio	95th % Queue (veh)
Highway Intersections	Hwy 97 / Westminster Ave W	C (34.5)	SBL	F (83.9)	0.90	14.1
	Hwy 97 / Eckhardt Ave W / Vees Dr	F (127.7)	EBL	F (250.7)	1.15	7.7
	Hwy 97 / Comox St[4]	F (>500)	NBTL	F (>500)	-	-
	Hwy 97 / Oakville St	F (93.2)	NBLR	F (>500)	6.68	16.4
	Hwy 97 / W Bench Hill Rd[4]	F (>500)	NBTL	F (>500)	-	-
	Hwy 97 / Alberni St	A (0.5)	SBR	C (23.4)	0.18	0.6
Local Intersections	Westminster Ave W / Power St	C (21.5)	NBL	C (33.7)	0.80	12.4
	Power St / Vees Dr / Wade Ave W	B (10.8)	WBLR	B (13.0)	0.79	10.9
	Westminster Ave W / Comox St / Vernon Ave	A (5.2)	NBL	F (54.5)	0.46	1.7
	Westminster Ave W / Burnaby Ave	A (1.5)	SBLR	C (19.6)	0.20	0.7
	Alberni St / Vernon Ave	A (6.1)	EBLR	A (8.6)	0.2	0.1

[4] *critical movement v/c and queue are not computed due to extremely high delays*

In the high traffic growth scenario, traffic conditions are anticipated to worsen at most intersections due to background growth and the potential developments identified in **Section 2.6.1**, as identified below:

- Significant delays at the northbound and southbound approaches at Highway 97 / Comox Street and the southbound approach at Westminster Avenue W / Alberni Street prevent Synchro from computing the v/c ratio and queue lengths at the intersection.
- Westminster Avenue W / Power Street and Highway 97 / Comox Street continue to operate at LOS F with anticipated delay over 500 seconds.
- The southbound approach at the Westminster Avenue W / Burnaby Avenue operates at LOS F.
- The northbound left turns from Vernon Street and Comox Street to Westminster Avenue W operate at LOS F.

Table 2.15: North Gateway Mobility Performance Summary - PM Peak Hour (2047, High Growth)

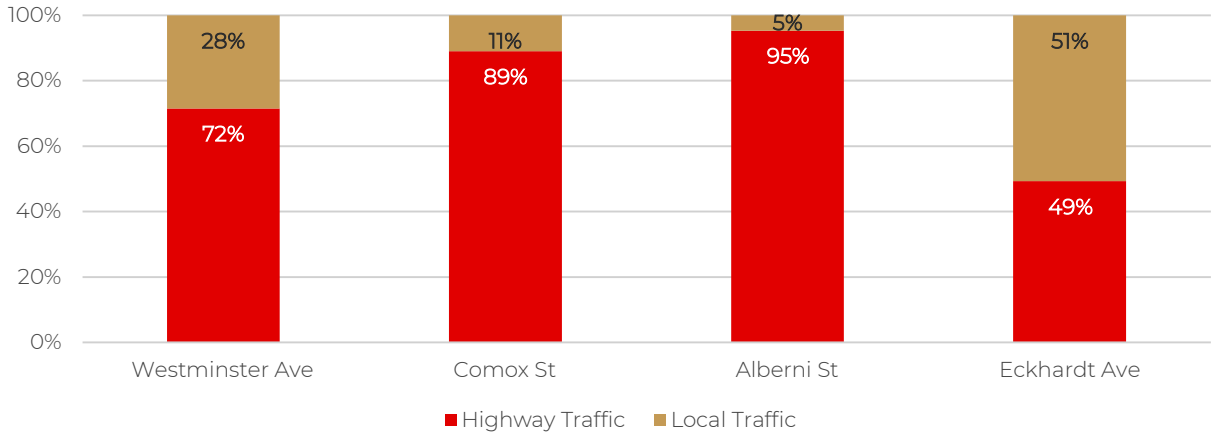
	Intersection	Overall Int	Critical Movement			
		LOS (delay, s)	Mvmt	LOS (delay, s)	v/c Ratio	95th % Queue (veh)
Highway Intersections	Hwy 97 / Westminster Ave W	**F (90.8)**	EBL	**F (199.9)**	1.29	46.5
	Hwy 97 / Eckhardt Ave W / Vees Dr	**F (223.1)**	NBL	**F (378.1)**	1.73	88.9
	Hwy 97 / Comox St[5]	**F (>500)**	NBTL	**F (>500)**	-	-
	Hwy 97 / Oakville St	**F (497.9)**	NBLR	**F (>500)**	29.3	24
	Hwy 97 / W Bench Hill Rd[5]	**F (>500)**	NBLR	**F (>500)**	-	-
	Hwy 97 / Alberni St	**A (0.9)**	SBR	**E (37.2)**	0.35	1.4
Local Intersections	Westminster Ave W / Power St	**F (>500)**	NBL	**F (>500)**	10.81	125.1
	Power St / Vees Dr / Wade Ave W	**B (12.4)**	EBL	**C (32.7)**	0.79	10.9
	Westminster Ave W / Comox St / Vernon Ave	**A (5.2)**	SBL	**F (54.5)**	0.46	1.7
	Westminster Ave W / Burnaby Ave	**A (4.1)**	SBLR	**F (54.9)**	0.62	3.5
	Alberni St / Vernon Ave	**A (0.8)**	EBLR	**A (9.1)**	0.01	0.0

[5] *critical movement v/c and queue are not computed due to extremely high delays*

2.6.5 SUMMARY OF TRAFFIC GROWTH CONTRIBUTIONS

A high-level analysis was conducted to compare the traffic interacting with the local network with that of the highway through traffic at the four highway intersections in the North Gateway. The results show that approximately 26% of motorists in the corridor interact with the local network, while approximately 74% of motorists exclusively use Highway 97. The breakdown by intersection is shown below in **Figure 2.21**. The traffic breakdown was calculated for both the high and modest growth rates, however, only the high growth rate information is shown in the figure as the differences were miniscule.

Figure 2.21: Local vs. Highway Traffic Split



2.7 GEOMETRIC REVIEW

The existing conditions of Highway 97 and the area surrounding the SOEC in Penticton are outlined below. This includes a review of the roadway geometry, active transportation facilities, and other existing constraints within the study area. Unless noted otherwise, all roads in this study area are assumed to have a design and posted speed of 50km/h. A BC One Call was completed to establish an understanding of existing underground utilities within the study area, which are listed separately in each section below.

2.7.1 HIGHWAY 97

The existing Highway 97 from Burnaby Avenue to Vees Drive has a four-lane cross section, with several painted and raised medians throughout, a “Protected-T” intersection at West Bench Hill Road, and many dedicated right and left turn auxiliary lanes throughout. There are paved shoulders on both sides of Highway 97 from Burnaby Avenue to the Eckhardt Avenue Bridge and sidewalks from the bridge to Vees Drive. The Eckhardt Avenue Bridge does not have shoulders but does have pedestrian sidewalks on both sides. The right-of-way width varies from 21m to 44m from the Eckhardt Avenue Bridge to Vees Drive. The legal linework available at the time of writing this report is insufficient to provide commentary on the amount of right-of-way available to the north of the bridge.

The tightest roadway curve has a 110m radius and exists immediately north of the intersection with West Bench Hill Road. The maximum profile grade observed on Highway 97 is 1.5%, and the sag and crest curves provide sufficient stopping sight distance and comfort control for a 50km/h design speed. The horizontal and vertical sightlines are sufficient.

Intersection Sight Distances (ISDs) are checked at the intersections of Highway 97 and West Bench Hill Road, Comox Street, Alberni Street, and Oakville Street. West Bench Hill Road has sufficient sight triangles for vehicles making left and right turns from West Bench Hill Road and left turns from Highway 97. Comox Street has sufficient sight triangles for vehicles making left turns from Highway 97. Vehicles making left and right turns from Comox Street must creep forward beyond the stop bars to avoid buildings, signage, fences, vegetation, and parked cars from blocking their sightlines. The sight triangles at Oakville Street are similarly impeded. Alberni Street has sufficient sight triangles for vehicles making right turns from Alberni and vehicles making left turns from Highway 97.

Highway 97 is illuminated at the Burnaby Avenue and West Bench Hill Road intersections, and continuously from the Eckhardt Avenue Bridge through to Vees Drive.

The information received from the BC One Call is listed below by provider:

- **Telus**: A critical cable exists from Burnaby Avenue to the Eckhart Avenue Bridge. Underground fibre and underground ducts exist from West Bench Hill Road to Riverside Drive and from Alberni Street to Vees Drive, with a crossing at Oakville Street. There are several splice points, vaults, manholes and copper sensors throughout.
- **FortisBC**: Underground Distribution Pressure/Polyethylene lines of varying diameter exist from West Bench Hill Road to Westminster Avenue and from Comox Street to Vees Drive, crossing in a few different locations.
- **City of Penticton**: Underground electrical lines exist from Alberni Street to Vees Drive and from Westminster Avenue to Comox Street on the north side of Highway 97.
- **Other**: Overhead electrical utilities exist on the east side of Highway 97 from Burnaby Avenue to Eckhardt Bridge, the south side from Eckhardt Bridge to the Ramada Inn, and the north side from Westminster Avenue to Comox Street. Overhead crossings exist at Eckhardt Avenue Bridge, Ramada Inn, and Comox Street.

2.7.2 WESTMINSTER AVENUE

The existing Westminster Avenue from Highway 97 to Power Street has a four-lane cross section and no shoulders. Sidewalks exist on the entirety of the north side and the majority of the south side. The right-of-way varies from 24m to 31m.

The tightest curve has a 90m radius and exists very close to the intersection with Highway 97. The maximum profile grade observed on Westminster Avenue is 0.3%, and the sag and crest curves provide sufficient stopping sight distance and comfort control. The horizontal and vertical sightlines are sufficient. Westminster Ave has continuous illumination throughout. The skew angle between Westminster Avenue and Burnaby Avenue is approximately 33 degrees. The skew angle between Westminster Avenue and Comox Street is approximately 62 degrees. The skew angle between Westminster Avenue and Vernon Avenue is approximately 34 degrees. The skews of these intersections do not fall between the recommended range of 70 and 110 degrees. Additionally, there is not sufficient intersection spacing between Comox Street and Vernon Avenue. Vernon Avenue and Comox Street both approach Westminster Avenue at the same location, effectively making it a five-legged intersection.

ISDs are checked at the intersections of Westminster Avenue and Wylie Street, Comox Street, Burnaby Avenue, and Alberni Street. Sight triangles for vehicles turning left from Westminster Avenue onto Wylie Street, Burnaby Avenue, and Alberni Street are sufficient. Sight triangles for vehicles turning left and right from Comox Street and Vernon Avenue are impeded by vegetation, fences, signage, buildings, and parked cars. Sight triangles for vehicles turning left and right from Wylie Street, Burnaby

Avenue, and Alberni Avenue are impeded by vegetation. Sightlines for all these minor road intersections improve as vehicles creep forward beyond the stop bars.

The information received from the BC One Call is listed below by provider:

- **Telus**: Underground fibre and underground ducts exist on the northwest side of Westminster Avenue in front of the Tim Hortons.
- **FortisBC**: Underground Distribution Pressure/Polyethylene lines of varying diameter exist from Highway 97 to Comox Street on both sides of Westminster Avenue.
- **City of Penticton**: Underground lines exist on both sides of Westminster Avenue.
- **Other**: Two overhead utility crossings exist at Comox Street.

2.7.3 POWER STREET

The existing Power Street from Westminster Avenue to the roundabout has a two-lane cross section, paved shoulders, and sidewalks on both sides. Traffic calming is provided on Power Street in the form of speed humps and radar speed detection signs. The existing active transportation facilities include overhead flashing crosswalk signs and separated bicycle lanes. The right-of-way varies from 18m to 22m.

The tightest curve has a radius of 180m and the max grade observed is 1.1%. The sag and crest curves provide sufficient stopping sight distance and comfort control. The horizontal and vertical sightlines are sufficient. Power Street is illuminated from the roundabout to the pedestrian crossing.

The information received from the BC One Call is listed below by provider:

- **Telus**: A short length of underground fibre and underground duct exists on the northeast side of Power Street near the roundabout. A few splice points, two copper sensors, one vault, and two underground crossings exist.
- **FortisBC**: None identified.
- **City of Penticton**: Underground lines exist on the southwest side of Power Street. There are three underground crossings on Power Street and some underground lines crossing through the roundabout.
- **Other**: Overhead utilities exist on the northeast side of Power Street.

2.7.4 VEES DRIVE

The existing Vees Drive from the roundabout to Highway 97 has a two-lane cross section, no shoulders, and sidewalks on both sides. There are dedicated right and left turn lanes approaching the intersection with Highway 97. The right-of-way varies from 22m to 30m.

This section of Vees Drive is on a tangent and has a max grade of 0.8%. The sag and crest curves provide sufficient stopping sight distance and comfortable driver control. The horizontal and vertical sightlines are sufficient. Vees Drive has continuous illumination throughout.

The information received from the BC One Call is listed below by provider:

- **Telus**: Underground fibre and underground ducts exist on the west side of Vees Drive. A few splice points, vaults, manholes, and copper sensors exist, and one underground crossing exists.
- **FortisBC**: None identified.
- **City of Penticton**: Several underground lines exist on the west side of Vees Drive. There are three underground crossings.

- **Other**: None identified.

2.7.5 BURNABY AVENUE

The existing Burnaby Avenue from Riverside Drive to Westminster Avenue has a two-lane cross section with gravel shoulders. There is existing sidewalk is on the north side adjacent to the Denny's property, and recently built sidewalk from Riverside Drive to approximately halfway to Westminster Avenue. The right-of-way varies from 18m to 21m.

This whole section of Burnaby Avenue is on a tangent and has a max grade of 1.2%. The sag and crest curves provide sufficient stopping sight distance and comfort control. The horizontal and vertical sightlines are sufficient. Burnaby Avenue is illuminated at the intersection with Highway 97. As well, most utility poles have a streetlight affixed to them.

The information received from the BC One Call is listed below by provider:

- **Telus**: Underground fibre and underground ducts exist on the south side of Burnaby Avenue from Riverside Drive to west of Comox Street and on the north side in front of the Days Inn. Several splice points, vaults, and manholes exist. Underground crossings exist at Kingfisher Drive and in front of the Days Inn.
- **FortisBC**: Underground Distribution Pressure/Polyethylene lines of varying diameter exist on both sides of Burnaby Avenue east of Wylie Street and on the north side from Comox Street to Westminster Avenue. Underground crossings exist at Wylie Street, east of Wylie Street, and Comox Street.
- **City of Penticton**: Underground lines exist on the south side of Burnaby Avenue from Riverside Drive to Comox Street. Two underground crossings exist east of Wylie Street, one crossing at Comox Street, and another crossing west of Comox Street.
- **Other**: Overhead utilities exist on the south side of Burnaby Avenue.

2.7.6 SOEC DRIVE AISLE

The existing SOEC Drive Aisle from Alberni Street to the roundabout goes through the parking lot in front of the SOEC, has several speed humps, and has a posted speed of 30km/h. The tightest curve has an 18.5m radius, which is deficient for 30km/h. The highest grade observed is 4.8%. The SOEC Drive Aisle has continuous illumination throughout.

2.7.7 ALBERNI STREET, COMOX STREET, VERNON AVENUE & WYLIE STREET

The existing Alberni Street from Highway 97 to Westminster Avenue has a two-lane cross section with sidewalks and on-street parking on both sides.

The existing Comox Street from Highway 97 to Burnaby Avenue has a two-lane cross section. The existing Vernon Avenue from Comox Street to Alberni Street has a two-lane cross section. Comox Street and Vernon Avenue both are in poor condition with mostly gravel shoulders and have on-street parking in front of residences.

Wylie Street is reviewed from Westminster Avenue to Burnaby Avenue. The south end of Wylie Street is in good condition, with dedicated turn lanes, on-street parking and sidewalks in front of the Tim Hortons and Quality Greens properties. The north end of Wylie Street has recently been upgraded, including the addition of sidewalks on the west side of the road.

3.0 PROBLEM DEFINITION

Based on the review and assessment of existing and future transportation conditions in the North Gateway area, a problem definition statement was developed for the study area that summarizes the key issues and concerns, as shown below:

Mobility: The existing road network performs well except for the Westminster Avenue W / Power Street signalized intersection, the two-way stop-controlled approaches at the Highway 97 / Comox Street intersection, and the WBR and NBL movements at the Highway 97 / Eckhardt Avenue / Vees Drive intersection. The addition of background traffic growth and future potential developments increases delays at most of the study intersections, resulting in many of the study intersections operating over capacity by 2047 without additional capacity improvements.

Safety: Collision frequencies within the study area typically follow traffic volume trends, with more collisions at busier intersections and during peak traffic periods. Collisions also tend to have a first contributing factor of driver inattention and a leading collision type involving rear ends. The overall corridor collision rate is higher than the provincial average for similar facilities. Collision rates and severity are highest near intersections.

Multi-modal: Active transportation facilities in the North Gateway area are limited. Many minor streets don't have sidewalks and/or have poor connectivity between facilities. Cycling infrastructure is also minimal within the study area. Transit stops exist on most roads in the study area; however, transit stop amenities are limited and ridership in Penticton is low compared to the provincial average.

Geometric: Sightlines are challenging for many left and right turns from minor roads onto Westminster Avenue W and from Comox Street and Oakville Street onto Highway 97, requiring vehicles to creep forward beyond the stop bars to avoid buildings, signage, fences, vegetation, and parked cars from blocking their sightlines. Additionally, limited spacing between the intersections of Comox Street and Vernon Avenue on Westminster Avenue W creates a five-leg intersection with challenging and sub-standard skew angles.

4.0 GUIDING PRINCIPLES

A set of guiding principles was developed based on the problem definition, shown above, that was used to generate network concepts and improvement options. The Guiding Principles established for this study are listed below:

Multi-Modal Accessibility

Implement accessible and convenient multi-modal facilities are accessible for people of all ages and abilities.

Network Connectivity

Enhance connections for walking, cycling, micro-mobility, and transit.

Safety

Improve safety conditions for all modes by considering speed, street design, and the urban environment.

Vehicle Mobility

Optimize vehicle delays and congestion and facilitate goods movement in the network.

Integrated Transportation

Encourage integration and connections between modes to support mixed-use developments in the North Gateway.

5.0 CONCEPT GENERATION & DEVELOPMENT

The desired role and function of Highway 97 through the study area is summarized below, followed by the design criteria used for this study concept generation. The options developed for this study are based on discussions with the City of Penticton, MoTI, and BC Transit staff and build upon the vision concept developed at the North Gateway Design Charrette described below. Finally, specific network improvements are described in the section below that are consistent across all concepts generated for this study. Improvements discussed below have been reviewed at a conceptual level and require further engineering review, including preliminary and detailed design.

5.1 HIGHWAY 97 ROLE & FUNCTION

Highway 97 connects the City of Penticton to several communities and transportation routes through the Central and South Okanagan including nearby Summerland, Peachland, West Kelowna, the Highway 97C Connector, Okanagan Falls, Oliver and beyond. Highway 97 also provides key north-south connectivity across the Province from the US Border to the Yukon. Through the North Gateway area of Penticton, Highway 97 provides important access to the City's arterial and collector road network while primarily serving regional and provincial highway transportation needs.

Through the North Gateway area, Highway 97 is classified as a Primary Rural Arterial Undivided four-lane (RAU4) highway. However, this short segment of Highway 97 is considered more urban than rural in nature, given the development in the area. Further, the median barrier begins just east of the intersection with Westminster Avenue and extends west (north on Highway 97). The MoTI and the City have a shared goal to provide a centre median barrier throughout the study segment of Highway 97 between Westminster Avenue and Alberni Street. This improvement will increase segment safety by reducing the severity of collisions between opposing traffic. It is assumed that this segment will be Divided in the future and for the purposes of this study and concept development.

5.2 DESIGN CRITERIA

The current posted and design speeds are maintained with all concepts developed for this study. Therefore, the highway and roadway geometric components are being maintained as per ambient conditions, except minor improvements where necessary to adhere to current design standards.

The design criteria is included in **Appendix F**.

5.3 NORTH GATEWAY DESIGN CHARRETTE CONCEPT

The City of Penticton held a Design Charrette in September 2021 to discuss the overall network plan for the North Gateway area of Penticton to facilitate the proposed development occurring in that area. The network concept layout that was developed through the Design Charrette process is illustrated in **Figure 5.1** along with the proposed developments. The proposed network consists of many features, including the following:

- **Festival Boulevard** extends the existing drive aisle through the SOEC parking lot to tie into Burnaby Avenue. This connection will provide a programming space to host parades, events, and also functions as a mobility connection through the North Gateway neighbourhood.
- Modifications to the existing road network **interface with Highway 97** including turn restrictions at Riverside Drive, active transportation improvements at the channel bridge crossing, a new multi-use pathway on the south side of Highway 97, closure of the "Queen's Access" to the SOEC.

- **Westminster Avenue** corridor improvements, including traffic calming and improved active transportation facilities.
- **Realignment of Burnaby Avenue** to intersect with Westminster Avenue at Comox Street. The east end of Burnaby Avenue is closed between Festival Boulevard and Westminster Avenue and the corridor is reallocated as public green space.
- **Closure of Alberni Street** to motor vehicle traffic between Vernon Avenue and Westminster Avenue with the new hotel development (under construction in 2022). However, through access for active transportation traffic will be maintained.

The North Gateway concept reinforces the importance that safety is critical for all users, and emphasises creating more pedestrian and cyclist friendly infrastructure, particularly at intersections. Any network improvements should include design considerations to ensure safe and comfortable features for active users such as pathways and crosswalks.

Figure 5.1: Penticton North Gateway Design Charrette Network Layout Concept

5.4 NORTH GATEWAY CONCEPT GENERATION

Building on the key themes and aspects of the Design Charrette concept and this study's Guiding Principles, six network layout concepts were generated and three connection options for the area south of Highway 97. The key aspects of the concept developed through the Design Charrette were retained, where possible. The long-list of concepts developed for this study are described in a complementary report provided in **Appendix D**.

All layout concepts included the following planned improvements:

- Alberni Street road closure for motor vehicles between Vernon Avenue and Westminster Avenue to facilitate the new hotel that is currently under construction.

- Realigning Burnaby Avenue south along Comox Street to tie into Westminster Avenue at the existing intersection with Comox Street and Vernon Avenue. The decommissioned portion of the corridor will become public green space.
- Highway 97 / Eckhardt Avenue / Vees Drive intersection laning improvements, including
    - Reconfiguring the north approach on Vees Drive to include two through lanes by reassigning the existing channelized right-turn lane to a shared through and right-turn lane; and
    - Maintaining the eastbound free right turn movement by adding a channelized auxiliary merge lane for the eastbound right turn to merge with the southbound downstream travel lane.
- Centre median on Highway 97 from the channel crossing to Alberni Street. This would result in restricting all minor road accesses and driveways to right-in/right-out movements only.
- Network improvements stated in the TMP:
    - Closing the 'Queen's Access", and
    - Laning improvements at the Westminster Avenue / Power Street intersection (already constructed).

Improvements and/or access management was considered at the intersection of Highway 97 / Oakville Street to improve safety at that intersection. However, given the limited connectivity between that neighbourhood and the existing road network, access restrictions were not deemed feasible and are not recommended as part of this study.

A total of 13 different network layout options were developed as part of the long-list of concepts. Upon discussions with the project team, many components of the initial concepts were determined to be infeasible due to various reasons, such as anticipated property impacts, intersection spacing requirements, or were generally impractical or undesirable. The components of the initial concepts that were considered feasible were used in the development of the refined concepts in the next phase of this study. The refined options are described below in the **Section 6.0** of this report.

Other location specific improvements are described in the following subsections which were included in all concept options. These improvements are based on previous work, discussions with the project team, and/or developed as part of this study.

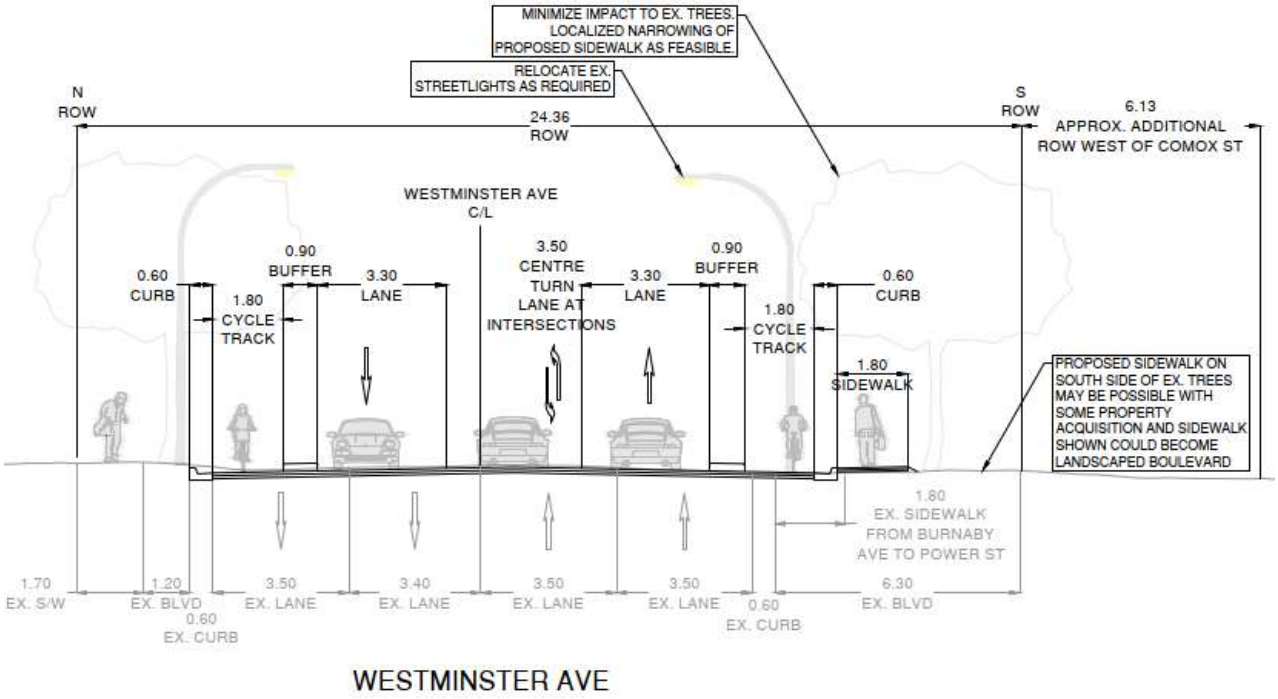
5.4.1 WESTMINSTER AVE CROSS-SECTION IMPROVEMENTS

Road cross-section improvements are desired for Westminster Avenue through the North Gateway to incorporate cyclist facilities and potentially traffic calming measures. A "road diet" is proposed which consists of reducing the number of vehicle through-lanes and reducing the width to the minimum required for trucks and transit to operate (i.e. 3.3 meter lane widths). Narrower travel lanes encourage traffic calming and slower vehicle speeds, hence, improving safety for all road users. However, concerns have been expressed by BC Transit about signage adjacent to narrow lanes is problematic for the function of transit buses. BC Transit has indicated a preference for 3.5m lanes, however, further planning and design review of lane widths should be undertaken.

Two cross-sections are proposed for Westminster Avenue improvements. Both proposed cross-sections include two through lanes (one per direction) and a centre two-way turn lane to accommodate movements to and from driveways and accesses along the corridor. The first proposed cross-section requires moving the south curb and increasing the right-of-way to allow for cycle tracks, sidewalks, and

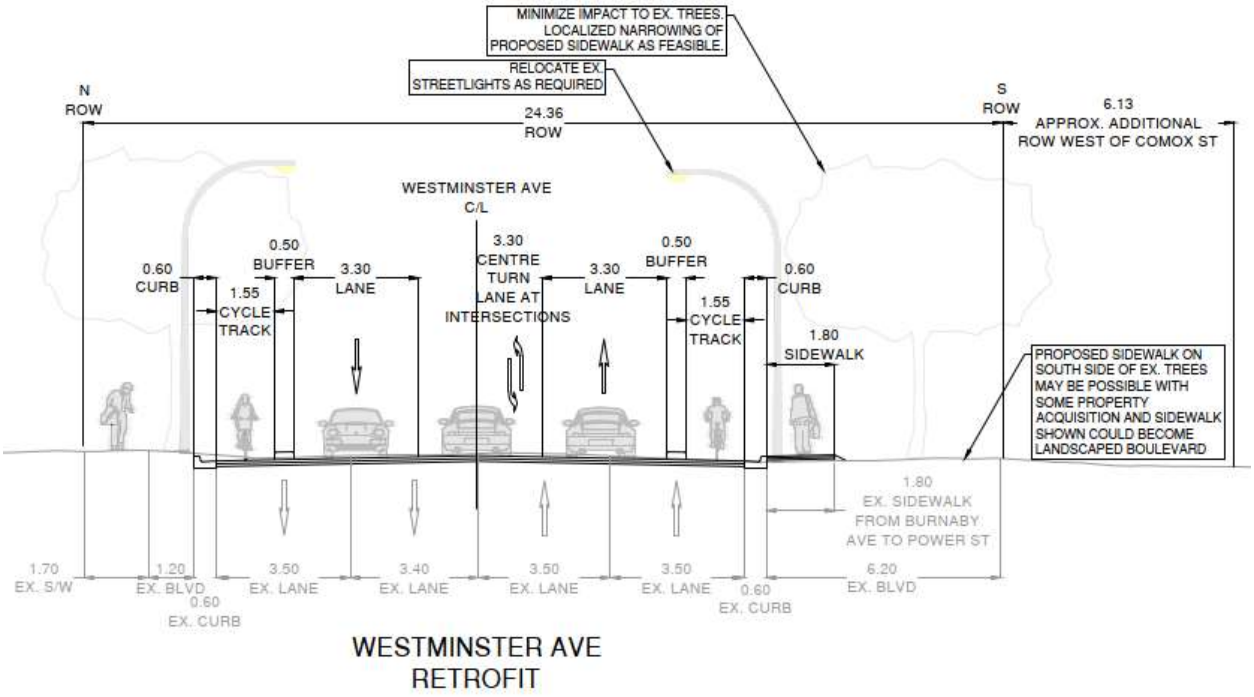
a raised buffer, as illustrated below in **Figure 5.2**. This option more closely meets the BC Active Transportation Design Guide for a desirable condition.

Figure 5.2: Westminster Avenue Cross-Section Option 1



The second proposed cross-section is a retrofit of the existing roadway and does not require moving the south curb, as illustrated below in **Figure 5.3**. The cycle tracks, raised buffer, and centre turn lane widths are reduced in this option to fit within the existing curb-to-curb width. This option is more constrained based on the BC Active Transportation Design Guide.

Figure 5.3: Westminster Avenue Cross-Section Option 2 (Retrofit within Existing Curb-to-Curb Space)



5.4.2 HWY 97 / WESTMINSTER AVE INTERSECTION IMPROVEMENTS

The Highway 97 and Westminster Avenue intersection was reviewed to generate improvement opportunities for the intersection in isolation from the network. To address geometric and mobility deficiencies identified in the existing and future conditions assessment, the following intersection improvement areas were investigated:

1. Implementing a smart right turn in place of the westbound channelized right turn.
2. Removing the eastbound left-turn movement and lane on Highway 97 at Riverside Avenue and extending the left-turn storage lane at Westminster Avenue by 110m, for a total storage length of 180m.
3. Implementing dual eastbound left-turn lanes on Highway 97.
4. Implementing dual southbound left-turn lanes on Westminster Avenue by utilizing the existing median space.

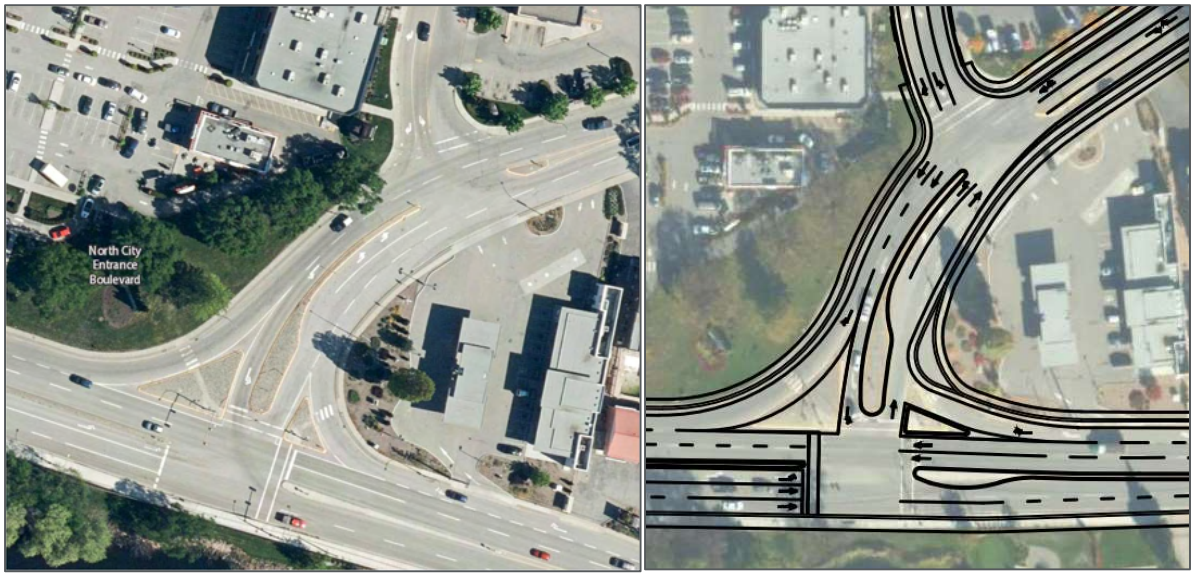
These improvement areas are discussed further below.

Improvements were modeled in Synchro 11 to review intersection delay and SIDRA 9.1 to review detailed laning and queueing for the 2047 PM peak, for both moderate and high traffic volume growth scenarios. Vehicle delays and queue lengths were reviewed to determine the potential impacts of each improvement. High-level model results and additional considerations for each improvement are discussed in the sections below. Synchro and SIDRA modeling results are included in **Appendix E**.

Improvement 1 - Westbound Smart Right Turn

Improvements to the Westminster Avenue cross-section, as described previously in **Section 5.4.1**, require improvements to the Westminster Avenue / Highway 97 intersection since the two northbound receiving lanes will transition to one through lane between Highway 97 and Wylie Street. The intersection of Highway 97 and Westminster Avenue is illustrated in **Figure 5.4**.

Figure 5.4: Hwy 97 / Westminster Ave Existing & Proposed Intersection Designs



The approach to address the reduced northbound laning on Westminster Avenue is to change the existing westbound channelized right turn to a smart right turn. This improvement requires the westbound right turn to merge into a single northbound lane rather than acting as a free flow movement. Additionally, implementing a smart right turn at the westbound right turn can improve safety by reducing the angle of the approach, and the sightline between drivers and pedestrians. Requiring the drivers to merge can reduce vehicle speeds for the westbound right turn movement.

Improvement 2 - Eastbound Left Storage Lane

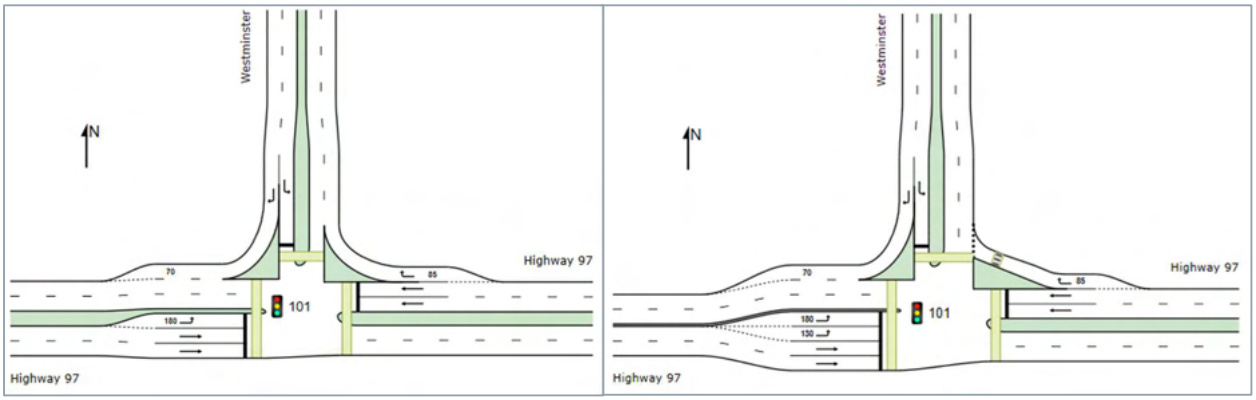
With the planned restriction of the Riverside Avenue intersection on Highway 97 to be right-in-right-out, the existing eastbound left-turn storage lane can be utilized to increase the queuing capacity for the eastbound left-turn at Highway 97 / Westminster Avenue. This improvement will increase the storage capacity from 70m to 180m.

The 95th percentile queue for the eastbound left-turn in the 2047 SIDRA model is 122m in the modest growth scenario and 353m in the high growth scenario. The eastbound left-turn 95th percentile queue exceeds the storage length in the high growth scenario.

Improvement 3 – Dual Left-Turn (West Approach)

Implementing an eastbound dual left-turn movement on Highway 97, as illustrated below in **Figure 5.5**, can further help to mitigate congestion at the intersection by providing additional queueing storage and increased capacity for the left-turn movement. Additionally, this improvement can reduce the green time required by the west approach and allocate additional green time to opposing movements that experience high delays. However, additional property acquisition (into the Penticton Golf and Country Club) would be required which has not been identified on the refined options in the following section of this report.

Figure 5.5: Existing Intersection Configuration (left) and Dual EBL Configuration (right)



Implementing an eastbound dual left-turn lane requires modifying the north approach exit lanes to include two exit lanes on Westminster Avenue at the intersection. The existing free flow westbound right turn would be required to yield at the intersection. This requirement can be satisfied by implementing *Improvement 1 – Westbound Smart Right Turn*. This modification reduces the westbound right-turn movement capacity. Consequences of increasing the capacity include widening the pedestrian crossing distance, larger paved surface areas to maintain, property implications and increased costs. Capacity improvements should be balances with the frequency and duration of mobility delay.

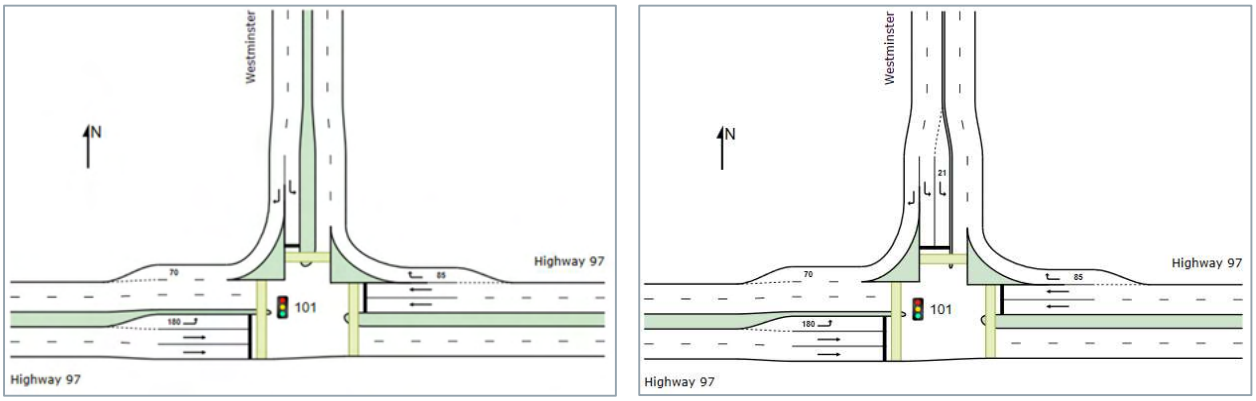
The 2047 PM peak Synchro 11 performance results for the existing and improved intersection configurations include the following key points:

- In the **modest growth** scenario, the overall intersection experiences minimal reductions in delay.
- In the **high growth** scenario, the overall intersection, the eastbound left-turn movement, and the westbound through movements experience greater reduction in delays:
    - The **overall intersection** improves from the existing configuration of LOS E to LOS D in the improved configuration.
    - The **eastbound left-turn** movement operates with a 183 second delay in existing configuration, which is reduced to a 103 second delay in the improved configuration.
    - The **westbound through** movement operates with a 104 second delay in the existing configuration, which is reduced to a 63 second delay in the improved configuration.

Improvement 4 - Dual Left-Turn (North Approach)

Implementing southbound dual left-turn lanes on Westminster Avenue, as illustrated below in **Figure 5.6**, can also mitigate congestion at the intersection by providing additional queueing storage and increased capacity for the left-turn movement.

Figure 5.6: Existing Intersection Configuration (left) and Dual SBL Configuration (right)



Implementing southbound dual left-turn lanes requires removing the existing median on the north approach for the additional left-turn storage lane. Limited space (approximately 21m length) is available for the additional left-turn lane. Consequences of increasing the capacity include widening the pedestrian crossing distance, larger paved surface areas to maintain, property implications and increased costs. Capacity improvements should be balances with the frequency and duration of mobility delay.

The 2047 PM peak Synchro 11 performance results for the existing and improved intersection configurations include the following key points:

- In the **modest growth** scenario, the overall intersection experiences minimal reductions in delay. The southbound left movement performance improves from LOS F to LOS E with the dual left-turn lanes.
- In the **high growth** scenario, the overall intersection experiences reductions in delays. The eastbound left, westbound through, and southbound left movements still operate at LOS F in the improved scenario, however, the 95th percentile queue length is reduced from 102m with the existing intersection laning to 48m with the addition of a second southbound left-turn lane.

Recommendation

Recommended improvements at the Highway 97 / Westminster Avenue intersection include the following in sequence of capacity upgrades:

- **Improvement 1** - Upgrade the existing westbound channelized right turn to a smart right turn, to facilitate the Westminster Avenue lane reductions and improve vehicle and pedestrian safety at the westbound right movement. (This improvement is incorporated into the refined options)

- **Improvement 2** – Expand the eastbound left turn storage lane to include the existing Riverside Avenue storage lane. This improvement can act as an interim solution to improve storage capacity for the eastbound left turn until traffic volumes require an additional left turn lane. (This improvement is incorporated into the refined options)

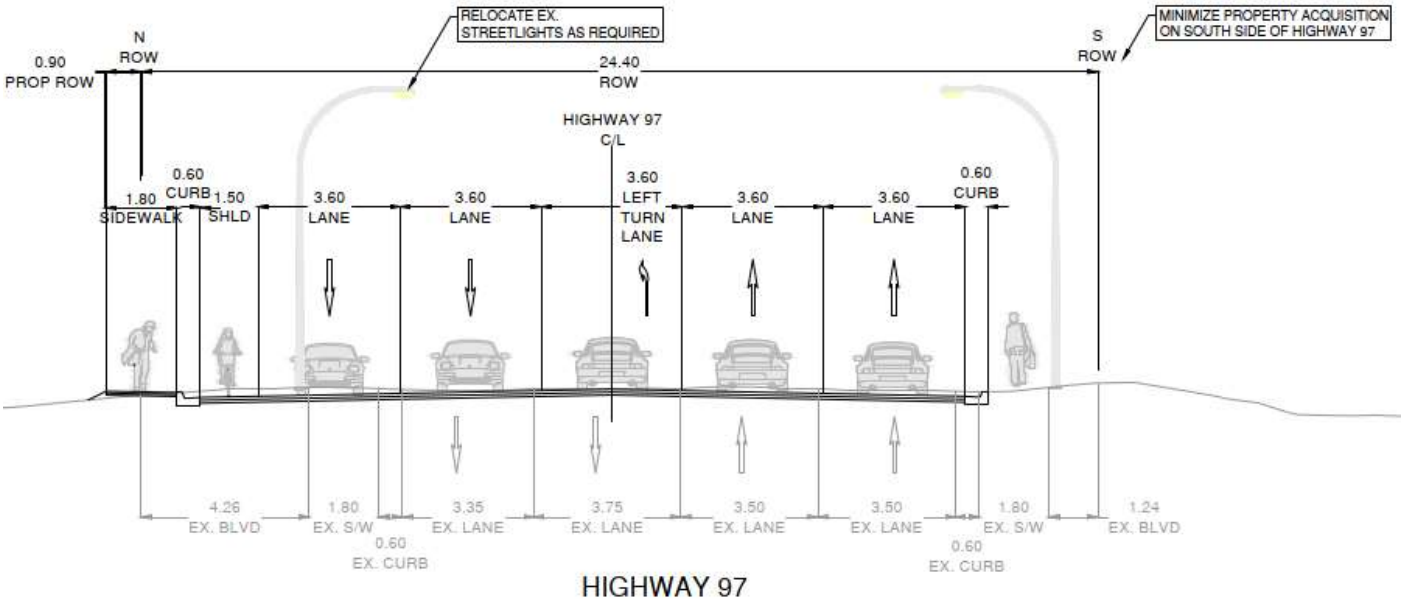
- **Improvements 3 and/or 4** – Implement a dual left turn lane at the eastbound left turn and/or southbound left tun movement(s) when traffic volumes warrant an increase in intersection capacity. (These improvements are not incorporated into the refined options)

5.4.3 HIGHWAY 97 – ACTIVE TRANSPORTATION FACILITIES

Providing safe active transportation facilities along Highway 97 through the North Gateway is desired by the City and MoTI. This includes accommodating access on, and to and from the channel crossing on the west end of the study area.

One option that was explored is adding a multi-use path (MUP) on the south side of the highway from the channel crossing to Eckhardt Avenue and consider improving pedestrian crossing opportunities across Highway 97 to access the MUP. The proposed cross-section with a MUP is illustrated below in **Figure 5.7**. However, this option was screened-out based on conversations with the project team since it likely has significant property impacts south of the highway, including impacting the nearby stream. Alternatively, the City will focus on providing parallel alternate cycling routes.

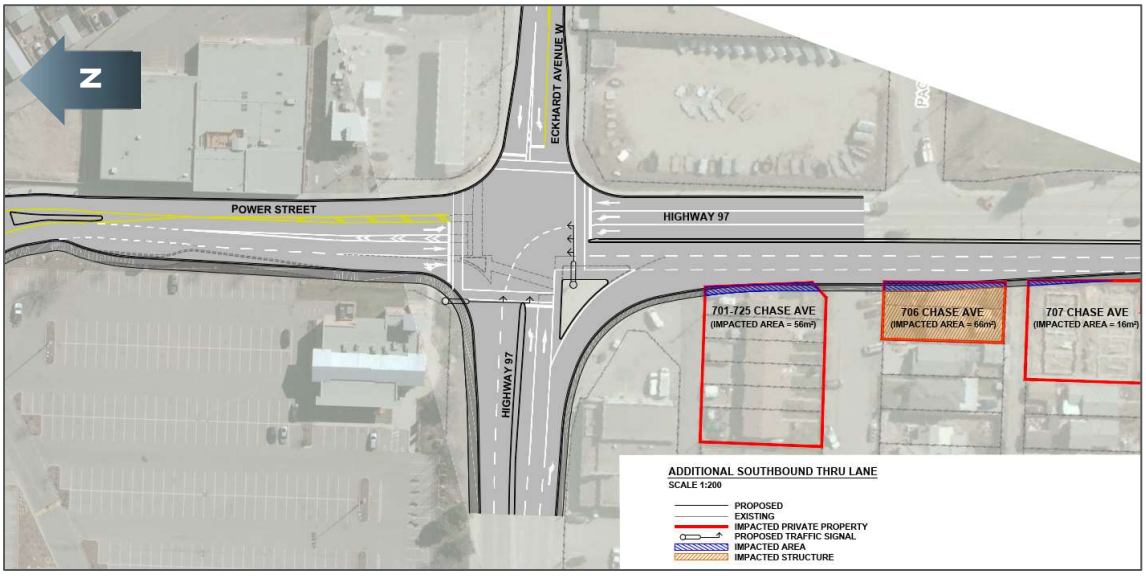
Figure 5.7: Hwy 97 Cross-section



5.4.4 HWY 97 / VEES DR / ECKHARDT AVE INTERSECTION IMPROVEMENTS

The intersection of Highway 97 / Eckhardt Avenue has been investigated previously to identify improvements required to maintain adequate mobility and safety conditions. Previous studies recommended implementing dual southbound lanes, which would involve adding a merge lane on the south leg for the eastbound right-turn movement. This improvement was found to improve traffic performance at this intersection, so it was included in all the network layout concepts developed through this study. Property acquisition is required for the additional merge lane, as illustrated below in **Figure 5.8**. Implementing dual southbound through lanes without a merge lane for the eastbound right turn would increase highway delays for vehicles turning right to continue on the highway.

Figure 5.8: Hwy 97 / Eckhardt Ave Intersection Improvements



5.4.5 BURNABY AVE EXTENSION & CHANNEL CROSSING

A second channel crossing has been considered previously by the City of Penticton, by connecting Burnaby Avenue across the channel with a bridge structure. This would provide a secondary route into Penticton from the residential areas west of the channel and the Red Wing community. Key considerations with this option include high cost to build the crossing structure, and potential traffic impacts if drivers use this route as a short-cut through residential areas to access the North Gateway area from the west.

This crossing option was considered a long-term project that would be beyond this study horizon; however, it could be considered in the future to enhance network connectivity and redundancy. An active transportation crossing was also investigated that could be phased before a potential future vehicle crossing structure, as shown below in **Figure 5.9**.

Figure 5.9: Burnaby Ave Extension & Channel Crossing Concept

6.0 OPTION REFINEMENT & EVALUATION

Following the option development process, the options were presented to the project team for feedback. Based on discussions with the project team, the original concept options were refined further to incorporate the desired components for the network. The screening process and justification is summarized in **Appendix D** and the conceptual plan drawings and cross-section are included in **Appendix F**. The option refinement resulted in three network option layouts, which are summarized in the following section. All refined options include active transportation facilities along Westminster Avenue, connecting to the channel pathway at the Highway 97 bridge. The options are drawn at a conceptual level.

6.1 REFINED OPTIONS

The new option developed following through the refinement process has three variations, which are described below. All new options incorporate the south district connection Option C, with an additional signal at the Alberni Street intersection and a fourth leg to the south. All options also include restricting left-turns at Comox Street / Highway 97 and adding a raised concrete median of Highway 97 between Westminster Avenue and Alberni Street. Pedestrian facilities (crosswalks) are to be implemented alongside all new intersection controls such as signalization and roundabouts. The planned and consistent network improvements were also included in this option which are described above in **Sections 5.4.1** through **5.4.5**.

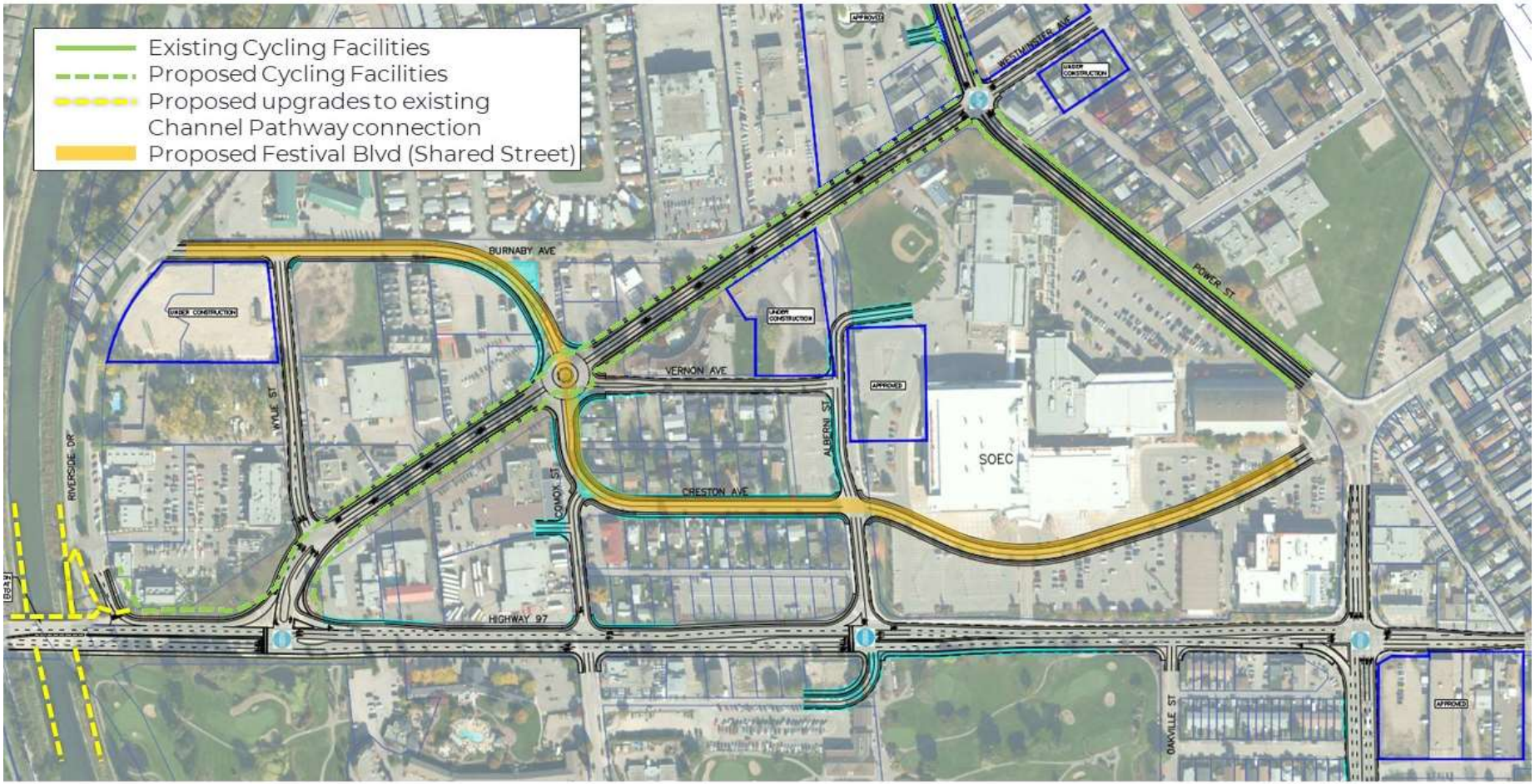
This new network layout utilizes most of the existing road network. The Festival Boulevard route continues through the SOEC, along Creston Avenue, and across Westminster Avenue to Burnaby Avenue. Comox Street ties into Festival Boulevard with a T-intersection at Creston Avenue (the new Festival Boulevard). The alignment of this intersection requires property acquisition and can be refined during detailed design.

The key differences between the options described below are at the intersection on Westminster Avenue with Festival Boulevard and Vernon Avenue connectivity. The intersection of Alberni Street and Festival Boulevard could also be a standard unsignalized intersection or a roundabout.

6.1.1 OPTION 7

Option 7 includes a five-leg roundabout intersection on Westminster Avenue, with Burnaby Avenue, Festival Boulevard, and Vernon Avenue. Property impacts are identified in light blue shading.

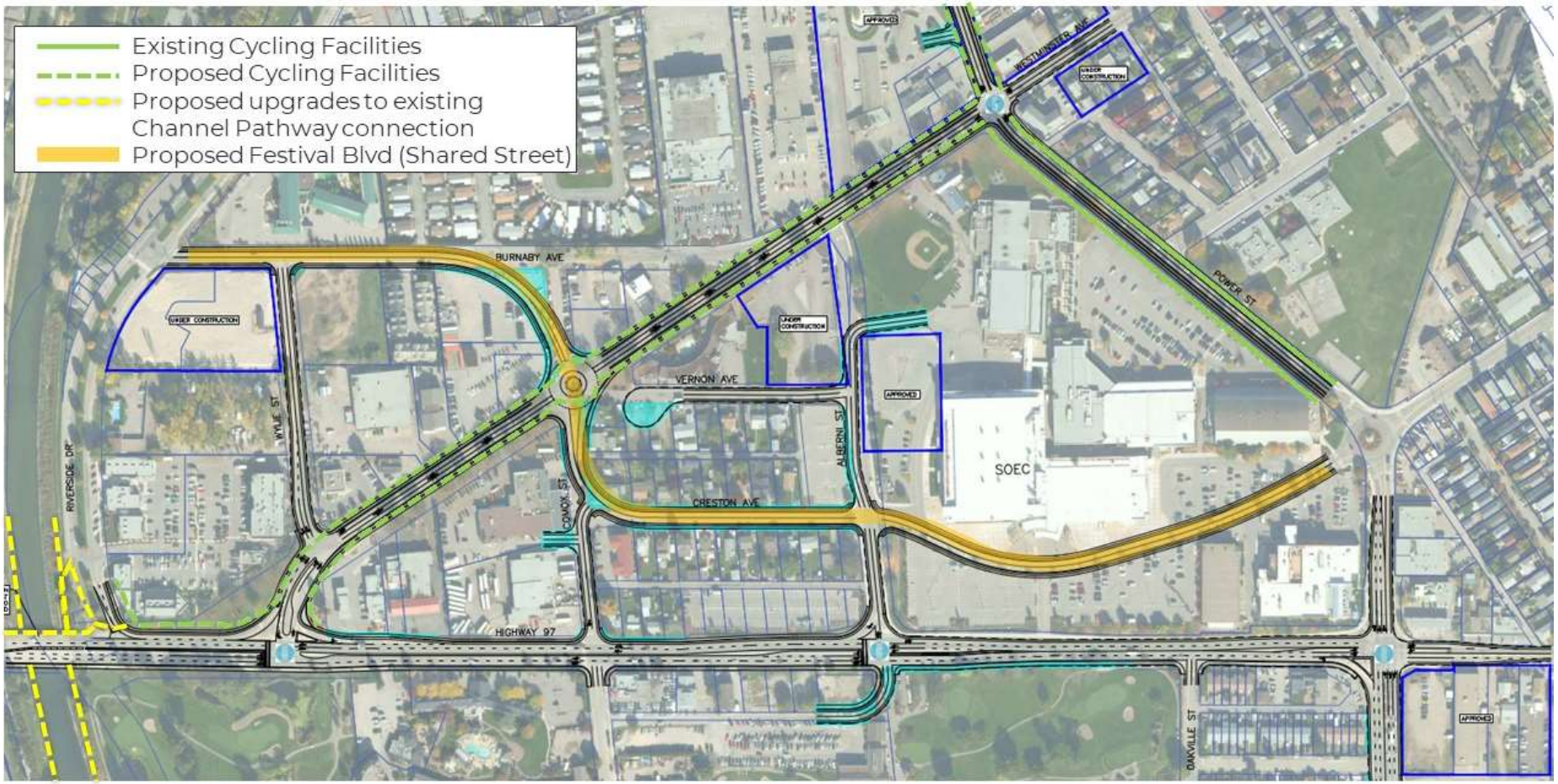
Figure 6.1: North Gateway Network Concept – Option 7



6.1.2 OPTION 8

Option 8 proposes closing Vernon Avenue just south of Westminster Avenue with a cul-de-sac. This would allow for a four-leg intersection on Westminster Avenue at Festival Boulevard, as shown below. The intersection of Alberni Street and Festival Boulevard is shown as a standard intersection with Option 8 but it could be a roundabout with this layout as well. Property impacts are identified in light blue shading.

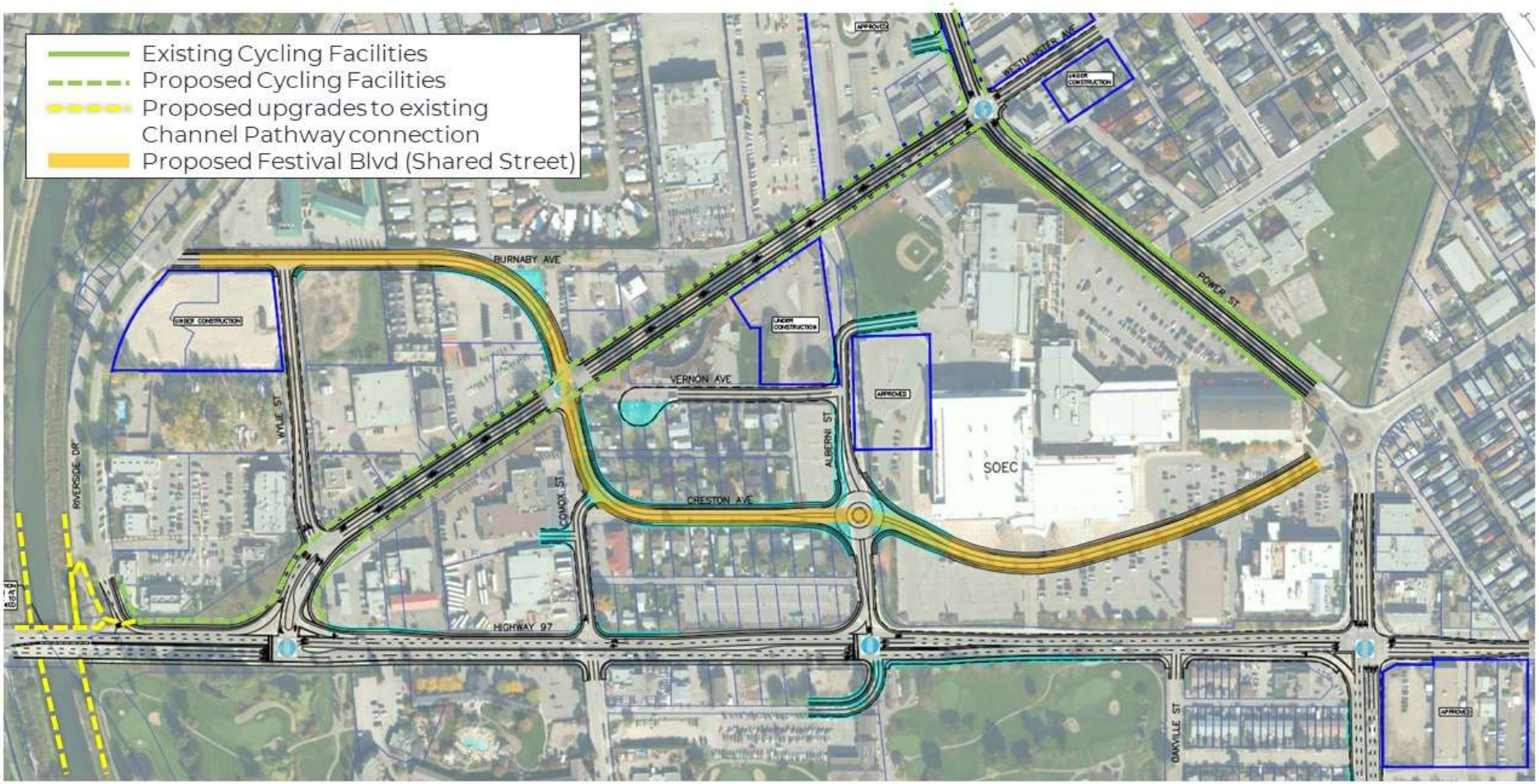
Figure 6.2: North Gateway Network Concept – Option 8



6.1.3 OPTION 9

Option 9 is very similar to Option 8 but includes a four-leg signalized intersection on Westminster Avenue at Festival Boulevard. This option is also shown with a roundabout intersection on Alberni Street at Festival Boulevard, but a standard intersection may also be compatible with this option. Property impacts are identified in light blue shading.

Figure 6.3: North Gateway Network Concept – Option 9



6.2 POTENTIAL IMPLEMENTATION OF OPTIONS

Option implementation is somewhat dependent on property acquisition and private development in the Central District. It is recommended that the City continues to acquire property in the Central District of the North Gateway area to allow for the suggested network road improvements and work with private property owners to include infrastructure upgrades as part of new development proposals. Potential implementation strategies for the Highway 97 and local improvements are discussed.

6.2.1 COST ESTIMATES

Planning-level cost estimates were prepared for the refined improvement options and are included in **Appendix F**. The cost estimates reflect the transportation surface costs for construction and should be considered Class D, which includes a 40% contingency. Property impact costs, underground and third-party utility impact costs, and any applicable First Nation accommodation contingencies were not assessed and, thus, are not included in the cost estimates provided. The cost estimates include a small allowance for drainage improvements such as relocating existing catch basins and leads; however, any roadways that will require rural-to-urban upgrading with new storm main and drainage systems (i.e. manholes, catch basins, leads, pumps) are not included in the estimates.

6.2.2 HIGHWAY 97 IMPROVEMENTS

The recommended improvements on Highway 97 are consistent for all three options, and can be implemented exclusively of each other or together, depending on property acquisition. The improvements and associated cost estimates are summarized below in **Table 6.1**.

Table 6.1: Highway 97 Implementation

Potential Improvement Groupings	Cost Estimate	Constraints
• Extend storage length for the eastbound left-turn at Highway 97/Westminster Avenue to include the existing Riverside Avenue storage lane. • Add westbound smart-right turn channelization. • Re-pave intersection and approaches.	$2.9 Million	206m^2 property acquisition.
• Signalize and add a south leg to the Alberni Street / Highway 97 intersection, restrict left turns at Comox Street. • Install raised concrete median between Westminster Avenue and Alberni Street. • Re-pave intersections and approaches	$3.9 Million	1,414m^2 property acquisition required for the intersection's new south leg.
• Highway 97 / Vees Drive / Eckhardt Avenue intersection improvements – remove southbound channelized right turn and replace with a shared through and right lane. • Add an additional exit lane on the south approach to maintain the eastbound channelized right turn. • Re-pave west half of intersection. • Close the Queen's Access to the SOEC from Highway 97	$1.8 Million	95m^2 property acquisition required on the south approach to maintain LOS for the eastbound right turn.
Total Planning-Level Cost Estimate (Class D):	**$8.6 Million**	

Considerations for the MoTI and the City to cost share improvements should take into account the local versus regional nature of traffic patterns and sources of traffic growth. Based on the 2047 forecasted traffic growth, including anticipated developments in the North Gateway, approximately 26% of motorists interact with the local roads on Highway 97 between Westminster Avenue and Eckhardt Avenue. The City may want to refer to the traffic breakdown in **Section 2.6.5** to determine the cost share of traffic improvements.

6.2.3 LOCAL NETWORK IMPROVEMENTS

Implementation opportunities for the local road network improvements are different for each of the three options, as outlined in the following tables. Option 7 or Option 8 are most likely to require construction in one phase, as described below in **Table 6.2** and **Table 6.3**, respectively. Phasing either of these options is difficult since the intersection improvements are interconnected with Westminster Avenue improvements. It is the most cost efficient to complete all of the improvements at once.

Table 6.2: Network Option 7 Implementation

Potential Improvement Groupings	Cost Estimate	Constraints
• Upgrade the existing 5-leg stop-controlled intersection at Westminster Avenue / Comox Street / Vernon Avenue to a 5-leg roundabout. • Implement a road diet and active transportation facilities on Westminster Avenue. • Realign Burnaby Avenue to connect to the north approach of the Westminster Avenue / Comox Street / Vernon Street intersection, replacing Comox Street. • Realign Comox Avenue on the south approach of the Westminster Avenue / Comox Street / Vernon Street intersection to the Festival Blvd alignment with a new T-intersection at Comox Street / Festival Blvd.	$6.3 Million ($4.6M already allocated under DCC program, Project ID NG-1 and NG-2)	3,517m^2 property acquisition, third party utility relocations (e.g. electrical). Vernon Ave and Creston Ave urbanization not fully included.
• Closure of Alberni Street to vehicle traffic between Vernon Avenue and Westminster Avenue with the new hotel development. Through access for active transportation traffic to be maintained.	TBD	None.
Total Planning-Level Cost Estimate (Class D):	**$6.3 Million**	

Table 6.3: Network Option 8 Implementation

Potential Improvement Groupings	Cost Estimate	Constraints
• All of the same improvements as Option 7; however only providing a 4-legged roundabout at Westminster Avenue / Comox Street and adding a cul-de-sac at the west end of Vernon Avenue.	$6.4 Million ($4.6M already allocated under DCC program, Project ID NG-1 and NG-2)	Same as Option 7. 3,999m^2 property acquisition.
• Closure of Alberni Street to vehicle traffic between Vernon Avenue and Westminster Avenue with the new hotel development. Through access for active transportation traffic to be maintained.	TBD	None.
Total Planning-Level Cost Estimate (Class D):	**$6.4 Million**	

Local network improvements for Option 9 have potential to be phased due to the addition of intersection improvements at the Alberni Street / SOEC Access intersection, as outlined below in **Table 6.4**. Improvements on Westminster Avenue and the Westminster Avenue / Comox Street / Vees Drive intersection are recommended to be completed in one phase like in Options 7 or 8.

Table 6.4: Network Option 9 Implementation

Potential Improvement Groupings	Cost Estimate	Constraints
• Upgrade the existing 5-leg stop-controlled intersection at Westminster Avenue / Comox Street / Vernon Avenue to a 4-leg signalized intersection, and add a cul-de-sac to the west end of Vernon Avenue. • Implement a road diet and active transportation facilities on Westminster Avenue. • Realign Burnaby Avenue to connect to the north approach of the Westminster Avenue / Comox Street / Vernon Street intersection, replacing Comox Street. • Realign Comox Avenue on the south approach of the Westminster Avenue / Comox Street / Vernon Street intersection to the Festival Blvd alignment with a new T-intersection at Comox Street / Festival Blvd.	$6.2 Million ($4.6M already allocated under DCC program, Project ID NG-1 and NG-2)	3,183m^2 property acquisition, third party utility relocations (e.g. electrical). Vernon Ave and Creston Ave urbanization not fully included.
• Upgrade the existing stop-controlled intersection at Alberni Street / SOEC Access / Festival Blvd to a roundabout.	$1.7 Million	2,602m^2 property acquisition.
• Closure of Alberni Street to vehicle traffic between Vernon Avenue and Westminster Avenue with the new hotel development. Through access for active transportation traffic to be maintained.	TBD	None.
Total Planning-Level Cost Estimate (Class D):	**$7.9 Million**	

6.3 TRANSIT OPPORTUNITIES

Opportunity for transit improvements were considered at a high-level for the North Gateway area, including the consideration of a transit hub near the SOEC. The transit hub is intended to increase visibility, safety, and comfort of the transit stop to encourage transit ridership. Given the location near the SOEC, the City should focus on serving riders after events by providing additional amenities such as garbage cans, benches, shelter, and lighting. The transit hub would support more frequent transit service to the North Gateway area in the short to medium-term; however, it would not be considered a transit exchange. A transit exchange, which typically provides multiple bus bays, could be implemented in this location in the long-term depending on future transit demand and area needs.

Five existing transit routes interact within the North Gateway. There is the potential to adjust routing to serve a single transit hub in the area. **Figure 6.4** and **Figure 6.5** below illustrates the existing transit routes (solid lines), and identifies ideas for potential redirected routes (dashed lines) and transit hubs for the network layouts outlined above in **Section 6.1**. Potential routing is assumed to be two-way, unless denoted by an arrow in the figure. Currently, transit routes only operate within the study area on Highway 97, Westminster Avenue, and Power Street.

Development of the Penticton Network Restructure Plan (PNRP) is currently underway and may impact transit services in the North Gateway area, including routing changes to Routes 1 and 4. Additionally, a future Park N Ride facility is planned for the SOEC area to provide approximately 15 to 20 parking spaces servicing Route 70 to Kelowna. Any changes to transit routing in the area will be guided by BC Transit and the City of Penticton and will be dependant on transit ridership demand.

It should be noted that a potential transit route on Festival Boulevard may limit opportunity for street closure during special events.

Figure 6.4: Potential Transit Hubs and Routes for Option 7

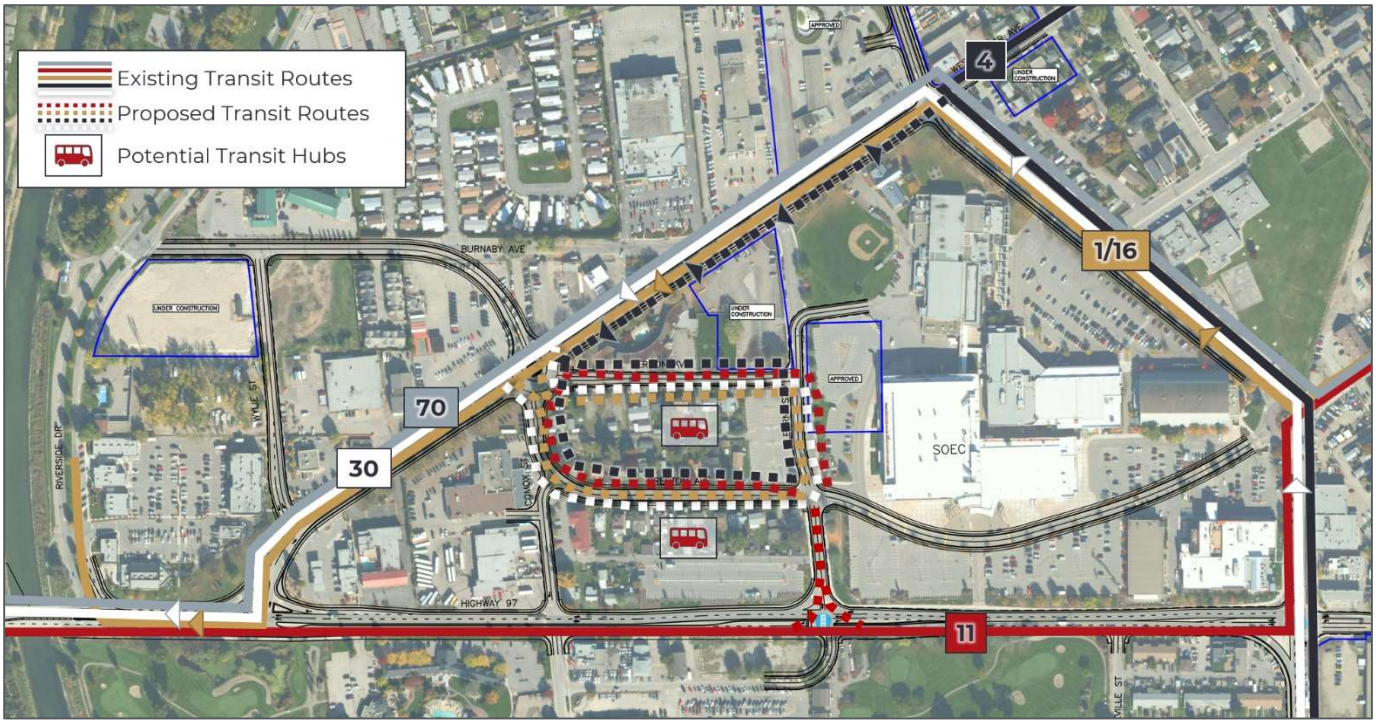
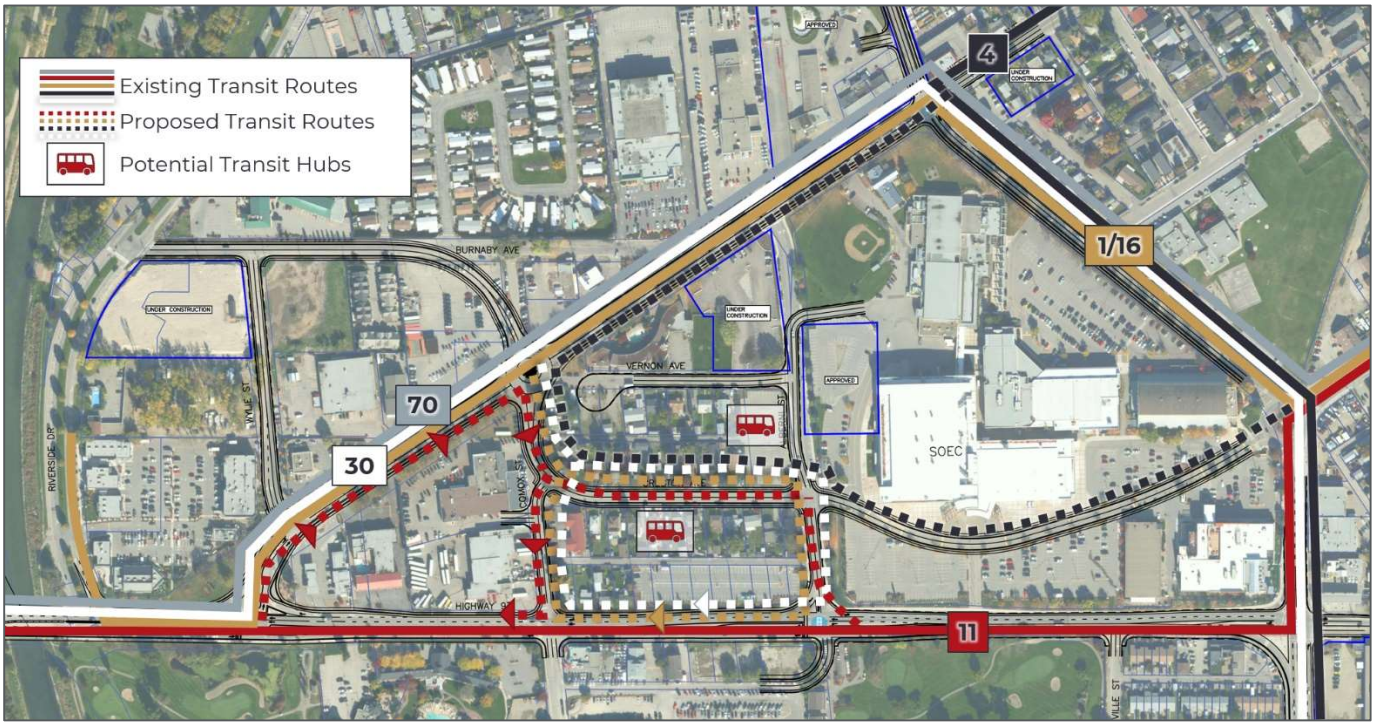


Figure 6.5: Potential Transit Hubs and Routes for Options 8 and 9



The proposed cycle tracks on Westminster Avenue will impact the implementation of both existing and new transit stops, as floating bus stops do not adequately accommodate vision-impaired riders who often cannot hear oncoming cyclists over traffic noise. MoTI has updated the BC Active Transportation (BCAT) Design Guide to recommended design elements for floating bus stops as an interim solution while the BC Human Rights Tribunal continues to review the issue. The BCAT Design Guide recommends the following design elements for floating bus stops, as of November 2022:

Minimum Design Elements

- Accessible landing pad
- Transit route identification pole
- Rear clear zone
- Pedestrian Connection
- Crosswalk
- Rapid Rectangular Flashing Beacons (RRFBs) with pedestrian push button and acoustic message

Desired Design Elements

- Ramp grade
- Bicycle parking
- Shelters, benches, garbage receptacles
- Tactile walking surface indicator with optional wheel gaps for mobility aids
- 'Cyclists Yield to Pedestrians' sign

6.4 MULTIPLE ACCOUNT EVALUATION

The purpose of the Multiple Account Evaluation (MAE) is to determine how well each option meets the specified criteria. For this study, a qualitative MAE was completed for the criteria listed below in **Table 6.5**.

Table 6.5: MAE Assessment Project Criteria

Financial	Construction Cost Property Acquisition Cost Phasing Potential
Customer Service	Vehicle Delays Safety Network Connectivity Active Transportation Integration Transit Integration Truck Routes
Social / Community	Business Impacts Community Impacts Future Growth & Development

All criteria are assessed qualitatively based on the scoring scheme summarized below in **Table 6.6**.

Table 6.6: MAE Assessment Scoring

Ineffective in satisfying the project criteria	Minimally effective in satisfying the project criteria	Neutral in satisfying the project criteria	Somewhat effective in satisfying the project criteria	Extremely effective in satisfying the project criteria

The conceptual options described above in **Section 6.1** were assessed against each of the criteria listed above in **Table 6.5** and scored using the scheme outlined in **Table 6.6**. The results of the MAE are described in detail below, in **Table 6.7**. Traffic model output reports for each of the 2047 horizon year for all three options is included in **Appendix G**.

Table 6.7: MAE Results

ASSESSMENT CATEGORY AND CRITERIA		OPTION 7	OPTION 8	OPTION 9
FINANCIAL ACCOUNT				
Construction Costs	What are the estimated planning-level costs associated with the improvements?	$8.7 M + $6.3 M = **$15.0 Million**	$8.7 M + $6.4 M = **$15.1 Million**	$8.7 M + $7.9 M = **$16.6 Million**
Property Impacts	Is significant property acquisition required?	⊖ Property required for Festival Blvd and roundabout at Westminster/Festival Blvd.	⊖ Property required for Festival Blvd, roundabout at Westminster/Festival Blvd, and cul-de-sac at Vernon.	⊖ Property required for Festival Blvd, roundabout at Alberni/Festival Blvd, and cul-de-sac at Vernon.
Phasing Potential	Is there potential to phase the network improvements?	⊕ Potential for phasing Highway 97 improvements. Limited phasing potential for local network improvements.	⊕ Potential for phasing Highway 97 improvements. Limited phasing potential for local network improvements.	⊕ Potential for phasing Highway 97 improvements. Some phasing potential for local network improvements.
CUSTOMER SERVICE ACCOUNT				
Vehicle Delays (2047 horizon year)	What are the delay impacts of signalizing the intersection at Highway 97 and Alberni Street?	⊕ Overall intersection operates at LOS C in both modest and high growth scenarios. All movements operate well. Highway through movements experience higher delays; however, minor road movements experience significant decreases in delays.	○ Overall intersection operates at LOS C in both modest and high growth scenarios. WBT and WBR movements experience higher delays (LOS F, 40-50 sec. delays). Highway through movements experience higher delays; however, minor road movements experience significant decreases in delays.	○ Option 9 performs the same as Option 8.
	What are the recommended intersection controls and associated delays at Festival Blvd and Alberni Street?	○ Two-way stop control with Alberni Street as the major road. The critical approach (WB) operates at LOS C in both modest and high growth. The intersection operates like the 2047 baseline performance (existing network).	⊖ Two-way stop control with Alberni Street as the major road. The critical approach (WB) operates at LOS D in the modest growth scenario and LOS F in the high growth scenario. Higher delays compared to the 2047 baseline performance (existing network).	⊕ Roundabout at Festival Blvd/Alberni. All movements operate at LOS A in the modest and high growth scenarios.
	How does the Westminster Avenue / Festival Blvd intersection perform with the respective recommended treatment (signalize or roundabout)?	⊕ 5-leg roundabout. All movements operate at LOS A in the modest and high growth scenarios.	⊕ 4-leg roundabout. All movements operate at LOS A in the modest and high growth scenarios.	⊕ 4-leg signalized intersection. The intersection operates at LOS B in the modest growth scenario and LOS C in the high growth scenario. All movements operate well.
Safety	Do the options provide safety benefits compared to the existing facilities?	⊕ Improved local network safety upgrading the existing 5-leg stop controlled intersections at Westminster Avenue/Comox Street to a 5-leg roundabout. Improved highway safety with the addition of a median restricting left-in and left-out at Comox Street and Highway 97.	⊕ Improved local network safety upgrading the existing 5-leg stop controlled intersections at Westminster Avenue/Comox Street to a 4-leg roundabout. Improved highway safety with the addition of a median restricting left-in and left-out at Comox Street and Highway 97.	⊕ Improved local network safety upgrading the existing 5-leg stop controlled intersections at Westminster Avenue/Comox Street to a 4-leg signalized intersection and with upgrading the existing stop-controlled intersection at the SOEC access/Alberni Street to a 4-leg roundabout. Improved highway safety with the addition of a median restricting left-in and left-out at Comox Street.
Network Connectivity	Is there connectivity to, from, and between the North Gateway districts?	⊕ Improved connectivity to the south district with the addition of a signalized intersection despite the left-turn restrictions at Comox Street. Maintains existing connection between Vernon Avenue and Westminster Avenue.	○ Improved connectivity to the south district with the addition of a signalized intersection despite the left-turn restrictions at Comox Street. Connection between Vernon Avenue and Westminster Avenue removed.	○ Improved connectivity to the south district with the addition of a signalized intersection despite the left-turn restrictions at Comox Street. Connection between Vernon Avenue and Westminster Avenue removed.

ASSESSMENT CATEGORY AND CRITERIA		OPTION 7	OPTION 8	OPTION 9
SOCIAL / COMMUNITY ACCOUNT				
Active Transportation Integration	What are the impacts for pedestrians in the network?	⊕ Improved pedestrian facilities along Westminster Avenue and the addition of the channel pathway connection. Slight reduction in pedestrian delays with a roundabout on Westminster Avenue compared to a signalized intersection. Improved pedestrian safety crossing Highway 97 at Alberni Street with full signalization of the intersection.	⊕ Improved pedestrian facilities along Westminster Avenue and the addition of the channel pathway connection. Slight reduction in pedestrian delays with a roundabout on Westminster Avenue compared to a signalized intersection. Improved pedestrian safety crossing Highway 97 at Alberni Street with full signalization of the intersection.	⊕ Improved pedestrian facilities along Westminster Avenue and the addition of the channel pathway connection. Slight increase in pedestrian delays with a signalized intersection on Westminster Avenue compared to a roundabout. Improved pedestrian safety crossing Highway 97 at Alberni Street with full signalization of the intersection.
	What are the impacts for cyclists in the network?	⊕ Improved cycling facilities along Westminster Avenue. Special considerations required for cyclist interaction with roundabout.	⊕ Improved cycling facilities along Westminster Avenue. Special considerations required for cyclist interaction with roundabout.	⊕ Improved cycling facilities along Westminster Avenue.
Transit Integration	What are the impacts and potential improvements for transit operations and existing transit routes?	⊕ Potential for a 'transit hub' near the SOEC with minimal variations from existing routes. Bus stops along Westminster will need to be reviewed with the new cross-section to accommodate active transportation facilities with bus stops.	⊕ Potential for a 'transit hub' near the SOEC. Local route changes to access potential hubs may require a larger transit hub to allow buses to turn around and return to their route or rerouting to use Highway 97 to resume route. Bus stops along Westminster will need to be reviewed with the new cross-section to accommodate active transportation facilities with bus stops.	⊕ Potential for a 'transit hub' near the SOEC. Local route changes to access potential hubs may require a larger transit hub to allow buses to turn around and return to their, or to reroute and use Highway 97 to resume their route. Bus stops along Westminster will need to be reviewed with the new cross-section to accommodate active transportation facilities with bus stops.
Truck Routes	What are the impacts of the existing truck routes on Highway 97 and Westminster Ave?	⊖ Minimal impacts to existing truck routes. The major access route on Westminster will require trucks to use a roundabout.	⊖ Minimal impacts to existing truck routes. The major access route on Westminster will require trucks to use a roundabout.	○ Minimal impacts to existing truck routes.
SOCIAL / COMMUNITY ACCOUNT				
Business Impacts	Will the network improvements impact local businesses? What are the impacts of trucks accessing the SOEC?	⊕ The new traffic signal at Alberni Street/Highway 97 will improve access to the SOEC and to businesses in the south district. This option does not impact SOEC event traffic, which has the same routing options for event arrival and departure.	⊕ The new traffic signal at Alberni Street/Highway 97 will improve access to the SOEC and to businesses in the south district. This option does not impact SOEC event traffic, which has the same routing options for event arrival and departure.	⊕ The new traffic signal at Alberni St/Highway 97 will improve access to the SOEC and to businesses in the south district. This option does not impact SOEC event traffic, which has the same routing options for event arrival and departure, except the access to Westminster Avenue via Vernon Street is removed. The roundabout at Festival Blvd/Alberni St may improve traffic flow and safety during events.
Community Impacts	What are the community impacts? Does the option support the community plan and vision?	⊕ Supports the vision for an active transportation and transit friendly network with a revitalized local road network.	⊕ Supports the vision for an active transportation and transit friendly network with a revitalized local road network.	⊕ Supports the vision for an active transportation and transit friendly network with a revitalized local road network.
Future Growth & Development	Does the option promote local growth and development? Does the road network have the capacity to support growth?	⊕ The local road intersections have capacity for future growth for all modes (pedestrians, cyclists, vehicles). The highway capacity is limited, but further improvements can be made in the future, such as dual left turns at Highway 97/Westminster Avenue.	⊕ The local road intersections have capacity for future growth for all modes (pedestrians, cyclists, vehicles). The highway capacity is limited, but further improvements can be made in the future, such as dual left turns at Highway 97/Westminster Avenue.	⊕ The local road intersections have capacity for future growth for all modes (pedestrians, cyclists, vehicles). The highway capacity is limited, but further improvements can be made in the future, such as dual left turns at Highway 97/Westminster Avenue.

7.0 RECOMMENDATIONS & NEXT STEPS

The MAE, as summarized previously in **Table 6.7**, outlines three network options that provide value to the road network and to support future development opportunities in the North Gateway area. Based on the evaluation, the option preferences are ranked as follows:

Preference (MAE)	Option	Description
1.	**Option 9**	4-leg signalized intersection at Westminster Avenue / Burnaby Avenue / Festival Boulevard and roundabout at the Alberni Street / SOEC Entrance.
2.	**Option 7**	(5-leg roundabout at Westminster Avenue / Burnaby Avenue / Festival Boulevard)
3.	**Option 8**	(4-leg roundabout at Westminster Avenue / Burnaby Avenue / Festival Boulevard)

In addition to the improvements identified within the network options, the following general improvements are recommended:

- Modifications to the existing road network interface with Highway 97 including
    - Turn restrictions at Riverside Drive,
    - Active transportation improvements at the channel bridge crossing,
    - Closure of the “Queen’s Access” to the SOEC
- Westminster Avenue corridor improvements, including traffic calming and improved active transportation facilities.
- Realignment of Burnaby Avenue to intersect with Westminster Avenue at Comox Street.
- Closure of Alberni Street to vehicle traffic between Vernon Avenue and Westminster Avenue (with the new hotel development).
- Implementing a dual southbound lane at Highway 97 / Vees Drive / Eckhardt Avenue, which would involve adding a merge lane on the south leg for the eastbound right-turn movement.
- Expand the eastbound left-turn storage lane at Highway 97 / Westminster Avenue to include the existing storage lane for Riverside Avenue until traffic volumes warrant a dual eastbound left-turn lane.

All recommended improvement options have been modelled and drawn at a conceptual level of detail and require further engineering reviews to finalize designs.

7.1 NEXT STEPS FOR HIGHWAY 97 IMPROVEMENTS

- The MoTI should continue to liaise with the City of Penticton to advance improvements for further design, investigation, and community consultation.
- Depending on additional funding, advance recommended options for further engineering review and detailed design including technical assessments not limited to geotechnical, environmental, property impacts, and archaeological.
- Identify project risks and GBA+ considerations to address through development of detailed design.
- The MoTI and City should clarify maintenance responsibilities with new proposed facilities, including potentially updating maintenance agreements for any developed infrastructure.

The following project phasing for Highway 97 improvements is recommended:

Short-term:

- Signalize and add a south leg to the Alberni Street / Highway 97 intersection.
- Restrict left turns at Comox Street.
- Install raised concrete median between Westminster Avenue and Alberni Street.
- Close the Queen's Access to the SOEC from Highway 97.
- Extend storage length for the eastbound left-turn at Highway 97/Westminster Avenue to include the existing Riverside Avenue storage lane.

Medium- to Long-term:

- Highway 97 / Vees Drive / Eckhardt Avenue intersection improvements.
  - Remove southbound channelized right turn and replace with a shared through and right lane.
  - Add an additional exit lane on the south approach to maintain the eastbound channelized right turn.
- Re-pave west half of intersection.
- Add westbound smart-right turn channelization

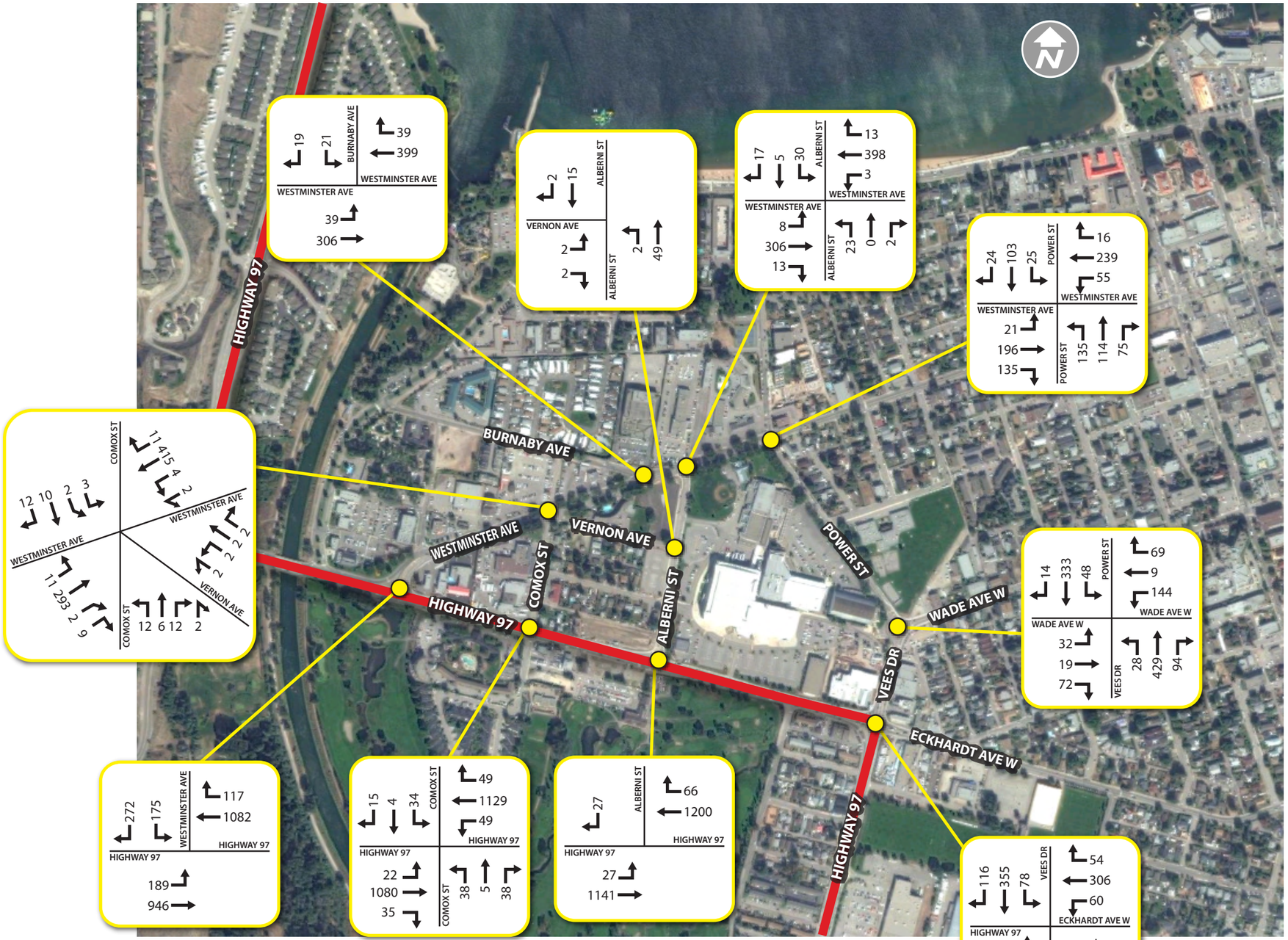
7.2 NEXT STEPS FOR NORTH GATEWAY NETWORK IMPROVEMENTS

- Identify a preferred network layout based on the three refined Options 7, 8 and 9.
- The City should continue to liaise with the MoTI to advance improvements for further design, investigation, and community consultation.
- Continue to work with BC Transit to identify a preferred location for the transit hub on Alberni Street or Festival Boulevard based on the proposed routing and network configuration.
- The MoTI and City should clarify maintenance responsibilities with new proposed facilities, including potentially updating maintenance agreements for any developed infrastructure.

APPENDIX A:

EXISTING AND FUTURE TRAFFIC VOLUMES

Penticton Northern Gateway Area
Existing Traffic - 2022 PM Peak Hour

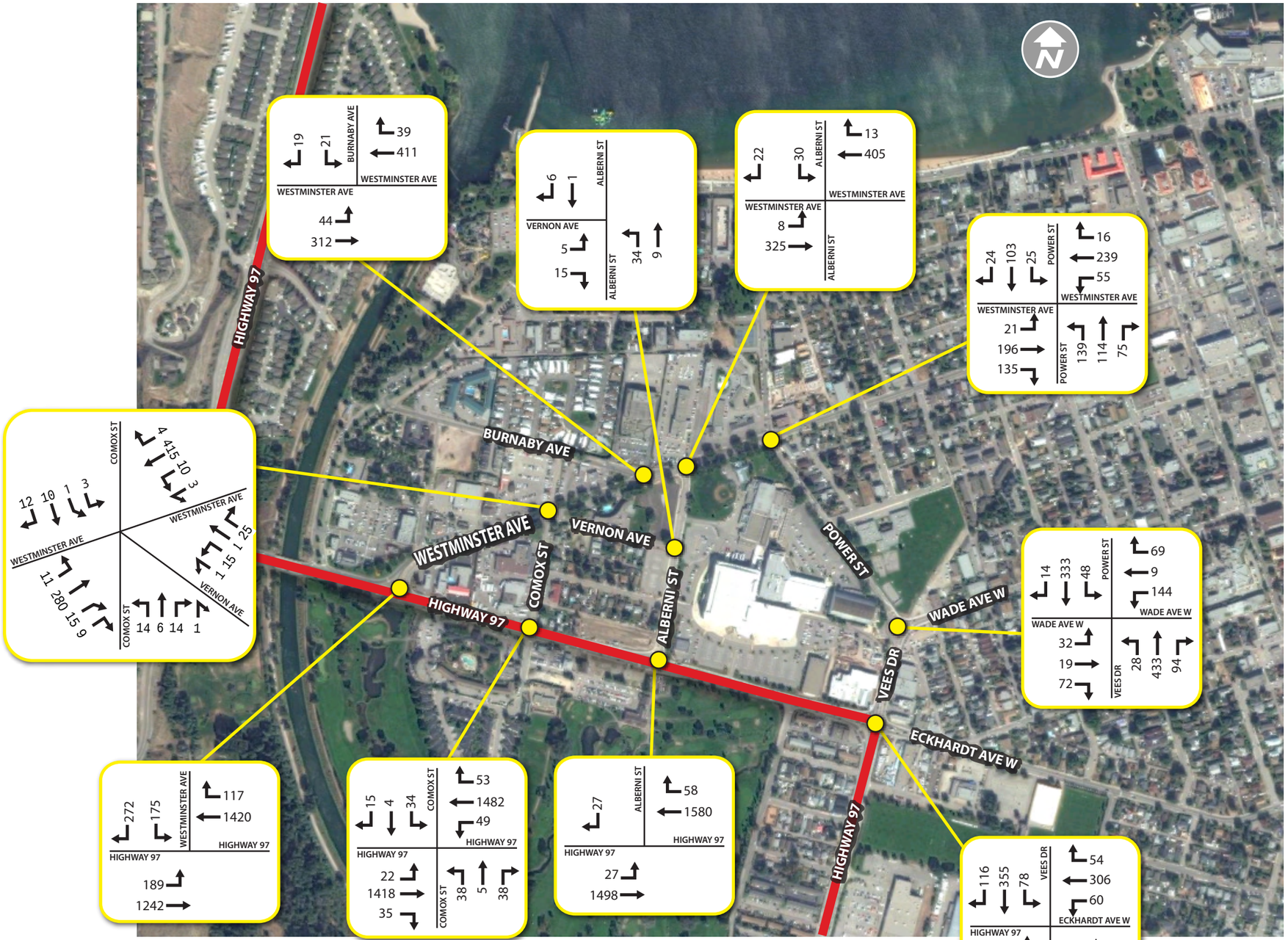


City of Penticton / Ministry of Transportation & Infrastructure
Highway 97 - Penticton Northern Gateway Transportation Study
Existing Traffic - 2022 PM Peak Hour

May 2022 1017.0096.01

URBAN SYSTEMS

Penticton Northern Gateway Area
Background Traffic - 2047 PM Peak Hour
"Modest Traffic Growth Scenario"

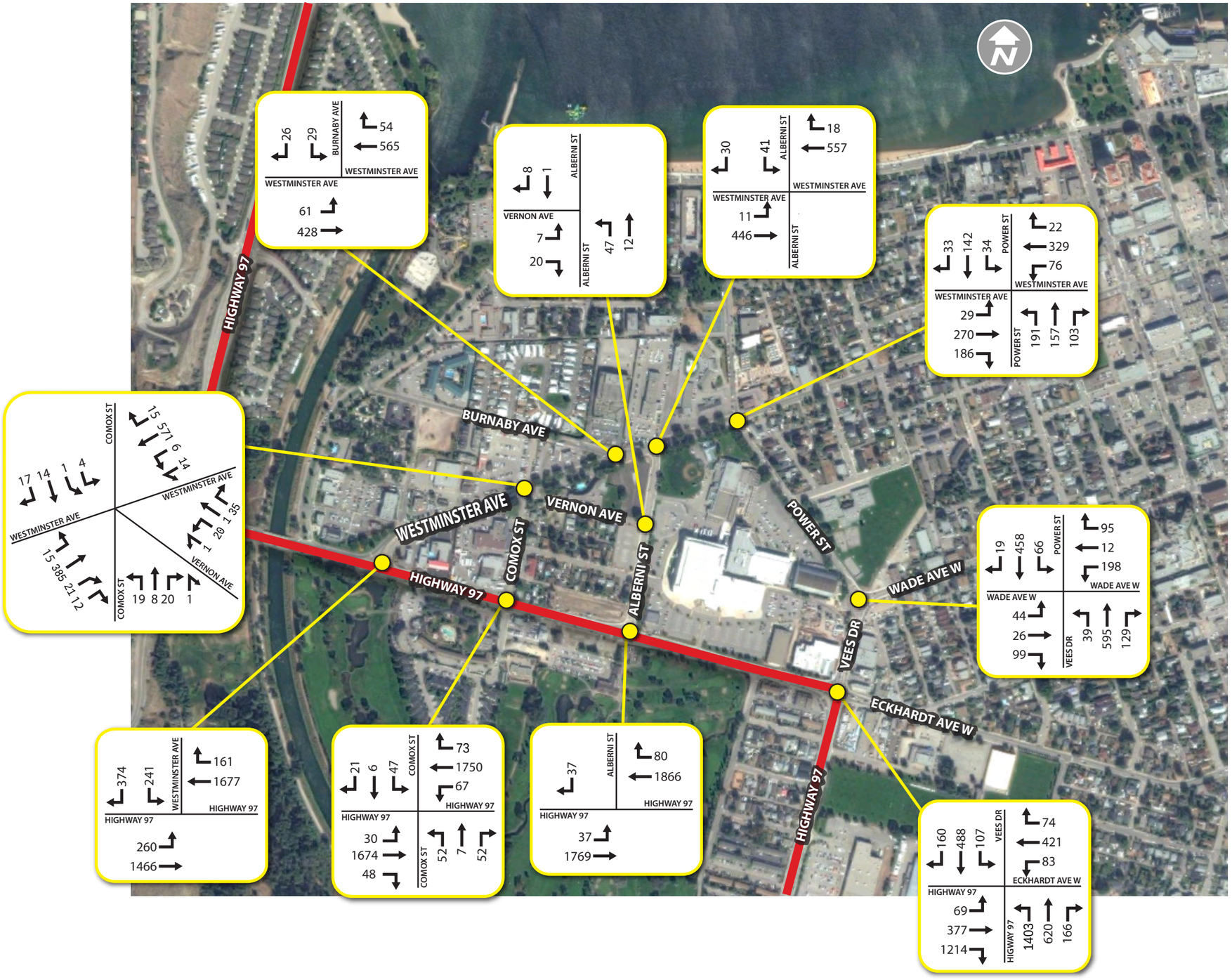


City of Penticton / Ministry of Transportation & Infrastructure
Highway 97 - Penticton Northern Gateway Transportation Study
Background Traffic - 2047 PM Peak Hour

December 2022 1017.0096.01

URBAN SYSTEMS

Penticton Northern Gateway Area
Background Traffic - 2047 PM Peak Hour
"High Growth Scenario"

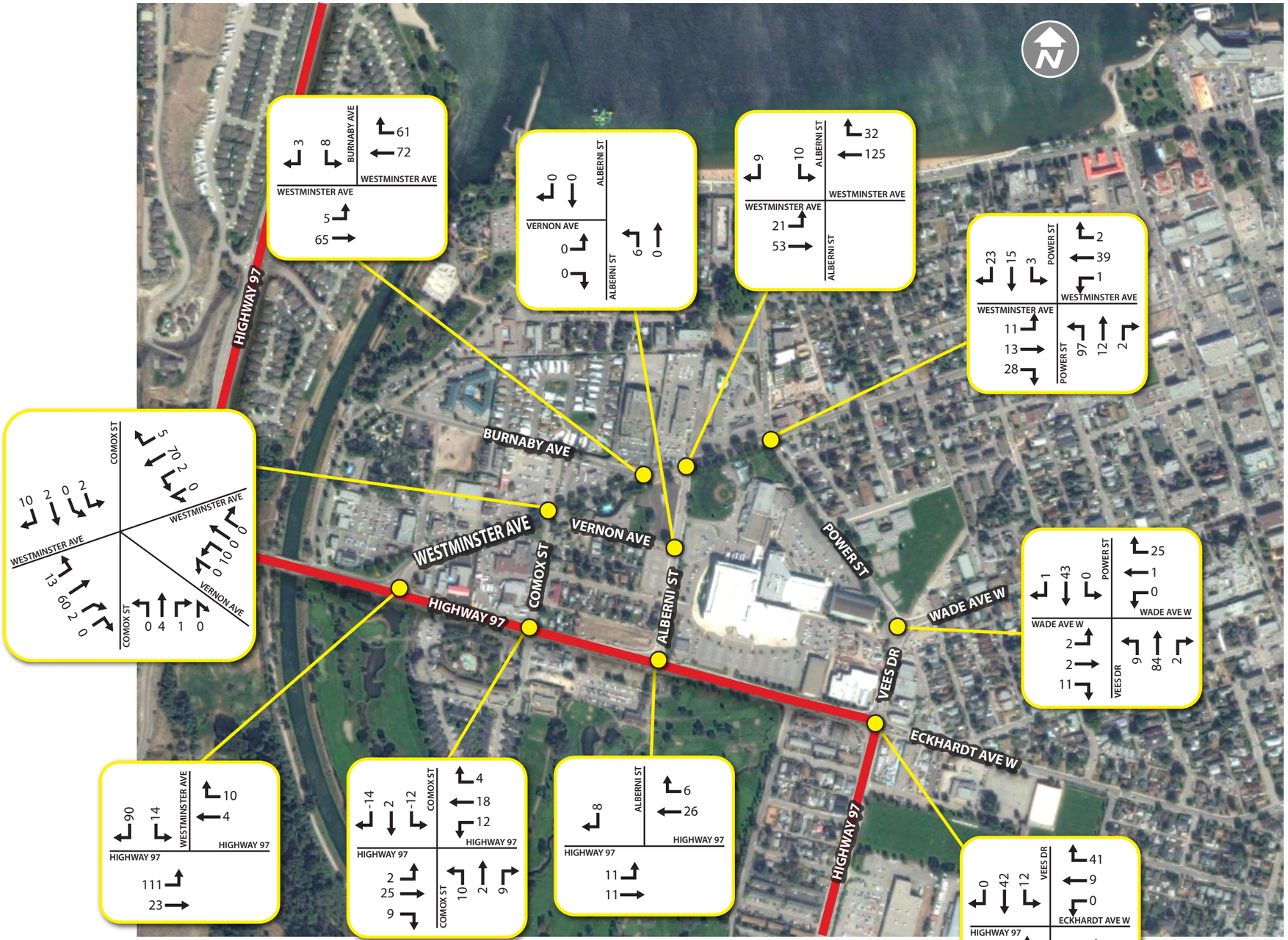


City of Penticton / Ministry of Transportation & Infrastructure
Highway 97 - Penticton Northern Gateway Transportation Study
Background Traffic - 2047 PM Peak Hour

December 2022 1017.0096.01

URBAN SYSTEMS

Penticton Northern Gateway Area Development Traffic - 2047 PM Peak Hour



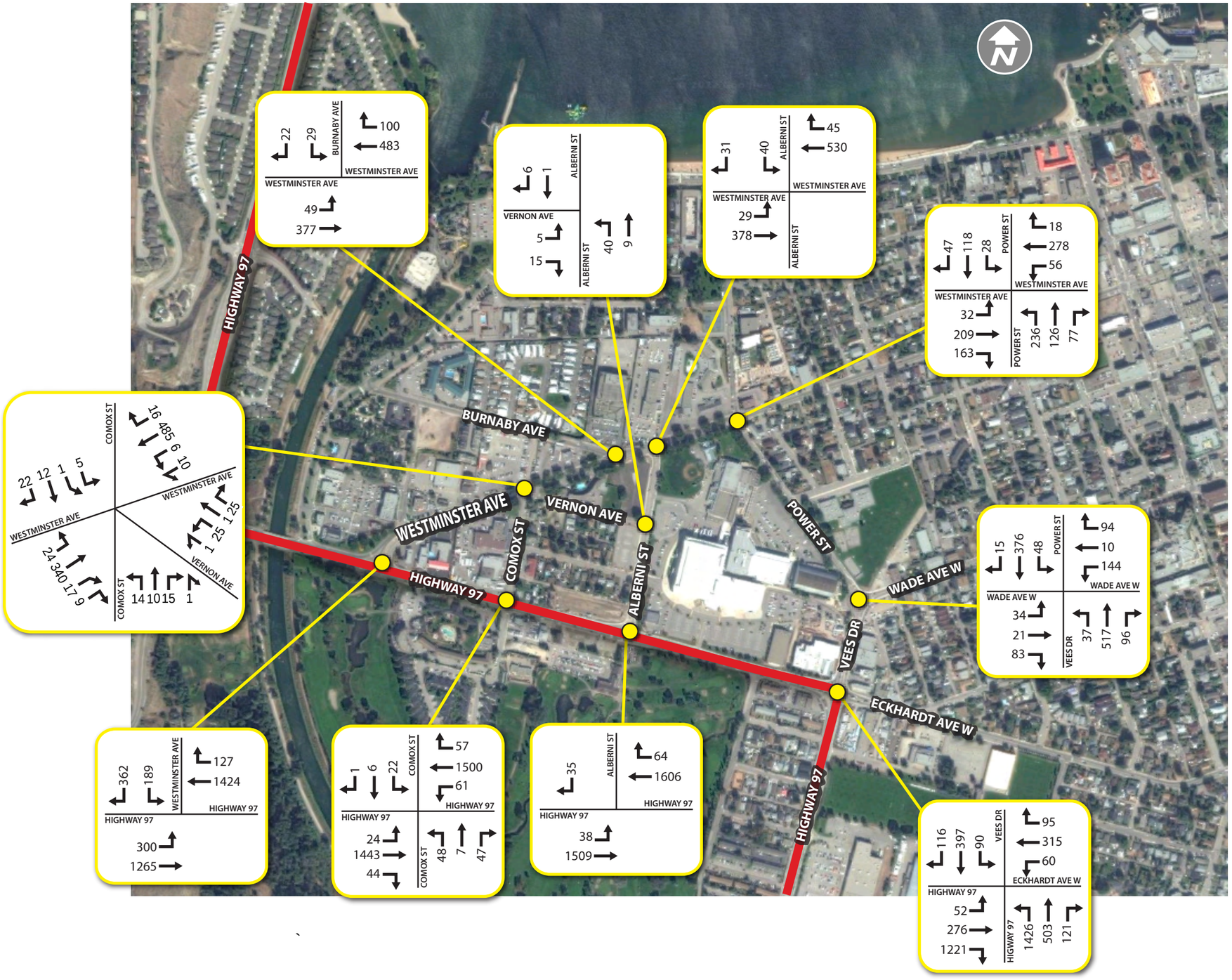
City of Penticton / Ministry of Transportation & Infrastructure
Highway 97 - Penticton Northern Gateway Transportation Study
Development Traffic - 2047 PM Peak Hour

December 2022 1017.0096.01

URBAN SYSTEMS

Penticton Northern Gateway Area
Background & Development Traffic
2047 PM Peak Hour

"Modest Traffic Growth Scenario"



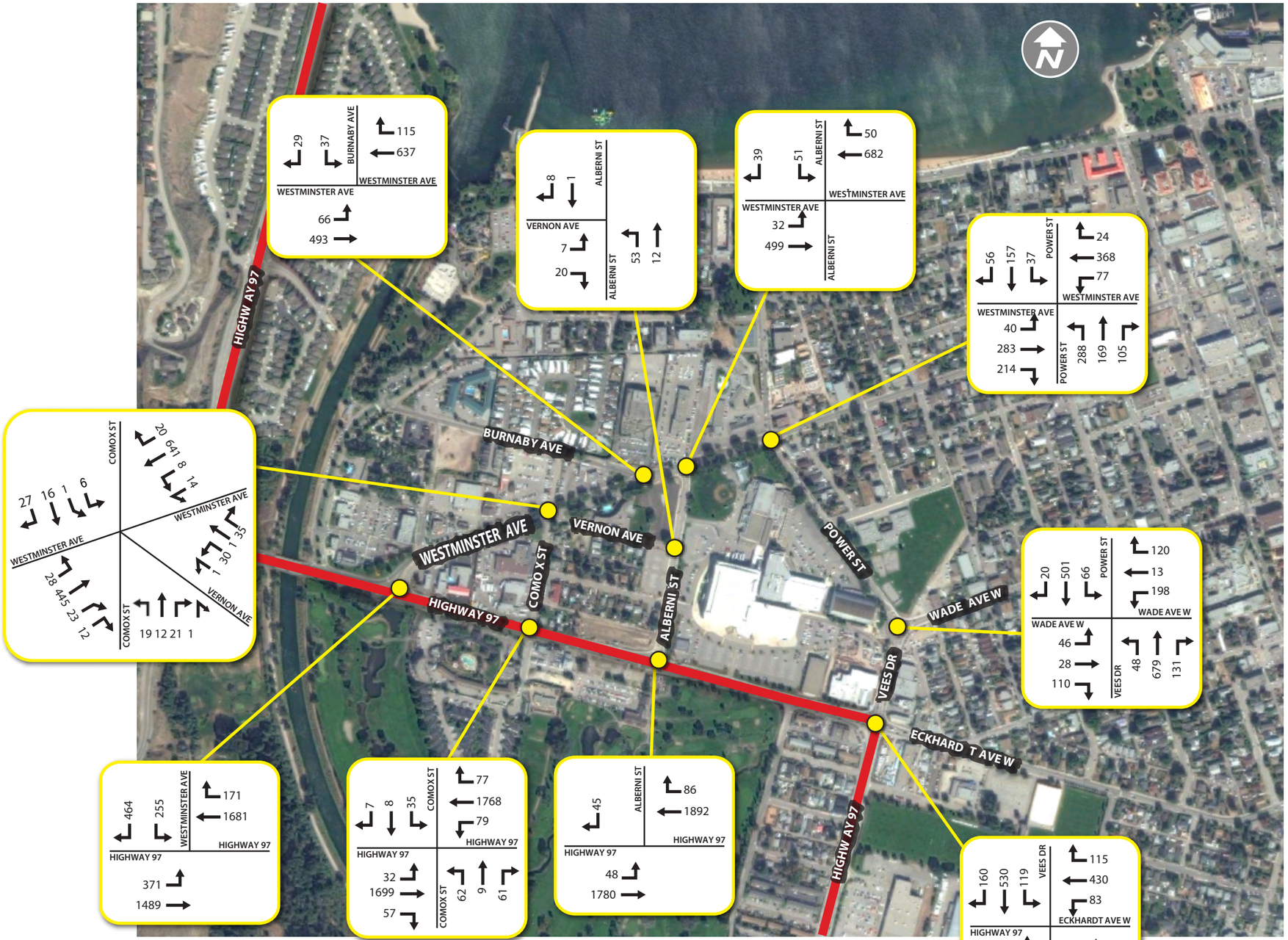
City of Penticton / Ministry of Transportation & Infrastructure
Highway 97 - Penticton Northern Gateway Transportation Study
Background & Development Traffic - 2047 PM Peak Hour

December 2022 1017.0096.01

URBAN SYSTEMS

Penticton Northern Gateway Area
Background & Development Traffic
2047 PM Peak Hour

"High Traffic Growth Volume"



City of Penticton / Ministry of Transportation & Infrastructure
Highway 97 - Penticton Northern Gateway Transportation Study
Background & Development Traffic 2047 PM Peak Hour

December 2022 1017.0096.01

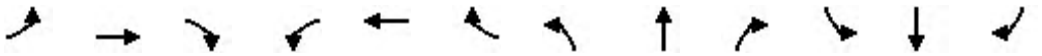
URBAN SYSTEMS

APPENDIX B:

TRAFFIC MODEL OUTPUT REPORTS – 2022 PM PEAK (EXISTING NETWORK)

HCM 6th Signalized Intersection Summary
4: Hwy 97 & Eckhardt Ave W & Vees Drive

2022 PM Peak
12/04/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	274	783	60	306	54	909	447	121	78	355	116
Future Volume (veh/h)	50	274	783	60	306	54	909	447	121	78	355	116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1673	1634	1673	1660	1647	1634	1673	1660	1700	1647	1687
Adj Flow Rate, veh/h	53	295	0	73	356	65	957	486	127	82	386	0
Peak Hour Factor	0.94	0.93	0.90	0.82	0.86	0.83	0.95	0.92	0.95	0.95	0.92	0.62
Percent Heavy Veh, %	0	2	5	2	3	4	5	2	3	0	4	1
Cap, veh/h	79	460		208	336	61	886	778	203	288	421	
Arrive On Green	0.27	0.27	0.00	0.27	0.27	0.27	0.29	0.61	0.61	0.26	0.26	0.00
Sat Flow, veh/h	981	1673	1384	1075	1221	223	3018	1278	334	818	1647	1429
Grp Volume(v), veh/h	53	295	0	73	0	421	957	0	613	82	386	0
Grp Sat Flow(s),veh/h/ln	981	1673	1384	1075	0	1444	1509	0	1612	818	1647	1429
Q Serve(g_s), s	0.0	14.1	0.0	5.8	0.0	25.0	26.7	0.0	21.9	7.5	20.7	0.0
Cycle Q Clear(g_c), s	25.0	14.1	0.0	20.0	0.0	25.0	26.7	0.0	21.9	7.5	20.7	0.0
Prop In Lane	1.00		1.00	1.00		0.15	1.00		0.21	1.00		1.00
Lane Grp Cap(c), veh/h	79	460		208	0	397	886	0	981	288	421	
V/C Ratio(X)	0.67	0.64		0.35	0.00	1.06	1.08	0.00	0.62	0.28	0.92	
Avail Cap(c_a), veh/h	79	460		208	0	397	886	0	992	304	453	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	45.5	29.0	0.0	37.8	0.0	33.0	32.1	0.0	11.2	28.0	32.9	0.0
Incr Delay (d2), s/veh	19.6	3.0	0.0	1.0	0.0	62.2	54.3	0.0	1.2	0.5	22.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.1	10.7	0.0	3.1	0.0	23.7	25.1	0.0	13.9	3.0	17.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.1	32.1	0.0	38.8	0.0	95.2	86.5	0.0	12.5	28.5	55.4	0.0
LnGrp LOS	E	C		D	A	F	F	A	B	C	E	
Approach Vol, veh/h		348			494			1570			468	
Approach Delay, s/veh		37.1			86.8			57.6			50.7	
Approach LOS		D			F			E			D	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		60.6		30.4	32.1	28.5		30.4				
Change Period (Y+Rc), s		5.2		5.4	5.4	5.2		5.4				
Max Green Setting (Gmax), s		56.0		25.0	26.7	25.0		25.0				
Max Q Clear Time (g_c+I1), s		23.9		27.0	28.7	22.7		27.0				
Green Ext Time (p_c), s		3.2		0.0	0.0	0.6		0.0				

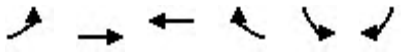
Intersection Summary												
HCM 6th Ctrl Delay			59.0									
HCM 6th LOS			E									

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
8: Hwy 97 & Westminster Ave W

2022 PM Peak
12/04/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	189	946	1082	117	175	272
Future Volume (veh/h)	189	946	1082	117	175	272
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1660	1647	1634	1687	1673	1660
Adj Flow Rate, veh/h	249	996	1202	0	190	0
Peak Hour Factor	0.76	0.95	0.90	0.86	0.92	0.86
Percent Heavy Veh, %	3	4	5	1	2	3
Cap, veh/h	384	2077	1470		245	
Arrive On Green	0.12	0.66	0.47	0.00	0.15	0.00
Sat Flow, veh/h	1581	3212	3186	1429	1594	1407
Grp Volume(v), veh/h	249	996	1202	0	190	0
Grp Sat Flow(s),veh/h/ln	1581	1565	1552	1429	1594	1407
Q Serve(g_s), s	3.9	8.8	18.6	0.0	6.4	0.0
Cycle Q Clear(g_c), s	3.9	8.8	18.6	0.0	6.4	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	384	2077	1470		245	
V/C Ratio(X)	0.65	0.48	0.82		0.78	
Avail Cap(c_a), veh/h	761	2077	1947		714	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	10.8	4.6	12.6	0.0	22.7	0.0
Incr Delay (d2), s/veh	1.8	0.2	2.1	0.0	5.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.4	5.4	11.7	0.0	5.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.6	4.8	14.8	0.0	27.9	0.0
LnGrp LOS	B	A	B		C	
Approach Vol, veh/h		1245	1202		190	
Approach Delay, s/veh		6.4	14.8		27.9	
Approach LOS		A	B		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		42.3		13.5	10.6	31.7
Change Period (Y+Rc), s		5.3		* 4.9	3.9	5.3
Max Green Setting (Gmax), s		35.0		* 25	20.0	35.0
Max Q Clear Time (g_c+I1), s		10.8		8.4	5.9	20.6
Green Ext Time (p_c), s		5.7		0.6	0.9	5.9

Intersection Summary	
HCM 6th Ctrl Delay	11.7
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	34	272	406	34	41	41
Future Vol, veh/h	34	272	406	34	41	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	30	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	2	2	0	0	0
Mvmt Flow	41	332	495	41	50	50

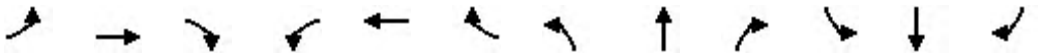
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	536	0	-	0	764	268
Stage 1	-	-	-	-	516	-
Stage 2	-	-	-	-	248	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1042	-	-	-	344	736
Stage 1	-	-	-	-	570	-
Stage 2	-	-	-	-	776	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1042	-	-	-	331	736
Mov Cap-2 Maneuver	-	-	-	-	331	-
Stage 1	-	-	-	-	548	-
Stage 2	-	-	-	-	776	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	14
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1042	-	-	-	331	736
HCM Lane V/C Ratio	0.04	-	-	-	0.151	0.068
HCM Control Delay (s)	8.6	-	-	-	17.8	10.2
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5	0.2

HCM 6th Signalized Intersection Summary
11: Power Street & Westminster Ave W

2022 PM Peak
12/04/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	196	135	55	239	16	135	114	75	25	103	26
Future Volume (veh/h)	21	196	135	55	239	16	135	114	75	25	103	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		0.99	0.98		0.94	0.98		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	1.00	1.00	1.00	0.89
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1620	1647	1673	1620	1647	1700	1647	1687	1673	1700	1647	1700
Adj Flow Rate, veh/h	31	231	157	62	310	24	211	150	110	29	117	33
Peak Hour Factor	0.68	0.85	0.86	0.88	0.77	0.67	0.64	0.76	0.68	0.86	0.88	0.78
Percent Heavy Veh, %	6	4	2	6	4	0	4	1	2	0	4	0
Cap, veh/h	119	559	501	137	421	30	522	325	238	158	507	460
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	90	1521	1362	132	1144	82	1199	880	646	179	1374	1246
Grp Volume(v), veh/h	262	0	157	396	0	0	211	0	260	146	0	33
Grp Sat Flow(s),veh/h/ln	1611	0	1362	1358	0	0	1199	0	1526	1553	0	1246
Q Serve(g_s), s	0.0	0.0	3.9	5.8	0.0	0.0	7.0	0.0	6.1	0.0	0.0	0.8
Cycle Q Clear(g_c), s	5.6	0.0	3.9	12.0	0.0	0.0	9.9	0.0	6.1	2.9	0.0	0.8
Prop In Lane	0.12		1.00	0.16		0.06	1.00		0.42	0.20		1.00
Lane Grp Cap(c), veh/h	678	0	501	588	0	0	522	0	563	665	0	460
V/C Ratio(X)	0.39	0.00	0.31	0.67	0.00	0.00	0.40	0.00	0.46	0.22	0.00	0.07
Avail Cap(c_a), veh/h	1146	0	916	978	0	0	745	0	848	949	0	698
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.2	0.0	10.6	13.1	0.0	0.0	13.7	0.0	11.3	10.3	0.0	9.6
Incr Delay (d2), s/veh	0.4	0.0	0.4	1.6	0.0	0.0	0.5	0.0	0.6	0.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.1	0.0	2.4	7.6	0.0	0.0	3.8	0.0	4.2	2.1	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.6	0.0	11.1	14.7	0.0	0.0	14.2	0.0	11.9	10.5	0.0	9.7
LnGrp LOS	B	A	B	B	A	A	B	A	B	B	A	A
Approach Vol, veh/h		419			396			471			179	
Approach Delay, s/veh		11.4			14.7			12.9			10.3	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		23.1		24.0		23.1		24.0				
Change Period (Y+Rc), s		* 5.8		* 6.6		* 5.8		6.6				
Max Green Setting (Gmax), s		* 32		* 26		* 31		26.2				
Max Q Clear Time (g_c+I1), s		7.6		4.9		14.0		11.9				
Green Ext Time (p_c), s		2.6		0.7		2.3		2.1				

Intersection Summary		
HCM 6th Ctrl Delay		12.7
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	27	1141	1200	66	0	27
Future Vol, veh/h	27	1141	1200	66	0	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	55	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	33	1391	1463	80	0	33

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1543	0	-	0	2265	772
Stage 1	-	-	-	-	1503	-
Stage 2	-	-	-	-	762	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	436	-	-	-	35	347
Stage 1	-	-	-	-	174	-
Stage 2	-	-	-	-	427	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	436	-	-	-	32	347
Mov Cap-2 Maneuver	-	-	-	-	32	-
Stage 1	-	-	-	-	161	-
Stage 2	-	-	-	-	427	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	16.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	436	-	-	-	-	347
HCM Lane V/C Ratio	0.076	-	-	-	-	0.095
HCM Control Delay (s)	13.9	-	-	-	0	16.5
HCM Lane LOS	B	-	-	-	A	C
HCM 95th %tile Q(veh)	0.2	-	-	-	-	0.3

Intersection	
Int Delay, s/veh	827.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑↑			↑↑↑			↑↑↑	
Traffic Vol, veh/h	22	1065	35	49	1129	49	38	5	38	34	4	15
Future Vol, veh/h	22	1065	35	49	1129	49	38	5	38	34	4	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	1	3	0	0	3	1	0	0	0	1	0	1
Mvmt Flow	27	1299	43	60	1377	60	46	6	46	41	5	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1437	0	0	1342	0	0	2186	2932	671	2234	2923	719
Stage 1	-	-	-	-	-	-	1375	1375	-	1527	1527	-
Stage 2	-	-	-	-	-	-	811	1557	-	707	1396	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.5	6.5	6.9	7.52	6.5	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.52	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.52	5.5	-
Follow-up Hdwy	2.21	-	-	2.2	-	-	3.5	4	3.3	3.51	4	3.31
Pot Cap-1 Maneuver	473	-	-	520	-	-	~ 26	15	404	~ 24	16	373
Stage 1	-	-	-	-	-	-	156	215	-	124	181	-
Stage 2	-	-	-	-	-	-	344	175	-	394	210	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	473	-	-	520	-	-	~ 1	~ 5	404	-	5	373
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 1	~ 5	-	-	5	-
Stage 1	-	-	-	-	-	-	120	166	-	96	74	-
Stage 2	-	-	-	-	-	-	125	72	-	259	162	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.6	3.7	$ 25284.5	
HCM LOS			F	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	2	473	-	-	520	-	-	-
HCM Lane V/C Ratio	49.39	0.057	-	-	0.115	-	-	-
HCM Control Delay (s)	$ 25284.5	13.1	1.4	-	12.8	3.5	-	-
HCM Lane LOS	F	B	A	-	B	A	-	-
HCM 95th %tile Q(veh)	14.6	0.2	-	-	0.4	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	2	2	49	15	2
Future Vol, veh/h	2	2	2	49	15	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2	2	2	60	18	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	83	19	20	0	-	0
Stage 1	19	-	-	-	-	-
Stage 2	64	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	924	1065	1609	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	964	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	923	1065	1609	-	-	-
Mov Cap-2 Maneuver	923	-	-	-	-	-
Stage 1	1008	-	-	-	-	-
Stage 2	964	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	0.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1609	-	989	-	-
HCM Lane V/C Ratio	0.002	-	0.005	-	-
HCM Control Delay (s)	7.2	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	1	38	5	2	2	26	25	25	10	10	3
Future Vol, veh/h	4	1	38	5	2	2	26	25	25	10	10	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	5	1	46	6	2	2	32	30	30	12	12	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	149	162	14	171	149	45	16	0	0	60	0	0
Stage 1	38	38	-	109	109	-	-	-	-	-	-	-
Stage 2	111	124	-	62	40	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	824	734	1072	797	746	1031	1615	-	-	1556	-	-
Stage 1	982	867	-	901	809	-	-	-	-	-	-	-
Stage 2	899	797	-	954	866	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	802	713	1072	744	724	1031	1615	-	-	1556	-	-
Mov Cap-2 Maneuver	802	713	-	744	724	-	-	-	-	-	-	-
Stage 1	961	860	-	882	792	-	-	-	-	-	-	-
Stage 2	875	780	-	904	859	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.7	9.6	2.5	3.2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1615	-	-	1028	788	1556	-	-
HCM Lane V/C Ratio	0.02	-	-	0.051	0.014	0.008	-	-
HCM Control Delay (s)	7.3	0	-	8.7	9.6	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0	0	-	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	5	2	18	0	10	3	43	50	18	4	2
Future Vol, veh/h	3	5	2	18	0	10	3	43	50	18	4	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	75	25	46	82	75	38	59	68	57	50	25
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	6	7	8	39	0	13	8	73	74	32	8	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	209	239	12	210	206	110	16	0	0	147	0	0
Stage 1	76	76	-	126	126	-	-	-	-	-	-	-
Stage 2	133	163	-	84	80	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	753	666	1074	752	694	949	1615	-	-	1447	-	-
Stage 1	938	836	-	883	796	-	-	-	-	-	-	-
Stage 2	875	767	-	929	832	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	727	648	1074	726	675	949	1615	-	-	1447	-	-
Mov Cap-2 Maneuver	727	648	-	726	675	-	-	-	-	-	-	-
Stage 1	933	818	-	879	792	-	-	-	-	-	-	-
Stage 2	858	763	-	894	814	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.6	10	0.4	5
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1615	-	-	795	772	1447	-	-
HCM Lane V/C Ratio	0.005	-	-	0.026	0.068	0.022	-	-
HCM Control Delay (s)	7.2	0	-	9.6	10	7.5	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	4.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1048	93	133	1208	52	52
Future Vol, veh/h	1048	93	133	1208	52	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	1278	113	162	1473	63	63

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1391	0	2396	696
Stage 1	-	-	-	-	1335	-
Stage 2	-	-	-	-	1061	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	498	-	~ 29	389
Stage 1	-	-	-	-	214	-
Stage 2	-	-	-	-	298	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	498	-	0	389
Mov Cap-2 Maneuver	-	-	-	-	0	-
Stage 1	-	-	-	-	214	-
Stage 2	-	-	-	-	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	7.3	18.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	389	-	-	498	-
HCM Lane V/C Ratio	0.326	-	-	0.326	-
HCM Control Delay (s)	18.7	-	-	15.7	6.4
HCM Lane LOS	C	-	-	C	A
HCM 95th %tile Q(veh)	1.4	-	-	1.4	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	39	316	386	39	21	19
Future Vol, veh/h	39	316	386	39	21	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	2	2	0	0	0
Mvmt Flow	48	385	471	48	26	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	519	0	-	0	784	260
Stage 1	-	-	-	-	495	-
Stage 2	-	-	-	-	289	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1057	-	-	-	334	745
Stage 1	-	-	-	-	584	-
Stage 2	-	-	-	-	741	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1057	-	-	-	315	745
Mov Cap-2 Maneuver	-	-	-	-	315	-
Stage 1	-	-	-	-	550	-
Stage 2	-	-	-	-	741	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	14.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1057	-	-	-	434
HCM Lane V/C Ratio	0.045	-	-	-	0.112
HCM Control Delay (s)	8.6	0.2	-	-	14.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Intersection	
Int Delay, s/veh	8.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1028	15	211	0	28	108
Future Vol, veh/h	1028	15	211	0	28	108
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	-	30	60	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	1254	18	257	0	34	132

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1254	0	1768	627
Stage 1	-	-	-	-	1254	-
Stage 2	-	-	-	-	514	-
Critical Hdwy	-	-	4.12	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	2.21	-	3.51	3.31
Pot Cap-1 Maneuver	-	-	556	-	76	429
Stage 1	-	-	-	-	234	-
Stage 2	-	-	-	-	568	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	556	-	41	429
Mov Cap-2 Maneuver	-	-	-	-	41	-
Stage 1	-	-	-	-	234	-
Stage 2	-	-	-	-	306	-

Approach	EB	WB	NB
HCM Control Delay, s	0	16.9	63.1
HCM LOS			F

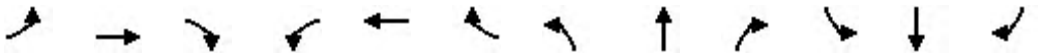
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	41	429	-	-	556	-
HCM Lane V/C Ratio	0.833	0.307	-	-	0.463	-
HCM Control Delay (s)	240.5	17.1	-	-	16.9	-
HCM Lane LOS	F	C	-	-	C	-
HCM 95th %tile Q(veh)	3.2	1.3	-	-	2.4	-

APPENDIX C:

TRAFFIC MODEL OUTPUT REPORTS – 2047 PM PEAK (EXISTING NETWORK)

HCM 6th Signalized Intersection Summary
4: Hwy 97 & Eckhardt Ave W & Vees Drive

2047 PM Peak (Modest Growth)
12/04/2022



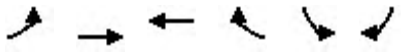
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	276	1221	60	315	95	1426	503	121	90	397	116
Future Volume (veh/h)	52	276	1221	60	315	95	1426	503	121	90	397	116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1673	1634	1673	1660	1647	1634	1673	1660	1700	1647	1687
Adj Flow Rate, veh/h	55	297	0	73	366	114	1501	547	127	95	432	0
Peak Hour Factor	0.94	0.93	0.90	0.82	0.86	0.83	0.95	0.92	0.95	0.95	0.92	0.62
Percent Heavy Veh, %	0	2	5	2	3	4	5	2	3	0	4	1
Cap, veh/h	48	419		144	272	85	1199	891	207	238	404	
Arrive On Green	0.25	0.25	0.00	0.25	0.25	0.25	0.40	0.68	0.68	0.25	0.25	0.00
Sat Flow, veh/h	929	1673	1384	1082	1085	338	3018	1312	305	773	1647	1429
Grp Volume(v), veh/h	55	297	0	73	0	480	1501	0	674	95	432	0
Grp Sat Flow(s),veh/h/ln	929	1673	1384	1082	0	1423	1509	0	1617	773	1647	1429
Q Serve(g_s), s	0.0	24.3	0.0	9.9	0.0	37.6	59.6	0.0	34.4	15.9	36.8	0.0
Cycle Q Clear(g_c), s	37.6	24.3	0.0	34.1	0.0	37.6	59.6	0.0	34.4	15.9	36.8	0.0
Prop In Lane	1.00		1.00	1.00		0.24	1.00		0.19	1.00		1.00
Lane Grp Cap(c), veh/h	48	419		144	0	357	1199	0	1098	238	404	
V/C Ratio(X)	1.15	0.71		0.51	0.00	1.35	1.25	0.00	0.61	0.40	1.07	
Avail Cap(c_a), veh/h	48	419		144	0	357	1199	0	1098	238	404	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	75.0	51.2	0.0	66.8	0.0	56.2	45.2	0.0	13.3	48.7	56.6	0.0
Incr Delay (d2), s/veh	175.7	5.4	0.0	2.8	0.0	173.3	120.2	0.0	1.0	1.1	64.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.7	17.0	0.0	5.4	0.0	47.4	63.3	0.0	20.7	6.0	32.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	250.7	56.6	0.0	69.6	0.0	229.5	165.4	0.0	14.3	49.8	121.0	0.0
LnGrp LOS	F	E		E	A	F	F	A	B	D	F	
Approach Vol, veh/h		352			553			2175			527	
Approach Delay, s/veh		86.9			208.4			118.6			108.2	
Approach LOS		F			F			F			F	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		107.0		43.0	65.0	42.0		43.0				
Change Period (Y+Rc), s		5.2		5.4	5.4	5.2		5.4				
Max Green Setting (Gmax), s		101.8		37.6	59.6	36.8		37.6				
Max Q Clear Time (g_c+I1), s		36.4		39.6	61.6	38.8		39.6				
Green Ext Time (p_c), s		3.8		0.0	0.0	0.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay	127.7	
HCM 6th LOS	F	

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	300	1265	1424	127	189	362
Future Volume (veh/h)	300	1265	1424	127	189	362
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1660	1647	1634	1687	1673	1660
Adj Flow Rate, veh/h	395	1332	1582	0	205	0
Peak Hour Factor	0.76	0.95	0.90	0.86	0.92	0.86
Percent Heavy Veh, %	3	4	5	1	2	3
Cap, veh/h	415	2453	1668		228	
Arrive On Green	0.22	0.78	0.54	0.00	0.14	0.00
Sat Flow, veh/h	1581	3212	3186	1429	1594	1407
Grp Volume(v), veh/h	395	1332	1582	0	205	0
Grp Sat Flow(s),veh/h/ln	1581	1565	1552	1429	1594	1407
Q Serve(g_s), s	28.2	22.4	67.2	0.0	17.7	0.0
Cycle Q Clear(g_c), s	28.2	22.4	67.2	0.0	17.7	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	415	2453	1668		228	
V/C Ratio(X)	0.95	0.54	0.95		0.90	
Avail Cap(c_a), veh/h	433	2566	1746		286	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	45.4	5.7	30.5	0.0	58.9	0.0
Incr Delay (d2), s/veh	30.6	0.2	11.3	0.0	25.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	25.0	13.2	38.7	0.0	14.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	76.0	5.9	41.8	0.0	83.9	0.0
LnGrp LOS	E	A	D		F	
Approach Vol, veh/h		1727	1582		205	
Approach Delay, s/veh		21.9	41.8		83.9	
Approach LOS		C	D		F	

Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	115.0		24.9	34.5	80.5
Change Period (Y+Rc), s	5.3		* 4.9	3.9	5.3
Max Green Setting (Gmax), s	114.7		* 25	32.1	78.7
Max Q Clear Time (g_c+I1), s	24.4		19.7	30.2	69.2
Green Ext Time (p_c), s	10.0		0.4	0.4	5.9

Intersection Summary	
HCM 6th Ctrl Delay	34.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	83	344	489	41	44	62
Future Vol, veh/h	83	344	489	41	44	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	30	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	2	2	0	0	0
Mvmt Flow	101	420	596	50	54	76

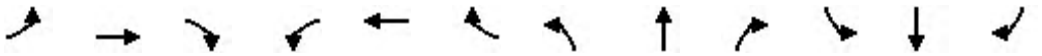
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	646	0	-	0	1033	323
Stage 1	-	-	-	-	621	-
Stage 2	-	-	-	-	412	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	949	-	-	-	232	679
Stage 1	-	-	-	-	504	-
Stage 2	-	-	-	-	643	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	949	-	-	-	207	679
Mov Cap-2 Maneuver	-	-	-	-	207	-
Stage 1	-	-	-	-	451	-
Stage 2	-	-	-	-	643	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	18.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	949	-	-	-	207	679
HCM Lane V/C Ratio	0.107	-	-	-	0.259	0.111
HCM Control Delay (s)	9.2	-	-	-	28.4	11
HCM Lane LOS	A	-	-	-	D	B
HCM 95th %tile Q(veh)	0.4	-	-	-	1	0.4

HCM 6th Signalized Intersection Summary
11: Power Street & Westminster Ave W

2047 PM Peak (Modest Growth)
12/04/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	209	163	56	278	18	236	126	77	28	118	47
Future Volume (veh/h)	32	209	163	56	278	18	236	126	77	28	118	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		0.99	0.99		0.95	0.98		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	1.00	1.00	1.00	0.89
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1620	1647	1673	1620	1647	1700	1647	1687	1673	1700	1647	1700
Adj Flow Rate, veh/h	47	246	190	64	361	27	369	166	113	33	134	60
Peak Hour Factor	0.68	0.85	0.86	0.88	0.77	0.67	0.64	0.76	0.68	0.86	0.88	0.78
Percent Heavy Veh, %	6	4	2	6	4	0	4	1	2	0	4	0
Cap, veh/h	111	492	525	106	420	30	463	399	272	154	558	546
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.44	0.44	0.44	0.44	0.44	0.44
Sat Flow, veh/h	133	1278	1364	121	1091	77	1158	914	622	210	1276	1250
Grp Volume(v), veh/h	293	0	190	452	0	0	369	0	279	167	0	60
Grp Sat Flow(s),veh/h/ln	1411	0	1364	1290	0	0	1158	0	1536	1486	0	1250
Q Serve(g_s), s	0.0	0.0	6.9	13.9	0.0	0.0	21.6	0.0	8.7	0.1	0.0	2.0
Cycle Q Clear(g_c), s	9.3	0.0	6.9	23.2	0.0	0.0	30.4	0.0	8.7	8.8	0.0	2.0
Prop In Lane	0.16		1.00	0.14		0.06	1.00		0.41	0.20		1.00
Lane Grp Cap(c), veh/h	603	0	525	555	0	0	463	0	671	711	0	546
V/C Ratio(X)	0.49	0.00	0.36	0.81	0.00	0.00	0.80	0.00	0.42	0.23	0.00	0.11
Avail Cap(c_a), veh/h	725	0	637	657	0	0	463	0	671	715	0	550
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.0	0.0	15.3	20.2	0.0	0.0	24.3	0.0	13.5	12.3	0.0	11.6
Incr Delay (d2), s/veh	0.7	0.0	0.5	7.0	0.0	0.0	9.5	0.0	0.4	0.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.1	0.0	4.4	13.3	0.0	0.0	12.4	0.0	6.1	3.3	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.7	0.0	15.8	27.2	0.0	0.0	33.7	0.0	13.9	12.4	0.0	11.7
LnGrp LOS	B	A	B	C	A	A	C	A	B	B	A	B
Approach Vol, veh/h		483			452			648			227	
Approach Delay, s/veh		16.4			27.2			25.2			12.2	
Approach LOS		B			C			C			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		32.6		37.0		32.6		37.0				
Change Period (Y+Rc), s		* 5.8		* 6.6		* 5.8		6.6				
Max Green Setting (Gmax), s		* 33		* 31		* 32		30.4				
Max Q Clear Time (g_c+I1), s		11.3		10.8		25.2		32.4				
Green Ext Time (p_c), s		3.0		1.0		1.6		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		21.7
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	38	1509	1606	64	0	35
Future Vol, veh/h	38	1509	1606	64	0	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	55	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	46	1840	1959	78	0	43

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	2037	0	-	0	3010	1019
Stage 1	-	-	-	-	1998	-
Stage 2	-	-	-	-	1012	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	281	-	-	-	11	238
Stage 1	-	-	-	-	93	-
Stage 2	-	-	-	-	317	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	281	-	-	-	9	238
Mov Cap-2 Maneuver	-	-	-	-	9	-
Stage 1	-	-	-	-	78	-
Stage 2	-	-	-	-	317	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	23.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	281	-	-	-	-	238
HCM Lane V/C Ratio	0.165	-	-	-	-	0.179
HCM Control Delay (s)	20.3	-	-	-	0	23.4
HCM Lane LOS	C	-	-	-	A	C
HCM 95th %tile Q(veh)	0.6	-	-	-	-	0.6

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	1443	44	61	1500	57	48	7	47	22	6	1
Future Vol, veh/h	24	1443	44	61	1500	57	48	7	47	22	6	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	1	3	0	0	3	1	0	0	0	1	0	1
Mvmt Flow	29	1760	54	74	1829	70	59	9	57	27	7	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1899	0	0	1814	0	0	2911	3892	907	2955	3884	950
Stage 1	-	-	-	-	-	-	1845	1845	-	2012	2012	-
Stage 2	-	-	-	-	-	-	1066	2047	-	943	1872	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.5	6.5	6.9	7.52	6.5	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.52	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.52	5.5	-
Follow-up Hdwy	2.21	-	-	2.2	-	-	3.5	4	3.3	3.51	4	3.31
Pot Cap-1 Maneuver	314	-	-	343	-	-	~ 7	~ 4	282	~ 7	~ 4	263
Stage 1	-	-	-	-	-	-	79	126	-	61	104	-
Stage 2	-	-	-	-	-	-	241	100	-	284	123	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	314	-	-	343	-	-	-	~ 4	282	-	~ 4	263
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 4	-	-	~ 4	-
Stage 1	-	-	-	-	-	-	79	126	-	61	104	-
Stage 2	-	-	-	-	-	-	223	100	-	211	123	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.7		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	314	-	-	343	-	-	-
HCM Lane V/C Ratio	-	0.093	-	-	0.217	-	-	-
HCM Control Delay (s)	-	17.6	0	-	18.4	0	-	-
HCM Lane LOS	-	C	A	-	C	A	-	-
HCM 95th %tile Q(veh)	-	0.3	-	-	0.8	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	15	40	9	1	6
Future Vol, veh/h	5	15	40	9	1	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	6	18	49	11	1	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	114	5	8	0	-	0
Stage 1	5	-	-	-	-	-
Stage 2	109	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	887	1084	1625	-	-	-
Stage 1	1023	-	-	-	-	-
Stage 2	921	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	860	1084	1625	-	-	-
Mov Cap-2 Maneuver	860	-	-	-	-	-
Stage 1	992	-	-	-	-	-
Stage 2	921	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	5.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1625	-	1018	-	-
HCM Lane V/C Ratio	0.03	-	0.024	-	-
HCM Control Delay (s)	7.3	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	1	10	5	2	2	26	38	25	11	15	3
Future Vol, veh/h	0	1	10	5	2	2	26	38	25	11	15	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	1	12	6	2	2	32	46	30	13	18	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	173	186	20	178	173	61	22	0	0	76	0	0
Stage 1	46	46	-	125	125	-	-	-	-	-	-	-
Stage 2	127	140	-	53	48	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	794	712	1064	789	724	1010	1607	-	-	1536	-	-
Stage 1	973	861	-	884	796	-	-	-	-	-	-	-
Stage 2	882	785	-	965	859	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	772	691	1064	761	702	1010	1607	-	-	1536	-	-
Mov Cap-2 Maneuver	772	691	-	761	702	-	-	-	-	-	-	-
Stage 1	953	853	-	865	779	-	-	-	-	-	-	-
Stage 2	859	769	-	944	851	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.6	9.6	2.1	2.8
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1607	-	-	1014	790	1536	-	-
HCM Lane V/C Ratio	0.02	-	-	0.013	0.014	0.009	-	-
HCM Control Delay (s)	7.3	0	-	8.6	9.6	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	5	2	26	0	10	3	41	61	18	4	2
Future Vol, veh/h	3	5	2	26	0	10	3	41	61	18	4	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	75	25	46	82	75	38	59	68	57	50	25
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	6	7	8	57	0	13	8	69	90	32	8	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	213	251	12	214	210	114	16	0	0	159	0	0
Stage 1	76	76	-	130	130	-	-	-	-	-	-	-
Stage 2	137	175	-	84	80	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	748	656	1074	747	691	944	1615	-	-	1433	-	-
Stage 1	938	836	-	878	792	-	-	-	-	-	-	-
Stage 2	871	758	-	929	832	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	722	638	1074	720	672	944	1615	-	-	1433	-	-
Mov Cap-2 Maneuver	722	638	-	720	672	-	-	-	-	-	-	-
Stage 1	933	817	-	874	788	-	-	-	-	-	-	-
Stage 2	854	754	-	894	813	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.7	10.3	0.3	5
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1615	-	-	789	754	1433	-	-
HCM Lane V/C Ratio	0.005	-	-	0.026	0.093	0.022	-	-
HCM Control Delay (s)	7.2	0	-	9.7	10.3	7.6	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0.1	-	-

Intersection	
Int Delay, s/veh	93.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1387	93	133	1612	52	52
Future Vol, veh/h	1387	93	133	1612	52	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	1691	113	162	1966	63	63

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1804	0	3055	902
Stage 1	-	-	-	-	1748	-
Stage 2	-	-	-	-	1307	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	346	-	~ 10	285
Stage 1	-	-	-	-	128	-
Stage 2	-	-	-	-	221	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	346	-	~ 10	285
Mov Cap-2 Maneuver	-	-	-	-	~ 10	-
Stage 1	-	-	-	-	128	-
Stage 2	-	-	-	-	221	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.8	$ 2954.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	19	-	-	346	-
HCM Lane V/C Ratio	6.675	-	-	0.469	-
HCM Control Delay (s)	$ 2954.5	-	-	24.3	0
HCM Lane LOS	F	-	-	C	A
HCM 95th %tile Q(veh)	16.4	-	-	2.4	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	49	377	483	100	29	22
Future Vol, veh/h	49	377	483	100	29	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	2	2	0	0	0
Mvmt Flow	60	460	589	122	35	27

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	711	0	-	0	1000	356
Stage 1	-	-	-	-	650	-
Stage 2	-	-	-	-	350	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	898	-	-	-	243	646
Stage 1	-	-	-	-	487	-
Stage 2	-	-	-	-	690	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	898	-	-	-	221	646
Mov Cap-2 Maneuver	-	-	-	-	221	-
Stage 1	-	-	-	-	443	-
Stage 2	-	-	-	-	690	-

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	19.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	898	-	-	-	309
HCM Lane V/C Ratio	0.067	-	-	-	0.201
HCM Control Delay (s)	9.3	0.3	-	-	19.6
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	0.7

Intersection	
Int Delay, s/veh	42.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1482	15	211	0	28	108
Future Vol, veh/h	1482	15	211	0	28	108
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	-	30	60	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	1807	18	257	0	34	132

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1807	0	2321	904
Stage 1	-	-	-	-	1807	-
Stage 2	-	-	-	-	514	-
Critical Hdwy	-	-	4.12	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	2.21	-	3.51	3.31
Pot Cap-1 Maneuver	-	-	341	-	~ 32	282
Stage 1	-	-	-	-	118	-
Stage 2	-	-	-	-	568	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	341	-	~ 8	282
Mov Cap-2 Maneuver	-	-	-	-	~ 8	-
Stage 1	-	-	-	-	118	-
Stage 2	-	-	-	-	140	-

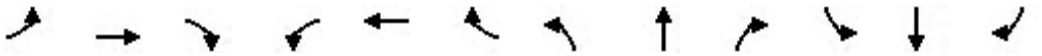
Approach	EB	WB	NB
HCM Control Delay, s	0	41.8	$ 511.7
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	8	282	-	-	341	-
HCM Lane V/C Ratio	4.268	0.467	-	-	0.755	-
HCM Control Delay (s)	$ 2375.7	28.5	-	-	41.8	-
HCM Lane LOS	F	D	-	-	E	-
HCM 95th %tile Q(veh)	5.6	2.3	-	-	5.9	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

HCM 6th Signalized Intersection Summary
4: Hwy 97 & Eckhardt Ave W & Vees Drive

2047 PM Peak (High Growth)
12/04/2022



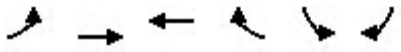
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	381	1221	83	444	108	1472	662	166	123	549	161
Future Volume (veh/h)	72	381	1221	83	444	108	1472	662	166	123	549	161
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1673	1634	1673	1660	1647	1634	1673	1660	1700	1647	1687
Adj Flow Rate, veh/h	77	410	0	101	516	130	1549	720	175	129	597	0
Peak Hour Factor	0.94	0.93	0.90	0.82	0.86	0.83	0.95	0.92	0.95	0.95	0.92	0.62
Percent Heavy Veh, %	0	2	5	2	3	4	5	2	3	0	4	1
Cap, veh/h	55	497		122	340	86	896	808	196	151	466	
Arrive On Green	0.30	0.30	0.00	0.30	0.30	0.30	0.30	0.62	0.62	0.28	0.28	0.00
Sat Flow, veh/h	797	1673	1384	976	1144	288	3018	1299	316	631	1647	1429
Grp Volume(v), veh/h	77	410	0	101	0	646	1549	0	895	129	597	0
Grp Sat Flow(s),veh/h/ln	797	1673	1384	976	0	1432	1509	0	1615	631	1647	1429
Q Serve(g_s), s	0.0	29.7	0.0	8.9	0.0	38.6	38.6	0.0	61.2	19.6	36.8	0.0
Cycle Q Clear(g_c), s	38.6	29.7	0.0	38.6	0.0	38.6	38.6	0.0	61.2	36.8	36.8	0.0
Prop In Lane	1.00		1.00	1.00		0.20	1.00		0.20	1.00		1.00
Lane Grp Cap(c), veh/h	55	497		122	0	425	896	0	1004	151	466	
V/C Ratio(X)	1.39	0.83		0.82	0.00	1.52	1.73	0.00	0.89	0.86	1.28	
Avail Cap(c_a), veh/h	55	497		122	0	425	896	0	1004	151	466	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	65.0	42.6	0.0	62.0	0.0	45.7	45.7	0.0	20.9	57.7	46.6	0.0
Incr Delay (d2), s/veh	255.3	10.9	0.0	34.8	0.0	245.3	332.4	0.0	10.1	35.4	141.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.6	20.9	0.0	8.3	0.0	67.2	88.9	0.0	36.6	10.0	50.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	320.3	53.5	0.0	96.8	0.0	291.0	378.1	0.0	31.0	93.2	188.5	0.0
LnGrp LOS	F	D		F	A	F	F	A	C	F	F	
Approach Vol, veh/h		487			747			2444			726	
Approach Delay, s/veh		95.6			264.8			251.0			171.6	
Approach LOS		F			F			F			F	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		86.0		44.0	44.0	42.0		44.0				
Change Period (Y+Rc), s		5.2		5.4	5.4	5.2		5.4				
Max Green Setting (Gmax), s		80.8		38.6	38.6	36.8		38.6				
Max Q Clear Time (g_c+I1), s		63.2		40.6	40.6	38.8		40.6				
Green Ext Time (p_c), s		4.9		0.0	0.0	0.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay	223.1	
HCM 6th LOS	F	

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	382	1490	1694	177	246	493
Future Volume (veh/h)	382	1490	1694	177	246	493
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1660	1647	1634	1687	1673	1660
Adj Flow Rate, veh/h	503	1568	1882	0	267	0
Peak Hour Factor	0.76	0.95	0.90	0.86	0.92	0.86
Percent Heavy Veh, %	3	4	5	1	2	3
Cap, veh/h	390	2352	1581		286	
Arrive On Green	0.22	0.75	0.51	0.00	0.18	0.00
Sat Flow, veh/h	1581	3212	3186	1429	1594	1407
Grp Volume(v), veh/h	503	1568	1882	0	267	0
Grp Sat Flow(s),veh/h/ln	1581	1565	1552	1429	1594	1407
Q Serve(g_s), s	32.1	37.1	75.7	0.0	24.5	0.0
Cycle Q Clear(g_c), s	32.1	37.1	75.7	0.0	24.5	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	390	2352	1581		286	
V/C Ratio(X)	1.29	0.67	1.19		0.93	
Avail Cap(c_a), veh/h	390	2352	1581		301	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	51.4	9.2	36.5	0.0	60.1	0.0
Incr Delay (d2), s/veh	148.4	0.7	92.2	0.0	33.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	16.5	20.8	71.5	0.0	19.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	199.9	9.9	128.7	0.0	93.8	0.0
LnGrp LOS	F	A	F		F	
Approach Vol, veh/h		2071	1882		267	
Approach Delay, s/veh		56.1	128.7		93.8	
Approach LOS		E	F		F	

Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	117.0		31.6	36.0	81.0
Change Period (Y+Rc), s	5.3		* 4.9	3.9	5.3
Max Green Setting (Gmax), s	111.7		* 28	32.1	75.7
Max Q Clear Time (g_c+I1), s	39.1		26.5	34.1	77.7
Green Ext Time (p_c), s	13.5		0.2	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	90.8
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	70	489	665	58	61	74
Future Vol, veh/h	70	489	665	58	61	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	30	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	2	2	0	0	0
Mvmt Flow	85	596	811	71	74	90

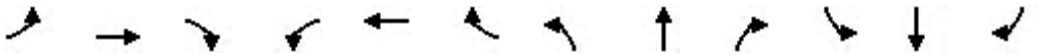
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	882	0	-	0	1315	441
Stage 1	-	-	-	-	847	-
Stage 2	-	-	-	-	468	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	775	-	-	-	152	570
Stage 1	-	-	-	-	386	-
Stage 2	-	-	-	-	602	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	775	-	-	-	135	570
Mov Cap-2 Maneuver	-	-	-	-	135	-
Stage 1	-	-	-	-	344	-
Stage 2	-	-	-	-	602	-

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	34.1
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	775	-	-	-	135	570
HCM Lane V/C Ratio	0.11	-	-	-	0.551	0.158
HCM Control Delay (s)	10.2	-	-	-	60.3	12.5
HCM Lane LOS	B	-	-	-	F	B
HCM 95th %tile Q(veh)	0.4	-	-	-	2.7	0.6

HCM 6th Signalized Intersection Summary
11: Power Street & Westminster Ave W

2047 PM Peak (High Growth)
12/04/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	309	235	81	394	23	251	181	111	35	155	47
Future Volume (veh/h)	54	309	235	81	394	23	251	181	111	35	155	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.99		0.94	0.99		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	1.00	1.00	1.00	0.89
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1620	1647	1673	1620	1647	1700	1647	1687	1673	1700	1647	1700
Adj Flow Rate, veh/h	79	364	273	92	512	34	392	238	163	41	176	60
Peak Hour Factor	0.68	0.85	0.86	0.88	0.77	0.67	0.64	0.76	0.68	0.86	0.88	0.78
Percent Heavy Veh, %	6	4	2	6	4	0	4	1	2	0	4	0
Cap, veh/h	118	475	671	86	332	21	206	322	221	88	316	442
Arrive On Green	0.49	0.49	0.49	0.49	0.49	0.49	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	133	969	1369	70	677	42	1117	908	622	97	890	1245
Grp Volume(v), veh/h	443	0	273	638	0	0	392	0	401	217	0	60
Grp Sat Flow(s),veh/h/ln	1102	0	1369	789	0	0	1117	0	1530	987	0	1245
Q Serve(g_s), s	0.0	0.0	10.2	15.2	0.0	0.0	8.3	0.0	18.3	1.8	0.0	2.6
Cycle Q Clear(g_c), s	24.0	0.0	10.2	39.2	0.0	0.0	28.4	0.0	18.3	20.1	0.0	2.6
Prop In Lane	0.18		1.00	0.14		0.05	1.00		0.41	0.19		1.00
Lane Grp Cap(c), veh/h	593	0	671	438	0	0	206	0	543	404	0	442
V/C Ratio(X)	0.75	0.00	0.41	1.46	0.00	0.00	1.91	0.00	0.74	0.54	0.00	0.14
Avail Cap(c_a), veh/h	598	0	676	438	0	0	206	0	543	408	0	445
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.2	0.0	13.0	24.0	0.0	0.0	37.7	0.0	22.5	19.9	0.0	17.5
Incr Delay (d2), s/veh	5.3	0.0	0.5	217.7	0.0	0.0	425.0	0.0	5.3	1.4	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.5	0.0	6.4	56.9	0.0	0.0	48.9	0.0	12.6	6.2	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.5	0.0	13.5	241.7	0.0	0.0	462.7	0.0	27.8	21.3	0.0	17.6
LnGrp LOS	C	A	B	F	A	A	F	A	C	C	A	B
Approach Vol, veh/h		716			638			793			277	
Approach Delay, s/veh		17.8			241.7			242.8			20.5	
Approach LOS		B			F			F			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		45.0		35.0		45.0		35.0				
Change Period (Y+Rc), s		* 5.8		* 6.6		* 5.8		6.6				
Max Green Setting (Gmax), s		* 40		* 29		* 39		28.4				
Max Q Clear Time (g_c+I1), s		26.0		22.1		41.2		30.4				
Green Ext Time (p_c), s		4.0		0.7		0.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay	150.6	
HCM 6th LOS	F	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	48	1778	1895	143	0	48
Future Vol, veh/h	48	1778	1895	143	0	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	55	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	59	2168	2311	174	0	59

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	2485	0	-	0	3600	1243
Stage 1	-	-	-	-	2398	-
Stage 2	-	-	-	-	1202	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	188	-	-	-	4	169
Stage 1	-	-	-	-	56	-
Stage 2	-	-	-	-	251	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	188	-	-	-	3	169
Mov Cap-2 Maneuver	-	-	-	-	3	-
Stage 1	-	-	-	-	38	-
Stage 2	-	-	-	-	251	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	37.2
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	188	-	-	-	-	169
HCM Lane V/C Ratio	0.311	-	-	-	-	0.346
HCM Control Delay (s)	32.6	-	-	-	0	37.2
HCM Lane LOS	D	-	-	-	A	E
HCM 95th %tile Q(veh)	1.3	-	-	-	-	1.4

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	1692	57	79	1778	73	62	9	57	45	8	16
Future Vol, veh/h	32	1692	57	79	1778	73	62	9	57	45	8	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	1	3	0	0	3	1	0	0	0	1	0	1
Mvmt Flow	39	2063	70	96	2168	89	76	11	70	55	10	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2257	0	0	2133	0	0	3457	4625	1067	3520	4616	1129
Stage 1	-	-	-	-	-	-	2176	2176	-	2405	2405	-
Stage 2	-	-	-	-	-	-	1281	2449	-	1115	2211	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.5	6.5	6.9	7.52	6.5	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.52	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.52	5.5	-
Follow-up Hdwy	2.21	-	-	2.2	-	-	3.5	4	3.3	3.51	4	3.31
Pot Cap-1 Maneuver	227	-	-	258	-	-	~ 3	~ 1	221	~ 2	~ 1	200
Stage 1	-	-	-	-	-	-	~ 49	86	-	~ 34	66	-
Stage 2	-	-	-	-	-	-	178	62	-	223	83	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	227	-	-	258	-	-	-	~ 1	221	-	~ 1	200
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 1	-	-	~ 1	-
Stage 1	-	-	-	-	-	-	~ 49	86	-	~ 34	66	-
Stage 2	-	-	-	-	-	-	137	62	-	133	83	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	1.1		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	227	-	-	258	-	-	-
HCM Lane V/C Ratio	-	0.172	-	-	0.373	-	-	-
HCM Control Delay (s)	-	24.1	0	-	27	0	-	-
HCM Lane LOS	-	C	A	-	D	A	-	-
HCM 95th %tile Q(veh)	-	0.6	-	-	1.7	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	3	9	112	25	3
Future Vol, veh/h	4	3	9	112	25	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	5	4	11	137	30	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	191	32	34	0	-	0
Stage 1	32	-	-	-	-	-
Stage 2	159	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	803	1048	1591	-	-	-
Stage 1	996	-	-	-	-	-
Stage 2	875	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	797	1048	1591	-	-	-
Mov Cap-2 Maneuver	797	-	-	-	-	-
Stage 1	989	-	-	-	-	-
Stage 2	875	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.1	0.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1591	-	888	-	-
HCM Lane V/C Ratio	0.007	-	0.01	-	-
HCM Control Delay (s)	7.3	0	9.1	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	41	7	3	3	36	45	34	15	21	4
Future Vol, veh/h	5	0	41	7	3	3	36	45	34	15	21	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	6	0	50	9	4	4	44	55	41	18	26	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	233	249	29	254	231	76	31	0	0	96	0	0
Stage 1	65	65	-	164	164	-	-	-	-	-	-	-
Stage 2	168	184	-	90	67	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	726	657	1052	703	672	991	1595	-	-	1510	-	-
Stage 1	951	845	-	843	766	-	-	-	-	-	-	-
Stage 2	839	751	-	922	843	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	698	630	1052	649	644	991	1595	-	-	1510	-	-
Mov Cap-2 Maneuver	698	630	-	649	644	-	-	-	-	-	-	-
Stage 1	923	835	-	819	744	-	-	-	-	-	-	-
Stage 2	808	729	-	868	833	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.8	10.2	2.3	2.8
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1595	-	-	997	704	1510	-	-
HCM Lane V/C Ratio	0.028	-	-	0.056	0.023	0.012	-	-
HCM Control Delay (s)	7.3	0	-	8.8	10.2	7.4	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.1	0	-	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	7	3	33	1	14	4	111	80	26	10	3
Future Vol, veh/h	3	7	3	33	1	14	4	111	80	26	10	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	75	25	46	82	75	38	59	68	57	50	25
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	6	9	12	72	1	19	11	188	118	46	20	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	397	446	26	398	393	247	32	0	0	306	0	0
Stage 1	118	118	-	269	269	-	-	-	-	-	-	-
Stage 2	279	328	-	129	124	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	567	510	1056	566	546	797	1593	-	-	1266	-	-
Stage 1	891	802	-	741	690	-	-	-	-	-	-	-
Stage 2	732	651	-	880	797	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	534	487	1056	533	521	797	1593	-	-	1266	-	-
Mov Cap-2 Maneuver	534	487	-	533	521	-	-	-	-	-	-	-
Stage 1	884	772	-	735	684	-	-	-	-	-	-	-
Stage 2	708	646	-	828	768	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	12.5	0.2	4.7
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1593	-	-	654	571	1266	-	-
HCM Lane V/C Ratio	0.007	-	-	0.042	0.16	0.036	-	-
HCM Control Delay (s)	7.3	0	-	10.7	12.5	8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.6	0.1	-	-

Intersection	
Int Delay, s/veh	497.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1638	128	183	1959	72	72
Future Vol, veh/h	1638	128	183	1959	72	72
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	1998	156	223	2389	88	88

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2154	0	3717	1077
Stage 1	-	-	-	-	2076	-
Stage 2	-	-	-	-	1641	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	253	-	~ 3	218
Stage 1	-	-	-	-	~ 84	-
Stage 2	-	-	-	-	146	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	253	-	~ 3	218
Mov Cap-2 Maneuver	-	-	-	-	~ 3	-
Stage 1	-	-	-	-	~ 84	-
Stage 2	-	-	-	-	146	-

Approach	EB	WB	NB
HCM Control Delay, s	0	6.2	$ 13919.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	6	-	-	253	-
HCM Lane V/C Ratio	29.268	-	-	0.882	-
HCM Control Delay (s)	$ 13919.3	-	-	72.4	0
HCM Lane LOS	F	-	-	F	A
HCM 95th %tile Q(veh)	24	-	-	7.5	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	62	511	646	107	58	30
Future Vol, veh/h	62	511	646	107	58	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	2	2	0	0	0
Mvmt Flow	76	623	788	130	71	37

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	918	0	-	0	1317	459
Stage 1	-	-	-	-	853	-
Stage 2	-	-	-	-	464	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	752	-	-	-	152	554
Stage 1	-	-	-	-	383	-
Stage 2	-	-	-	-	605	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	752	-	-	-	128	554
Mov Cap-2 Maneuver	-	-	-	-	128	-
Stage 1	-	-	-	-	324	-
Stage 2	-	-	-	-	605	-

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	54.9
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	752	-	-	-	173
HCM Lane V/C Ratio	0.101	-	-	-	0.62
HCM Control Delay (s)	10.3	0.6	-	-	54.9
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.3	-	-	-	3.5

Intersection	
Int Delay, s/veh	29.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1740	21	290	0	39	149
Future Vol, veh/h	1740	21	290	0	39	149
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	-	30	60	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	2122	26	354	0	48	182

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2122	0	2830	1061
Stage 1	-	-	-	-	2122	-
Stage 2	-	-	-	-	708	-
Critical Hdwy	-	-	4.12	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	2.21	-	3.51	3.31
Pot Cap-1 Maneuver	-	-	~ 257	-	~ 14	222
Stage 1	-	-	-	-	79	-
Stage 2	-	-	-	-	452	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	~ 257	-	0	222
Mov Cap-2 Maneuver	-	-	-	-	0	-
Stage 1	-	-	-	-	79	-
Stage 2	-	-	-	-	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	229.5	
HCM LOS			-

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	222	-	-	~ 257	-
HCM Lane V/C Ratio	-	0.819	-	-	1.376	-
HCM Control Delay (s)	-	67.8	-	-	229.5	-
HCM Lane LOS	-	F	-	-	F	-
HCM 95th %tile Q(veh)	-	6.1	-	-	19	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

APPENDIX D:

LONG-LIST OPTION DEVELOPMENT MEMO

URBAN SYSTEMS MEMORANDUM

DATE: December 9, 2022
TO: Anthony Haddad, General Manager of Community Services, City of Penticton
Kristen Dixon, General Manager of Infrastructure, City of Penticton
Megan Forness, Sr. Regional Transportation Engineer, Ministry of Transportation and Infrastructure
James LaPointe, Project Development Analyst, Ministry of Transportation and Infrastructure
FILE: 1017.0096.01
SUBJECT: Highway 97 – Penticton North Gateway Transportation Study: Option Generation Summary

1.0 INTRODUCTION

This memorandum describes the concepts developed for the *Highway 97 – Penticton North Gateway Transportation Study*. These options were developed based on discussions with City of Penticton, BC Ministry of Transportation and Infrastructure (MoTI), and BC Transit staff and build upon the vision concept developed at the North Gateway Design Charrette described below.

The long-list of options presented in this memo are high-level concepts and for illustrative and discussion purposes only.

The conceptual design drawings are attached to this memo.

2.0 NORTH GATEWAY DESIGN CHARRETTE CONCEPT

The City of Penticton (the City) hosted a Design Charrette in September 2021 to explore the overall network plan and vision for the North Gateway area of Penticton to facilitate the proposed development occurring in that area. The network concept layout developed through the Design Charrette process is illustrated below in **Figure 2.1**, along with the anticipated future land use and developments. The network concept consists of many features, including the following:

- **Festival Boulevard** extends the existing drive aisle through the SOEC parking lot to tie into Burnaby Avenue. This connection will provide a space to host parades, events, and also functions as a mobility connection through the North Gateway neighbourhood.
- Modifications to the existing road network **interface with Highway 97**, such as turn restrictions at Riverside Drive, active transportation improvements at the channel bridge crossing, a new multi-use pathway on the south side of Highway 97, closure of the "Queen's Access" to the SOEC.
- **Westminster Avenue** corridor improvements, including traffic calming and improved active transportation facilities.
- **Realignment of Burnaby Avenue** to intersect with Westminster Avenue at Comox Street. The east end of Burnaby Avenue is closed between Festival Boulevard and Westminster Avenue and the corridor is reallocated as public green space.
- **Closure of Alberni Street** to vehicle traffic between Vernon Avenue and Westminster Avenue with the new hotel development (that is currently under construction at the time of writing). However, through access for active transportation traffic will be maintained.

Figure 2.1: Penticton North Gateway Design Charrette Network Layout Concept

3.0 HIGHWAY 97 – SOUTH DISTRICT CONNECTION OPTIONS

Access to the area south of Highway 97 within the North Gateway area is critical for the existing and proposed developments. Currently, there is currently one main access to the south area (or south district) at the intersection of Highway 97 / Comox Street. Additionally, there are a few driveways to various businesses such as the Ramada Hotel. For this study, three options were identified to improve and consolidate full-movement access to the developments south of Highway 97, as described below. The intention with these concepts is that only *one* access option would be provided to access the developments south of the highway to improve safety on Highway 97 for all road users.

3.1 OPTION A: WESTMINSTER AVE

The first option for the south district connection consists of adding of fourth leg to the existing intersection on Highway 97 at Westminster Avenue, as illustrated in **Figure 3.1**. Other intersection modifications required with this option include:

- Adding a southbound through lane by utilizing the median space for the southbound left-turn lane;
- Adding a westbound left-turn lane on Highway 97; and
- Constructing one of two new corridor options through the existing golf course to facilitate connectivity south of the highway.

Figure 3.1: South District Connection Option A – Westminster Ave

The adjacent intersections on Highway 97 at Comox Street and Alberni Street would be restricted to right-in/right-out only with this option.

Considerations

This option requires significant property acquisition, impacting the existing Golf course, nearby businesses, and/or stratified buildings. However, this option does not increase the number of traffic signals on Highway 97 through the North Gateway since Westminster Avenue is already signalized.

3.2 OPTION B: COMOX ST

Option B consists of signalizing the intersection of Highway 97 / Comox Street and improving the south leg. Laning improvements at the intersection include a westbound left-turn lane on Highway 97. The adjacent intersection on Highway 97 at Alberni Street would be restricted to right-in/right-out only with this option.

Considerations

This option adds another signal on Highway 97 through the North Gateway. Additionally, spacing between signalized intersections on Highway 97 would not meet current standards, since the signal at Westminster Avenue is only about 235m to the west.

3.3 OPTION C: ALBERNI ST

Option C also proposes implementing an additional signal on Highway 97 at Alberni Street. This option requires adding a fourth leg to the south of the intersection. Laning improvements at the intersection include a southbound left and through lanes on Alberni Street and a westbound left-turn lane on Highway 97.

The adjacent intersection on Highway 97 at Comox Street would be restricted to right-in/right-out only with this option.

Considerations

Similar to Option B, this option has spacing concerns between signalized intersections on Highway 97. The approximate distance to adjacent signalized intersections on Highway 97 from the Alberni Street intersection is indicated below:

- 460m to Westminster Avenue
- 380m to Eckhardt Drive / Vees Drive

Option C may also require property acquisition from the adjacent golf course.

4.0 NORTH GATEWAY OPTION CONCEPTS

A total of six concepts were developed for the local road network in the North Gateway area along Highway 97 in Penticton, which are described below in the following section. These concepts aim to retain the key themes and aspects of the concept layout developed through the Design Charrette process.

All layout concepts include the following planned improvements:

- Alberni Street road closure between Vernon Avenue and Westminster Avenue to facilitate the new hotel that is currently under construction.
- Realigning Burnaby Avenue south along Comox Street to tie into Westminster Avenue at the existing intersection with Comox Street and Vernon Avenue. The decommissioned portion of the corridor will become public green space.
- Highway 97 / Eckhardt Avenue / Vees Drive intersection laning improvements, including
    - Reconfiguring the north approach on Vees Drive to include two through lanes by reassigning the existing channelized right-turn lane to a shared through and right-turn lane; and
    - Maintaining the eastbound free right turn movement by adding a channelized auxiliary merge lane for the eastbound right turn to merge with the southbound downstream travel lane.
- Centre median on Highway 97 from the channel crossing to Alberni Street. This would result in restricting all minor road accesses and driveways to right-in/right-out movements only.
- Network improvements stated in the TMP:
    - Closing the 'Queen's Access", and
    - Laning improvements at the Westminster Avenue / Power Street intersection (already constructed).

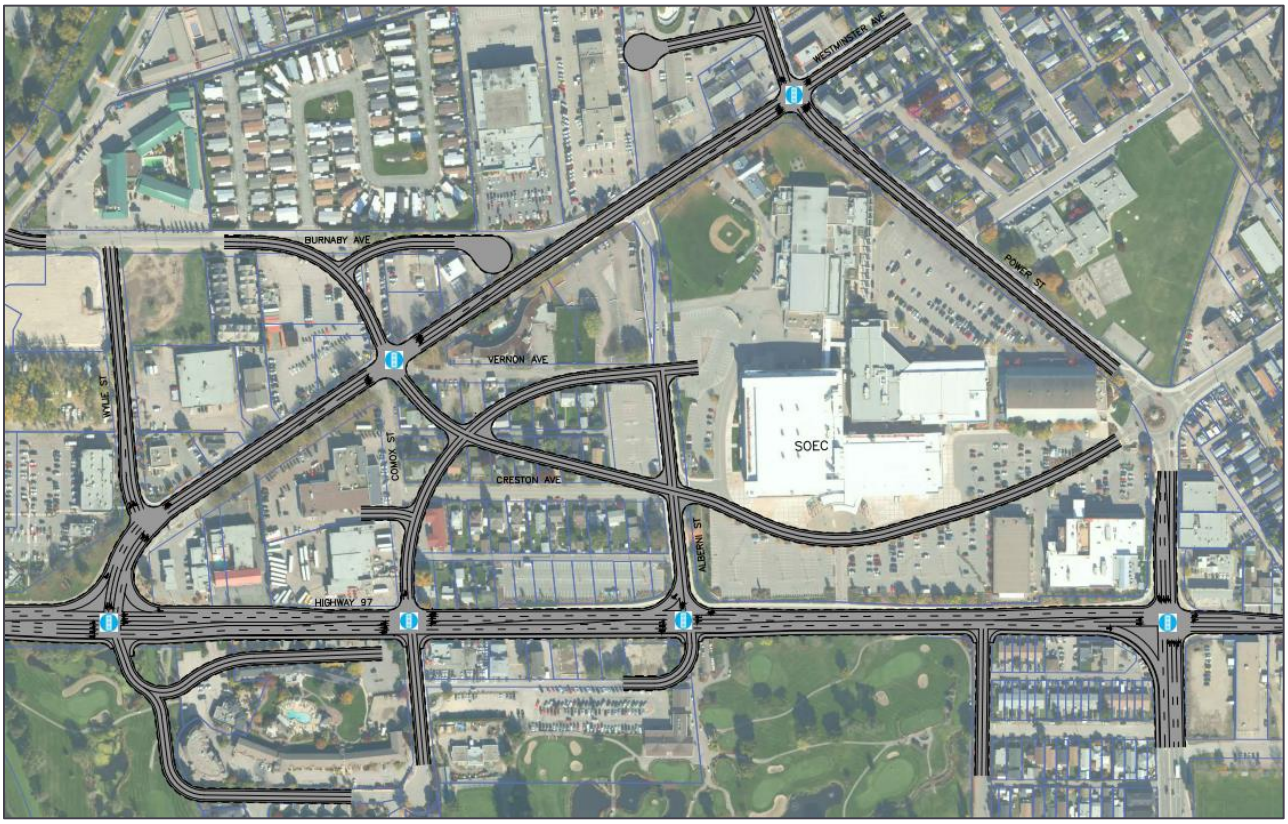
Improvements and/or access management was considered at the intersection of Highway 97 / Oakville Street to improve safety at that intersection. However, given the limited access to that neighbourhood with the existing road network, access restrictions are not deemed feasible and are not recommended as part of this study.

4.1 OPTION 1

Option 1 for the North Gateway road network layout is the most similar to the Design Charrette concept of all the options developed for this study. This option includes a new roadway corridor through the North Gateway area imitating the envisioned "Festival Boulevard" alignment, but with minor alignment changes to improve intersection geometry and separation between intersections on Alberni Street and on Festival Boulevard.

With this concept, shown below in **Figure 4.1**, Comox Street and Vernon Avenue no longer connect directly with Westminster Avenue, but instead intersect at Festival Boulevard just south of Westminster Avenue with a new four-leg intersection. The intersection of Festival Boulevard / Burnaby Avenue / Westminster Avenue is proposed to be a four-leg traffic signal; however, this could potentially be designed as a roundabout.

Figure 4.1: North Gateway Concept – Option 1



Compatible South District Connection Options

This concept option is compatible with any of the three proposed south district connection options:

A. Westminster Avenue / Highway 97 – Add a fourth (south) leg

B. Comox Street / Highway 97 – Signalize

C. Alberni Street / Highway 97 – Signalize and add a fourth (south) leg

Design Considerations

Option 1 requires significant property acquisition for the new road corridors. The new and realigned roadway corridors would also require new and/or relocating utility connections. Another key consideration is the short intersection spacing on Festival Boulevard between Westminster Avenue and Vernon Avenue / Comox Street.

4.2 OPTION 2

Option 2 for the North Gateway local road network is also similar to the Design Charrette concept in that it includes a similar "Festival Boulevard" alignment. However, with this option, Festival Boulevard intersects Westminster Avenue at a five-leg roundabout intersection with the realigned Burnaby Avenue and Comox Street. This requires closing Vernon Avenue south of Westminster Avenue with a cul-de-sac, as illustrated below in **Figure 4.2**. Creston Avenue is effectively removed from the network with the creation of Festival Boulevard.

Figure 4.2: North Gateway Concept – Option 2

Compatible South District Connection Options

This option is compatible with all three south district connection options:

A. Westminster Avenue / Highway 97 – Add a fourth (south) leg

B. Comox Street / Highway 97 – Signalize

C. Alberni Street / Highway 97 – Signalize and add a fourth (south) leg

Although, Option B may not add as much value to the road network as the other two connection options with this network concept.

Design Considerations

This option also requires significant property acquisition for the new road corridors. The new and realigned roadway corridors would also require new and/or relocating utility connections.

The five-leg roundabout shown with this option requires further design to confirm feasibility. The intersection approaches at the proposed roundabout have tight geometry and would likely require larger vehicles to navigate around the roundabout to make certain turning movements.

4.3 OPTION 3

The third option concept for the North Gateway road network layout maintains many of the existing corridor alignments, as shown below in **Figure 4.3**. The key differences are that Burnaby is realigned along the existing Comox Street alignment, north of Westminster Avenue. The existing five-leg intersection is maintained but converted to a roundabout to improve mobility and safety at the intersection.

Figure 4.3: North Gateway Concept – Option 3

Compatible South District Connection Options

This network layout is compatible with any of the three south district connection options:

A. Westminster Avenue / Highway 97 – Add a fourth (south) leg

B. Comox Street / Highway 97 – Signalize

C. Alberni Street / Highway 97 – Signalize and add a fourth (south) leg

Design Considerations

Compared to other options, the network layout for Option 3 is expected to have minimal property and utility impacts. However, the proposed five-leg roundabout on Westminster Avenue requires further design to confirm feasibility. The intersection approaches at the proposed roundabout have tight geometry and would likely require larger vehicles to navigate around the roundabout to make certain turning movements. Additionally, this

network layout does not provide a smooth, direct route for Festival Boulevard, as envisioned in the Design Charrette concept.

4.4 OPTION 4

Option 4 also utilizes the existing road network more than the Design Charrette concept, as illustrated below in **Figure 4.4**. This layout consists of closing Vernon Avenue at Westminster Avenue and creating a cul-de-sac, providing the opportunity to improve the intersection on Westminster Avenue at Burnaby Road and Comox Street by reducing the number of legs at the intersection and creating a four-leg roundabout intersection.

With this option, Alberni Street and Creston Avenue are modified to accommodate one-way traffic only (one-way in from Highway 97 onto Alberni Street, and one-way westbound on Creston Avenue). With this configuration, drivers would be able to access the SOEC from Highway 97 via Alberni Street or the Power Street / Vees Drive / Wade Street W roundabout intersection.

Figure 4.4: North Gateway Concept – Option 4

Compatible South District Connection Options

This option is compatible with two of the three south district connection options:

A. Westminster Avenue / Highway 97 – Add fourth (south) leg

B. Comox Street / Highway 97 – Signalize

Option C is not recommended in conjunction with this layout concept since a traffic signal (full-movement intersection) at Highway 97 / Alberni Street won't add any value to the network given the north leg at the intersection would be one-way northbound only. Option B does not significantly add value to the overall network since it doesn't provide direct access to the SOEC.

Design Considerations

Compared to other options, the network layout for Option 4 is expected to have minimal property and utility impacts. This option also consists of fewer full-movement intersections which provides safety benefits for all road users. However, this network layout provides limited connectivity through the North Gateway area and may result in longer routing for vehicles due to the one-way corridors on Alberni Street and Creston Avenue and the cul-de-sac on Vernon Avenue. This network layout also does not provide a smooth, direct route for Festival Boulevard, as envisioned in the Design Charrette concept.

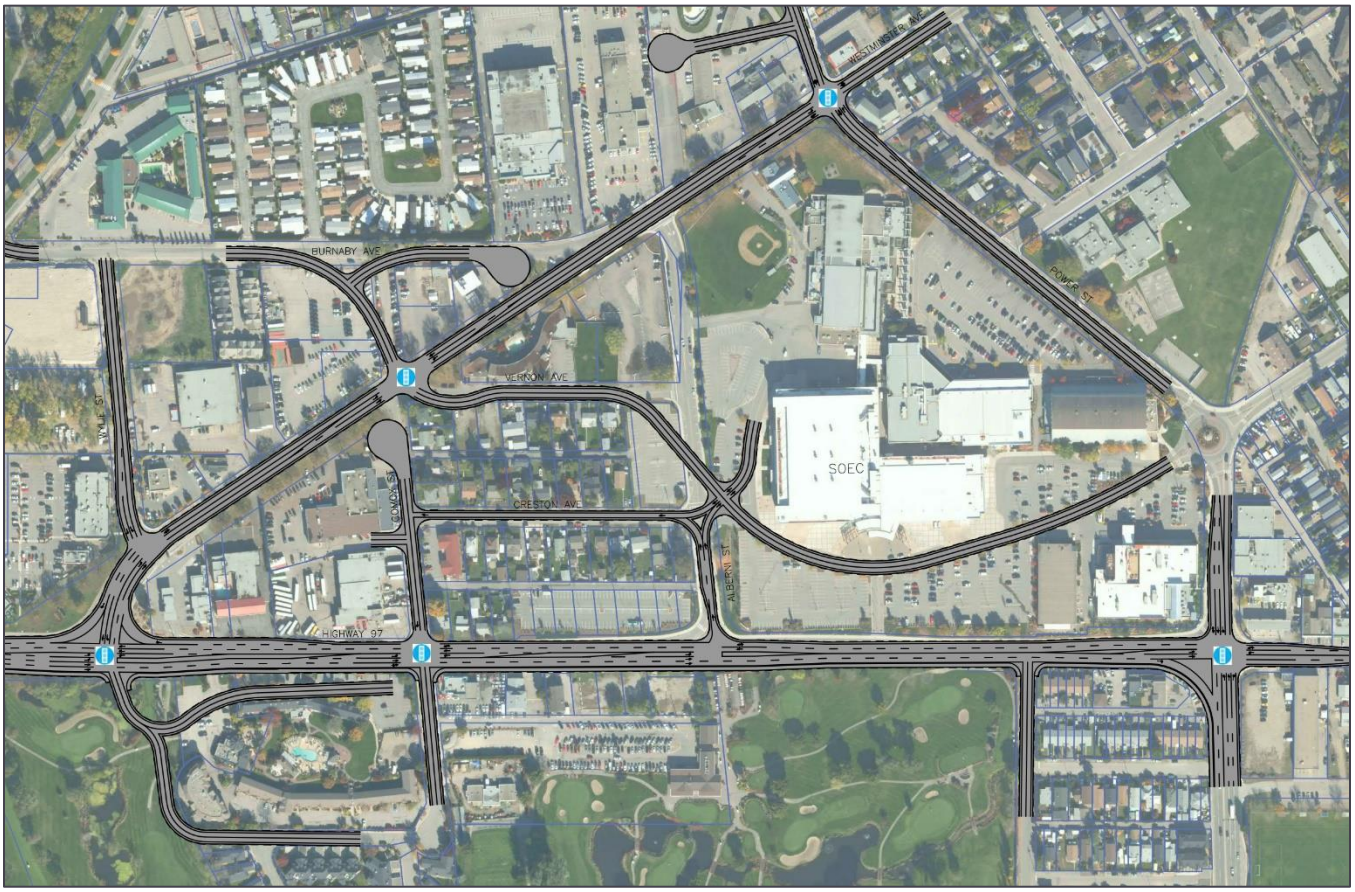
4.5 OPTION 5

Option 5 is similar to Option 4, since it utilizes much of the existing road network and also consists of modifying Alberni Street and Creston Avenue to accommodate one-way traffic (one-way in from Highway 97 onto Alberni Street, and one-way westbound on Creston Avenue). The concept layout for Option 5 is shown below in **Figure 4.5**.

This concept also shows the Westminster Avenue at Burnaby Road and Comox Street intersection as a four-leg intersection (compared to the current configuration with five legs), but instead of a roundabout as shown in Option 4, it is proposed as a traffic signal in Option 5. A roundabout design is likely also feasible with this network layout option.

The other key difference between Options 4 and 5 is that Option 5 includes removing the intersection of Comox Street / Westminster Avenue by creating a cul-de-sac on Comox Street., rather than closing Vernon Street as shown in Option 4.

Figure 4.5: North Gateway Concept – Option 5



Compatible South District Connection Options

Two south district connection options are compatible with Option 5:

A. Westminster Avenue / Highway 97 – Add a fourth (south) leg

B. Comox Street / Highway 97 – Signalize

However, Option B (signalizing Comox Street) does not provide as much value to the overall road network so may not be the preferred option.

Option C is not recommended to be implemented in conjunction with Option 5 since it does not add value to the overall road network with the north leg being one-way northbound.

Design Considerations

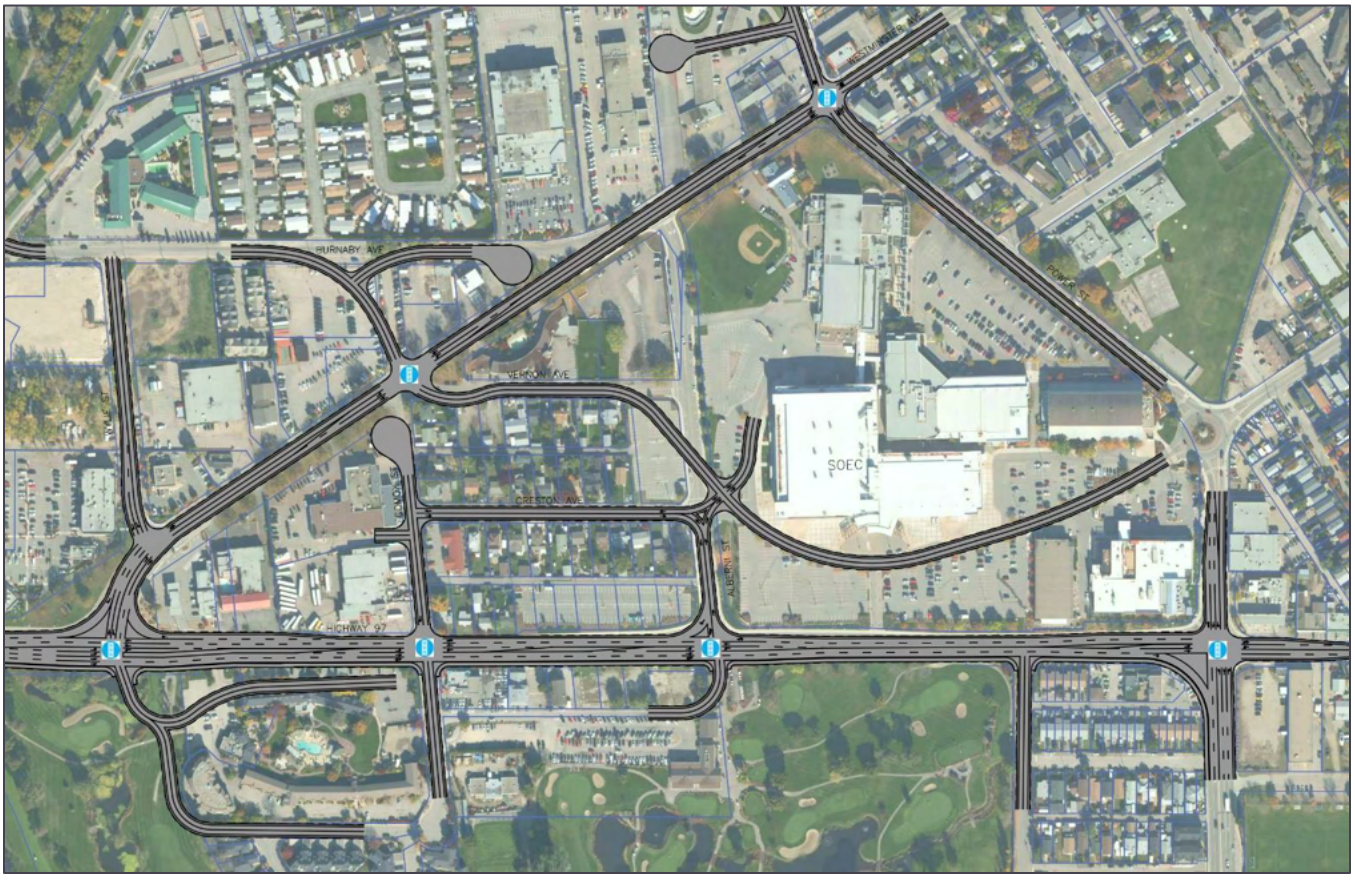
Minimal property and utility impacts are expected with Option 5 since this layout utilizes most of the existing roadway corridors. This option also has fewer full movement intersections, which improves safety for all road users. Compared to Option 4, this option provides more of a smooth, direct route for Festival Boulevard, as envisioned in the Design Charrette concept.

However, this layout provides limited network connectivity between Festival Boulevard and Comox Street and Creston Avenue, due to the one-way configuration. The proposed road network layout may also pose design challenges at the intersection of Westminster Avenue / Festival Boulevard due to the skewed intersection approaches and may require additional property acquisition.

4.6 OPTION 6

Option is similar to Options 4 and 5 but maintains two-way traffic on Alberni Street and Creston Avenue, as shown below in **Figure 4.6**. This option also utilizes much of the existing road network. While a four-leg traffic signal at the Westminster Avenue / Festival Boulevard intersection is shown with this concept, a roundabout intersection is also likely feasible to improve mobility and safety. To ensure a four-leg intersection at Westminster Avenue / Festival Boulevard and provide a smooth, direct route for Festival Boulevard, Comox Street would be closed south of Westminster Avenue with a cul-de-sac.

Figure 4.6: North Gateway Concept – Option 6



Compatible South District Connection Options

All three south district connection options are feasible with this layout concept:

A. Westminster Avenue / Highway 97 – Add a fourth (south) leg

B. Comox Street / Highway 97 – Signalize

C. Alberni Street / Highway 97 – Signalize and add a fourth (south) leg

However, Option B (signalizing Comox Street) does not provide as much value to the overall road network compared to the other two options so may not be the preferred option.

Design Considerations

Minimal property and utility impacts are expected with this option since this layout utilizes most of the existing roadway corridors. Additionally, this option maintains connectivity through the network with fewer full movement intersections, which improves safety for all road users.

This option as shown has many of the same design considerations as Option 5, including potential challenges at the intersection of Westminster Avenue / Festival Boulevard due to the skewed intersection approaches and may require additional property acquisition. This layout reduces overall connectivity between Festival Boulevard and Comox Street and Creston Avenue relative to the existing road network but has improved connectivity compared to Options 4 and 5.

5.0 OPTION SCREENING

In combination with the feasible south district access options, a total of 13 different options are included in the long-list of concepts and are considered viable network options, as illustrated on the following page.

Upon discussions with the project team, it was determined that the south district connection Option A is infeasible given the anticipated property impacts. Option B was also screened-out given that a signal at Comox Street would not provide adequate separation between adjacent signalized intersections on Highway 97. Therefore, the overall network concept Options 4 and 5 are likely impractical. Further, it was noted that a smooth, direct route for Festival Boulevard is a priority, as envisioned in the Design Charrette concept. Therefore, Option 3 as presented above is not preferred but still considered feasible.

The components of the initial concepts that are considered feasible were used in the development of the refined concepts in the next phase of this study.

Sincerely,

URBAN SYSTEMS LTD.

Jasmine Smith, P.Eng.
Transportation Engineer

/js
Enclosure

U:\Projects_KEL\1017\0096\01\R-Reports-Studies-Documents\2 - Option Generation Memo\2022-11-22_MEMO_PentictonNorthGateway_Option-Generation.docx

		North Gateway Options					
		1 Design Charrette Concept	**2** Cul-de-sac Vernon	**3** Existing Network	**4** One-way Alberni, Cul-de-sac Comox (Roundabout)	**5** One-way Alberni, Cul-de-sac Comox (Signal)	**6** Two-way Alberni, Cul-de-sac Vernon OR Comox
South District Connection Options	**A** Westminster						
	B Comox St		Signal does not add value to the network		Signal does not add value to the network	Signal does not add value to the network, with the lack of through connection to the north	Signal does not add value to the network
	C Alberni St				Signal is impractical due to limited movements at the intersection	Signal is impractical due to limited movements at the intersection	

APPENDIX E:

MODEL OUTPUTS – 2047 PM PEAK (HWY 97 / WESTMINSTER AVE IMPROVEMENTS)

MOVEMENT SUMMARY

Site: 101 [97/Westminster - 2047H dual EBL (Site Folder: Improvements)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Signals - Actuated Isolated Cycle Time = 114 seconds (Site Practical Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Highway 97															
5	T1	All MCs	1769	3.0	1769	3.0	*1.012	76.9	LOS F	70.9	509.4	1.00	1.26	1.35	28.0
6	R2	All MCs	180	1.0	180	1.0	0.144	37.8	LOS D	1.8	12.7	0.23	0.61	0.23	51.7
Approach			1949	2.8	1949	2.8	1.012	73.3	LOS E	70.9	509.4	0.93	1.20	1.24	29.3
North: Westminster															
7	L2	All MCs	268	1.0	268	1.0	*0.754	55.2	LOS E	14.4	101.6	0.98	0.83	0.98	31.0
9	R2	All MCs	487	1.0	487	1.0	0.264	9.7	LOS A	0.0	0.0	0.00	0.53	0.00	53.3
Approach			756	1.0	756	1.0	0.754	25.9	LOS C	14.4	101.6	0.35	0.64	0.35	42.5
West: Highway 97															
10	L2	All MCs	391	1.0	391	1.0	*0.635	56.3	LOS E	10.4	73.2	0.96	0.81	0.96	30.6
11	T1	All MCs	1567	3.0	1567	3.0	0.584	9.4	LOS A	21.6	155.2	0.54	0.49	0.54	52.0
Approach			1958	2.6	1958	2.6	0.635	18.8	LOS B	21.6	155.2	0.62	0.56	0.62	45.6
All Vehicles			4663	2.4	4663	2.4	1.012	42.7	LOS D	70.9	509.4	0.71	0.84	0.84	36.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Highway 97												
P2	Full	20	21	51.2	LOS E	0.1	0.1	0.95	0.95	205.0	200.0	0.98
North: Westminster												
P3	Full	20	21	51.2	LOS E	0.1	0.1	0.95	0.95	205.0	200.0	0.98
West: Highway 97												
P4	Full	20	21	51.2	LOS E	0.1	0.1	0.95	0.95	205.0	200.0	0.98
All Pedestrians		60	63	51.2	LOS E	0.1	0.1	0.95	0.95	205.0	200.0	0.98

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: 101 [97/Westminster - 2047H dual SBL (Site Folder: Improvements)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Signals - Actuated Isolated Cycle Time = 112 seconds (Site Practical Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Highway 97															
5	T1	All MCs	1769	3.0	1769	3.0	* 0.996	66.3	LOS E	67.0	481.2	1.00	1.20	1.28	30.4
6	R2	All MCs	180	1.0	180	1.0	0.098	5.8	LOS A	0.0	0.0	0.00	0.53	0.00	53.4
Approach			1949	2.8	1949	2.8	0.996	62.0	LOS E	67.0	481.2	0.91	1.14	1.16	31.6
North: Westminster															
7	L2	All MCs	268	1.0	268	1.0	* 0.493	60.8	LOS E	6.7	47.5	0.92	0.79	0.92	31.6
9	R2	All MCs	487	1.0	487	1.0	0.264	9.8	LOS A	0.0	0.0	0.00	0.53	0.00	53.3
Approach			756	1.0	756	1.0	0.493	27.9	LOS C	6.7	47.5	0.33	0.62	0.33	42.9
West: Highway 97															
10	L2	All MCs	391	1.0	391	1.0	* 1.248	285.3	LOS F	49.9	352.5	1.00	1.62	2.65	10.5
11	T1	All MCs	1567	3.0	1567	3.0	0.574	8.5	LOS A	20.3	146.0	0.52	0.47	0.52	52.7
Approach			1958	2.6	1958	2.6	1.248	63.7	LOS E	49.9	352.5	0.61	0.70	0.94	29.3
All Vehicles			4663	2.4	4663	2.4	1.248	56.7	LOS E	67.0	481.2	0.69	0.87	0.93	31.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Highway 97												
P2	Full	20	21	50.2	LOS E	0.1	0.1	0.95	0.95	204.1	200.0	0.98
North: Westminster												
P3	Full	20	21	50.2	LOS E	0.1	0.1	0.95	0.95	204.1	200.0	0.98
West: Highway 97												
P4	Full	20	21	50.2	LOS E	0.1	0.1	0.95	0.95	204.1	200.0	0.98
All Pedestrians		60	63	50.2	LOS E	0.1	0.1	0.95	0.95	204.1	200.0	0.98

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: 101 [97/Westminster - 2047H Existing Layout (Site Folder: Existing Network Layout)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Signals - Actuated Isolated Cycle Time = 112 seconds (Site Practical Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Highway 97															
5	T1	All MCs	1769	3.0	1769	3.0	* 0.996	66.3	LOS E	67.0	481.2	1.00	1.20	1.28	30.4
6	R2	All MCs	180	1.0	180	1.0	0.098	5.8	LOS A	0.0	0.0	0.00	0.53	0.00	53.4
Approach			1949	2.8	1949	2.8	0.996	62.0	LOS E	67.0	481.2	0.91	1.14	1.16	31.6
North: Westminster															
7	L2	All MCs	268	1.0	268	1.0	* 0.815	56.3	LOS E	14.5	102.0	0.99	0.84	0.99	30.7
9	R2	All MCs	487	1.0	487	1.0	0.264	9.8	LOS A	0.0	0.0	0.00	0.53	0.00	53.3
Approach			756	1.0	756	1.0	0.815	26.3	LOS C	14.5	102.0	0.35	0.64	0.35	42.3
West: Highway 97															
10	L2	All MCs	391	1.0	391	1.0	* 1.248	285.3	LOS F	49.9	352.5	1.00	1.62	2.65	10.5
11	T1	All MCs	1567	3.0	1567	3.0	0.574	8.5	LOS A	20.3	146.0	0.52	0.47	0.52	52.7
Approach			1958	2.6	1958	2.6	1.248	63.7	LOS E	49.9	352.5	0.61	0.70	0.94	29.3
All Vehicles			4663	2.4	4663	2.4	1.248	56.4	LOS E	67.0	481.2	0.69	0.87	0.94	31.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Highway 97												
P2	Full	20	21	50.2	LOS E	0.1	0.1	0.95	0.95	204.1	200.0	0.98
North: Westminster												
P3	Full	20	21	50.2	LOS E	0.1	0.1	0.95	0.95	204.1	200.0	0.98
West: Highway 97												
P4	Full	20	21	50.2	LOS E	0.1	0.1	0.95	0.95	204.1	200.0	0.98
All Pedestrians		60	63	50.2	LOS E	0.1	0.1	0.95	0.95	204.1	200.0	0.98

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: 101 [97/Westminster - 2047M dual EBL (Site Folder: Improvements)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Signals - Actuated Isolated Cycle Time = 106 seconds (Site Practical Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Highway 97															
5	T1	All MCs	1499	3.0	1499	3.0	*0.917	40.7	LOS D	40.8	292.8	0.99	0.95	1.06	37.9
6	R2	All MCs	134	1.0	134	1.0	0.105	28.1	LOS C	1.1	7.4	0.21	0.60	0.21	52.0
Approach			1633	2.8	1633	2.8	0.917	39.6	LOS D	40.8	292.8	0.93	0.93	0.99	38.8
North: Westminster															
7	L2	All MCs	199	1.0	199	1.0	*0.520	48.0	LOS D	9.3	65.7	0.91	0.80	0.91	33.0
9	R2	All MCs	380	1.0	380	1.0	0.206	8.3	LOS A	0.0	0.0	0.00	0.53	0.00	53.4
Approach			579	1.0	579	1.0	0.520	22.0	LOS C	9.3	65.7	0.31	0.62	0.31	44.0
West: Highway 97															
10	L2	All MCs	316	1.0	316	1.0	*0.478	50.2	LOS D	7.5	52.9	0.92	0.79	0.92	32.3
11	T1	All MCs	1332	3.0	1332	3.0	0.512	9.2	LOS A	16.7	119.6	0.52	0.47	0.52	52.2
Approach			1647	2.6	1647	2.6	0.512	17.1	LOS B	16.7	119.6	0.60	0.53	0.60	46.6
All Vehicles			3859	2.5	3859	2.5	0.917	27.3	LOS C	40.8	292.8	0.70	0.71	0.72	42.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Highway 97												
P2	Full	20	21	47.2	LOS E	0.1	0.1	0.94	0.94	201.1	200.0	0.99
North: Westminster												
P3	Full	20	21	47.2	LOS E	0.1	0.1	0.94	0.94	201.1	200.0	0.99
West: Highway 97												
P4	Full	20	21	47.2	LOS E	0.1	0.1	0.94	0.94	201.1	200.0	0.99
All Pedestrians		60	63	47.2	LOS E	0.1	0.1	0.94	0.94	201.1	200.0	0.99

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: 101 [97/Westminster - 2047M dual SBL (Site Folder: Improvements)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Signals - Actuated Isolated Cycle Time = 91 seconds (Site Practical Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Highway 97															
5	T1	All MCs	1499	3.0	1499	3.0	* 0.877	28.7	LOS C	31.9	229.0	0.96	0.88	0.98	42.1
6	R2	All MCs	134	1.0	134	1.0	0.072	5.7	LOS A	0.0	0.0	0.00	0.53	0.00	53.4
Approach			1633	2.8	1633	2.8	0.877	27.3	LOS C	31.9	229.0	0.88	0.85	0.90	42.9
North: Westminster															
7	L2	All MCs	199	1.0	199	1.0	* 0.409	47.6	LOS D	4.2	29.8	0.94	0.77	0.94	33.0
9	R2	All MCs	380	1.0	380	1.0	0.206	8.3	LOS A	0.0	0.0	0.00	0.53	0.00	53.4
Approach			579	1.0	579	1.0	0.409	21.8	LOS C	4.2	29.8	0.32	0.61	0.32	44.1
West: Highway 97															
10	L2	All MCs	316	1.0	316	1.0	* 0.820	45.2	LOS D	13.8	97.2	0.99	0.84	0.99	33.8
11	T1	All MCs	1332	3.0	1332	3.0	0.473	5.4	LOS A	11.8	84.6	0.43	0.39	0.43	55.2
Approach			1647	2.6	1647	2.6	0.820	13.0	LOS B	13.8	97.2	0.54	0.48	0.54	49.2
All Vehicles			3859	2.5	3859	2.5	0.877	20.2	LOS C	31.9	229.0	0.65	0.66	0.66	45.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Highway 97												
P2	Full	20	21	39.7	LOS D	0.1	0.1	0.93	0.93	193.6	200.0	1.03
North: Westminster												
P3	Full	20	21	39.7	LOS D	0.1	0.1	0.93	0.93	193.6	200.0	1.03
West: Highway 97												
P4	Full	20	21	39.7	LOS D	0.1	0.1	0.93	0.93	193.6	200.0	1.03
All Pedestrians		60	63	39.7	LOS D	0.1	0.1	0.93	0.93	193.6	200.0	1.03

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: 101 [97/Westminster - 2047M Existing Layout (Site Folder: Existing Network Layout)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Signals - Actuated Isolated Cycle Time = 104 seconds (Site Practical Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Highway 97															
5	T1	All MCs	1499	3.0	1499	3.0	*0.904	37.2	LOS D	39.0	279.7	0.98	0.93	1.03	39.1
6	R2	All MCs	134	1.0	134	1.0	0.072	5.8	LOS A	0.0	0.0	0.00	0.53	0.00	53.4
Approach			1633	2.8	1633	2.8	0.904	35.4	LOS D	39.0	279.7	0.90	0.90	0.95	40.0
North: Westminster															
7	L2	All MCs	199	1.0	199	1.0	*0.561	49.0	LOS D	9.3	65.9	0.93	0.81	0.93	32.7
9	R2	All MCs	380	1.0	380	1.0	0.206	8.3	LOS A	0.0	0.0	0.00	0.53	0.00	53.4
Approach			579	1.0	579	1.0	0.561	22.3	LOS C	9.3	65.9	0.32	0.62	0.32	43.9
West: Highway 97															
10	L2	All MCs	316	1.0	316	1.0	*0.937	57.8	LOS E	17.2	121.8	1.00	0.91	1.10	30.3
11	T1	All MCs	1332	3.0	1332	3.0	0.503	8.3	LOS A	15.7	112.6	0.50	0.45	0.50	52.8
Approach			1647	2.6	1647	2.6	0.937	17.8	LOS B	17.2	121.8	0.60	0.54	0.62	46.2
All Vehicles			3859	2.5	3859	2.5	0.937	25.6	LOS C	39.0	279.7	0.68	0.70	0.71	43.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Highway 97												
P2	Full	20	21	46.2	LOS E	0.1	0.1	0.94	0.94	200.1	200.0	1.00
North: Westminster												
P3	Full	20	21	46.2	LOS E	0.1	0.1	0.94	0.94	200.1	200.0	1.00
West: Highway 97												
P4	Full	20	21	46.2	LOS E	0.1	0.1	0.94	0.94	200.1	200.0	1.00
All Pedestrians		60	63	46.2	LOS E	0.1	0.1	0.94	0.94	200.1	200.0	1.00

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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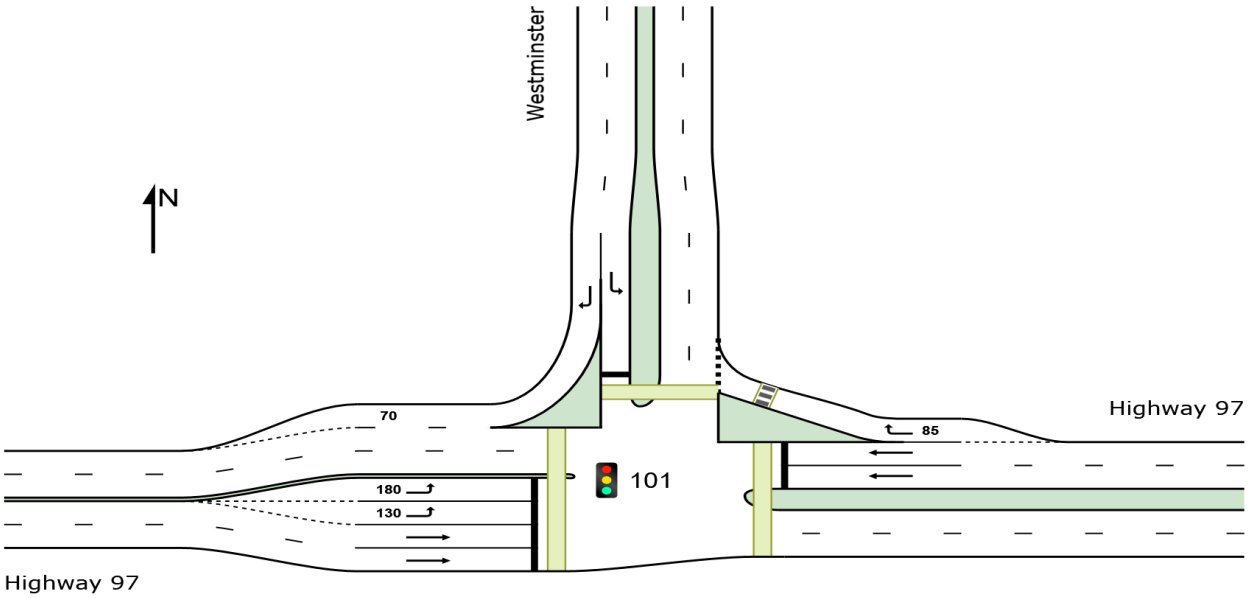
SITE LAYOUT

Site: 101 [97/Westminster - 2047H dual EBL (Site Folder: Improvements)]

New Site
Site Category: (None)
Signals - Actuated Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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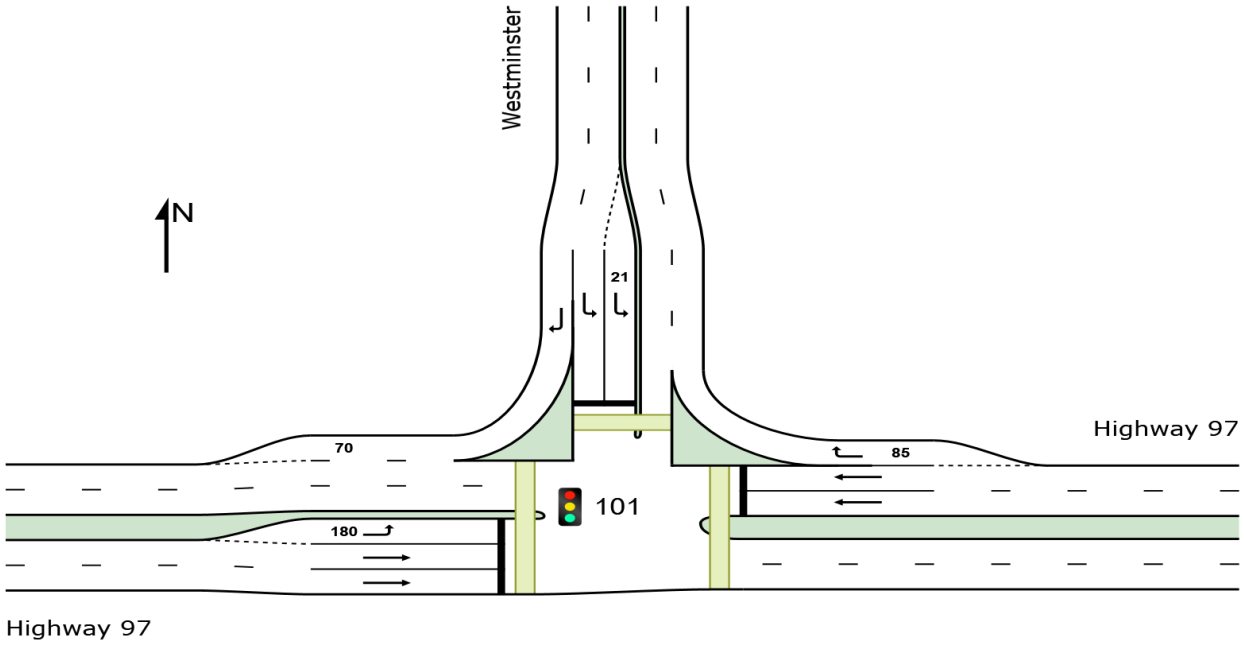
SITE LAYOUT

Site: 101 [97/Westminster - 2047H dual SBL (Site Folder: Improvements)]

New Site
Site Category: (None)
Signals - Actuated Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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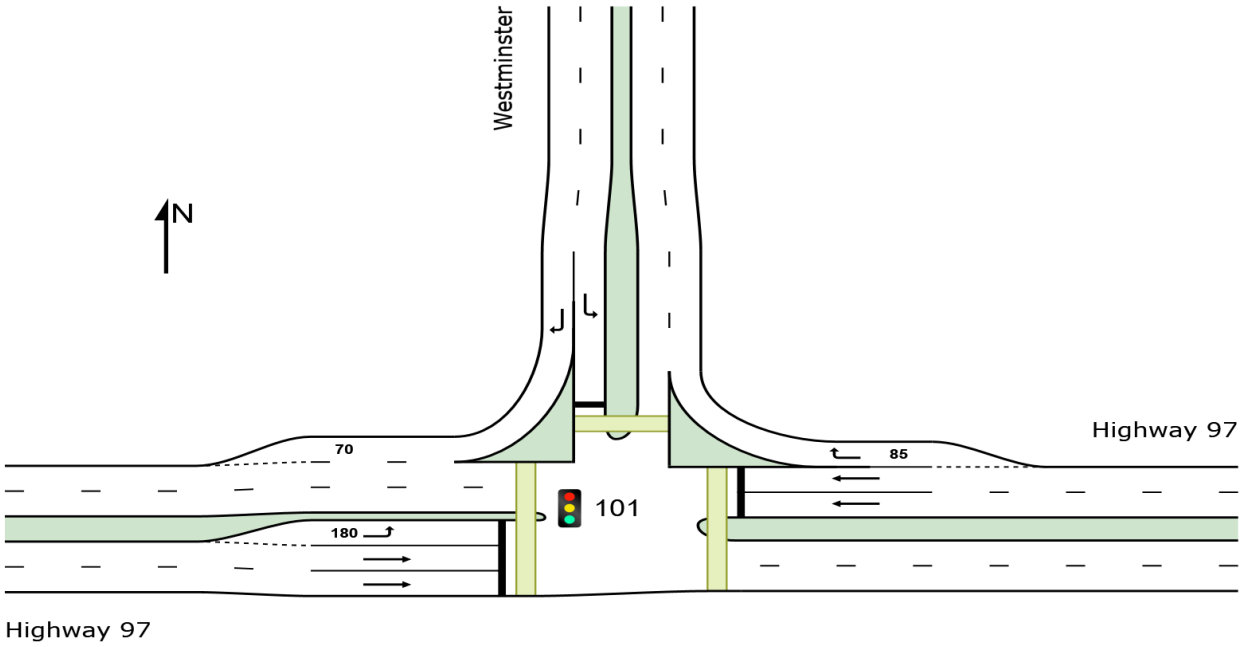
SITE LAYOUT

Site: 101 [97/Westminster - 2047M Existing Layout (Site Folder: Existing Network Layout)]

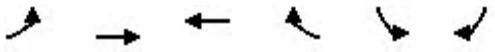
New Site
Site Category: (None)
Signals - Actuated Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



HCM 6th Signalized Intersection Summary
8: Hwy 97 & Westminster Ave W

2047 PM Peak EBDL High Growth
12/08/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	371	1489	1681	171	255	464
Future Volume (veh/h)	371	1489	1681	171	255	464
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1660	1647	1634	1687	1673	1660
Adj Flow Rate, veh/h	488	1567	1868	0	277	0
Peak Hour Factor	0.76	0.95	0.90	0.86	0.92	0.86
Percent Heavy Veh, %	3	4	5	1	2	3
Cap, veh/h	483	2387	1793		272	
Arrive On Green	0.16	0.76	0.58	0.00	0.17	0.00
Sat Flow, veh/h	3067	3212	3186	1429	1594	1407
Grp Volume(v), veh/h	488	1567	1868	0	277	0
Grp Sat Flow(s),veh/h/ln	1534	1565	1552	1429	1594	1407
Q Serve(g_s), s	22.1	33.4	81.1	0.0	24.0	0.0
Cycle Q Clear(g_c), s	22.1	33.4	81.1	0.0	24.0	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	483	2387	1793		272	
V/C Ratio(X)	1.01	0.66	1.04		1.02	
Avail Cap(c_a), veh/h	483	2387	1793		272	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	59.1	7.9	29.7	0.0	58.2	0.0
Incr Delay (d2), s/veh	43.7	0.7	33.1	0.0	58.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	17.8	18.8	53.1	0.0	21.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	102.8	8.6	62.7	0.0	117.1	0.0
LnGrp LOS	F	A	F		F	
Approach Vol, veh/h		2055	1868	A	277	A
Approach Delay, s/veh		30.9	62.7		117.1	
Approach LOS		C	E		F	

Timer - Assigned Phs		3	4		6	8
Phs Duration (G+Y+Rc), s		26.0	86.4		28.0	112.4
Change Period (Y+Rc), s		3.9	* 5.3		4.0	5.3
Max Green Setting (Gmax), s		22.1	* 81		24.0	106.7
Max Q Clear Time (g_c+I1), s		24.1	83.1		26.0	35.4
Green Ext Time (p_c), s		0.0	0.0		0.0	13.5

Intersection Summary	
HCM 6th Ctrl Delay	50.8
HCM 6th LOS	D

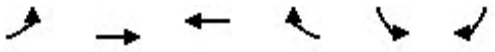
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
8: Hwy 97 & Westminster Ave W

2047 PM Peak EBDL Modest Growth
12/08/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	300	1265	1424	127	189	362
Future Volume (veh/h)	300	1265	1424	127	189	362
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1660	1647	1634	1687	1673	1660
Adj Flow Rate, veh/h	395	1332	1582	0	205	0
Peak Hour Factor	0.76	0.95	0.90	0.86	0.92	0.86
Percent Heavy Veh, %	3	4	5	1	2	3
Cap, veh/h	456	2319	1712		242	
Arrive On Green	0.15	0.74	0.55	0.00	0.15	0.00
Sat Flow, veh/h	3067	3212	3186	1429	1594	1407
Grp Volume(v), veh/h	395	1332	1582	0	205	0
Grp Sat Flow(s),veh/h/ln	1534	1565	1552	1429	1594	1407
Q Serve(g_s), s	12.0	18.3	44.3	0.0	11.9	0.0
Cycle Q Clear(g_c), s	12.0	18.3	44.3	0.0	11.9	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	456	2319	1712		242	
V/C Ratio(X)	0.87	0.57	0.92		0.85	
Avail Cap(c_a), veh/h	474	2460	1833		419	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	39.6	5.6	19.5	0.0	39.3	0.0
Incr Delay (d2), s/veh	15.2	0.3	8.1	0.0	8.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.7	10.9	26.4	0.0	9.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	54.8	5.8	27.6	0.0	47.3	0.0
LnGrp LOS	D	A	C		D	
Approach Vol, veh/h		1727	1582	A	205	A
Approach Delay, s/veh		17.0	27.6		47.3	
Approach LOS		B	C		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		75.8		19.3	18.0	57.8
Change Period (Y+Rc), s		5.3		* 4.9	3.9	5.3
Max Green Setting (Gmax), s		74.8		* 25	14.7	56.2
Max Q Clear Time (g_c+I1), s		20.3		13.9	14.0	46.3
Green Ext Time (p_c), s		9.8		0.6	0.2	6.1

Intersection Summary	
HCM 6th Ctrl Delay	23.6
HCM 6th LOS	C

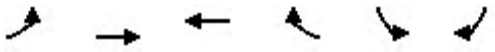
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
8: Hwy 97 & Westminster Ave W

2047 PM Peak Existing High Growth
12/08/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	371	1489	1681	171	255	464
Future Volume (veh/h)	371	1489	1681	171	255	464
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1660	1647	1634	1687	1673	1660
Adj Flow Rate, veh/h	488	1567	1868	0	277	0
Peak Hour Factor	0.76	0.95	0.90	0.86	0.92	0.86
Percent Heavy Veh, %	3	4	5	1	2	3
Cap, veh/h	389	2409	1638		261	
Arrive On Green	0.21	0.77	0.53	0.00	0.16	0.00
Sat Flow, veh/h	1581	3212	3186	1429	1594	1407
Grp Volume(v), veh/h	488	1567	1868	0	277	0
Grp Sat Flow(s),veh/h/ln	1581	1565	1552	1429	1594	1407
Q Serve(g_s), s	30.0	32.4	74.1	0.0	23.0	0.0
Cycle Q Clear(g_c), s	30.0	32.4	74.1	0.0	23.0	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	389	2409	1638		261	
V/C Ratio(X)	1.25	0.65	1.14		1.06	
Avail Cap(c_a), veh/h	389	2409	1638		261	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	48.7	7.4	33.2	0.0	58.7	0.0
Incr Delay (d2), s/veh	133.8	0.6	71.0	0.0	72.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	42.6	18.3	63.4	0.0	22.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	182.5	8.1	104.2	0.0	131.4	0.0
LnGrp LOS	F	A	F		F	
Approach Vol, veh/h		2055	1868	A	277	A
Approach Delay, s/veh		49.5	104.2		131.4	
Approach LOS		D	F		F	

Timer - Assigned Phs		3	4		6	8
Phs Duration (G+Y+Rc), s		34.0	79.4		27.0	113.4
Change Period (Y+Rc), s		4.0	* 5.3		4.0	5.3
Max Green Setting (Gmax), s		30.0	* 74		23.0	107.7
Max Q Clear Time (g_c+I1), s		32.0	76.1		25.0	34.4
Green Ext Time (p_c), s		0.0	0.0		0.0	13.5

Intersection Summary	
HCM 6th Ctrl Delay	79.2
HCM 6th LOS	E

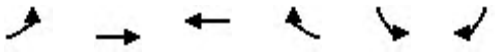
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
8: Hwy 97 & Westminster Ave W

2047 PM Peak Existing Modest Growth
12/08/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	300	1265	1424	127	189	362
Future Volume (veh/h)	300	1265	1424	127	189	362
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1660	1647	1634	1687	1673	1660
Adj Flow Rate, veh/h	395	1332	1582	0	205	0
Peak Hour Factor	0.76	0.95	0.90	0.86	0.92	0.86
Percent Heavy Veh, %	3	4	5	1	2	3
Cap, veh/h	400	2400	1635		223	
Arrive On Green	0.20	0.77	0.53	0.00	0.14	0.00
Sat Flow, veh/h	1581	3212	3186	1429	1594	1407
Grp Volume(v), veh/h	395	1332	1582	0	205	0
Grp Sat Flow(s),veh/h/ln	1581	1565	1552	1429	1594	1407
Q Serve(g_s), s	19.6	17.3	49.2	0.0	12.7	0.0
Cycle Q Clear(g_c), s	19.6	17.3	49.2	0.0	12.7	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	400	2400	1635		223	
V/C Ratio(X)	0.99	0.56	0.97		0.92	
Avail Cap(c_a), veh/h	400	2401	1649		223	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	32.4	4.7	22.8	0.0	42.4	0.0
Incr Delay (d2), s/veh	41.8	0.3	15.1	0.0	38.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	21.3	10.4	30.5	0.0	12.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	74.2	5.0	37.9	0.0	81.0	0.0
LnGrp LOS	E	A	D		F	
Approach Vol, veh/h		1727	1582	A	205	A
Approach Delay, s/veh		20.8	37.9		81.0	
Approach LOS		C	D		F	

Timer - Assigned Phs		3	4		6	8
Phs Duration (G+Y+Rc), s		24.0	58.0		18.0	82.0
Change Period (Y+Rc), s		4.0	* 5.3		4.0	5.3
Max Green Setting (Gmax), s		20.0	* 53		14.0	76.7
Max Q Clear Time (g_c+I1), s		21.6	51.2		14.7	19.3
Green Ext Time (p_c), s		0.0	1.5		0.0	9.9

Intersection Summary	
HCM 6th Ctrl Delay	32.0
HCM 6th LOS	C

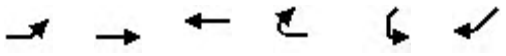
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
8: Hwy 97 & Westminster Ave W

2047 PM Peak SBDL High Growth
12/08/2022



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	371	1489	1681	171	255	464
Future Volume (veh/h)	371	1489	1681	171	255	464
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1660	1647	1634	1687	1673	1660
Adj Flow Rate, veh/h	488	1567	1868	0	277	0
Peak Hour Factor	0.76	0.95	0.90	0.86	0.92	0.86
Percent Heavy Veh, %	3	4	5	1	2	3
Cap, veh/h	429	2595	1746		289	
Arrive On Green	0.23	0.83	0.56	0.00	0.09	0.00
Sat Flow, veh/h	1581	3212	3186	1429	3092	1407
Grp Volume(v), veh/h	488	1567	1868	0	277	0
Grp Sat Flow(s),veh/h/ln	1581	1565	1552	1429	1546	1407
Q Serve(g_s), s	28.0	20.6	67.5	0.0	10.7	0.0
Cycle Q Clear(g_c), s	28.0	20.6	67.5	0.0	10.7	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	429	2595	1746		289	
V/C Ratio(X)	1.14	0.60	1.07		0.96	
Avail Cap(c_a), veh/h	429	2595	1746		289	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	40.9	3.5	26.2	0.0	54.2	0.0
Incr Delay (d2), s/veh	86.7	0.4	43.0	0.0	42.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	33.4	11.7	49.9	0.0	10.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	127.6	3.9	69.2	0.0	96.2	0.0
LnGrp LOS	F	A	F		F	
Approach Vol, veh/h		2055	1868	A	277	A
Approach Delay, s/veh		33.3	69.2		96.2	
Approach LOS		C	E		F	

Timer - Assigned Phs		3	4		6	8
Phs Duration (G+Y+Rc), s		32.0	72.8		15.2	104.8
Change Period (Y+Rc), s		4.0	5.3		4.0	5.3
Max Green Setting (Gmax), s		28.0	67.5		11.2	99.5
Max Q Clear Time (g_c+I1), s		30.0	69.5		12.7	22.6
Green Ext Time (p_c), s		0.0	0.0		0.0	13.5

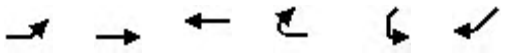
Intersection Summary	
HCM 6th Ctrl Delay	53.4
HCM 6th LOS	D

Notes

Unsignalized Delay for [WBR, SWR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
8: Hwy 97 & Westminster Ave W

2047 PM Peak SBDL Modest Growth
12/08/2022



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	300	1265	1424	127	189	362
Future Volume (veh/h)	300	1265	1424	127	189	362
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1660	1647	1634	1687	1673	1660
Adj Flow Rate, veh/h	395	1332	1582	0	205	0
Peak Hour Factor	0.76	0.95	0.90	0.86	0.92	0.86
Percent Heavy Veh, %	3	4	5	1	2	3
Cap, veh/h	432	2466	1659		241	
Arrive On Green	0.20	0.79	0.53	0.00	0.08	0.00
Sat Flow, veh/h	1581	3212	3186	1429	3092	1407
Grp Volume(v), veh/h	395	1332	1582	0	205	0
Grp Sat Flow(s),veh/h/ln	1581	1565	1552	1429	1546	1407
Q Serve(g_s), s	11.5	10.9	33.5	0.0	4.5	0.0
Cycle Q Clear(g_c), s	11.5	10.9	33.5	0.0	4.5	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	432	2466	1659		241	
V/C Ratio(X)	0.91	0.54	0.95		0.85	
Avail Cap(c_a), veh/h	446	2496	1679		241	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	20.1	2.7	15.3	0.0	31.6	0.0
Incr Delay (d2), s/veh	22.9	0.2	12.6	0.0	24.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	14.6	6.3	22.0	0.0	4.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.0	2.9	27.9	0.0	55.7	0.0
LnGrp LOS	D	A	C		E	
Approach Vol, veh/h		1727	1582	A	205	A
Approach Delay, s/veh		12.1	27.9		55.7	
Approach LOS		B	C		E	

Timer - Assigned Phs		3	4		6	8
Phs Duration (G+Y+Rc), s		17.6	42.4		9.4	59.9
Change Period (Y+Rc), s		3.9	* 5.3		4.0	5.3
Max Green Setting (Gmax), s		14.3	* 38		5.4	55.3
Max Q Clear Time (g_c+I1), s		13.5	35.5		6.5	12.9
Green Ext Time (p_c), s		0.2	1.5		0.0	9.6

Intersection Summary	
HCM 6th Ctrl Delay	21.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR, SWR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX F:

CONCEPTUAL DRAWINGS, CROSS-SECTIONS, DESIGN CRITERIA, AND COST ESTIMATES

Planning-Level Design Criteria – Highway 97

Design Element	Highway 97 Existing Conditions	MoTI/TAC Guidelines	TAC Reference
Design Classification	UAD	UAD	Table 2.6.2 (TAC)
Posted Speed (km/h)	50	50	
Design Speed[1] (km/h)	50	50	
Basic # of Lanes	4	4	
Minimum Horizontal Radius (m)	130	90	Table 330.A & D (Supplement to TAC) See note (1)
Minimum "K" Factor[2] (Sag Vertical Curve)[3]	41	13	Table 3.3.4 (TAC)
Minimum "K" Factor (Crest Vertical Curve)[4]	50	7	Table 330.F (Supplement to TAC)
Max Grade	1.8%	3%	Table 3.3.1 (TAC)
Minimum Stopping Sight Distance (m)	>65	65	Table 2.5.2 (TAC)
Minimum Decision Sight Distance (m)	>200	200	Table 2.5.6 (TAC) See note (2)
Lane Width (m)	~3.5-4.0	3.6	Table 430.A (Supplement to TAC)
Shoulder Width (m)	~0-1.5	2.0	Table 430.A (Supplement to TAC) See note (3)
Left Turn Lane Length (m)	75-90	30 + 35 taper	Figure 710.C (Supplement to TAC)
Right Turn Lane Length (m)	100	40+50 taper	Figure 710.H (Supplement to TAC)
Weave Length (m)	80m	180m	Table 3.7.1 See note (4)
Design Vehicle	WB-20	WB-20	

1. The 130m radius horizontal curve is to the west of the Eckhardt Bridge, just as vehicles are entering the study area.
2. Decision Sight Distance avoidance maneuvers are referenced from AASHTO. Avoidance Maneuver E is considered for Highway 97 as a speed/path/direction change on an urban road. Design Sight Distance is achieved along the tangent section of Highway 97 but may be impeded by billboards/vegetation along the 130m horizontal curve west of Eckhardt Bridge.
3. Where curb and gutter are present, there is not an existing shoulder. Instead, there is a raised boulevard/sidewalk area for active transportation users, which removes the need for a shoulder.
4. Weave length is deficient but is the ambient condition between Riverside Dr and Westminster Ave.

Planning-Level Design Criteria –Westminster Avenue

Design Element	Westminster Ave Existing Conditions	MoTI/TAC Guidelines	TAC Reference
Design Classification	UCU	UCU	Table 2.6.2 (TAC)
Posted Speed (km/h)	50	50	
Design Speed[5] (km/h)	50	50	
Basic # of Lanes	4	4	See note (4)
Minimum Horizontal Radius (m)	90	90	Table 330.A & D (Supplement to TAC)
Minimum "K" Factor[6] (Sag Vertical Curve)[7]	N/A	13	Table 3.3.4 (TAC)
Minimum "K" Factor (Crest Vertical Curve)[8]	815	7	Table 330.F (Supplement to TAC)
Max Grade	0.3%	3%	Table 3.3.1 (TAC)
Minimum Stopping Sight Distance (m)	>65	65	Table 2.5.2 (TAC)
Minimum Decision Sight Distance (m)	>160	160	Table 2.5.6 (TAC) See note (1)
Lane Width (m)	~3.4-3.6	3.3	Table 430.A (Supplement to TAC)
Shoulder Width (m)	0	1.5	Table 430.A (Supplement to TAC) See note (2)
Left Turn Lane Length (m)	45	30 + 35 taper	Figure 710.C (Supplement to TAC) See note (3)
Design Vehicle	WB-20	WB-20	

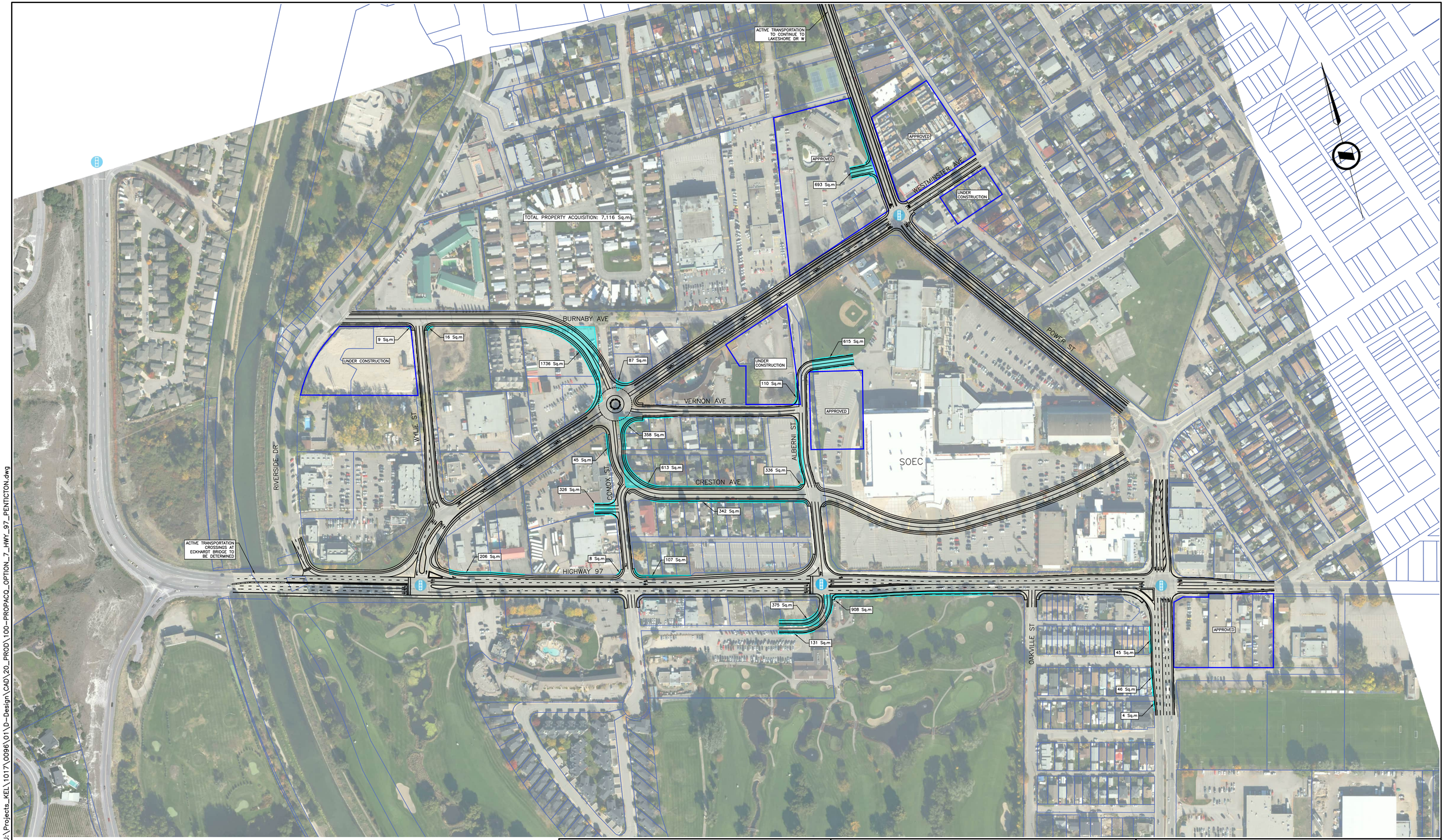
1. Decision Sight Distance avoidance maneuvers are referenced from AASHTO. Avoidance Maneuver B is considered for Westminster Ave as a stop on an urban road. Design Sight Distance is achieved along the tangent section of Westminster Ave but may be impeded by vegetation/signage along the 90m curve in front of the Petro Canada.
2. Where curb and gutter are present, there is not an existing shoulder. Instead, there is a raised boulevard/sidewalk area for active transportation users, which removes the need for a shoulder.
3. The existing left turn from Westminster Ave onto Wylie St is deficient, but limited by the space between Highway 97 and Wylie St.
4. The number of lanes on Westminster Avenue is not required to be maintained at 4 for this type of design classification.

Planning-Level Design Criteria – Other Local Roads

Design Element	Other Local Roads Existing Conditions	MoTI/TAC Guidelines	TAC Reference
Design Classification	ULU	ULU	Table 2.6.2 (TAC)
Posted Speed (km/h)	50	50	
Design Speed[9] (km/h)	50	50	See note (1)
Basic # of Lanes	2	2	
Minimum Horizontal Radius (m)	20	90	Table 330.A & D (Supplement to TAC) See note (2)
Minimum "K" Factor[10] (Sag Vertical Curve)[11]	2	13	Table 3.3.4 (TAC) See note (3)
Minimum "K" Factor (Crest Vertical Curve)[12]	3	7	Table 330.F (Supplement to TAC) See note (4)
Max Grade	5.4%	3%	Table 3.3.1 (TAC) See note (5)
Minimum Stopping Sight Distance (m)	>65	65	Table 2.5.2 (TAC)
Minimum Decision Sight Distance (m)	>160	160	Table 2.5.6 (TAC) See note (6)
Lane Width (m)	~3.5-9.0	3.3-4.3	Table 430.A (Supplement to TAC) See note (7)
Shoulder Width (m)	~0-2.0	1.5	Table 430.A (Supplement to TAC) See note (8)
Left Turn Lane Length (m)	30-115	30 + 35 taper	Figure 710.C (Supplement to TAC) See note (9)
Design Vehicle	WB-20	WB-20	

1. The existing Festival Blvd in front of the South Okanagan Events Centre is speed controlled by speed bumps, is in a area with heavy pedestrian traffic, and has a posted recommended speed of 30km/h.
2. The existing Burnaby Ave (30m) and Festival Blvd (20m) alignments have deficient horizontal radius curves.

3. The existing Alberni St (K=2) Comox St (K=3), Vernon St (K=3), and Festival Blvd (K=2) vertical profiles have deficient sag curve K values.
4. The existing Comox St (K=3) and Festival Blvd (K=3) vertical profiles have deficient crest curve K values.
5. The existing Alberni St (5.4%), Comox St (3.5%), Vernon Ave (3.6%), and Festival Blvd (5.3%) max vertical grades are deficient.
6. Decision Sight Distance avoidance maneuvers are referenced from AASHTO. Avoidance Maneuver B is considered for all local roads as a stop on an urban road. Design Sight Distance is achieved along the tangent sections of all local roads in the study area.
7. 3.3m lane widths are proposed where a buffer and cycle track are proposed. 4.3m lane widths are proposed where cyclists can be next to vehicles as a 'complete street'. 3.6m lane widths are proposed where a defined painted shoulder is proposed. Existing lane widths approach 9.0m for vehicle tracking at the Festival Blvd / Alberni St intersection.
8. Where curb and gutter are present, there is not an existing shoulder. Instead, there is a raised boulevard/sidewalk area for active transportation users, which removes the need for a shoulder. This is evident on Vees Dr and Alberni St. The existing gravel shoulders on Burnaby Ave, Wylie St, Comox St, Vernon Ave, and Creston Ave are poorly defined. There is a defined cycle track/shoulder on Power St. Parallel parking along Alberni St is in place of a shoulder.
9. The existing left turn for southbound vehicles on Wylie St does not have a defined taper. The bay length is roughly 30m.



PLOT DATE: 2023/04/10 U:\Projects_KEL\1017\0096\01\D-Design\CAD\20_PROD\100-PROPACQ_OPTION_7_HWY_97_PENTICTON.dwg

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SCALE 0 20 1:2000 100m

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PLOT DATE 2023-04-10

REV	DATE	REVISIONS	NAME

BRITISH COLUMBIA

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
SOUTHERN INTERIOR REGION
HIGHWAY ENGINEERING AND GEOMATICS

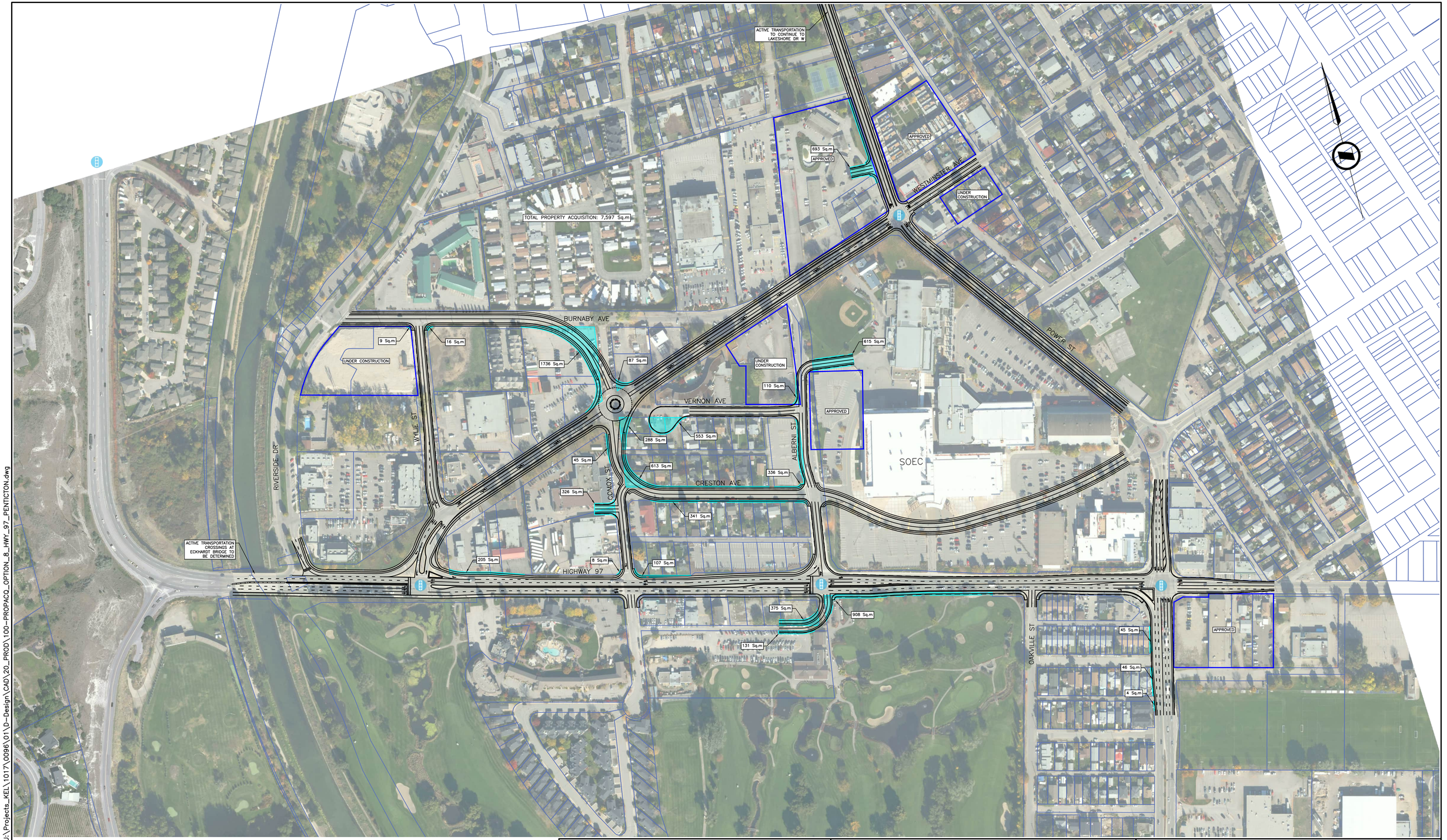
SENIOR DESIGNER
DATE YYYY-MM-DD

DESIGNED A. HARRIS DATE YYYY-MM-DD
QUALITY CONTROL I. MACMILLAN DATE YYYY-MM-DD
QUALITY ASSURANCE I. ROTH DATE YYYY-MM-DD
DRAWN J. BRUINEMAN DATE YYYY-MM-DD

PROPERTY ACQUISITION - OPTION 7

HIGHWAY 97 PENTICTON
REIMAGINE THE NORTHERN GATEWAY

FILE NUMBER	PROJECT NUMBER	REG	DRAWING NUMBER	REV
1017.0096.01		2	101 - OPT-7	A



PLOT DATE: 2023/04/10 U:\Projects_KEL\1017\0096\01\D-Design\CAD\20_PROD\100-PROPACQ_OPTION_8_HWY_97_PENTICTON.dwg

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2023-04-10
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URBAN systems

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100-PROPACQ_OPTION_8_HWY_97_PENTICTON.dwg
PLOT DATE 2023-04-10

REV	DATE	REVISIONS	NAME

BRITISH COLUMBIA

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
SOUTHERN INTERIOR REGION
HIGHWAY ENGINEERING AND GEOMATICS

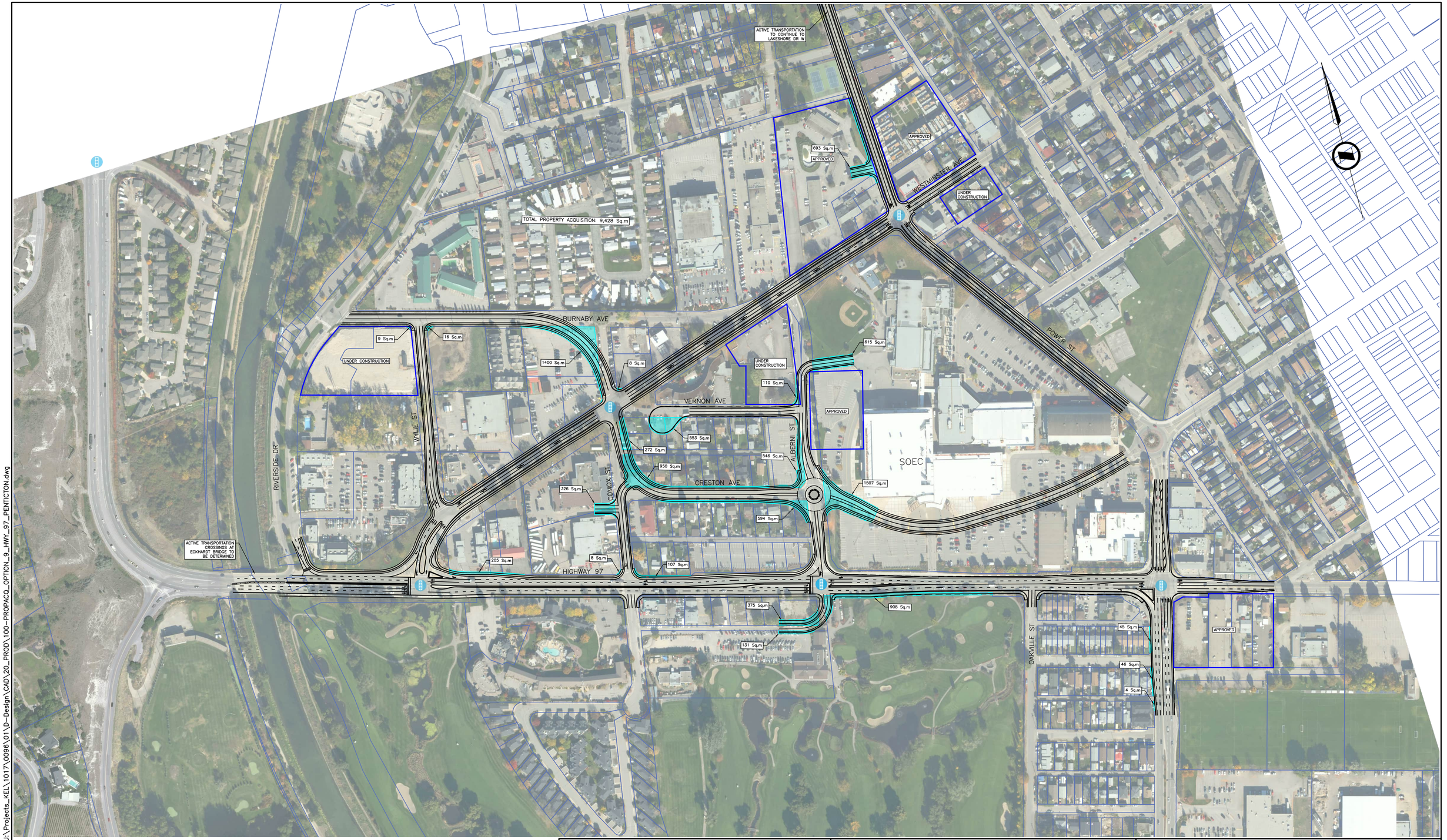
SENIOR DESIGNER
DATE YYYY-MM-DD

DESIGNED A. HARRIS DATE YYYY-MM-DD
QUALITY CONTROL I. MACMILLAN DATE YYYY-MM-DD
QUALITY ASSURANCE I. ROTH DATE YYYY-MM-DD
DRAWN J. BRUINEMAN DATE YYYY-MM-DD

PROPERTY ACQUISITION - OPTION 8

HIGHWAY 97 PENTICTON
REIMAGINE THE NORTHERN GATEWAY

FILE NUMBER	PROJECT NUMBER	REG	DRAWING NUMBER	REV
1017.0096.01		2	101 - OPT-8	A



PLOT DATE: 2023/04/10 U:\Projects_KEL\1017\0096\01\D-Design\CAD\20_PROD\100-PROPACQ_OPTION_9_HWY_97_PENTICTON.dwg

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SCALE 0 20 1:2000 100m

100-PROPACQ_OPTION_9_HWY_97_PENTICTON.dwg
PLOT DATE 2023-04-10

REV	DATE	REVISIONS	NAME

BRITISH COLUMBIA

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
SOUTHERN INTERIOR REGION
HIGHWAY ENGINEERING AND GEOMATICS

SENIOR DESIGNER
DATE YYYY-MM-DD

DESIGNED A. HARRIS DATE YYYY-MM-DD
QUALITY CONTROL I. MACMILLAN DATE YYYY-MM-DD
QUALITY ASSURANCE I. ROTH DATE YYYY-MM-DD
DRAWN J. BRUINEMAN DATE YYYY-MM-DD

PROPERTY ACQUISITION - OPTION 9

HIGHWAY 97 PENTICTON
REIMAGINE THE NORTHERN GATEWAY

FILE NUMBER	PROJECT NUMBER	REG	DRAWING NUMBER	REV
1017.0096.01		2	101 - OPT-9	A

SCHEDULE 7 COST ESTIMATE

09-Dec-22

Schedule of Approximate Quantities and Unit Prices

PROJECT NUMBER: 1017.0096.01

PROJECT NAME: Reimagine the Northern Gateway - Options 7/8/9 - Hwy 97 and Westminster Ave Intersection Improvements (Planning Level Class D Cost Estimates)

Order	Item #	Parent Item	Field type	RevDate	Description	UNIT	QTY	minunitprice	Ministry Extended Amount
10	001		Required Item		SCHEDULE 7 - HWY 97 & WESTMINSTER AVE INTERSECTION IMPROVEMENTS	Heading			$ -
20	01		Required Item		SECTION 1 - GENERAL	Heading			$ -
	01.01		Required Item		Mobilization (5%)	%	1	$ 76,907.67	$ 76,907.67
	01.02		Required Item		Quality Management (5.5%)	%	1	$ 84,598.43	$ 84,598.43
	01.03		Required Item		Traffic Management (7%)	%	1	$ 107,670.73	$ 107,670.73
	01.04		Required Item		Environmental Management (2%)	%	1	$ 30,763.07	$ 30,763.07
	01.05		Required Item		Site Modifications (2%)	%	1	$ 30,763.07	$ 30,763.07
	01.06		Required Item		Provisional Sum - Active Transportation Accesses to Eckhardt Bridge	Each	4	$ 12,500.00	$ 50,000.00
					TOTAL SECTION 1				$ 380,702.97
40	02		Required Item		SECTION 2 - GRADING	Heading			$ -
	02.01		Required Item		Clearing & Grubbing	Hectare	0	$ 40,000.00	$ -
	02.02		Required Item		Organic Stripping (300mm depth)	Cubic Metre	0	$ 40.00	$ -
	02.03		Required Item		Cold Milling	Square Metre	8598	$ 20.00	$ 171,960.00
	02.04		Required Item		Pavement Removal	Square Metre	0	$ 15.00	$ -
	02.05		Required Item		Sawcut of Existing Pavement	Metre	72	$ 15.00	$ 1,080.00
	02.06		Required Item		Remove and Dispose Concrete Barrier	Metre	0	$ 50.00	$ -
	02.07		Required Item		Remove Existing Raised Island	Square Metre	278	$ 50.00	$ 13,900.00
	02.08		Required Item		Remove and Dispose Existing Curb	Metre	378	$ 120.00	$ 45,360.00
	02.09		Required Item		Type D Excavation	Cubic Metre	340	$ 50.00	$ 17,000.00
	02.10		Required Item		Surplus Material for Disposal	Cubic Metre	340	$ 35.00	$ 11,900.00
	02.11		Required Item		Select Granular Sub-Base	Cubic Metre	0	$ 80.00	$ -
	02.12		Required Item		25mm Crushed Base Course	Cubic Metre	0	$ 90.00	$ -
	02.13		Required Item		Shouldering Gravel	Cubic Metre	0	$ 300.00	$ -
	02.14		Required Item		Remove and Dispose Existing Sidewalk	Square Metre	603	$ 150.00	$ 90,450.00
									$ 351,650.00
60	03		Required Item		SECTION 3 - PAVING	Heading			$ -
	03.01		Required Item		Asphalt Class 1 Medium Mix	Tonne	2900	$ 175.00	$ 507,500.00
	03.02		Required Item		16mm Asphalt Medium Mix Aggregate	Tonne	2900	$ 25.00	$ 72,500.00

	03.03		Required Item		Supply Spray Primer and Tack Coat	Litre	14,093	$	1.00	$ 14,093.33
	03.04		Required Item		Apply Spray Primer and Tack Coat	Litre	14,093	$	0.75	$ 10,570.00
	03.05		Required Item		Allowance for EPS Payment Adjustment	Provisional Sum	1	$	-	$ -
	03.06		Required Item		Concrete Roadside Barrier	Each	0	$	500.00	$ -
	03.07		Required Item		Raised Island	Square Metre	543	$	250.00	$ 135,750.00
	03.08		Required Item		Island or Median Curb	Metre	624	$	120.00	$ 74,880.00
	03.09		Required Item		Combined Curb and Gutter	Metre	408	$	120.00	$ 48,960.00
	03.10		Required Item		Sidewalk	Square Metre	665	$	250.00	$ 166,250.00
					TOTAL SECTION 3					$ 1,030,503.33
80	04		Required Item		SECTION 4 - STRUCTURES	Heading				$ -
	04.01		Required Item		No Items Identified	Lump Sum	0	$	-	$ -
					TOTAL SECTION 4					$ -
100	05		Required Item		SECTION 5 - DRAINAGE	Heading				$ -
	05.01		Required Item		Drainage (Includes new catch basins, leads, and reconnects, no new mains)	Lump Sum	1	$	50,000.00	$ 50,000.00
					TOTAL SECTION 5					$ 50,000.00
120	06		Required Item		SECTION 6 - SIGNAGE & PAVEMENT MARKINGS	Heading				$ -
	06.01		Required Item		Supply and Install One-Post Sign	Each	0	$	1,000.00	$ -
	06.02		Required Item		Relocate Existing One-Post Sign	Each	0	$	500.00	$ -
	06.03		Required Item		Remove and Dispose Existing One-Post Sign	Each	0	$	250.00	$ -
	06.04		Required Item		Pavement Marking Layout	Lump Sum	1	$	4,000.00	$ 4,000.00
	06.05		Required Item		Eradicate Existing Pavement Markings	Lump Sum	1	$	2,000.00	$ 2,000.00
					TOTAL SECTION 6					$ 6,000.00
140	07		Required Item		SECTION 7 - ELECTRICAL	Heading				
	07.01		Required Item		Electrical (Includes All Traffic Signal Modifications, Lighting, etc)	Lump Sum	1	$	50,000.00	$ 50,000.00
					TOTAL SECTION 7					$ 50,000.00
160	08		Required Item		SECTION 8 - LANDSCAPE & FENCING	Heading				
	08.01		Required Item		Landscape and Fencing	Lump Sum	1	$	20,000.00	$ 20,000.00
					TOTAL SECTION 8					$ 20,000.00
180	09		Required Item		SECTION 9 - UTILITIES	Heading				

	09.01		Required Item		Utilities (Includes all Underground and Above Ground Utility Impacts)	Lump Sum	1	$ 30,000.00		$ 30,000.00
					TOTAL SECTION 9					$ 30,000.00
					SUMMARY					
					SECTION 1 - GENERAL					$ 380,702.97
					SECTION 2 - GRADING					$ 351,650.00
					SECTION 3 - PAVING					$ 1,030,503.33
					SECTION 4 - STRUCTURES					$ -
					SECTION 5 - DRAINAGE					$ 50,000.00
					SECTION 6 - SIGNING & PAVEMENT MARKING					$ 6,000.00
					SECTION 7 - ELECTRICAL					$ 50,000.00
					SECTION 8 - LANDSCAPE & FENCING					$ 20,000.00
					SECTION 9 - UTILITIES					$ 30,000.00
					TOTAL CONSTRUCTION COSTS					$ 1,918,856.30
					ASSOCIATED PROJECT COSTS					
9001	901		Price Adjustment		Contingencies (40%)	Lump Sum	1	$ 767,542.52		$ 767,542.52
9002	902		Price Adjustment		Engineering (15%)	Lump Sum	1	$ 287,828.45		$ 287,828.45
9003	903		Price Adjustment		Materials Supplied by MOT (TBD)	Lump Sum	1	$ -		$ -
9004	904		Price Adjustment		Property Acquisition (TBD)	Lump Sum	1	$ -		$ -
9005	905		Price Adjustment		First Nations Consultation (TBD)	Lump Sum	1	$ -		$ -
9006	906		Price Adjustment		Miscellaneous (TBD)	Lump Sum	1	$ -		$ -
					TOTAL ASSOCIATED PROJECT COSTS					$ 1,055,370.97
					PROJECT TOTAL					$ 2,974,227.27

Ministry Tender Price	$ 2,974,227.27
Associated Ministry Costs	
Total Tender Price and Associated Ministry Cost Estimate	$ 2,974,227.27

SCHEDULE 7 COST ESTIMATE

09-Dec-22

Schedule of Approximate Quantities and Unit Prices

PROJECT NUMBER: 1017.0096.01

PROJECT NAME: Reimagine the Northern Gateway-Options 7/8/9-Hwy 97 & Comox St and Hwy 97 & Alberni St Intersection Improvements (Planning Level Class D Cost Estimates)

Order	Item #	Parent Item	Field type	RevDate	Description	UNIT	QTY	minunitprice	Ministry Extended Amount
10	001		Required Item		SCHEDULE 7 - HWY 97 & WESTMINSTER AVE INTERSECTION IMPROVEMENTS	Heading			$ -
20	01		Required Item		SECTION 1 - GENERAL	Heading			$ -
	01.01		Required Item		Mobilization (5%)	%	1	$ 104,270.75	$ 104,270.75
	01.02		Required Item		Quality Management (5.5%)	%	1	$ 114,697.82	$ 114,697.82
	01.03		Required Item		Traffic Management (7%)	%	1	$ 145,979.05	$ 145,979.05
	01.04		Required Item		Environmental Management (2%)	%	1	$ 41,708.30	$ 41,708.30
	01.05		Required Item		Site Modifications (2%)	%	1	$ 41,708.30	$ 41,708.30
					TOTAL SECTION 1				$ 448,364.21
40	02		Required Item		SECTION 2 - GRADING	Heading			$ -
	02.01		Required Item		Clearing & Grubbing	Hectare	0	$ 40,000.00	$ -
	02.02		Required Item		Organic Stripping (300mm depth)	Cubic Metre	0	$ 40.00	$ -
	02.03		Required Item		Cold Milling	Square Metre	8620	$ 20.00	$ 172,400.00
	02.04		Required Item		Pavement Removal	Square Metre	0	$ 15.00	$ -
	02.05		Required Item		Sawcut of Existing Pavement	Metre	62	$ 15.00	$ 930.00
	02.06		Required Item		Remove and Dispose Concrete Barrier	Metre	0	$ 50.00	$ -
	02.07		Required Item		Remove Existing Raised Island	Square Metre	684	$ 50.00	$ 34,200.00
	02.08		Required Item		Remove and Dispose Existing Curb	Metre	488	$ 120.00	$ 58,560.00
	02.09		Required Item		Type D Excavation	Cubic Metre	1226	$ 50.00	$ 61,300.00
	02.10		Required Item		Surplus Material for Disposal	Cubic Metre	1226	$ 35.00	$ 42,910.00
	02.11		Required Item		Select Granular Sub-Base	Cubic Metre	354	$ 80.00	$ 28,320.00
	02.12		Required Item		25mm Crushed Base Course	Cubic Metre	354	$ 90.00	$ 31,860.00
	02.13		Required Item		Shouldering Gravel	Cubic Metre	12	$ 300.00	$ 3,600.00
	02.14		Required Item		Remove and Dispose Existing Sidewalk	Square Metre	855	$ 150.00	$ 128,250.00
									$ 562,330.00
60	03		Required Item		SECTION 3 - PAVING	Heading			$ -
	03.01		Required Item		Asphalt Class 1 Medium Mix	Tonne	3122	$ 175.00	$ 546,350.00
	03.02		Required Item		16mm Asphalt Medium Mix Aggregate	Tonne	3122	$ 25.00	$ 78,050.00
	03.03		Required Item		Supply Spray Primer and Tack Coat	Litre	15,174	$ 1.00	$ 15,174.25
	03.04		Required Item		Apply Spray Primer and Tack Coat	Litre	15,174	$ 0.75	$ 11,380.69

	03.05		Required Item		Allowance for EPS Payment Adjustment	Provisional Sum	1	$ -	$ -
	03.06		Required Item		Concrete Roadside Barrier	Each	0	$ 500.00	$ -
	03.07		Required Item		Raised Island	Square Metre	633	$ 250.00	$ 158,250.00
	03.08		Required Item		Island or Median Curb	Metre	816	$ 120.00	$ 97,920.00
	03.09		Required Item		Combined Curb and Gutter	Metre	408	$ 120.00	$ 48,960.00
	03.10		Required Item		Sidewalk	Square Metre	856	$ 250.00	$ 214,000.00
					TOTAL SECTION 3				$ 1,170,084.94
80	04		Required Item		SECTION 4 - STRUCTURES	Heading			$ -
	04.01		Required Item		No Items Identified	Lump Sum	0	$ -	$ -
					TOTAL SECTION 4				$ -
100	05		Required Item		SECTION 5 - DRAINAGE	Heading			$ -
	05.01		Required Item		Drainage (Includes new catch basins, leads, and reconnects, no new mains)	Lump Sum	1	$ 50,000.00	$ 50,000.00
					TOTAL SECTION 5				$ 50,000.00
120	06		Required Item		SECTION 6 - SIGNAGE & PAVEMENT MARKINGS	Heading			$ -
	06.01		Required Item		Supply and Install One-Post Sign	Each	0	$ 1,000.00	$ -
	06.02		Required Item		Relocate Existing One-Post Sign	Each	0	$ 500.00	$ -
	06.03		Required Item		Remove and Dispose Existing One-Post Sign	Each	0	$ 250.00	$ -
	06.04		Required Item		Pavement Marking Layout	Lump Sum	1	$ 3,000.00	$ 3,000.00
	06.05		Required Item		Eradicate Existing Pavement Markings	Lump Sum	1	$ -	$ -
					TOTAL SECTION 6				$ 3,000.00
140	07		Required Item		SECTION 7 - ELECTRICAL	Heading			
	07.01		Required Item		Electrical (Includes All Traffic Signal Modifications, Lighting, etc)	Lump Sum	1	$ 250,000.00	$ 250,000.00
					TOTAL SECTION 7				$ 250,000.00
160	08		Required Item		SECTION 8 - LANDSCAPE & FENCING	Heading			
	08.01		Required Item		Landscape and Fencing	Lump Sum	1	$ 20,000.00	$ 20,000.00
					TOTAL SECTION 8				$ 20,000.00
180	09		Required Item		SECTION 9 - UTILITIES	Heading			
	09.01		Required Item		Utilities (Includes all Underground and Above Ground Utility Impacts)	Lump Sum	1	$ 30,000.00	$ 30,000.00

					TOTAL SECTION 9					$ 30,000.00
					SUMMARY					
					SECTION 1 - GENERAL					$ 448,364.21
					SECTION 2 - GRADING					$ 562,330.00
					SECTION 3 - PAVING					$ 1,170,084.94
					SECTION 4 - STRUCTURES					$ -
					SECTION 5 - DRAINAGE					$ 50,000.00
					SECTION 6 - SIGNING & PAVEMENT MARKING					$ 3,000.00
					SECTION 7 - ELECTRICAL					$ 250,000.00
					SECTION 8 - LANDSCAPE & FENCING					$ 20,000.00
					SECTION 9 - UTILITIES					$ 30,000.00
					TOTAL CONSTRUCTION COSTS					$ 2,533,779.15
					ASSOCIATED PROJECT COSTS					
9001	901		Price Adjustment		Contingencies (40%)	Lump Sum	1	$ 1,013,511.66		$ 1,013,511.66
9002	902		Price Adjustment		Engineering (15%)	Lump Sum	1	$ 380,066.87		$ 380,066.87
9003	903		Price Adjustment		Materials Supplied by MOT (TBD)	Lump Sum	1	$ -		$ -
9004	904		Price Adjustment		Property Acquisition (TBD)	Lump Sum	1	$ -		$ -
9005	905		Price Adjustment		First Nations Consultation (TBD)	Lump Sum	1	$ -		$ -
9006	906		Price Adjustment		Miscellaneous (TBD)	Lump Sum	1	$ -		$ -
					TOTAL ASSOCIATED PROJECT COSTS					$ 1,393,578.53
					PROJECT TOTAL					$ 3,927,357.68

Ministry Tender Price	$ 3,927,357.68
Associated Ministry Costs	
Total Tender Price and Associated Ministry Cost Estimate	$ 3,927,357.68

SCHEDULE 7 COST ESTIMATE

09-Dec-22

Schedule of Approximate Quantities and Unit Prices

PROJECT NUMBER: 1017.0096.01

PROJECT NAME: Reimagine the Northern Gateway - Options 7/8/9 - Hwy 97 and Vees Dr Intersection Improvements (Planing Level Class D Cost Estimates)

Order	Item #	Parent Item	Field type	RevDate	Description	UNIT	QTY	minunitprice	Ministry Extended Amount
10	001		Required Item		SCHEDULE 7 - HWY 97 & WESTMINSTER AVE INTERSECTION IMPROVEMENTS	Heading			$ -
20	01		Required Item		SECTION 1 - GENERAL	Heading			$ -
	01.01		Required Item		Mobilization (5%)	%	1	$ 48,667.04	$ 48,667.04
	01.02		Required Item		Quality Management (5.5%)	%	1	$ 53,533.74	$ 53,533.74
	01.03		Required Item		Traffic Management (7%)	%	1	$ 68,133.86	$ 68,133.86
	01.04		Required Item		Environmental Management (2%)	%	1	$ 19,466.82	$ 19,466.82
	01.05		Required Item		Site Modifications (2%)	%	1	$ 19,466.82	$ 19,466.82
					TOTAL SECTION 1				$ 209,268.27
40	02		Required Item		SECTION 2 - GRADING	Heading			$ -
	02.01		Required Item		Clearing & Grubbing	Hectare	0	$ 40,000.00	$ -
	02.02		Required Item		Organic Stripping (300mm depth)	Cubic Metre	0	$ 40.00	$ -
	02.03		Required Item		Cold Milling	Square Metre	4166	$ 20.00	$ 83,320.00
	02.04		Required Item		Pavement Removal	Square Metre	476	$ 15.00	$ 7,140.00
	02.05		Required Item		Sawcut of Existing Pavement	Metre	56	$ 15.00	$ 840.00
	02.06		Required Item		Remove and Dispose Concrete Barrier	Metre	0	$ 50.00	$ -
	02.07		Required Item		Remove Existing Raised Island	Square Metre	300	$ 50.00	$ 15,000.00
	02.08		Required Item		Remove and Dispose Existing Curb	Metre	426	$ 120.00	$ 51,120.00
	02.09		Required Item		Type D Excavation	Cubic Metre	0	$ 50.00	$ -
	02.10		Required Item		Surplus Material for Disposal	Cubic Metre	0	$ 35.00	$ -
	02.11		Required Item		Select Granular Sub-Base	Cubic Metre	0	$ 80.00	$ -
	02.12		Required Item		25mm Crushed Base Course	Cubic Metre	0	$ 90.00	$ -
	02.13		Required Item		Shouldering Gravel	Cubic Metre	0	$ 300.00	$ -
	02.14		Required Item		Remove and Dispose Existing Sidewalk	Square Metre	767	$ 150.00	$ 115,050.00
									$ 272,470.00
60	03		Required Item		SECTION 3 - PAVING	Heading			$ -
	03.01		Required Item		Asphalt Class 1 Medium Mix	Tonne	1554	$ 175.00	$ 271,950.00
	03.02		Required Item		16mm Asphalt Medium Mix Aggregate	Tonne	1554	$ 25.00	$ 38,850.00
	03.03		Required Item		Supply Spray Primer and Tack Coat	Litre	7,555	$ 1.00	$ 7,554.75
	03.04		Required Item		Apply Spray Primer and Tack Coat	Litre	7,555	$ 0.75	$ 5,666.06

	03.05		Required Item		Allowance for EPS Payment Adjustment	Provisional Sum	1	$	-	$ -
	03.06		Required Item		Concrete Roadside Barrier	Each	0	$	500.00	$ -
	03.07		Required Item		Raised Island	Square Metre	150	$	250.00	$ 37,500.00
	03.08		Required Item		Island or Median Curb	Metre	131	$	120.00	$ 15,720.00
	03.09		Required Item		Combined Curb and Gutter	Metre	299	$	120.00	$ 35,880.00
	03.10		Required Item		Sidewalk	Square Metre	539	$	250.00	$ 134,750.00
					TOTAL SECTION 3					$ 547,870.81
80	04		Required Item		SECTION 4 - STRUCTURES	Heading				$ -
	04.01		Required Item		No Items Identified	Lump Sum	0	$	-	$ -
					TOTAL SECTION 4					$ -
100	05		Required Item		SECTION 5 - DRAINAGE	Heading				$ -
	05.01		Required Item		Drainage (Includes new catch basins, leads, and reconnects, no new mains)	Lump Sum	1	$	50,000.00	$ 50,000.00
					TOTAL SECTION 5					$ 50,000.00
120	06		Required Item		SECTION 6 - SIGNAGE & PAVEMENT MARKINGS	Heading				$ -
	06.01		Required Item		Supply and Install One-Post Sign	Each	0	$	1,000.00	$ -
	06.02		Required Item		Relocate Existing One-Post Sign	Each	0	$	500.00	$ -
	06.03		Required Item		Remove and Dispose Existing One-Post Sign	Each	0	$	250.00	$ -
	06.04		Required Item		Pavement Marking Layout	Lump Sum	1	$	3,000.00	$ 3,000.00
	06.05		Required Item		Eradicate Existing Pavement Markings	Lump Sum	1	$	-	$ -
					TOTAL SECTION 6					$ 3,000.00
140	07		Required Item		SECTION 7 - ELECTRICAL	Heading				
	07.01		Required Item		Electrical (Includes All Traffic Signal Modifications, Lighting, etc)	Lump Sum	1	$	50,000.00	$ 50,000.00
					TOTAL SECTION 7					$ 50,000.00
160	08		Required Item		SECTION 8 - LANDSCAPE & FENCING	Heading				
	08.01		Required Item		Landscape and Fencing	Lump Sum	1	$	20,000.00	$ 20,000.00
					TOTAL SECTION 8					$ 20,000.00
180	09		Required Item		SECTION 9 - UTILITIES	Heading				
	09.01		Required Item		Utilities (Includes all Underground and Above Ground Utility Impacts)	Lump Sum	1	$	30,000.00	$ 30,000.00

					TOTAL SECTION 9					$ 30,000.00
					SUMMARY					
					SECTION 1 - GENERAL					$ 209,268.27
					SECTION 2 - GRADING					$ 272,470.00
					SECTION 3 - PAVING					$ 547,870.81
					SECTION 4 - STRUCTURES					$ -
					SECTION 5 - DRAINAGE					$ 50,000.00
					SECTION 6 - SIGNING & PAVEMENT MARKING					$ 3,000.00
					SECTION 7 - ELECTRICAL					$ 50,000.00
					SECTION 8 - LANDSCAPE & FENCING					$ 20,000.00
					SECTION 9 - UTILITIES					$ 30,000.00
					TOTAL CONSTRUCTION COSTS					$ 1,182,609.09
					ASSOCIATED PROJECT COSTS					
9001	901		Price Adjustment		Contingencies (40%)	Lump Sum	1	$ 473,043.63		$ 473,043.63
9002	902		Price Adjustment		Engineering (15%)	Lump Sum	1	$ 177,391.36		$ 177,391.36
9003	903		Price Adjustment		Materials Supplied by MOT (TBD)	Lump Sum	1	$ -		$ -
9004	904		Price Adjustment		Property Acquisition (TBD)	Lump Sum	1	$ -		$ -
9005	905		Price Adjustment		First Nations Consultation (TBD)	Lump Sum	1	$ -		$ -
9006	906		Price Adjustment		Miscellaneous (TBD)	Lump Sum	1	$ -		$ -
					TOTAL ASSOCIATED PROJECT COSTS					$ 650,435.00
					PROJECT TOTAL					$ 1,833,044.09

Ministry Tender Price	$ 1,833,044.09
Associated Ministry Costs	
Total Tender Price and Associated Ministry Cost Estimate	$ 1,833,044.09

SCHEDULE 7 COST ESTIMATE

09-Dec-22

Schedule of Approximate Quantities and Unit Prices

PROJECT NUMBER: 1017.0096.01

PROJECT NAME: Reimagine the Northern Gateway - Option 7 - Westminster Ave and Festival Blvd Network Improvements (Planning Level Class D Cost Estimate)

Order	Item #	Parent Item	Field type	RevDate	Description	UNIT	QTY	minunitprice	Ministry Extended Amount
10	001		Required Item		SCHEDULE 7 - HWY 97 & WESTMINSTER AVE INTERSECTION IMPROVEMENTS	Heading			$ -
20	01		Required Item		SECTION 1 - GENERAL	Heading			$ -
	01.01		Required Item		Mobilization (5%)	%	1	$ 166,164.12	$ 166,164.12
	01.02		Required Item		Quality Management (5.5%)	%	1	$ 182,780.53	$ 182,780.53
	01.03		Required Item		Traffic Management (7%)	%	1	$ 232,629.77	$ 232,629.77
	01.04		Required Item		Environmental Management (2%)	%	1	$ 66,465.65	$ 66,465.65
	01.05		Required Item		Site Modifications (2%)	%	1	$ 66,465.65	$ 66,465.65
					TOTAL SECTION 1				$ 714,505.72
40	02		Required Item		SECTION 2 - GRADING	Heading			$ -
	02.01		Required Item		Clearing & Grubbing	Hectare	0	$ 40,000.00	$ -
	02.02		Required Item		Organic Stripping (300mm depth)	Cubic Metre	0	$ 40.00	$ -
	02.03		Required Item		Cold Milling	Square Metre	12666	$ 20.00	$ 253,320.00
	02.04		Required Item		Pavement Removal	Square Metre	2411	$ 15.00	$ 36,165.00
	02.05		Required Item		Sawcut of Existing Pavement	Metre	99	$ 15.00	$ 1,485.00
	02.06		Required Item		Remove and Dispose Concrete Barrier	Metre	0	$ 50.00	$ -
	02.07		Required Item		Remove Existing Raised Island	Square Metre	25	$ 50.00	$ 1,250.00
	02.08		Required Item		Remove and Dispose Existing Curb	Metre	705	$ 120.00	$ 84,600.00
	02.09		Required Item		Type D Excavation	Cubic Metre	4032	$ 50.00	$ 201,600.00
	02.10		Required Item		Surplus Material for Disposal	Cubic Metre	4032	$ 35.00	$ 141,120.00
	02.11		Required Item		Select Granular Sub-Base	Cubic Metre	767	$ 80.00	$ 61,360.00
	02.12		Required Item		25mm Crushed Base Course	Cubic Metre	767	$ 90.00	$ 69,030.00
	02.13		Required Item		Shouldering Gravel	Cubic Metre	15	$ 300.00	$ 4,500.00
	02.14		Required Item		Remove and Dispose Existing Sidewalk	Square Metre	100	$ 150.00	$ 15,000.00
									$ 869,430.00
60	03		Required Item		SECTION 3 - PAVING	Heading			$ -
	03.01		Required Item		Asphalt Class 1 Medium Mix	Tonne	5301	$ 175.00	$ 927,675.00
	03.02		Required Item		16mm Asphalt Medium Mix Aggregate	Tonne	5301	$ 25.00	$ 132,525.00
	03.03		Required Item		Supply Spray Primer and Tack Coat	Litre	25,765	$ 1.00	$ 25,765.25
	03.04		Required Item		Apply Spray Primer and Tack Coat	Litre	25,765	$ 0.75	$ 19,323.94

	03.05		Required Item		Allowance for EPS Payment Adjustment	Provisional Sum	1	$	62,693.22	$ 62,693.22
	03.06		Required Item		Concrete Roadside Barrier	Each	0	$	500.00	$ -
	03.07		Required Item		Raised Island	Square Metre	946	$	250.00	$ 236,500.00
	03.08		Required Item		Island or Median Curb	Metre	0	$	120.00	$ -
	03.09		Required Item		Combined Curb and Gutter	Metre	1176	$	120.00	$ 141,120.00
	03.10		Required Item		Sidewalk	Square Metre	2013	$	250.00	$ 503,250.00
					TOTAL SECTION 3					$ 2,048,852.41
80	04		Required Item		SECTION 4 - STRUCTURES	Heading				$ -
	04.01		Required Item		No Items Identified	Lump Sum	0	$	-	$ -
					TOTAL SECTION 4					$ -
100	05		Required Item		SECTION 5 - DRAINAGE	Heading				$ -
	05.01		Required Item		Drainage (Includes new catch basins, leads, and reconnects, no new mains)	Lump Sum	1	$	150,000.00	$ 150,000.00
					TOTAL SECTION 5					$ 150,000.00
120	06		Required Item		SECTION 6 - SIGNAGE & PAVEMENT MARKINGS	Heading				$ -
	06.01		Required Item		Supply and Install One-Post Sign	Each	0	$	1,000.00	$ -
	06.02		Required Item		Relocate Existing One-Post Sign	Each	0	$	500.00	$ -
	06.03		Required Item		Remove and Dispose Existing One-Post Sign	Each	0	$	250.00	$ -
	06.04		Required Item		Pavement Marking Layout	Lump Sum	1	$	5,000.00	$ 5,000.00
	06.05		Required Item		Eradicate Existing Pavement Markings	Lump Sum	1	$	-	$ -
					TOTAL SECTION 6					$ 5,000.00
140	07		Required Item		SECTION 7 - ELECTRICAL	Heading				
	07.01		Required Item		Electrical (Includes All Traffic Signal Modifications, Lighting, etc)	Lump Sum	1	$	100,000.00	$ 100,000.00
					TOTAL SECTION 7					$ 100,000.00
160	08		Required Item		SECTION 8 - LANDSCAPE & FENCING	Heading				
	08.01		Required Item		Landscape and Fencing	Lump Sum	1	$	100,000.00	$ 100,000.00
					TOTAL SECTION 8					$ 100,000.00
180	09		Required Item		SECTION 9 - UTILITIES	Heading				
	09.01		Required Item		Utilities (Includes all Underground and Above Ground Utility Impacts)	Lump Sum	1	$	50,000.00	$ 50,000.00

					TOTAL SECTION 9					$ 50,000.00
					SUMMARY					
					SECTION 1 - GENERAL					$ 714,505.72
					SECTION 2 - GRADING					$ 869,430.00
					SECTION 3 - PAVING					$ 2,048,852.41
					SECTION 4 - STRUCTURES					$ -
					SECTION 5 - DRAINAGE					$ 150,000.00
					SECTION 6 - SIGNING & PAVEMENT MARKING					$ 5,000.00
					SECTION 7 - ELECTRICAL					$ 100,000.00
					SECTION 8 - LANDSCAPE & FENCING					$ 100,000.00
					SECTION 9 - UTILITIES					$ 50,000.00
					TOTAL CONSTRUCTION COSTS					$ 4,037,788.13
					ASSOCIATED PROJECT COSTS					
9001	901		Price Adjustment		Contingencies (40%)	Lump Sum	1	$ 1,615,115.25		$ 1,615,115.25
9002	902		Price Adjustment		Engineering (15%)	Lump Sum	1	$ 605,668.22		$ 605,668.22
9003	903		Price Adjustment		Materials Supplied by MOT (TBD)	Lump Sum	1	$ -		$ -
9004	904		Price Adjustment		Property Acquisition (TBD)	Lump Sum	1	$ -		$ -
9005	905		Price Adjustment		First Nations Consultation (TBD)	Lump Sum	1	$ -		$ -
9006	906		Price Adjustment		Miscellaneous (TBD)	Lump Sum	1	$ -		$ -
					TOTAL ASSOCIATED PROJECT COSTS					$ 2,220,783.47
					PROJECT TOTAL					$ 6,258,571.59

Ministry Tender Price	$ 6,258,571.59
Associated Ministry Costs	
Total Tender Price and Associated Ministry Cost Estimate	$ 6,258,571.59

SCHEDULE 7 COST ESTIMATE

09-Dec-22

Schedule of Approximate Quantities and Unit Prices

PROJECT NUMBER: 1017.0096.01

PROJECT NAME: Reimagine the Northern Gateway - Option 8 - Westminster Ave and Festival Blvd Network Improvements (Planning Level Class D Cost Estimate)

Order	Item #	Parent Item	Field type	RevDate	Description	UNIT	QTY	minunitprice	Ministry Extended Amount
10	001		Required Item		SCHEDULE 7 - HWY 97 & WESTMINSTER AVE INTERSECTION IMPROVEMENTS	Heading			$ -
20	01		Required Item		SECTION 1 - GENERAL	Heading			$ -
	01.01		Required Item		Mobilization (5%)	%	1	$ 170,556.44	$ 170,556.44
	01.02		Required Item		Quality Management (5.5%)	%	1	$ 187,612.08	$ 187,612.08
	01.03		Required Item		Traffic Management (7%)	%	1	$ 238,779.02	$ 238,779.02
	01.04		Required Item		Environmental Management (2%)	%	1	$ 68,222.58	$ 68,222.58
	01.05		Required Item		Site Modifications (2%)	%	1	$ 68,222.58	$ 68,222.58
					TOTAL SECTION 1				$ 733,392.70
40	02		Required Item		SECTION 2 - GRADING	Heading			$ -
	02.01		Required Item		Clearing & Grubbing	Hectare	0	$ 40,000.00	$ -
	02.02		Required Item		Organic Stripping (300mm depth)	Cubic Metre	0	$ 40.00	$ -
	02.03		Required Item		Cold Milling	Square Metre	12143	$ 20.00	$ 242,860.00
	02.04		Required Item		Pavement Removal	Square Metre	2591	$ 15.00	$ 38,865.00
	02.05		Required Item		Sawcut of Existing Pavement	Metre	95	$ 15.00	$ 1,425.00
	02.06		Required Item		Remove and Dispose Concrete Barrier	Metre	0	$ 50.00	$ -
	02.07		Required Item		Remove Existing Raised Island	Square Metre	25	$ 50.00	$ 1,250.00
	02.08		Required Item		Remove and Dispose Existing Curb	Metre	706	$ 120.00	$ 84,720.00
	02.09		Required Item		Type D Excavation	Cubic Metre	4496	$ 50.00	$ 224,800.00
	02.10		Required Item		Surplus Material for Disposal	Cubic Metre	4496	$ 35.00	$ 157,360.00
	02.11		Required Item		Select Granular Sub-Base	Cubic Metre	952	$ 80.00	$ 76,160.00
	02.12		Required Item		25mm Crushed Base Course	Cubic Metre	952	$ 90.00	$ 85,680.00
	02.13		Required Item		Shouldering Gravel	Cubic Metre	17	$ 300.00	$ 5,100.00
	02.14		Required Item		Remove and Dispose Existing Sidewalk	Square Metre	100	$ 150.00	$ 15,000.00
									$ 933,220.00
60	03		Required Item		SECTION 3 - PAVING	Heading			$ -
	03.01		Required Item		Asphalt Class 1 Medium Mix	Tonne	5417	$ 175.00	$ 947,975.00
	03.02		Required Item		16mm Asphalt Medium Mix Aggregate	Tonne	5417	$ 25.00	$ 135,425.00
	03.03		Required Item		Supply Spray Primer and Tack Coat	Litre	26,331	$ 1.00	$ 26,330.50
	03.04		Required Item		Apply Spray Primer and Tack Coat	Litre	26,331	$ 0.75	$ 19,747.88

	03.05		Required Item		Allowance for EPS Payment Adjustment	Provisional Sum	1	$	64,030.44	$ 64,030.44
	03.06		Required Item		Concrete Roadside Barrier	Each	0	$	500.00	$ -
	03.07		Required Item		Raised Island	Square Metre	946	$	250.00	$ 236,500.00
	03.08		Required Item		Island or Median Curb	Metre	0	$	120.00	$ -
	03.09		Required Item		Combined Curb and Gutter	Metre	1170	$	120.00	$ 140,400.00
	03.10		Required Item		Sidewalk	Square Metre	2010	$	250.00	$ 502,500.00
					TOTAL SECTION 3					$ 2,072,908.82
80	04		Required Item		SECTION 4 - STRUCTURES	Heading				$ -
	04.01		Required Item		No Items Identified	Lump Sum	0	$	-	$ -
					TOTAL SECTION 4					$ -
100	05		Required Item		SECTION 5 - DRAINAGE	Heading				$ -
	05.01		Required Item		Drainage (Includes new catch basins, leads, and reconnects, no new mains)	Lump Sum	1	$	150,000.00	$ 150,000.00
					TOTAL SECTION 5					$ 150,000.00
120	06		Required Item		SECTION 6 - SIGNAGE & PAVEMENT MARKINGS	Heading				$ -
	06.01		Required Item		Supply and Install One-Post Sign	Each	0	$	1,000.00	$ -
	06.02		Required Item		Relocate Existing One-Post Sign	Each	0	$	500.00	$ -
	06.03		Required Item		Remove and Dispose Existing One-Post Sign	Each	0	$	250.00	$ -
	06.04		Required Item		Pavement Marking Layout	Lump Sum	1	$	5,000.00	$ 5,000.00
	06.05		Required Item		Eradicate Existing Pavement Markings	Lump Sum	1	$	-	$ -
					TOTAL SECTION 6					$ 5,000.00
140	07		Required Item		SECTION 7 - ELECTRICAL	Heading				
	07.01		Required Item		Electrical (Includes All Traffic Signal Modifications, Lighting, etc)	Lump Sum	1	$	100,000.00	$ 100,000.00
					TOTAL SECTION 7					$ 100,000.00
160	08		Required Item		SECTION 8 - LANDSCAPE & FENCING	Heading				
	08.01		Required Item		Landscape and Fencing	Lump Sum	1	$	100,000.00	$ 100,000.00
					TOTAL SECTION 8					$ 100,000.00
180	09		Required Item		SECTION 9 - UTILITIES	Heading				
	09.01		Required Item		Utilities (Includes all Underground and Above Ground Utility Impacts)	Lump Sum	1	$	50,000.00	$ 50,000.00

					TOTAL SECTION 9					$ 50,000.00
					SUMMARY					
					SECTION 1 - GENERAL					$ 733,392.70
					SECTION 2 - GRADING					$ 933,220.00
					SECTION 3 - PAVING					$ 2,072,908.82
					SECTION 4 - STRUCTURES					$ -
					SECTION 5 - DRAINAGE					$ 150,000.00
					SECTION 6 - SIGNING & PAVEMENT MARKING					$ 5,000.00
					SECTION 7 - ELECTRICAL					$ 100,000.00
					SECTION 8 - LANDSCAPE & FENCING					$ 100,000.00
					SECTION 9 - UTILITIES					$ 50,000.00
					TOTAL CONSTRUCTION COSTS					$ 4,144,521.51
					ASSOCIATED PROJECT COSTS					
9001	901		Price Adjustment		Contingencies (40%)	Lump Sum	1	$ 1,657,808.60		$ 1,657,808.60
9002	902		Price Adjustment		Engineering (15%)	Lump Sum	1	$ 621,678.23		$ 621,678.23
9003	903		Price Adjustment		Materials Supplied by MOT (TBD)	Lump Sum	1	$ -		$ -
9004	904		Price Adjustment		Property Acquisition (TBD)	Lump Sum	1	$ -		$ -
9005	905		Price Adjustment		First Nations Consultation (TBD)	Lump Sum	1	$ -		$ -
9006	906		Price Adjustment		Miscellaneous (TBD)	Lump Sum	1	$ -		$ -
					TOTAL ASSOCIATED PROJECT COSTS					$ 2,279,486.83
					PROJECT TOTAL					$ 6,424,008.34

Ministry Tender Price	$ 6,424,008.34
Associated Ministry Costs	
Total Tender Price and Associated Ministry Cost Estimate	$ 6,424,008.34

SCHEDULE 7 COST ESTIMATE

09-Dec-22

Schedule of Approximate Quantities and Unit Prices

PROJECT NUMBER: 1017.0096.01

PROJECT NAME: Reimagine the Northern Gateway - Option 9 - Westminster Ave and Festival Blvd Network Improvements (Planning Level Class D Cost Estimate)

Order	Item #	Parent Item	Field type	RevDate	Description	UNIT	QTY	minunitprice	Ministry Extended Amount
10	001		Required Item		SCHEDULE 7 - HWY 97 & WESTMINSTER AVE INTERSECTION IMPROVEMENTS	Heading			$ -
20	01		Required Item		SECTION 1 - GENERAL	Heading			$ -
	01.01		Required Item		Mobilization (5%)	%	1	$ 164,577.43	$ 164,577.43
	01.02		Required Item		Quality Management (5.5%)	%	1	$ 181,035.17	$ 181,035.17
	01.03		Required Item		Traffic Management (7%)	%	1	$ 230,408.40	$ 230,408.40
	01.04		Required Item		Environmental Management (2%)	%	1	$ 65,830.97	$ 65,830.97
	01.05		Required Item		Site Modifications (2%)	%	1	$ 65,830.97	$ 65,830.97
					TOTAL SECTION 1				$ 707,682.93
40	02		Required Item		SECTION 2 - GRADING	Heading			$ -
	02.01		Required Item		Clearing & Grubbing	Hectare	0	$ 40,000.00	$ -
	02.02		Required Item		Organic Stripping (300mm depth)	Cubic Metre	0	$ 40.00	$ -
	02.03		Required Item		Cold Milling	Square Metre	12014	$ 20.00	$ 240,280.00
	02.04		Required Item		Pavement Removal	Square Metre	2720	$ 15.00	$ 40,800.00
	02.05		Required Item		Sawcut of Existing Pavement	Metre	96	$ 15.00	$ 1,440.00
	02.06		Required Item		Remove and Dispose Concrete Barrier	Metre	0	$ 50.00	$ -
	02.07		Required Item		Remove Existing Raised Island	Square Metre	25	$ 50.00	$ 1,250.00
	02.08		Required Item		Remove and Dispose Existing Curb	Metre	652	$ 120.00	$ 78,240.00
	02.09		Required Item		Type D Excavation	Cubic Metre	3149	$ 50.00	$ 157,450.00
	02.10		Required Item		Surplus Material for Disposal	Cubic Metre	3149	$ 35.00	$ 110,215.00
	02.11		Required Item		Select Granular Sub-Base	Cubic Metre	739	$ 80.00	$ 59,120.00
	02.12		Required Item		25mm Crushed Base Course	Cubic Metre	739	$ 90.00	$ 66,510.00
	02.13		Required Item		Shouldering Gravel	Cubic Metre	17	$ 300.00	$ 5,100.00
	02.14		Required Item		Remove and Dispose Existing Sidewalk	Square Metre	21	$ 150.00	$ 3,150.00
									$ 763,555.00
60	03		Required Item		SECTION 3 - PAVING	Heading			$ -
	03.01		Required Item		Asphalt Class 1 Medium Mix	Tonne	5057	$ 175.00	$ 884,975.00
	03.02		Required Item		16mm Asphalt Medium Mix Aggregate	Tonne	5057	$ 25.00	$ 126,425.00
	03.03		Required Item		Supply Spray Primer and Tack Coat	Litre	24,582	$ 1.00	$ 24,582.25
	03.04		Required Item		Apply Spray Primer and Tack Coat	Litre	24,582	$ 0.75	$ 18,436.69

	03.05		Required Item		Allowance for EPS Payment Adjustment	Provisional Sum	1	$	59,894.58	$ 59,894.58
	03.06		Required Item		Concrete Roadside Barrier	Each	0	$	500.00	$ -
	03.07		Required Item		Raised Island	Square Metre	979	$	250.00	$ 244,750.00
	03.08		Required Item		Island or Median Curb	Metre	0	$	120.00	$ -
	03.09		Required Item		Combined Curb and Gutter	Metre	1164	$	120.00	$ 139,680.00
	03.10		Required Item		Sidewalk	Square Metre	1997	$	250.00	$ 499,250.00
					TOTAL SECTION 3					$ 1,997,993.52
80	04		Required Item		SECTION 4 - STRUCTURES	Heading				$ -
	04.01		Required Item		No Items Identified	Lump Sum	0	$	-	$ -
					TOTAL SECTION 4					$ -
100	05		Required Item		SECTION 5 - DRAINAGE	Heading				$ -
	05.01		Required Item		Drainage (Includes new catch basins, leads, and reconnects, no new mains)	Lump Sum	1	$	125,000.00	$ 125,000.00
					TOTAL SECTION 5					$ 125,000.00
120	06		Required Item		SECTION 6 - SIGNAGE & PAVEMENT MARKINGS	Heading				$ -
	06.01		Required Item		Supply and Install One-Post Sign	Each	0	$	1,000.00	$ -
	06.02		Required Item		Relocate Existing One-Post Sign	Each	0	$	500.00	$ -
	06.03		Required Item		Remove and Dispose Existing One-Post Sign	Each	0	$	250.00	$ -
	06.04		Required Item		Pavement Marking Layout	Lump Sum	1	$	5,000.00	$ 5,000.00
	06.05		Required Item		Eradicate Existing Pavement Markings	Lump Sum	1	$	-	$ -
					TOTAL SECTION 6					$ 5,000.00
140	07		Required Item		SECTION 7 - ELECTRICAL	Heading				
	07.01		Required Item		Electrical (Includes All Traffic Signal Modifications, Lighting, etc)	Lump Sum	1	$	250,000.00	$ 250,000.00
					TOTAL SECTION 7					$ 250,000.00
160	08		Required Item		SECTION 8 - LANDSCAPE & FENCING	Heading				
	08.01		Required Item		Landscape and Fencing	Lump Sum	1	$	100,000.00	$ 100,000.00
					TOTAL SECTION 8					$ 100,000.00
180	09		Required Item		SECTION 9 - UTILITIES	Heading				
	09.01		Required Item		Utilities (Includes all Underground and Above Ground Utility Impacts)	Lump Sum	1	$	50,000.00	$ 50,000.00

					TOTAL SECTION 9					$ 50,000.00
					SUMMARY					
					SECTION 1 - GENERAL					$ 707,682.93
					SECTION 2 - GRADING					$ 763,555.00
					SECTION 3 - PAVING					$ 1,997,993.52
					SECTION 4 - STRUCTURES					$ -
					SECTION 5 - DRAINAGE					$ 125,000.00
					SECTION 6 - SIGNING & PAVEMENT MARKING					$ 5,000.00
					SECTION 7 - ELECTRICAL					$ 250,000.00
					SECTION 8 - LANDSCAPE & FENCING					$ 100,000.00
					SECTION 9 - UTILITIES					$ 50,000.00
					TOTAL CONSTRUCTION COSTS					$ 3,999,231.45
					ASSOCIATED PROJECT COSTS					
9001	901		Price Adjustment		Contingencies (40%)	Lump Sum	1	$ 1,599,692.58		$ 1,599,692.58
9002	902		Price Adjustment		Engineering (15%)	Lump Sum	1	$ 599,884.72		$ 599,884.72
9003	903		Price Adjustment		Materials Supplied by MOT (TBD)	Lump Sum	1	$ -		$ -
9004	904		Price Adjustment		Property Acquisition (TBD)	Lump Sum	1	$ -		$ -
9005	905		Price Adjustment		First Nations Consultation (TBD)	Lump Sum	1	$ -		$ -
9006	906		Price Adjustment		Miscellaneous (TBD)	Lump Sum	1	$ -		$ -
					TOTAL ASSOCIATED PROJECT COSTS					$ 2,199,577.30
					PROJECT TOTAL					$ 6,198,808.75

Ministry Tender Price	$ 6,198,808.75
Associated Ministry Costs	
Total Tender Price and Associated Ministry Cost Estimate	$ 6,198,808.75

SCHEDULE 7 COST ESTIMATE

09-Dec-22

Schedule of Approximate Quantities and Unit Prices

PROJECT NUMBER: 1017.0096.01

PROJECT NAME: Reimagine the Northern Gateway - Option 9 - Roundabout at Alberni St & Creston Ave (Planning Level Class D Cost Estimate)

Order	Item #	Parent Item	Field type	RevDate	Description	UNIT	QTY	minunitprice	Ministry Extended Amount
10	001		Required Item		SCHEDULE 7 - HWY 97 & WESTMINSTER AVE INTERSECTION IMPROVEMENTS	Heading			$ -
20	01		Required Item		SECTION 1 - GENERAL	Heading			$ -
	01.01		Required Item		Mobilization (5%)	%	1	$ 43,832.70	$ 43,832.70
	01.02		Required Item		Quality Management (5.5%)	%	1	$ 48,215.97	$ 48,215.97
	01.03		Required Item		Traffic Management (7%)	%	1	$ 61,365.78	$ 61,365.78
	01.04		Required Item		Environmental Management (2%)	%	1	$ 17,533.08	$ 17,533.08
	01.05		Required Item		Site Modifications (2%)	%	1	$ 17,533.08	$ 17,533.08
					TOTAL SECTION 1				$ 188,480.61
40	02		Required Item		SECTION 2 - GRADING	Heading			$ -
	02.01		Required Item		Clearing & Grubbing	Hectare	0	$ 40,000.00	$ -
	02.02		Required Item		Organic Stripping (300mm depth)	Cubic Metre	0	$ 40.00	$ -
	02.03		Required Item		Cold Milling	Square Metre	2297	$ 20.00	$ 45,940.00
	02.04		Required Item		Pavement Removal	Square Metre	288	$ 15.00	$ 4,320.00
	02.05		Required Item		Sawcut of Existing Pavement	Metre	36	$ 15.00	$ 540.00
	02.06		Required Item		Remove and Dispose Concrete Barrier	Metre	0	$ 50.00	$ -
	02.07		Required Item		Remove Existing Raised Island	Square Metre	0	$ 50.00	$ -
	02.08		Required Item		Remove and Dispose Existing Curb	Metre	183	$ 120.00	$ 21,960.00
	02.09		Required Item		Type D Excavation	Cubic Metre	1771	$ 50.00	$ 88,550.00
	02.10		Required Item		Surplus Material for Disposal	Cubic Metre	1771	$ 35.00	$ 61,985.00
	02.11		Required Item		Select Granular Sub-Base	Cubic Metre	592	$ 80.00	$ 47,360.00
	02.12		Required Item		25mm Crushed Base Course	Cubic Metre	592	$ 90.00	$ 53,280.00
	02.13		Required Item		Shouldering Gravel	Cubic Metre	7	$ 300.00	$ 2,100.00
	02.14		Required Item		Remove and Dispose Existing Sidewalk	Square Metre	314	$ 150.00	$ 47,100.00
									$ 373,135.00
60	03		Required Item		SECTION 3 - PAVING	Heading			$ -
	03.01		Required Item		Asphalt Class 1 Medium Mix	Tonne	1273	$ 175.00	$ 222,775.00
	03.02		Required Item		16mm Asphalt Medium Mix Aggregate	Tonne	1273	$ 25.00	$ 31,825.00
	03.03		Required Item		Supply Spray Primer and Tack Coat	Litre	6,188	$ 1.00	$ 6,188.00
	03.04		Required Item		Apply Spray Primer and Tack Coat	Litre	6,188	$ 0.75	$ 4,641.00

	03.05		Required Item		Allowance for EPS Payment Adjustment	Provisional Sum	1	$	-	$ -
	03.06		Required Item		Concrete Roadside Barrier	Each	0	$	500.00	$ -
	03.07		Required Item		Raised Island	Square Metre	80	$	250.00	$ 20,000.00
	03.08		Required Item		Island or Median Curb	Metre	32	$	120.00	$ 3,840.00
	03.09		Required Item		Combined Curb and Gutter	Metre	300	$	120.00	$ 36,000.00
	03.10		Required Item		Sidewalk	Square Metre	529	$	250.00	$ 132,250.00
					TOTAL SECTION 3					$ 457,519.00
80	04		Required Item		SECTION 4 - STRUCTURES	Heading				$ -
	04.01		Required Item		No Items Identified	Lump Sum	0	$	-	$ -
					TOTAL SECTION 4					$ -
100	05		Required Item		SECTION 5 - DRAINAGE	Heading				$ -
	05.01		Required Item		Drainage (Includes Culverts, Headwalls, Rip Rap, Ditching, etc)	Lump Sum	1	$	15,000.00	$ 15,000.00
					TOTAL SECTION 5					$ 15,000.00
120	06		Required Item		SECTION 6 - SIGNAGE & PAVEMENT MARKINGS	Heading				$ -
	06.01		Required Item		Supply and Install One-Post Sign	Each	0	$	1,000.00	$ -
	06.02		Required Item		Relocate Existing One-Post Sign	Each	0	$	500.00	$ -
	06.03		Required Item		Remove and Dispose Existing One-Post Sign	Each	0	$	250.00	$ -
	06.04		Required Item		Pavement Marking Layout	Lump Sum	1	$	1,000.00	$ 1,000.00
	06.05		Required Item		Eradicate Existing Pavement Markings	Lump Sum	1	$	-	$ -
					TOTAL SECTION 6					$ 1,000.00
140	07		Required Item		SECTION 7 - ELECTRICAL	Heading				
	07.01		Required Item		Electrical (Includes All Traffic Signal Modifications, Lighting, etc)	Lump Sum	1	$	5,000.00	$ 5,000.00
					TOTAL SECTION 7					$ 5,000.00
160	08		Required Item		SECTION 8 - LANDSCAPE & FENCING	Heading				
	08.01		Required Item		Landscape and Fencing	Lump Sum	1	$	10,000.00	$ 10,000.00
					TOTAL SECTION 8					$ 10,000.00
180	09		Required Item		SECTION 9 - UTILITIES	Heading				
	09.01		Required Item		Utilities (Includes all Underground and Above Ground Utility Impacts)	Lump Sum	1	$	15,000.00	$ 15,000.00

					TOTAL SECTION 9					$ 15,000.00
					SUMMARY					
					SECTION 1 - GENERAL					$ 188,480.61
					SECTION 2 - GRADING					$ 373,135.00
					SECTION 3 - PAVING					$ 457,519.00
					SECTION 4 - STRUCTURES					$ -
					SECTION 5 - DRAINAGE					$ 15,000.00
					SECTION 6 - SIGNING & PAVEMENT MARKING					$ 1,000.00
					SECTION 7 - ELECTRICAL					$ 5,000.00
					SECTION 8 - LANDSCAPE & FENCING					$ 10,000.00
					SECTION 9 - UTILITIES					$ 15,000.00
					TOTAL CONSTRUCTION COSTS					$ 1,065,134.61
					ASSOCIATED PROJECT COSTS					
9001	901		Price Adjustment		Contingencies (40%)	Lump Sum	1	$ 426,053.84		$ 426,053.84
9002	902		Price Adjustment		Engineering (15%)	Lump Sum	1	$ 159,770.19		$ 159,770.19
9003	903		Price Adjustment		Materials Supplied by MOT (TBD)	Lump Sum	1	$ -		$ -
9004	904		Price Adjustment		Property Acquisition (TBD)	Lump Sum	1	$ -		$ -
9005	905		Price Adjustment		First Nations Consultation (TBD)	Lump Sum	1	$ -		$ -
9006	906		Price Adjustment		Miscellaneous (TBD)	Lump Sum	1	$ -		$ -
					TOTAL ASSOCIATED PROJECT COSTS					$ 585,824.04
					PROJECT TOTAL					$ 1,650,958.65

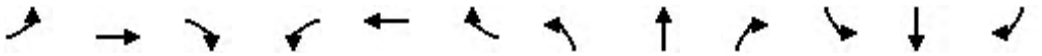
Ministry Tender Price	$ 1,650,958.65
Associated Ministry Costs	
Total Tender Price and Associated Ministry Cost Estimate	$ 1,650,958.65

APPENDIX G:

TRAFFIC MODEL OUTPUT REPORTS – 2047 PM PEAK (OPTIONS 7-9)

HCM 6th Signalized Intersection Summary
4: Hwy 97 & Eckhardt Ave W & Vees Drive

2047 PM Option 7 (Moderate Growth)
04/10/2023



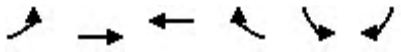
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	283	1238	60	325	63	1443	472	121	86	373	116
Future Volume (veh/h)	52	283	1238	60	325	63	1443	472	121	86	373	116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1673	1634	1673	1660	1647	1634	1673	1660	1700	1647	1687
Adj Flow Rate, veh/h	55	304	0	73	378	76	1519	513	127	91	405	187
Peak Hour Factor	0.94	0.93	0.90	0.82	0.86	0.83	0.95	0.92	0.95	0.95	0.92	0.62
Percent Heavy Veh, %	0	2	5	2	3	4	5	2	3	0	4	1
Cap, veh/h	55	407		136	292	59	1337	874	216	207	396	181
Arrive On Green	0.24	0.24	0.00	0.24	0.24	0.24	0.44	0.68	0.68	0.19	0.19	0.19
Sat Flow, veh/h	952	1673	1384	1072	1200	241	3018	1294	320	797	2078	947
Grp Volume(v), veh/h	55	304	0	73	0	454	1519	0	640	91	304	288
Grp Sat Flow(s),veh/h/ln	952	1673	1384	1072	0	1441	1509	0	1614	797	1565	1460
Q Serve(g_s), s	0.0	21.8	0.0	8.8	0.0	31.6	57.6	0.0	27.7	13.6	24.8	24.8
Cycle Q Clear(g_c), s	31.6	21.8	0.0	30.6	0.0	31.6	57.6	0.0	27.7	13.6	24.8	24.8
Prop In Lane	1.00		1.00	1.00		0.17	1.00		0.20	1.00		0.65
Lane Grp Cap(c), veh/h	55	407		136	0	350	1337	0	1090	207	298	279
V/C Ratio(X)	0.99	0.75		0.54	0.00	1.30	1.14	0.00	0.59	0.44	1.02	1.04
Avail Cap(c_a), veh/h	55	407		136	0	350	1337	0	1090	207	298	279
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.0	45.5	0.0	59.7	0.0	49.2	36.2	0.0	11.3	48.1	52.6	52.6
Incr Delay (d2), s/veh	118.3	7.4	0.0	4.1	0.0	153.0	70.8	0.0	0.8	1.5	56.5	63.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.7	15.9	0.0	4.8	0.0	40.6	50.1	0.0	17.0	5.3	21.6	21.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	183.3	52.9	0.0	63.8	0.0	202.2	107.0	0.0	12.2	49.5	109.1	115.9
LnGrp LOS	F	D		E	A	F	F	A	B	D	F	F
Approach Vol, veh/h		359			527			2159			683	
Approach Delay, s/veh		72.9			183.0			78.9			104.1	
Approach LOS		E			F			E			F	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		93.0		37.0	63.0	30.0		37.0				
Change Period (Y+Rc), s		5.2		5.4	5.4	5.2		5.4				
Max Green Setting (Gmax), s		87.8		31.6	57.6	24.8		31.6				
Max Q Clear Time (g_c+I1), s		29.7		33.6	59.6	26.8		33.6				
Green Ext Time (p_c), s		3.5		0.0	0.0	0.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		97.6
HCM 6th LOS		F

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	302	1251	1416	127	178	361
Future Volume (veh/h)	302	1251	1416	127	178	361
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1660	1647	1634	1687	1673	1660
Adj Flow Rate, veh/h	397	1317	1573	0	193	0
Peak Hour Factor	0.76	0.95	0.90	0.86	0.92	0.86
Percent Heavy Veh, %	3	4	5	1	2	3
Cap, veh/h	422	2476	1692		219	
Arrive On Green	0.22	0.79	0.55	0.00	0.14	0.00
Sat Flow, veh/h	1581	3212	3186	1429	1594	1407
Grp Volume(v), veh/h	397	1317	1573	0	193	0
Grp Sat Flow(s),veh/h/ln	1581	1565	1552	1429	1594	1407
Q Serve(g_s), s	25.5	19.8	61.2	0.0	15.6	0.0
Cycle Q Clear(g_c), s	25.5	19.8	61.2	0.0	15.6	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	422	2476	1692		219	
V/C Ratio(X)	0.94	0.53	0.93		0.88	
Avail Cap(c_a), veh/h	470	2738	1857		319	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	41.4	4.9	27.4	0.0	55.4	0.0
Incr Delay (d2), s/veh	25.8	0.2	8.4	0.0	17.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	23.2	11.8	35.0	0.0	12.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	67.2	5.1	35.9	0.0	72.7	0.0
LnGrp LOS	E	A	D		E	
Approach Vol, veh/h		1714	1573	A	193	A
Approach Delay, s/veh		19.5	35.9		72.7	
Approach LOS		B	D		E	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		108.9		22.0	32.2	76.6
Change Period (Y+Rc), s		5.3		4.0	3.9	5.3
Max Green Setting (Gmax), s		114.5		26.2	32.3	78.3
Max Q Clear Time (g_c+I1), s		21.8		17.6	27.5	63.2
Green Ext Time (p_c), s		9.8		0.5	0.8	8.2

Intersection Summary		
HCM 6th Ctrl Delay	29.8	
HCM 6th LOS	C	

Notes

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	49	380	481	41	44	58
Future Vol, veh/h	49	380	481	41	44	58
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	300	-	-	-	500	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	2	2	0	0	0
Mvmt Flow	60	463	587	50	54	71

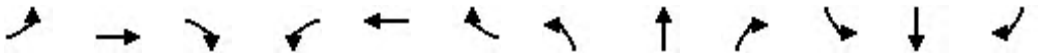
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	637	0	-	0	1195	612
Stage 1	-	-	-	-	612	-
Stage 2	-	-	-	-	583	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	956	-	-	-	208	497
Stage 1	-	-	-	-	545	-
Stage 2	-	-	-	-	562	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	956	-	-	-	195	497
Mov Cap-2 Maneuver	-	-	-	-	333	-
Stage 1	-	-	-	-	511	-
Stage 2	-	-	-	-	562	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	15.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	956	-	-	-	333	497
HCM Lane V/C Ratio	0.063	-	-	-	0.161	0.142
HCM Control Delay (s)	9	-	-	-	17.9	13.4
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.6	0.5

HCM 6th Signalized Intersection Summary
11: Power Street & Westminster Ave W

2047 PM Option 7 (Modest Growth)
12/08/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	212	147	55	269	18	174	126	75	28	118	47
Future Volume (veh/h)	32	212	147	55	269	18	174	126	75	28	118	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.99	0.98		0.95	0.98		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	1.00	1.00	1.00	0.89
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1634	1660	1660	1673	1700	1594	1594	1660	1528	1660	1634
Adj Flow Rate, veh/h	49	233	233	82	332	24	235	194	97	85	128	65
Peak Hour Factor	0.65	0.91	0.63	0.67	0.81	0.75	0.74	0.65	0.77	0.33	0.92	0.72
Percent Heavy Veh, %	0	5	3	3	2	0	8	8	3	13	3	5
Cap, veh/h	273	328	328	107	342	22	358	369	184	149	192	84
Arrive On Green	0.45	0.45	0.45	0.45	0.45	0.45	0.38	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	1042	735	735	102	764	50	1115	981	491	218	512	223
Grp Volume(v), veh/h	49	0	466	438	0	0	235	0	291	278	0	0
Grp Sat Flow(s),veh/h/ln	1042	0	1469	916	0	0	1115	0	1472	953	0	0
Q Serve(g_s), s	0.0	0.0	18.0	13.3	0.0	0.0	4.4	0.0	10.8	9.5	0.0	0.0
Cycle Q Clear(g_c), s	5.7	0.0	18.0	31.3	0.0	0.0	24.7	0.0	10.8	20.3	0.0	0.0
Prop In Lane	1.00		0.50	0.19		0.05	1.00		0.33	0.31		0.23
Lane Grp Cap(c), veh/h	273	0	657	471	0	0	358	0	553	425	0	0
V/C Ratio(X)	0.18	0.00	0.71	0.93	0.00	0.00	0.66	0.00	0.53	0.65	0.00	0.00
Avail Cap(c_a), veh/h	278	0	663	471	0	0	358	0	553	429	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.3	0.0	15.7	20.9	0.0	0.0	22.9	0.0	17.0	20.6	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	3.6	25.4	0.0	0.0	4.3	0.0	0.9	3.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.0	0.0	11.6	16.8	0.0	0.0	8.0	0.0	7.4	8.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.7	0.0	19.3	46.3	0.0	0.0	27.2	0.0	17.9	24.1	0.0	0.0
LnGrp LOS	B	A	B	D	A	A	C	A	B	C	A	A
Approach Vol, veh/h		515			438			526			278	
Approach Delay, s/veh		18.7			46.3			22.1			24.1	
Approach LOS		B			D			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		37.1		32.9		37.1		32.9				
Change Period (Y+Rc), s		* 5.8		* 6.6		* 5.8		6.6				
Max Green Setting (Gmax), s		* 32		* 27		* 31		26.3				
Max Q Clear Time (g_c+I1), s		20.0		22.3		33.3		26.7				
Green Ext Time (p_c), s		2.6		0.5		0.0		0.0				

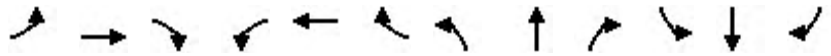
Intersection Summary	
HCM 6th Ctrl Delay	27.4
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
14: Hwy 97 & Alberni

2047 PM Option 7 (Modest Growth)
12/08/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	1431	1	76	1526	95	48	7	28	57	6	27
Future Volume (veh/h)	49	1431	1	76	1526	95	48	7	28	57	6	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1687	1700	1700	1687	1700	1687	1687	1687	1660	1660	1660
Adj Flow Rate, veh/h	60	1745	1	93	1861	116	59	9	34	76	8	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.75	0.75	0.75
Percent Heavy Veh, %	0	1	0	0	1	0	1	1	1	3	3	3
Cap, veh/h	158	2113	1	214	1989	123	205	39	90	303	28	
Arrive On Green	0.03	0.64	0.64	0.04	0.65	0.65	0.18	0.18	0.18	0.18	0.18	0.00
Sat Flow, veh/h	1619	3287	2	1619	3066	189	780	215	498	1246	153	1407
Grp Volume(v), veh/h	60	851	895	93	963	1014	102	0	0	84	0	0
Grp Sat Flow(s),veh/h/ln	1619	1602	1686	1619	1602	1653	1493	0	0	1399	0	1407
Q Serve(g_s), s	1.1	35.7	35.8	1.7	46.8	49.3	0.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.1	35.7	35.8	1.7	46.8	49.3	4.9	0.0	0.0	4.5	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.11	0.58		0.33	0.90		1.00
Lane Grp Cap(c), veh/h	158	1030	1084	214	1039	1072	334	0	0	331	0	
V/C Ratio(X)	0.38	0.83	0.83	0.43	0.93	0.95	0.31	0.00	0.00	0.25	0.00	
Avail Cap(c_a), veh/h	175	1050	1105	221	1050	1083	334	0	0	331	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	21.7	12.0	12.0	15.5	13.7	14.1	31.7	0.0	0.0	31.5	0.0	0.0
Incr Delay (d2), s/veh	1.5	5.4	5.2	1.4	13.5	15.9	2.3	0.0	0.0	1.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	21.8	22.7	2.3	29.6	32.4	4.1	0.0	0.0	3.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.2	17.5	17.2	16.9	27.2	30.0	34.0	0.0	0.0	33.3	0.0	0.0
LnGrp LOS	C	B	B	B	C	C	C	A	A	C	A	
Approach Vol, veh/h		1806			2070			102			84	A
Approach Delay, s/veh		17.5			28.1			34.0			33.3	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	20.0	7.6	60.9	20.0	7.1	61.4
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	16.0	4.0	58.0	16.0	4.0	58.0
Max Q Clear Time (g_c+I1), s	6.9	3.7	37.8	6.5	3.1	51.3
Green Ext Time (p_c), s	0.3	0.0	14.8	0.3	0.0	6.1

Intersection Summary	
HCM 6th Ctrl Delay	23.7
HCM 6th LOS	C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↱			↑↑↱				↱			↱
Traffic Vol, veh/h	0	1449	44	0	1553	53	0	0	19	0	0	1
Future Vol, veh/h	0	1449	44	0	1553	53	0	0	19	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	1	3	0	0	3	1	0	0	0	1	0	1
Mvmt Flow	0	1767	54	0	1894	65	0	0	23	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	911	-	-	980
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.9	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.3	-	-	3.31
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	281	0	0	251
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	281	-	-	251
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	19	19.4
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	281	-	-	-	-	251
HCM Lane V/C Ratio	0.082	-	-	-	-	0.005
HCM Control Delay (s)	19	-	-	-	-	19.4
HCM Lane LOS	C	-	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	-	0

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	1	42	1	1	1	70	9	1	1	1	6
Future Vol, veh/h	5	1	42	1	1	1	70	9	1	1	1	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	6	1	51	1	1	1	85	11	1	1	1	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	190	189	5	215	192	12	8	0	0	12	0	0
Stage 1	7	7	-	182	182	-	-	-	-	-	-	-
Stage 2	183	182	-	33	10	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	772	708	1081	744	705	1072	1619	-	-	1613	-	-
Stage 1	1017	892	-	822	751	-	-	-	-	-	-	-
Stage 2	821	751	-	986	889	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	738	670	1081	679	667	1072	1619	-	-	1613	-	-
Mov Cap-2 Maneuver	738	670	-	679	667	-	-	-	-	-	-	-
Stage 1	963	891	-	778	711	-	-	-	-	-	-	-
Stage 2	775	711	-	937	888	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.6	9.7	6.4	0.9
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1619	-	-	1066	768	1613	-	-
HCM Lane V/C Ratio	0.053	-	-	0.049	0.005	0.001	-	-
HCM Control Delay (s)	7.3	0	-	8.6	9.7	7.2	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.2	0	0	-	-

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	5	39	18	1	10	35	71	50	18	31	2
Future Vol, veh/h	3	5	39	18	1	10	35	71	50	18	31	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	75	25	46	82	75	38	59	68	57	50	25
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	0	0
Mvmt Flow	6	7	156	39	1	13	92	120	74	32	62	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	478	508	66	553	475	157	70	0	0	194	0	0
Stage 1	130	130	-	341	341	-	-	-	-	-	-	-
Stage 2	348	378	-	212	134	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	501	471	1003	447	491	894	1544	-	-	1391	-	-
Stage 1	878	792	-	678	642	-	-	-	-	-	-	-
Stage 2	672	619	-	795	789	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	459	429	1003	348	447	894	1544	-	-	1391	-	-
Mov Cap-2 Maneuver	459	429	-	348	447	-	-	-	-	-	-	-
Stage 1	819	773	-	633	599	-	-	-	-	-	-	-
Stage 2	616	578	-	650	770	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.8	15	2.4	2.4
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1544	-	-	916	413	1391	-	-
HCM Lane V/C Ratio	0.06	-	-	0.184	0.13	0.023	-	-
HCM Control Delay (s)	7.5	0	-	9.8	15	7.6	0	-
HCM Lane LOS	A	A	-	A	C	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.7	0.4	0.1	-	-

Intersection	
Int Delay, s/veh	104.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1411	93	133	1639	52	52
Future Vol, veh/h	1411	93	133	1639	52	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	1721	113	162	1999	63	63

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1834	0	3102	917
Stage 1	-	-	-	-	1778	-
Stage 2	-	-	-	-	1324	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	337	-	~ 9	278
Stage 1	-	-	-	-	123	-
Stage 2	-	-	-	-	217	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	337	-	~ 9	278
Mov Cap-2 Maneuver	-	-	-	-	~ 9	-
Stage 1	-	-	-	-	123	-
Stage 2	-	-	-	-	217	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	$ 3350.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	17	-	-	337	-
HCM Lane V/C Ratio	7.461	-	-	0.481	-
HCM Control Delay (s)	$ 3350.9	-	-	25.2	0
HCM Lane LOS	F	-	-	D	A
HCM 95th %tile Q(veh)	16.6	-	-	2.5	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	-	350	600	-	0	550
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	0	0	0	0	0

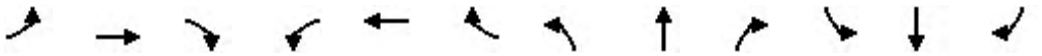
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	2	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	1	-
Critical Hdwy	-	-	4.12	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	2.21	-	3.51	3.31
Pot Cap-1 Maneuver	-	-	1628	-	1023	1086
Stage 1	-	-	-	-	1024	-
Stage 2	-	-	-	-	1024	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1628	-	1023	1086
Mov Cap-2 Maneuver	-	-	-	-	1023	-
Stage 1	-	-	-	-	1024	-
Stage 2	-	-	-	-	1024	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	-	1628	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	0	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	-	0	-

HCM 6th Signalized Intersection Summary
4: Hwy 97 & Eckhardt Ave W & Vees Drive

2047 PM Option 7 (High Growth)
04/10/2023



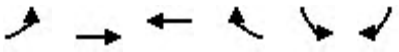
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	386	1238	83	440	83	1443	641	166	115	506	160
Future Volume (veh/h)	71	386	1238	83	440	83	1443	641	166	115	506	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1673	1634	1673	1660	1647	1634	1673	1660	1700	1647	1687
Adj Flow Rate, veh/h	76	415	0	101	512	100	1519	697	175	121	550	258
Peak Hour Factor	0.94	0.93	0.90	0.82	0.86	0.83	0.95	0.92	0.95	0.95	0.92	0.62
Percent Heavy Veh, %	0	2	5	2	3	4	5	2	3	0	4	1
Cap, veh/h	60	510		134	368	72	996	782	196	153	477	223
Arrive On Green	0.31	0.31	0.00	0.31	0.31	0.31	0.33	0.61	0.61	0.23	0.23	0.23
Sat Flow, veh/h	823	1673	1384	971	1206	236	3018	1290	324	644	2060	964
Grp Volume(v), veh/h	76	415	0	101	0	612	1519	0	872	121	417	391
Grp Sat Flow(s),veh/h/ln	823	1673	1384	971	0	1442	1509	0	1613	644	1565	1460
Q Serve(g_s), s	0.0	27.5	0.0	9.1	0.0	36.6	39.6	0.0	55.5	17.3	27.8	27.8
Cycle Q Clear(g_c), s	36.6	27.5	0.0	36.6	0.0	36.6	39.6	0.0	55.5	27.8	27.8	27.8
Prop In Lane	1.00		1.00	1.00		0.16	1.00		0.20	1.00		0.66
Lane Grp Cap(c), veh/h	60	510		134	0	440	996	0	979	153	362	338
V/C Ratio(X)	1.27	0.81		0.76	0.00	1.39	1.52	0.00	0.89	0.79	1.15	1.16
Avail Cap(c_a), veh/h	60	510		134	0	440	996	0	979	153	362	338
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.0	38.5	0.0	56.7	0.0	41.7	40.2	0.0	20.2	53.4	46.1	46.1
Incr Delay (d2), s/veh	203.9	9.7	0.0	21.5	0.0	189.6	241.4	0.0	10.3	24.0	95.1	98.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.6	19.5	0.0	7.3	0.0	56.3	75.6	0.0	33.7	8.5	30.9	29.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	263.9	48.3	0.0	78.2	0.0	231.3	281.6	0.0	30.5	77.4	141.2	144.1
LnGrp LOS	F	D		E	A	F	F	A	C	E	F	F
Approach Vol, veh/h		491			713			2391			929	
Approach Delay, s/veh		81.6			209.7			190.0			134.1	
Approach LOS		F			F			F			F	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		78.0		42.0	45.0	33.0		42.0				
Change Period (Y+Rc), s		5.2		5.4	5.4	5.2		5.4				
Max Green Setting (Gmax), s		72.8		36.6	39.6	27.8		36.6				
Max Q Clear Time (g_c+I1), s		57.5		38.6	41.6	29.8		38.6				
Green Ext Time (p_c), s		4.4		0.0	0.0	0.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay	169.9	
HCM 6th LOS	F	

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	373	1475	1673	171	244	463
Future Volume (veh/h)	373	1475	1673	171	244	463
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1660	1620	1554	1660	1673	1660
Adj Flow Rate, veh/h	491	1553	1859	0	265	0
Peak Hour Factor	0.76	0.95	0.90	0.86	0.92	0.86
Percent Heavy Veh, %	3	6	11	3	2	3
Cap, veh/h	355	2356	1610		275	
Arrive On Green	0.19	0.77	0.55	0.00	0.17	0.00
Sat Flow, veh/h	1581	3160	3031	1407	1594	1407
Grp Volume(v), veh/h	491	1553	1859	0	265	0
Grp Sat Flow(s),veh/h/ln	1581	1539	1476	1407	1594	1407
Q Serve(g_s), s	29.1	35.8	81.8	0.0	24.7	0.0
Cycle Q Clear(g_c), s	29.1	35.8	81.8	0.0	24.7	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	355	2356	1610		275	
V/C Ratio(X)	1.38	0.66	1.15		0.96	
Avail Cap(c_a), veh/h	355	2356	1610		275	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	53.5	8.3	34.1	0.0	61.6	0.0
Incr Delay (d2), s/veh	189.5	0.7	77.0	0.0	44.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	48.5	19.8	67.3	0.0	20.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	243.0	9.0	111.1	0.0	105.6	0.0
LnGrp LOS	F	A	F		F	
Approach Vol, veh/h		2044	1859	A	265	A
Approach Delay, s/veh		65.2	111.1		105.6	
Approach LOS		E	F		F	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		120.1		29.9	33.0	87.1
Change Period (Y+Rc), s		5.3		4.0	3.9	5.3
Max Green Setting (Gmax), s		114.8		25.9	29.1	81.8
Max Q Clear Time (g_c+I1), s		37.8		26.7	31.1	83.8
Green Ext Time (p_c), s		13.4		0.0	0.0	0.0

Intersection Summary		
HCM 6th Ctrl Delay		88.3
HCM 6th LOS		F

Notes

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	62	482	633	54	59	73
Future Vol, veh/h	62	482	633	54	59	73
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	300	-	-	-	500	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	2	2	2	11	3
Mvmt Flow	76	588	772	66	72	89

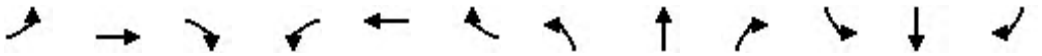
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	838	0	-	0	1545	805
Stage 1	-	-	-	-	805	-
Stage 2	-	-	-	-	740	-
Critical Hdwy	4.1	-	-	-	6.51	6.23
Critical Hdwy Stg 1	-	-	-	-	5.51	-
Critical Hdwy Stg 2	-	-	-	-	5.51	-
Follow-up Hdwy	2.2	-	-	-	3.599	3.327
Pot Cap-1 Maneuver	805	-	-	-	120	381
Stage 1	-	-	-	-	425	-
Stage 2	-	-	-	-	456	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	805	-	-	-	109	381
Mov Cap-2 Maneuver	-	-	-	-	240	-
Stage 1	-	-	-	-	385	-
Stage 2	-	-	-	-	456	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	21.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	805	-	-	-	240	381
HCM Lane V/C Ratio	0.094	-	-	-	0.3	0.234
HCM Control Delay (s)	9.9	-	-	-	26.3	17.3
HCM Lane LOS	A	-	-	-	D	C
HCM 95th %tile Q(veh)	0.3	-	-	-	1.2	0.9

HCM 6th Signalized Intersection Summary
11: Power Street & Westminster Ave W

2047 PM Option 7 (High Growth)
12/08/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	286	198	76	359	24	226	169	103	37	157	56
Future Volume (veh/h)	40	286	198	76	359	24	226	169	103	37	157	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		0.94	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	1.00	1.00	1.00	0.89
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1634	1660	1660	1673	1700	1594	1594	1660	1528	1660	1634
Adj Flow Rate, veh/h	62	314	314	113	443	32	305	260	134	112	171	78
Peak Hour Factor	0.65	0.91	0.63	0.67	0.81	0.75	0.74	0.65	0.77	0.33	0.92	0.72
Percent Heavy Veh, %	0	5	3	3	2	0	8	8	3	13	3	5
Cap, veh/h	232	391	391	76	238	16	241	362	187	88	115	46
Arrive On Green	0.53	0.53	0.53	0.53	0.53	0.53	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	934	736	736	81	449	30	1077	970	500	140	307	123
Grp Volume(v), veh/h	62	0	628	588	0	0	305	0	394	361	0	0
Grp Sat Flow(s),veh/h/ln	934	0	1471	560	0	0	1077	0	1470	570	0	0
Q Serve(g_s), s	0.0	0.0	45.4	23.8	0.0	0.0	0.0	0.0	29.9	18.7	0.0	0.0
Cycle Q Clear(g_c), s	14.0	0.0	45.4	69.2	0.0	0.0	48.6	0.0	29.9	48.6	0.0	0.0
Prop In Lane	1.00		0.50	0.19		0.05	1.00		0.34	0.31		0.22
Lane Grp Cap(c), veh/h	232	0	782	330	0	0	241	0	549	249	0	0
V/C Ratio(X)	0.27	0.00	0.80	1.78	0.00	0.00	1.26	0.00	0.72	1.45	0.00	0.00
Avail Cap(c_a), veh/h	234	0	785	330	0	0	241	0	549	249	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.6	0.0	24.9	42.2	0.0	0.0	46.4	0.0	34.9	50.5	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	6.2	362.8	0.0	0.0	147.9	0.0	4.5	223.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.2	0.0	25.7	75.3	0.0	0.0	29.0	0.0	18.0	39.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.3	0.0	31.1	405.0	0.0	0.0	194.3	0.0	39.4	273.6	0.0	0.0
LnGrp LOS	B	A	C	F	A	A	F	A	D	F	A	A
Approach Vol, veh/h		690			588			699			361	
Approach Delay, s/veh		30.0			405.0			107.0			273.6	
Approach LOS		C			F			F			F	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		75.0		55.2		75.0		55.2				
Change Period (Y+Rc), s		* 5.8		* 6.6		* 5.8		6.6				
Max Green Setting (Gmax), s		* 70		* 49		* 69		48.4				
Max Q Clear Time (g_c+I1), s		47.4		50.6		71.2		50.6				
Green Ext Time (p_c), s		5.1		0.0		0.0		0.0				

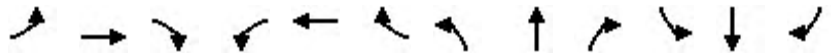
Intersection Summary		
HCM 6th Ctrl Delay		184.9
HCM 6th LOS		F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
14: Hwy 97 & Alberni

2047 PM Option 7 (High Growth)
12/08/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	1689	1	88	1800	117	62	9	35	70	8	37
Future Volume (veh/h)	67	1689	1	88	1800	117	62	9	35	70	8	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1687	1700	1700	1687	1700	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	82	2060	1	107	2195	143	76	11	43	85	10	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	0	1	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	116	2411	1	172	2246	145	157	28	68	206	21	
Arrive On Green	0.03	0.73	0.73	0.03	0.73	0.73	0.13	0.13	0.13	0.13	0.13	0.00
Sat Flow, veh/h	1619	3287	2	1619	3057	197	815	213	508	1115	156	1441
Grp Volume(v), veh/h	82	1004	1057	107	1139	1199	130	0	0	95	0	0
Grp Sat Flow(s),veh/h/ln	1619	1602	1686	1619	1602	1651	1536	0	0	1271	0	1441
Q Serve(g_s), s	1.5	53.6	53.6	2.0	78.0	84.1	0.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.5	53.6	53.6	2.0	78.0	84.1	9.2	0.0	0.0	9.1	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.12	0.58		0.33	0.89		1.00
Lane Grp Cap(c), veh/h	116	1175	1237	172	1178	1213	253	0	0	227	0	
V/C Ratio(X)	0.71	0.85	0.85	0.62	0.97	0.99	0.51	0.00	0.00	0.42	0.00	
Avail Cap(c_a), veh/h	119	1175	1237	200	1178	1214	253	0	0	227	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	35.6	11.4	11.4	26.3	14.6	15.4	48.9	0.0	0.0	48.8	0.0	0.0
Incr Delay (d2), s/veh	17.1	6.3	6.0	4.5	18.8	22.9	7.3	0.0	0.0	5.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.4	30.7	31.9	4.9	46.2	51.8	7.9	0.0	0.0	5.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.6	17.7	17.5	30.8	33.4	38.3	56.2	0.0	0.0	54.4	0.0	0.0
LnGrp LOS	D	B	B	C	C	D	E	A	A	D	A	
Approach Vol, veh/h		2143			2445			130			95	A
Approach Delay, s/veh		18.9			35.7			56.2			54.4	
Approach LOS		B			D			E			D	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	20.0	7.9	91.8	20.0	7.7	92.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	16.0	6.0	86.0	16.0	4.0	88.0
Max Q Clear Time (g_c+I1), s	11.2	4.0	55.6	11.1	3.5	86.1
Green Ext Time (p_c), s	0.3	0.1	24.1	0.2	0.0	1.8

Intersection Summary	
HCM 6th Ctrl Delay	29.1
HCM 6th LOS	C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↳			↑↑↳				↱			↱
Traffic Vol, veh/h	0	1711	57	0	1830	73	0	0	26	0	0	7
Future Vol, veh/h	0	1711	57	0	1830	73	0	0	26	0	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	1	3	0	0	3	1	0	0	0	1	0	1
Mvmt Flow	0	2087	70	0	2232	89	0	0	32	0	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	1079	-	-	1161
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.9	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.3	-	-	3.31
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	217	0	0	190
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	217	-	-	190
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	24.4	24.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	217	-	-	-	-	190
HCM Lane V/C Ratio	0.146	-	-	-	-	0.045
HCM Control Delay (s)	24.4	-	-	-	-	24.8
HCM Lane LOS	C	-	-	-	-	C
HCM 95th %tile Q(veh)	0.5	-	-	-	-	0.1

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	1	47	1	1	1	83	12	1	1	1	8
Future Vol, veh/h	7	1	47	1	1	1	83	12	1	1	1	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	9	1	57	1	1	1	101	15	1	1	1	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	227	226	6	255	231	16	11	0	0	16	0	0
Stage 1	8	8	-	218	218	-	-	-	-	-	-	-
Stage 2	219	218	-	37	13	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	730	675	1080	700	671	1066	1615	-	-	1608	-	-
Stage 1	1016	891	-	787	724	-	-	-	-	-	-	-
Stage 2	786	724	-	981	887	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	693	632	1080	629	628	1066	1615	-	-	1608	-	-
Mov Cap-2 Maneuver	693	632	-	629	628	-	-	-	-	-	-	-
Stage 1	952	890	-	737	678	-	-	-	-	-	-	-
Stage 2	734	678	-	927	886	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.6	10	6.4	0.7
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1615	-	-	1064	728	1608	-	-
HCM Lane V/C Ratio	0.063	-	-	0.055	0.005	0.001	-	-
HCM Control Delay (s)	7.4	0	-	8.6	10	7.2	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.2	0	0	-	-

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	7	54	25	0	14	45	85	69	25	33	3
Future Vol, veh/h	4	7	54	25	0	14	45	85	69	25	33	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	100	25	46	82	75	38	59	68	57	50	25
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	0	0
Mvmt Flow	8	7	216	54	0	19	118	144	101	44	66	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	600	641	72	703	597	195	78	0	0	245	0	0
Stage 1	160	160	-	431	431	-	-	-	-	-	-	-
Stage 2	440	481	-	272	166	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	416	395	996	355	419	851	1533	-	-	1333	-	-
Stage 1	847	769	-	607	586	-	-	-	-	-	-	-
Stage 2	600	557	-	738	765	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	369	347	996	248	368	851	1533	-	-	1333	-	-
Mov Cap-2 Maneuver	369	347	-	248	368	-	-	-	-	-	-	-
Stage 1	771	742	-	552	533	-	-	-	-	-	-	-
Stage 2	534	507	-	552	738	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.4	20.6	2.5	2.8
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1533	-	-	893	303	1333	-	-
HCM Lane V/C Ratio	0.077	-	-	0.259	0.241	0.033	-	-
HCM Control Delay (s)	7.5	0	-	10.4	20.6	7.8	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-	1	0.9	0.1	-	-

Intersection	
Int Delay, s/veh	46.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1659	128	183	1925	72	72
Future Vol, veh/h	1659	128	183	1925	72	72
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	3	0	0	3	0	0
Mvmt Flow	2212	171	244	2567	96	96

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2383	0	4070	1192
Stage 1	-	-	-	-	2298	-
Stage 2	-	-	-	-	1772	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	~ 206	-	~ 2	183
Stage 1	-	-	-	-	~ 63	-
Stage 2	-	-	-	-	124	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	~ 206	-	0	183
Mov Cap-2 Maneuver	-	-	-	-	0	-
Stage 1	-	-	-	-	~ 63	-
Stage 2	-	-	-	-	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	79.5	132.7
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	183	-	-	~ 206	-
HCM Lane V/C Ratio	1.049	-	-	1.184	-
HCM Control Delay (s)	132.7	-	-	169	71
HCM Lane LOS	F	-	-	F	F
HCM 95th %tile Q(veh)	9.1	-	-	12.2	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	-	350	600	-	0	550
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	0	0	0	0	0

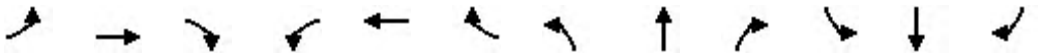
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	2	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	1	-
Critical Hdwy	-	-	4.12	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	2.21	-	3.51	3.31
Pot Cap-1 Maneuver	-	-	1628	-	1023	1086
Stage 1	-	-	-	-	1024	-
Stage 2	-	-	-	-	1024	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1628	-	1023	1086
Mov Cap-2 Maneuver	-	-	-	-	1023	-
Stage 1	-	-	-	-	1024	-
Stage 2	-	-	-	-	1024	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	-	1628	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	0	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	-	0	-

HCM 6th Signalized Intersection Summary
4: Hwy 97 & Eckhardt Ave W & Vees Drive

2047 PM Option 8 (Moderate Growth)
04/10/2023



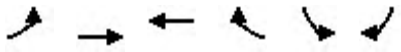
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	284	1239	60	340	63	1477	472	121	86	373	116
Future Volume (veh/h)	52	284	1239	60	340	63	1477	472	121	86	373	116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1673	1634	1673	1660	1647	1634	1673	1660	1700	1647	1687
Adj Flow Rate, veh/h	55	305	0	73	395	76	1555	513	127	91	405	187
Peak Hour Factor	0.94	0.93	0.90	0.82	0.86	0.83	0.95	0.92	0.95	0.95	0.92	0.62
Percent Heavy Veh, %	0	2	5	2	3	4	5	2	3	0	4	1
Cap, veh/h	51	426		146	308	59	1350	867	215	198	383	174
Arrive On Green	0.25	0.25	0.00	0.25	0.25	0.25	0.45	0.67	0.67	0.18	0.18	0.18
Sat Flow, veh/h	937	1673	1384	1073	1210	233	3018	1294	320	797	2078	947
Grp Volume(v), veh/h	55	305	0	73	0	471	1555	0	640	91	304	288
Grp Sat Flow(s),veh/h/ln	937	1673	1384	1073	0	1442	1509	0	1614	797	1565	1460
Q Serve(g_s), s	0.0	23.3	0.0	9.3	0.0	35.6	62.6	0.0	30.3	14.7	25.8	25.8
Cycle Q Clear(g_c), s	35.6	23.3	0.0	32.6	0.0	35.6	62.6	0.0	30.3	14.7	25.8	25.8
Prop In Lane	1.00		1.00	1.00		0.16	1.00		0.20	1.00		0.65
Lane Grp Cap(c), veh/h	51	426		146	0	367	1350	0	1082	198	288	269
V/C Ratio(X)	1.07	0.72		0.50	0.00	1.28	1.15	0.00	0.59	0.46	1.05	1.07
Avail Cap(c_a), veh/h	51	426		146	0	367	1350	0	1082	198	288	269
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.0	47.6	0.0	62.5	0.0	52.2	38.7	0.0	12.6	52.6	57.1	57.1
Incr Delay (d2), s/veh	146.3	5.7	0.0	2.6	0.0	147.1	77.4	0.0	0.9	1.7	67.6	75.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.3	16.5	0.0	5.0	0.0	42.8	55.0	0.0	18.4	5.8	23.4	23.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	216.3	53.3	0.0	65.1	0.0	199.3	116.1	0.0	13.5	54.2	124.7	132.3
LnGrp LOS	F	D		E	A	F	F	A	B	D	F	F
Approach Vol, veh/h		360			544			2195			683	
Approach Delay, s/veh		78.2			181.3			86.2			118.5	
Approach LOS		E			F			F			F	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		99.0		41.0	68.0	31.0		41.0				
Change Period (Y+Rc), s		5.2		5.4	5.4	5.2		5.4				
Max Green Setting (Gmax), s		93.8		35.6	62.6	25.8		35.6				
Max Q Clear Time (g_c+I1), s		32.3		37.6	64.6	27.8		37.6				
Green Ext Time (p_c), s		3.5		0.0	0.0	0.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay	104.9	
HCM 6th LOS	F	

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	296	1251	1416	127	178	355
Future Volume (veh/h)	296	1251	1416	127	178	355
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1660	1647	1634	1687	1673	1660
Adj Flow Rate, veh/h	389	1317	1573	0	193	0
Peak Hour Factor	0.76	0.95	0.90	0.86	0.92	0.86
Percent Heavy Veh, %	3	4	5	1	2	3
Cap, veh/h	416	2470	1702		220	
Arrive On Green	0.21	0.79	0.55	0.00	0.14	0.00
Sat Flow, veh/h	1581	3212	3186	1429	1594	1407
Grp Volume(v), veh/h	389	1317	1573	0	193	0
Grp Sat Flow(s),veh/h/ln	1581	1565	1552	1429	1594	1407
Q Serve(g_s), s	24.0	19.6	59.4	0.0	15.2	0.0
Cycle Q Clear(g_c), s	24.0	19.6	59.4	0.0	15.2	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	416	2470	1702		220	
V/C Ratio(X)	0.93	0.53	0.92		0.88	
Avail Cap(c_a), veh/h	480	2799	1903		326	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	40.2	4.9	26.5	0.0	54.1	0.0
Incr Delay (d2), s/veh	23.9	0.2	7.7	0.0	16.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	22.2	11.7	33.9	0.0	12.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	64.2	5.1	34.1	0.0	70.3	0.0
LnGrp LOS	E	A	C		E	
Approach Vol, veh/h		1706	1573	A	193	A
Approach Delay, s/veh		18.6	34.1		70.3	
Approach LOS		B	C		E	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		106.3		21.7	30.8	75.5
Change Period (Y+Rc), s		5.3		4.0	3.9	5.3
Max Green Setting (Gmax), s		114.5		26.2	32.1	78.5
Max Q Clear Time (g_c+I1), s		21.6		17.2	26.0	61.4
Green Ext Time (p_c), s		9.8		0.5	0.9	8.8

Intersection Summary		
HCM 6th Ctrl Delay		28.5
HCM 6th LOS		C

Notes

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	49	375	475	41	44	58
Future Vol, veh/h	49	375	475	41	44	58
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	300	-	-	-	500	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	2	2	0	0	0
Mvmt Flow	60	457	579	50	54	71

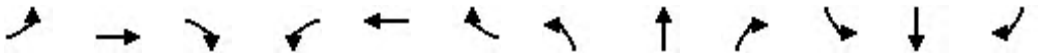
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	629	0	-	0	1181	604
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	577	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	963	-	-	-	212	502
Stage 1	-	-	-	-	550	-
Stage 2	-	-	-	-	566	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	963	-	-	-	199	502
Mov Cap-2 Maneuver	-	-	-	-	337	-
Stage 1	-	-	-	-	516	-
Stage 2	-	-	-	-	566	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	15.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	963	-	-	-	337	502
HCM Lane V/C Ratio	0.062	-	-	-	0.159	0.141
HCM Control Delay (s)	9	-	-	-	17.7	13.3
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.6	0.5

HCM 6th Signalized Intersection Summary
11: Power Street & Westminster Ave W

2047 PM Option 8 (Modest Growth)
12/08/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	212	147	55	269	18	174	126	75	28	118	47
Future Volume (veh/h)	32	212	147	55	269	18	174	126	75	28	118	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.99	0.98		0.95	0.98		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	1.00	1.00	1.00	0.89
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1634	1660	1660	1673	1700	1594	1594	1660	1528	1660	1634
Adj Flow Rate, veh/h	49	233	233	82	332	24	235	194	97	85	128	65
Peak Hour Factor	0.65	0.91	0.63	0.67	0.81	0.75	0.74	0.65	0.77	0.33	0.92	0.72
Percent Heavy Veh, %	0	5	3	3	2	0	8	8	3	13	3	5
Cap, veh/h	273	328	328	107	342	22	358	369	184	149	192	84
Arrive On Green	0.45	0.45	0.45	0.45	0.45	0.45	0.38	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	1042	735	735	102	764	50	1115	981	491	218	512	223
Grp Volume(v), veh/h	49	0	466	438	0	0	235	0	291	278	0	0
Grp Sat Flow(s),veh/h/ln	1042	0	1469	916	0	0	1115	0	1472	953	0	0
Q Serve(g_s), s	0.0	0.0	18.0	13.3	0.0	0.0	4.4	0.0	10.8	9.5	0.0	0.0
Cycle Q Clear(g_c), s	5.7	0.0	18.0	31.3	0.0	0.0	24.7	0.0	10.8	20.3	0.0	0.0
Prop In Lane	1.00		0.50	0.19		0.05	1.00		0.33	0.31		0.23
Lane Grp Cap(c), veh/h	273	0	657	471	0	0	358	0	553	425	0	0
V/C Ratio(X)	0.18	0.00	0.71	0.93	0.00	0.00	0.66	0.00	0.53	0.65	0.00	0.00
Avail Cap(c_a), veh/h	278	0	663	471	0	0	358	0	553	429	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.3	0.0	15.7	20.9	0.0	0.0	22.9	0.0	17.0	20.6	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	3.6	25.4	0.0	0.0	4.3	0.0	0.9	3.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.0	0.0	11.6	16.8	0.0	0.0	8.0	0.0	7.4	8.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.7	0.0	19.3	46.3	0.0	0.0	27.2	0.0	17.9	24.1	0.0	0.0
LnGrp LOS	B	A	B	D	A	A	C	A	B	C	A	A
Approach Vol, veh/h		515			438			526			278	
Approach Delay, s/veh		18.7			46.3			22.1			24.1	
Approach LOS		B			D			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		37.1		32.9		37.1		32.9				
Change Period (Y+Rc), s		* 5.8		* 6.6		* 5.8		6.6				
Max Green Setting (Gmax), s		* 32		* 27		* 31		26.3				
Max Q Clear Time (g_c+I1), s		20.0		22.3		33.3		26.7				
Green Ext Time (p_c), s		2.6		0.5		0.0		0.0				

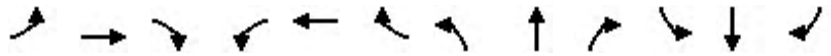
Intersection Summary		
HCM 6th Ctrl Delay	27.4	
HCM 6th LOS	C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
14: Hwy 97 & Alberni

2047 PM Option 8 (Modest Growth)
12/08/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	1431	1	76	1590	144	48	7	28	59	6	27
Future Volume (veh/h)	49	1431	1	76	1590	144	48	7	28	59	6	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1687	1700	1700	1687	1700	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	60	1745	1	93	1939	176	59	9	34	72	7	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	0	1	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	137	2121	1	215	1937	173	205	39	90	308	26	
Arrive On Green	0.03	0.65	0.65	0.04	0.65	0.65	0.18	0.18	0.18	0.18	0.18	0.00
Sat Flow, veh/h	1619	3287	2	1619	2975	266	784	217	500	1283	145	1441
Grp Volume(v), veh/h	60	851	895	93	1030	1085	102	0	0	79	0	0
Grp Sat Flow(s),veh/h/ln	1619	1602	1686	1619	1602	1639	1501	0	0	1428	0	1441
Q Serve(g_s), s	1.1	35.8	35.8	1.7	56.0	58.0	0.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.1	35.8	35.8	1.7	56.0	58.0	5.0	0.0	0.0	4.1	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.16	0.58		0.33	0.91		1.00
Lane Grp Cap(c), veh/h	137	1034	1088	215	1043	1067	333	0	0	334	0	
V/C Ratio(X)	0.44	0.82	0.82	0.43	0.99	1.02	0.31	0.00	0.00	0.24	0.00	
Avail Cap(c_a), veh/h	154	1043	1098	222	1043	1067	333	0	0	334	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	23.3	11.9	11.9	15.4	15.2	15.5	32.0	0.0	0.0	31.7	0.0	0.0
Incr Delay (d2), s/veh	2.2	5.4	5.1	1.4	24.8	31.8	2.4	0.0	0.0	1.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	21.8	22.6	2.3	37.5	42.2	4.2	0.0	0.0	3.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	17.3	17.1	16.8	40.0	47.3	34.4	0.0	0.0	33.3	0.0	0.0
LnGrp LOS	C	B	B	B	D	F	C	A	A	C	A	
Approach Vol, veh/h		1806			2208			102			79	A
Approach Delay, s/veh		17.5			42.6			34.4			33.3	
Approach LOS		B			D			C			C	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	20.0	7.6	61.5	20.0	7.1	62.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	16.0	4.0	58.0	16.0	4.0	58.0
Max Q Clear Time (g_c+I1), s	7.0	3.7	37.8	6.1	3.1	60.0
Green Ext Time (p_c), s	0.3	0.0	14.8	0.2	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	31.4
HCM 6th LOS	C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↱			↑↑↱				↱			↱
Traffic Vol, veh/h	0	1421	44	0	1553	53	0	0	19	0	0	1
Future Vol, veh/h	0	1421	44	0	1553	53	0	0	19	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	1	3	0	0	3	1	0	0	0	1	0	1
Mvmt Flow	0	1733	54	0	1894	65	0	0	23	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	894	-	-	980
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.9	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.3	-	-	3.31
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	288	0	0	251
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	288	-	-	251
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	18.6	19.4
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	288	-	-	-	-	251
HCM Lane V/C Ratio	0.08	-	-	-	-	0.005
HCM Control Delay (s)	18.6	-	-	-	-	19.4
HCM Lane LOS	C	-	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	-	0

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	1	78	1	1	1	75	9	1	1	1	6
Future Vol, veh/h	5	1	78	1	1	1	75	9	1	1	1	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	6	1	95	1	1	1	91	11	1	1	1	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	202	201	5	249	204	12	8	0	0	12	0	0
Stage 1	7	7	-	194	194	-	-	-	-	-	-	-
Stage 2	195	194	-	55	10	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	758	697	1081	707	694	1072	1619	-	-	1613	-	-
Stage 1	1017	892	-	810	742	-	-	-	-	-	-	-
Stage 2	809	742	-	960	889	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	722	657	1081	615	654	1072	1619	-	-	1613	-	-
Mov Cap-2 Maneuver	722	657	-	615	654	-	-	-	-	-	-	-
Stage 1	959	891	-	764	700	-	-	-	-	-	-	-
Stage 2	761	700	-	873	888	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.8	9.9	6.5	0.9
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1619	-	-	1042	734	1613	-	-
HCM Lane V/C Ratio	0.056	-	-	0.098	0.005	0.001	-	-
HCM Control Delay (s)	7.4	0	-	8.8	9.9	7.2	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.3	0	0	-	-

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	13	5	41	18	10	1	78	73	50	24	31	32
Future Vol, veh/h	13	5	41	18	10	1	78	73	50	24	31	32
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	75	25	46	82	75	38	59	68	57	50	25
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	0	0
Mvmt Flow	26	7	164	39	12	1	205	124	74	42	62	128

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	788	818	126	867	845	161	190	0	0	198	0	0
Stage 1	210	210	-	571	571	-	-	-	-	-	-	-
Stage 2	578	608	-	296	274	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	311	313	930	275	302	889	1396	-	-	1387	-	-
Stage 1	797	732	-	509	508	-	-	-	-	-	-	-
Stage 2	505	489	-	717	687	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	254	252	930	189	243	889	1396	-	-	1387	-	-
Mov Cap-2 Maneuver	254	252	-	189	243	-	-	-	-	-	-	-
Stage 1	665	707	-	425	424	-	-	-	-	-	-	-
Stage 2	408	408	-	565	664	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13	28.7	4.1	1.4
HCM LOS	B	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1396	-	-	644	204	1387	-	-
HCM Lane V/C Ratio	0.147	-	-	0.305	0.258	0.03	-	-
HCM Control Delay (s)	8	0	-	13	28.7	7.7	0	-
HCM Lane LOS	A	A	-	B	D	A	A	-
HCM 95th %tile Q(veh)	0.5	-	-	1.3	1	0.1	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	36	3	5	92	27	33
Future Vol, veh/h	36	3	5	92	27	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	44	4	6	112	33	40

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	48	0	170	46
Stage 1	-	-	-	-	46	-
Stage 2	-	-	-	-	124	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1572	-	825	1029
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	907	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1572	-	822	1029
Mov Cap-2 Maneuver	-	-	-	-	822	-
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	903	-

Approach	EB	WB	NE
HCM Control Delay, s	0	0.4	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	924	-	-	1572	-
HCM Lane V/C Ratio	0.079	-	-	0.004	-
HCM Control Delay (s)	9.2	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	102.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1413	93	133	1688	52	52
Future Vol, veh/h	1413	93	133	1688	52	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	1723	113	162	2059	63	63

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1836	0	3134	918
Stage 1	-	-	-	-	1780	-
Stage 2	-	-	-	-	1354	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	336	-	~ 9	278
Stage 1	-	-	-	-	123	-
Stage 2	-	-	-	-	209	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	336	-	~ 9	278
Mov Cap-2 Maneuver	-	-	-	-	~ 9	-
Stage 1	-	-	-	-	123	-
Stage 2	-	-	-	-	209	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.8	$ 3350.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	17	-	-	336	-
HCM Lane V/C Ratio	7.461	-	-	0.483	-
HCM Control Delay (s)	$ 3350.9	-	-	25.3	0
HCM Lane LOS	F	-	-	D	A
HCM 95th %tile Q(veh)	16.6	-	-	2.5	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	-	350	600	-	0	550
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	0	0	0	0	0

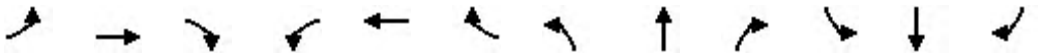
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	2	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	1	-
Critical Hdwy	-	-	4.12	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	2.21	-	3.51	3.31
Pot Cap-1 Maneuver	-	-	1628	-	1023	1086
Stage 1	-	-	-	-	1024	-
Stage 2	-	-	-	-	1024	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1628	-	1023	1086
Mov Cap-2 Maneuver	-	-	-	-	1023	-
Stage 1	-	-	-	-	1024	-
Stage 2	-	-	-	-	1024	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	-	1628	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	0	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	-	0	-

HCM 6th Signalized Intersection Summary
4: Hwy 97 & Eckhardt Ave W & Vees Drive

2047 PM Option 8 (High Growth)
04/10/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	387	1239	83	455	83	1477	641	166	115	506	160
Future Volume (veh/h)	71	387	1239	83	455	83	1477	641	166	115	506	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1673	1634	1673	1660	1647	1634	1673	1660	1700	1647	1687
Adj Flow Rate, veh/h	76	416	0	101	529	100	1555	697	175	121	550	258
Peak Hour Factor	0.94	0.93	0.90	0.82	0.86	0.83	0.95	0.92	0.95	0.95	0.92	0.62
Percent Heavy Veh, %	0	2	5	2	3	4	5	2	3	0	4	1
Cap, veh/h	60	510		133	370	70	996	782	196	153	477	223
Arrive On Green	0.31	0.31	0.00	0.31	0.31	0.31	0.33	0.61	0.61	0.23	0.23	0.23
Sat Flow, veh/h	810	1673	1384	970	1214	229	3018	1290	324	644	2060	964
Grp Volume(v), veh/h	76	416	0	101	0	629	1555	0	872	121	417	391
Grp Sat Flow(s),veh/h/ln	810	1673	1384	970	0	1443	1509	0	1613	644	1565	1460
Q Serve(g_s), s	0.0	27.6	0.0	9.0	0.0	36.6	39.6	0.0	55.5	17.3	27.8	27.8
Cycle Q Clear(g_c), s	36.6	27.6	0.0	36.6	0.0	36.6	39.6	0.0	55.5	27.8	27.8	27.8
Prop In Lane	1.00		1.00	1.00		0.16	1.00		0.20	1.00		0.66
Lane Grp Cap(c), veh/h	60	510		133	0	440	996	0	979	153	362	338
V/C Ratio(X)	1.27	0.82		0.76	0.00	1.43	1.56	0.00	0.89	0.79	1.15	1.16
Avail Cap(c_a), veh/h	60	510		133	0	440	996	0	979	153	362	338
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.0	38.6	0.0	56.8	0.0	41.7	40.2	0.0	20.2	53.4	46.1	46.1
Incr Delay (d2), s/veh	203.9	9.9	0.0	22.2	0.0	205.8	257.4	0.0	10.3	24.0	95.1	98.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.6	19.6	0.0	7.3	0.0	59.6	79.3	0.0	33.7	8.5	30.9	29.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	263.9	48.4	0.0	79.0	0.0	247.5	297.6	0.0	30.5	77.4	141.2	144.1
LnGrp LOS	F	D		E	A	F	F	A	C	E	F	F
Approach Vol, veh/h		492			730			2427			929	
Approach Delay, s/veh		81.7			224.2			201.6			134.1	
Approach LOS		F			F			F			F	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		78.0		42.0	45.0	33.0		42.0				
Change Period (Y+Rc), s		5.2		5.4	5.4	5.2		5.4				
Max Green Setting (Gmax), s		72.8		36.6	39.6	27.8		36.6				
Max Q Clear Time (g_c+I1), s		57.5		38.6	41.6	29.8		38.6				
Green Ext Time (p_c), s		4.4		0.0	0.0	0.0		0.0				

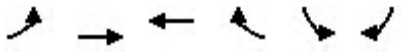
Intersection Summary		
HCM 6th Ctrl Delay	178.6	
HCM 6th LOS	F	

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
8: Hwy 97 & Westminster Ave W

2047 PM Option 8 (High Growth)
12/08/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	367	1475	1673	171	244	457
Future Volume (veh/h)	367	1475	1673	171	244	457
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1660	1647	1634	1687	1673	1660
Adj Flow Rate, veh/h	483	1553	1859	0	265	0
Peak Hour Factor	0.76	0.95	0.90	0.86	0.92	0.86
Percent Heavy Veh, %	3	4	5	1	2	3
Cap, veh/h	397	2393	1608		276	
Arrive On Green	0.22	0.76	0.52	0.00	0.17	0.00
Sat Flow, veh/h	1581	3212	3186	1429	1594	1407
Grp Volume(v), veh/h	483	1553	1859	0	265	0
Grp Sat Flow(s),veh/h/ln	1581	1565	1552	1429	1594	1407
Q Serve(g_s), s	33.1	34.8	77.7	0.0	24.7	0.0
Cycle Q Clear(g_c), s	33.1	34.8	77.7	0.0	24.7	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	397	2393	1608		276	
V/C Ratio(X)	1.22	0.65	1.16		0.96	
Avail Cap(c_a), veh/h	397	2393	1608		276	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	51.9	8.2	36.1	0.0	61.5	0.0
Incr Delay (d2), s/veh	118.6	0.6	77.8	0.0	43.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	42.0	19.6	67.5	0.0	20.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	170.5	8.9	113.9	0.0	104.4	0.0
LnGrp LOS	F	A	F		F	
Approach Vol, veh/h		2036	1859	A	265	A
Approach Delay, s/veh		47.2	113.9		104.4	
Approach LOS		D	F		F	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		120.0		30.0	37.0	83.0
Change Period (Y+Rc), s		5.3		4.0	3.9	5.3
Max Green Setting (Gmax), s		114.7		26.0	33.1	77.7
Max Q Clear Time (g_c+I1), s		36.8		26.7	35.1	79.7
Green Ext Time (p_c), s		13.3		0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	80.7
HCM 6th LOS	F

Notes

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	62	477	627	54	59	73
Future Vol, veh/h	62	477	627	54	59	73
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	300	-	-	-	500	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	2	2	0	0	0
Mvmt Flow	76	582	765	66	72	89

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	831	0	-	0	1532	798
Stage 1	-	-	-	-	798	-
Stage 2	-	-	-	-	734	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	810	-	-	-	130	389
Stage 1	-	-	-	-	447	-
Stage 2	-	-	-	-	478	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	810	-	-	-	118	389
Mov Cap-2 Maneuver	-	-	-	-	253	-
Stage 1	-	-	-	-	405	-
Stage 2	-	-	-	-	478	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	20.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	810	-	-	-	253	389
HCM Lane V/C Ratio	0.093	-	-	-	0.284	0.229
HCM Control Delay (s)	9.9	-	-	-	24.8	17
HCM Lane LOS	A	-	-	-	C	C
HCM 95th %tile Q(veh)	0.3	-	-	-	1.1	0.9

HCM 6th Signalized Intersection Summary
11: Power Street & Westminster Ave W

2047 PM Option 8 (High Growth)
12/08/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	286	198	76	359	24	226	169	103	37	157	56
Future Volume (veh/h)	40	286	198	76	359	24	226	169	103	37	157	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		0.94	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	1.00	1.00	1.00	0.89
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1634	1660	1660	1673	1700	1594	1594	1660	1528	1660	1634
Adj Flow Rate, veh/h	62	314	314	113	443	32	305	260	134	112	171	78
Peak Hour Factor	0.65	0.91	0.63	0.67	0.81	0.75	0.74	0.65	0.77	0.33	0.92	0.72
Percent Heavy Veh, %	0	5	3	3	2	0	8	8	3	13	3	5
Cap, veh/h	241	382	382	77	233	16	250	357	184	93	119	46
Arrive On Green	0.52	0.52	0.52	0.52	0.52	0.52	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	934	736	736	73	449	30	1077	970	500	135	323	126
Grp Volume(v), veh/h	62	0	628	588	0	0	305	0	394	361	0	0
Grp Sat Flow(s),veh/h/ln	934	0	1471	552	0	0	1077	0	1469	584	0	0
Q Serve(g_s), s	0.0	0.0	39.5	17.7	0.0	0.0	0.0	0.0	25.5	15.1	0.0	0.0
Cycle Q Clear(g_c), s	11.9	0.0	39.5	57.2	0.0	0.0	40.6	0.0	25.5	40.6	0.0	0.0
Prop In Lane	1.00		0.50	0.19		0.05	1.00		0.34	0.31		0.22
Lane Grp Cap(c), veh/h	241	0	764	325	0	0	250	0	541	258	0	0
V/C Ratio(X)	0.26	0.00	0.82	1.81	0.00	0.00	1.22	0.00	0.73	1.40	0.00	0.00
Avail Cap(c_a), veh/h	243	0	768	325	0	0	250	0	541	258	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	15.6	0.0	22.2	34.8	0.0	0.0	40.1	0.0	30.0	42.2	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	7.3	375.2	0.0	0.0	128.9	0.0	4.9	201.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.9	0.0	23.0	73.2	0.0	0.0	25.8	0.0	15.8	35.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.3	0.0	29.6	410.0	0.0	0.0	169.0	0.0	34.9	243.7	0.0	0.0
LnGrp LOS	B	A	C	F	A	A	F	A	C	F	A	A
Approach Vol, veh/h		690			588			699			361	
Approach Delay, s/veh		28.4			410.0			93.4			243.7	
Approach LOS		C			F			F			F	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	63.0	47.2	63.0	47.2
Change Period (Y+Rc), s	* 5.8	* 6.6	* 5.8	6.6
Max Green Setting (Gmax), s	* 58	* 41	* 57	40.4
Max Q Clear Time (g_c+I1), s	41.5	42.6	59.2	42.6
Green Ext Time (p_c), s	4.4	0.0	0.0	0.0

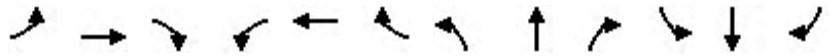
Intersection Summary	
HCM 6th Ctrl Delay	177.0
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
14: Hwy 97 & Alberni

2047 PM Option 8 (High Growth)
12/08/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	1689	1	88	1876	166	62	9	35	72	8	37
Future Volume (veh/h)	67	1689	1	88	1876	166	62	9	35	72	8	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1687	1700	1700	1687	1700	1687	1687	1687	1660	1660	1660
Adj Flow Rate, veh/h	82	2060	1	107	2288	202	76	11	43	88	10	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	0	1	0	0	1	0	1	1	1	3	3	3
Cap, veh/h	98	2510	1	174	2280	198	143	23	62	178	15	
Arrive On Green	0.03	0.76	0.76	0.03	0.76	0.76	0.12	0.12	0.12	0.12	0.12	0.00
Sat Flow, veh/h	1619	3287	2	1619	2983	259	840	191	510	1061	122	1407
Grp Volume(v), veh/h	82	1004	1057	107	1213	1277	130	0	0	98	0	0
Grp Sat Flow(s),veh/h/ln	1619	1602	1686	1619	1602	1640	1541	0	0	1184	0	1407
Q Serve(g_s), s	2.6	55.5	55.6	2.1	102.8	107.0	0.0	0.0	0.0	1.0	0.0	0.0
Cycle Q Clear(g_c), s	2.6	55.5	55.6	2.1	102.8	107.0	11.0	0.0	0.0	12.0	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.16	0.58		0.33	0.90		1.00
Lane Grp Cap(c), veh/h	98	1224	1288	174	1225	1253	228	0	0	193	0	
V/C Ratio(X)	0.84	0.82	0.82	0.61	0.99	1.02	0.57	0.00	0.00	0.51	0.00	
Avail Cap(c_a), veh/h	98	1224	1288	219	1225	1253	228	0	0	193	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	48.3	10.5	10.5	25.9	16.0	16.5	58.9	0.0	0.0	59.4	0.0	0.0
Incr Delay (d2), s/veh	44.6	4.6	4.4	3.5	23.4	30.2	10.0	0.0	0.0	9.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.7	31.0	32.4	5.8	59.2	66.2	9.1	0.0	0.0	7.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.8	15.1	14.8	29.4	39.4	46.7	68.8	0.0	0.0	68.7	0.0	0.0
LnGrp LOS	F	B	B	C	D	F	E	A	A	E	A	
Approach Vol, veh/h		2143			2597			130			98	A
Approach Delay, s/veh		17.9			42.6			68.8			68.7	
Approach LOS		B			D			E			E	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	21.0	8.1	110.9	21.0	8.0	111.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	17.0	8.0	103.0	17.0	4.0	107.0
Max Q Clear Time (g_c+I1), s	13.0	4.1	57.6	14.0	4.6	109.0
Green Ext Time (p_c), s	0.2	0.1	32.8	0.1	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	33.1
HCM 6th LOS	C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↳			↑↑↳				↱			↱
Traffic Vol, veh/h	0	1677	57	0	1830	73	0	0	26	0	0	7
Future Vol, veh/h	0	1677	57	0	1830	73	0	0	26	0	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	1	3	0	0	3	1	0	0	0	1	0	1
Mvmt Flow	0	2045	70	0	2232	89	0	0	32	0	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	1058	-	-	1161
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.9	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.3	-	-	3.31
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	224	0	0	190
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	224	-	-	190
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	23.7	24.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	224	-	-	-	-	190
HCM Lane V/C Ratio	0.142	-	-	-	-	0.045
HCM Control Delay (s)	23.7	-	-	-	-	24.8
HCM Lane LOS	C	-	-	-	-	C
HCM 95th %tile Q(veh)	0.5	-	-	-	-	0.1

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	1	95	1	1	1	88	12	1	1	1	8
Future Vol, veh/h	7	1	95	1	1	1	88	12	1	1	1	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	9	1	116	1	1	1	107	15	1	1	1	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	239	238	6	297	243	16	11	0	0	16	0	0
Stage 1	8	8	-	230	230	-	-	-	-	-	-	-
Stage 2	231	230	-	67	13	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	717	665	1080	657	660	1066	1615	-	-	1608	-	-
Stage 1	1016	891	-	775	716	-	-	-	-	-	-	-
Stage 2	774	716	-	946	887	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	678	620	1080	555	615	1066	1615	-	-	1608	-	-
Mov Cap-2 Maneuver	678	620	-	555	615	-	-	-	-	-	-	-
Stage 1	948	890	-	723	668	-	-	-	-	-	-	-
Stage 2	720	668	-	843	886	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9	10.3	6.4	0.7
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1615	-	-	1031	687	1608	-	-
HCM Lane V/C Ratio	0.066	-	-	0.122	0.005	0.001	-	-
HCM Control Delay (s)	7.4	0	-	9	10.3	7.2	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.4	0	0	-	-

Intersection	
Int Delay, s/veh	10.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	18	7	56	25	14	1	88	86	69	31	33	44
Future Vol, veh/h	18	7	56	25	14	1	88	86	69	31	33	44
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	72	25	46	82	75	38	59	68	57	50	25
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	0	0
Mvmt Flow	36	10	224	54	17	1	232	146	101	54	66	176

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	932	973	154	1040	1011	197	242	0	0	247	0	0
Stage 1	262	262	-	661	661	-	-	-	-	-	-	-
Stage 2	670	711	-	379	350	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	249	254	897	210	241	849	1336	-	-	1331	-	-
Stage 1	747	695	-	455	463	-	-	-	-	-	-	-
Stage 2	450	439	-	647	636	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	188	193	897	123	183	849	1336	-	-	1331	-	-
Mov Cap-2 Maneuver	188	193	-	123	183	-	-	-	-	-	-	-
Stage 1	595	662	-	362	369	-	-	-	-	-	-	-
Stage 2	341	349	-	455	605	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.7	58.4	4	1.4
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1336	-	-	549	136	1331	-	-
HCM Lane V/C Ratio	0.173	-	-	0.491	0.535	0.041	-	-
HCM Control Delay (s)	8.3	0	-	17.7	58.4	7.8	0	-
HCM Lane LOS	A	A	-	C	F	A	A	-
HCM 95th %tile Q(veh)	0.6	-	-	2.7	2.6	0.1	-	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	44	4	7	108	39	51
Future Vol, veh/h	44	4	7	108	39	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	54	5	9	132	48	62

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	59	0	207	57
Stage 1	-	-	-	-	57	-
Stage 2	-	-	-	-	150	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1558	-	786	1015
Stage 1	-	-	-	-	971	-
Stage 2	-	-	-	-	883	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1558	-	781	1015
Mov Cap-2 Maneuver	-	-	-	-	781	-
Stage 1	-	-	-	-	971	-
Stage 2	-	-	-	-	878	-

Approach	EB	WB	NE
HCM Control Delay, s	0	0.4	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	898	-	-	1558	-
HCM Lane V/C Ratio	0.122	-	-	0.005	-
HCM Control Delay (s)	9.6	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection	
Int Delay, s/veh	493.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1661	128	183	1974	72	72
Future Vol, veh/h	1661	128	183	1974	72	72
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	2026	156	223	2407	88	88

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2182	0	3754	1091
Stage 1	-	-	-	-	2104	-
Stage 2	-	-	-	-	1650	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	247	-	~ 3	213
Stage 1	-	-	-	-	~ 81	-
Stage 2	-	-	-	-	145	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	247	-	~ 3	213
Mov Cap-2 Maneuver	-	-	-	-	~ 3	-
Stage 1	-	-	-	-	~ 81	-
Stage 2	-	-	-	-	145	-

Approach	EB	WB	NB
HCM Control Delay, s	0	6.6	$ 13919.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	6	-	-	247	-
HCM Lane V/C Ratio	29.268	-	-	0.904	-
HCM Control Delay (s)	$ 13919.3	-	-	77.8	0
HCM Lane LOS	F	-	-	F	A
HCM 95th %tile Q(veh)	24	-	-	7.8	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	-	350	600	-	0	550
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	0	0	0	0	0

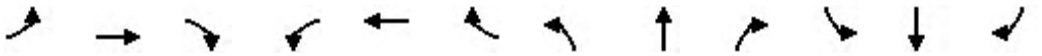
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	2	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	1	-
Critical Hdwy	-	-	4.12	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	2.21	-	3.51	3.31
Pot Cap-1 Maneuver	-	-	1628	-	1023	1086
Stage 1	-	-	-	-	1024	-
Stage 2	-	-	-	-	1024	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1628	-	1023	1086
Mov Cap-2 Maneuver	-	-	-	-	1023	-
Stage 1	-	-	-	-	1024	-
Stage 2	-	-	-	-	1024	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	-	1628	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	0	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	-	0	-

HCM 6th Signalized Intersection Summary
4: Hwy 97 & Eckhardt Ave W & Vees Drive

2047 PM Option 9 (Moderate Growth)
04/10/2023



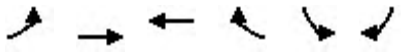
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	284	1239	60	340	63	1477	472	121	86	373	116
Future Volume (veh/h)	52	284	1239	60	340	63	1477	472	121	86	373	116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1673	1634	1673	1660	1647	1634	1673	1660	1700	1647	1687
Adj Flow Rate, veh/h	55	305	0	73	395	76	1555	513	127	91	405	187
Peak Hour Factor	0.94	0.93	0.90	0.82	0.86	0.83	0.95	0.92	0.95	0.95	0.92	0.62
Percent Heavy Veh, %	0	2	5	2	3	4	5	2	3	0	4	1
Cap, veh/h	51	426		146	308	59	1350	867	215	198	383	174
Arrive On Green	0.25	0.25	0.00	0.25	0.25	0.25	0.45	0.67	0.67	0.18	0.18	0.18
Sat Flow, veh/h	937	1673	1384	1073	1210	233	3018	1294	320	797	2078	947
Grp Volume(v), veh/h	55	305	0	73	0	471	1555	0	640	91	304	288
Grp Sat Flow(s),veh/h/ln	937	1673	1384	1073	0	1442	1509	0	1614	797	1565	1460
Q Serve(g_s), s	0.0	23.3	0.0	9.3	0.0	35.6	62.6	0.0	30.3	14.7	25.8	25.8
Cycle Q Clear(g_c), s	35.6	23.3	0.0	32.6	0.0	35.6	62.6	0.0	30.3	14.7	25.8	25.8
Prop In Lane	1.00		1.00	1.00		0.16	1.00		0.20	1.00		0.65
Lane Grp Cap(c), veh/h	51	426		146	0	367	1350	0	1082	198	288	269
V/C Ratio(X)	1.07	0.72		0.50	0.00	1.28	1.15	0.00	0.59	0.46	1.05	1.07
Avail Cap(c_a), veh/h	51	426		146	0	367	1350	0	1082	198	288	269
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.0	47.6	0.0	62.5	0.0	52.2	38.7	0.0	12.6	52.6	57.1	57.1
Incr Delay (d2), s/veh	146.3	5.7	0.0	2.6	0.0	147.1	77.4	0.0	0.9	1.7	67.6	75.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.3	16.5	0.0	5.0	0.0	42.8	55.0	0.0	18.4	5.8	23.4	23.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	216.3	53.3	0.0	65.1	0.0	199.3	116.1	0.0	13.5	54.2	124.7	132.3
LnGrp LOS	F	D		E	A	F	F	A	B	D	F	F
Approach Vol, veh/h		360			544			2195			683	
Approach Delay, s/veh		78.2			181.3			86.2			118.5	
Approach LOS		E			F			F			F	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		99.0		41.0	68.0	31.0		41.0				
Change Period (Y+Rc), s		5.2		5.4	5.4	5.2		5.4				
Max Green Setting (Gmax), s		93.8		35.6	62.6	25.8		35.6				
Max Q Clear Time (g_c+I1), s		32.3		37.6	64.6	27.8		37.6				
Green Ext Time (p_c), s		3.5		0.0	0.0	0.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay	104.9	
HCM 6th LOS	F	

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	296	1251	1416	127	178	355
Future Volume (veh/h)	296	1251	1416	127	178	355
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1660	1647	1634	1687	1673	1660
Adj Flow Rate, veh/h	389	1317	1573	0	193	0
Peak Hour Factor	0.76	0.95	0.90	0.86	0.92	0.86
Percent Heavy Veh, %	3	4	5	1	2	3
Cap, veh/h	414	2470	1710		220	
Arrive On Green	0.21	0.79	0.55	0.00	0.14	0.00
Sat Flow, veh/h	1581	3212	3186	1429	1594	1407
Grp Volume(v), veh/h	389	1317	1573	0	193	0
Grp Sat Flow(s),veh/h/ln	1581	1565	1552	1429	1594	1407
Q Serve(g_s), s	24.0	19.6	59.1	0.0	15.2	0.0
Cycle Q Clear(g_c), s	24.0	19.6	59.1	0.0	15.2	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	414	2470	1710		220	
V/C Ratio(X)	0.94	0.53	0.92		0.88	
Avail Cap(c_a), veh/h	459	2801	1950		323	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	40.3	4.9	26.2	0.0	54.2	0.0
Incr Delay (d2), s/veh	26.1	0.2	7.1	0.0	16.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	22.5	11.7	33.6	0.0	12.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	66.4	5.1	33.3	0.0	70.8	0.0
LnGrp LOS	E	A	C		E	
Approach Vol, veh/h		1706	1573	A	193	A
Approach Delay, s/veh		19.1	33.3		70.8	
Approach LOS		B	C		E	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		106.5		21.7	30.6	75.9
Change Period (Y+Rc), s		5.3		4.0	3.9	5.3
Max Green Setting (Gmax), s		114.7		26.0	30.3	80.5
Max Q Clear Time (g_c+I1), s		21.6		17.2	26.0	61.1
Green Ext Time (p_c), s		9.8		0.5	0.7	9.4

Intersection Summary		
HCM 6th Ctrl Delay		28.4
HCM 6th LOS		C

Notes

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	49	375	475	41	44	58
Future Vol, veh/h	49	375	475	41	44	58
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	300	-	-	-	500	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	2	2	0	0	0
Mvmt Flow	60	457	579	50	54	71

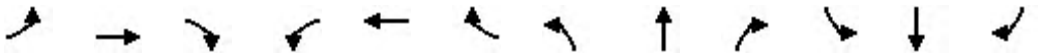
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	629	0	-	0	1181	604
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	577	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	963	-	-	-	212	502
Stage 1	-	-	-	-	550	-
Stage 2	-	-	-	-	566	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	963	-	-	-	199	502
Mov Cap-2 Maneuver	-	-	-	-	337	-
Stage 1	-	-	-	-	516	-
Stage 2	-	-	-	-	566	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	15.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	963	-	-	-	337	502
HCM Lane V/C Ratio	0.062	-	-	-	0.159	0.141
HCM Control Delay (s)	9	-	-	-	17.7	13.3
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.6	0.5

HCM 6th Signalized Intersection Summary
11: Power Street & Westminster Ave W

2047 PM Option 9 (Modest Growth)
12/08/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	212	147	55	269	18	174	126	75	28	118	47
Future Volume (veh/h)	32	212	147	55	269	18	174	126	75	28	118	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.99	0.98		0.95	0.98		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	1.00	1.00	1.00	0.89
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1634	1660	1660	1673	1700	1594	1594	1660	1528	1660	1634
Adj Flow Rate, veh/h	49	233	233	82	332	24	235	194	97	85	128	65
Peak Hour Factor	0.65	0.91	0.63	0.67	0.81	0.75	0.74	0.65	0.77	0.33	0.92	0.72
Percent Heavy Veh, %	0	5	3	3	2	0	8	8	3	13	3	5
Cap, veh/h	273	327	327	106	339	22	360	370	185	150	193	84
Arrive On Green	0.45	0.45	0.45	0.45	0.45	0.45	0.38	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	1042	735	735	101	760	50	1115	981	491	219	513	223
Grp Volume(v), veh/h	49	0	466	438	0	0	235	0	291	278	0	0
Grp Sat Flow(s),veh/h/ln	1042	0	1469	912	0	0	1115	0	1472	955	0	0
Q Serve(g_s), s	0.0	0.0	18.0	13.2	0.0	0.0	4.4	0.0	10.7	9.5	0.0	0.0
Cycle Q Clear(g_c), s	5.7	0.0	18.0	31.2	0.0	0.0	24.6	0.0	10.7	20.2	0.0	0.0
Prop In Lane	1.00		0.50	0.19		0.05	1.00		0.33	0.31		0.23
Lane Grp Cap(c), veh/h	273	0	655	467	0	0	360	0	555	427	0	0
V/C Ratio(X)	0.18	0.00	0.71	0.94	0.00	0.00	0.65	0.00	0.52	0.65	0.00	0.00
Avail Cap(c_a), veh/h	277	0	661	467	0	0	360	0	555	431	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.3	0.0	15.7	21.1	0.0	0.0	22.8	0.0	16.9	20.5	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	3.7	26.8	0.0	0.0	4.1	0.0	0.9	3.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.0	0.0	11.6	17.0	0.0	0.0	8.0	0.0	7.4	8.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.7	0.0	19.5	47.9	0.0	0.0	26.9	0.0	17.8	23.9	0.0	0.0
LnGrp LOS	B	A	B	D	A	A	C	A	B	C	A	A
Approach Vol, veh/h		515			438			526			278	
Approach Delay, s/veh		18.8			47.9			21.9			23.9	
Approach LOS		B			D			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		37.0		33.0		37.0		33.0				
Change Period (Y+Rc), s		* 5.8		* 6.6		* 5.8		6.6				
Max Green Setting (Gmax), s		* 32		* 27		* 31		26.4				
Max Q Clear Time (g_c+I1), s		20.0		22.2		33.2		26.6				
Green Ext Time (p_c), s		2.6		0.5		0.0		0.0				

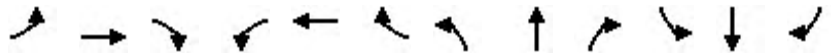
Intersection Summary												
HCM 6th Ctrl Delay			27.8									
HCM 6th LOS			C									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
14: Hwy 97 & Alberni

2047 PM Option 9 (Modest Growth)
12/08/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	1431	1	76	1590	144	48	7	28	59	6	27
Future Volume (veh/h)	49	1431	1	76	1590	144	48	7	28	59	6	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1687	1700	1700	1687	1700	1687	1687	1687	1700	1700	1700
Adj Flow Rate, veh/h	60	1745	1	93	1939	176	59	9	34	72	7	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	0	1	0	0	1	0	1	1	1	0	0	0
Cap, veh/h	137	2121	1	215	1937	173	203	39	89	307	26	
Arrive On Green	0.03	0.65	0.65	0.04	0.65	0.65	0.18	0.18	0.18	0.18	0.18	0.00
Sat Flow, veh/h	1619	3287	2	1619	2975	266	778	215	497	1281	145	1441
Grp Volume(v), veh/h	60	851	895	93	1030	1085	102	0	0	79	0	0
Grp Sat Flow(s),veh/h/ln	1619	1602	1686	1619	1602	1639	1490	0	0	1426	0	1441
Q Serve(g_s), s	1.1	35.8	35.8	1.7	56.0	58.0	0.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.1	35.8	35.8	1.7	56.0	58.0	5.0	0.0	0.0	4.2	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.16	0.58		0.33	0.91		1.00
Lane Grp Cap(c), veh/h	137	1034	1088	215	1043	1067	331	0	0	333	0	
V/C Ratio(X)	0.44	0.82	0.82	0.43	0.99	1.02	0.31	0.00	0.00	0.24	0.00	
Avail Cap(c_a), veh/h	154	1043	1098	222	1043	1067	331	0	0	333	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	23.3	11.9	11.9	15.4	15.2	15.5	32.0	0.0	0.0	31.7	0.0	0.0
Incr Delay (d2), s/veh	2.2	5.4	5.1	1.4	24.8	31.8	2.4	0.0	0.0	1.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	21.8	22.6	2.3	37.5	42.2	4.2	0.0	0.0	3.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	17.3	17.1	16.8	40.0	47.3	34.4	0.0	0.0	33.3	0.0	0.0
LnGrp LOS	C	B	B	B	D	F	C	A	A	C	A	
Approach Vol, veh/h		1806			2208			102			79	A
Approach Delay, s/veh		17.5			42.6			34.4			33.3	
Approach LOS		B			D			C			C	

Timer - Assigned Phs	2	3	4		6	7	8
Phs Duration (G+Y+Rc), s	20.0	7.6	61.5		20.0	7.1	62.0
Change Period (Y+Rc), s	4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s	16.0	4.0	58.0		16.0	4.0	58.0
Max Q Clear Time (g_c+I1), s	7.0	3.7	37.8		6.2	3.1	60.0
Green Ext Time (p_c), s	0.3	0.0	14.8		0.2	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	31.4
HCM 6th LOS	C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↳			↑↑↳				↱			↱
Traffic Vol, veh/h	0	1421	44	0	1553	53	0	0	19	0	0	1
Future Vol, veh/h	0	1421	44	0	1553	53	0	0	19	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	1	3	0	0	3	1	0	0	0	1	0	1
Mvmt Flow	0	1733	54	0	1894	65	0	0	23	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	894	-	-	980
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.9	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.3	-	-	3.31
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	288	0	0	251
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	288	-	-	251
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	18.6	19.4
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	288	-	-	-	-	251
HCM Lane V/C Ratio	0.08	-	-	-	-	0.005
HCM Control Delay (s)	18.6	-	-	-	-	19.4
HCM Lane LOS	C	-	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	-	0

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	1	78	1	1	1	75	9	1	1	1	6
Future Vol, veh/h	5	1	78	1	1	1	75	9	1	1	1	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	6	1	95	1	1	1	91	11	1	1	1	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	202	201	5	249	204	12	8	0	0	12	0	0
Stage 1	7	7	-	194	194	-	-	-	-	-	-	-
Stage 2	195	194	-	55	10	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	758	697	1081	707	694	1072	1619	-	-	1613	-	-
Stage 1	1017	892	-	810	742	-	-	-	-	-	-	-
Stage 2	809	742	-	960	889	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	722	657	1081	615	654	1072	1619	-	-	1613	-	-
Mov Cap-2 Maneuver	722	657	-	615	654	-	-	-	-	-	-	-
Stage 1	959	891	-	764	700	-	-	-	-	-	-	-
Stage 2	761	700	-	873	888	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.8	9.9	6.5	0.9
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1619	-	-	1042	734	1613	-	-
HCM Lane V/C Ratio	0.056	-	-	0.098	0.005	0.001	-	-
HCM Control Delay (s)	7.4	0	-	8.8	9.9	7.2	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.3	0	0	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	36	3	5	92	27	33
Future Vol, veh/h	36	3	5	92	27	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	44	4	6	112	33	40

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	48	0	170	46
Stage 1	-	-	-	-	46	-
Stage 2	-	-	-	-	124	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1572	-	825	1029
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	907	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1572	-	822	1029
Mov Cap-2 Maneuver	-	-	-	-	822	-
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	903	-

Approach	EB	WB	NE
HCM Control Delay, s	0	0.4	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	924	-	-	1572	-
HCM Lane V/C Ratio	0.079	-	-	0.004	-
HCM Control Delay (s)	9.2	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	102.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1413	93	133	1688	52	52
Future Vol, veh/h	1413	93	133	1688	52	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	1723	113	162	2059	63	63

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1836	0	3134	918
Stage 1	-	-	-	-	1780	-
Stage 2	-	-	-	-	1354	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	336	-	~ 9	278
Stage 1	-	-	-	-	123	-
Stage 2	-	-	-	-	209	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	336	-	~ 9	278
Mov Cap-2 Maneuver	-	-	-	-	~ 9	-
Stage 1	-	-	-	-	123	-
Stage 2	-	-	-	-	209	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.8	$ 3350.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	17	-	-	336	-
HCM Lane V/C Ratio	7.461	-	-	0.483	-
HCM Control Delay (s)	$ 3350.9	-	-	25.3	0
HCM Lane LOS	F	-	-	D	A
HCM 95th %tile Q(veh)	16.6	-	-	2.5	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	-	350	600	-	0	550
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	0	0	0	0	0

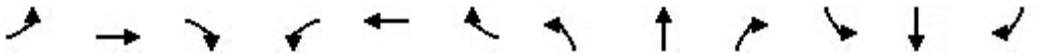
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	2	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	1	-
Critical Hdwy	-	-	4.12	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	2.21	-	3.51	3.31
Pot Cap-1 Maneuver	-	-	1628	-	1023	1086
Stage 1	-	-	-	-	1024	-
Stage 2	-	-	-	-	1024	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1628	-	1023	1086
Mov Cap-2 Maneuver	-	-	-	-	1023	-
Stage 1	-	-	-	-	1024	-
Stage 2	-	-	-	-	1024	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	-	1628	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	0	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	-	0	-

HCM 6th Signalized Intersection Summary
4: Hwy 97 & Eckhardt Ave W & Vees Drive

2047 PM Option 9 (High Growth)
04/10/2023



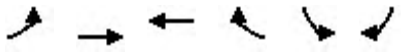
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	387	1239	83	455	83	1477	641	166	115	506	160
Future Volume (veh/h)	71	387	1239	83	455	83	1477	641	166	115	506	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1673	1634	1673	1660	1647	1634	1673	1660	1700	1647	1687
Adj Flow Rate, veh/h	76	416	0	101	529	100	1555	697	175	121	550	258
Peak Hour Factor	0.94	0.93	0.90	0.82	0.86	0.83	0.95	0.92	0.95	0.95	0.92	0.62
Percent Heavy Veh, %	0	2	5	2	3	4	5	2	3	0	4	1
Cap, veh/h	60	510		133	370	70	996	782	196	153	477	223
Arrive On Green	0.31	0.31	0.00	0.31	0.31	0.31	0.33	0.61	0.61	0.23	0.23	0.23
Sat Flow, veh/h	810	1673	1384	970	1214	229	3018	1290	324	644	2060	964
Grp Volume(v), veh/h	76	416	0	101	0	629	1555	0	872	121	417	391
Grp Sat Flow(s),veh/h/ln	810	1673	1384	970	0	1443	1509	0	1613	644	1565	1460
Q Serve(g_s), s	0.0	27.6	0.0	9.0	0.0	36.6	39.6	0.0	55.5	17.3	27.8	27.8
Cycle Q Clear(g_c), s	36.6	27.6	0.0	36.6	0.0	36.6	39.6	0.0	55.5	27.8	27.8	27.8
Prop In Lane	1.00		1.00	1.00		0.16	1.00		0.20	1.00		0.66
Lane Grp Cap(c), veh/h	60	510		133	0	440	996	0	979	153	362	338
V/C Ratio(X)	1.27	0.82		0.76	0.00	1.43	1.56	0.00	0.89	0.79	1.15	1.16
Avail Cap(c_a), veh/h	60	510		133	0	440	996	0	979	153	362	338
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.0	38.6	0.0	56.8	0.0	41.7	40.2	0.0	20.2	53.4	46.1	46.1
Incr Delay (d2), s/veh	203.9	9.9	0.0	22.2	0.0	205.8	257.4	0.0	10.3	24.0	95.1	98.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.6	19.6	0.0	7.3	0.0	59.6	79.3	0.0	33.7	8.5	30.9	29.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	263.9	48.4	0.0	79.0	0.0	247.5	297.6	0.0	30.5	77.4	141.2	144.1
LnGrp LOS	F	D		E	A	F	F	A	C	E	F	F
Approach Vol, veh/h		492			730			2427			929	
Approach Delay, s/veh		81.7			224.2			201.6			134.1	
Approach LOS		F			F			F			F	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		78.0		42.0	45.0	33.0		42.0				
Change Period (Y+Rc), s		5.2		5.4	5.4	5.2		5.4				
Max Green Setting (Gmax), s		72.8		36.6	39.6	27.8		36.6				
Max Q Clear Time (g_c+I1), s		57.5		38.6	41.6	29.8		38.6				
Green Ext Time (p_c), s		4.4		0.0	0.0	0.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay	178.6	
HCM 6th LOS	F	

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	367	1475	1673	171	244	457
Future Volume (veh/h)	367	1475	1673	171	244	457
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1660	1647	1634	1687	1673	1660
Adj Flow Rate, veh/h	483	1553	1859	0	265	0
Peak Hour Factor	0.76	0.95	0.90	0.86	0.92	0.86
Percent Heavy Veh, %	3	4	5	1	2	3
Cap, veh/h	425	2588	1749		161	
Arrive On Green	0.23	0.83	0.56	0.00	0.10	0.00
Sat Flow, veh/h	1581	3212	3186	1429	1594	1407
Grp Volume(v), veh/h	483	1553	1859	0	265	0
Grp Sat Flow(s),veh/h/ln	1581	1565	1552	1429	1594	1407
Q Serve(g_s), s	30.1	22.0	72.7	0.0	13.0	0.0
Cycle Q Clear(g_c), s	30.1	22.0	72.7	0.0	13.0	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	425	2588	1749		161	
V/C Ratio(X)	1.14	0.60	1.06		1.65	
Avail Cap(c_a), veh/h	425	2588	1749		161	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	44.3	3.8	28.1	0.0	58.0	0.0
Incr Delay (d2), s/veh	86.7	0.4	40.4	0.0	318.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	35.4	12.5	51.7	0.0	31.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	131.0	4.2	68.5	0.0	376.6	0.0
LnGrp LOS	F	A	F		F	
Approach Vol, veh/h		2036	1859	A	265	A
Approach Delay, s/veh		34.3	68.5		376.6	
Approach LOS		C	E		F	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		112.0		17.0	34.0	78.0
Change Period (Y+Rc), s		5.3		4.0	3.9	5.3
Max Green Setting (Gmax), s		106.7		13.0	30.1	72.7
Max Q Clear Time (g_c+I1), s		24.0		15.0	32.1	74.7
Green Ext Time (p_c), s		13.3		0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	71.4
HCM 6th LOS	E

Notes

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	62	477	627	54	59	73
Future Vol, veh/h	62	477	627	54	59	73
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	300	-	-	-	500	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	2	2	0	0	0
Mvmt Flow	76	582	765	66	72	89

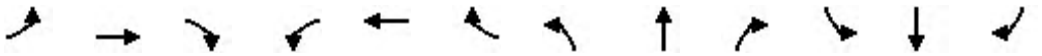
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	831	0	-	0	1532	798
Stage 1	-	-	-	-	798	-
Stage 2	-	-	-	-	734	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	810	-	-	-	130	389
Stage 1	-	-	-	-	447	-
Stage 2	-	-	-	-	478	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	810	-	-	-	118	389
Mov Cap-2 Maneuver	-	-	-	-	253	-
Stage 1	-	-	-	-	405	-
Stage 2	-	-	-	-	478	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	20.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	810	-	-	-	253	389
HCM Lane V/C Ratio	0.093	-	-	-	0.284	0.229
HCM Control Delay (s)	9.9	-	-	-	24.8	17
HCM Lane LOS	A	-	-	-	C	C
HCM 95th %tile Q(veh)	0.3	-	-	-	1.1	0.9

HCM 6th Signalized Intersection Summary
11: Power Street & Westminster Ave W

2047 PM Option 9 (High Growth)
12/08/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	286	198	76	359	24	226	169	103	37	157	56
Future Volume (veh/h)	40	286	198	76	359	24	226	169	103	37	157	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		0.94	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.89	1.00	1.00	1.00	1.00	1.00	0.89
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1634	1660	1660	1673	1700	1594	1594	1660	1528	1660	1634
Adj Flow Rate, veh/h	62	314	314	113	443	32	305	260	134	112	171	78
Peak Hour Factor	0.65	0.91	0.63	0.67	0.81	0.75	0.74	0.65	0.77	0.33	0.92	0.72
Percent Heavy Veh, %	0	5	3	3	2	0	8	8	3	13	3	5
Cap, veh/h	232	391	391	76	238	16	241	362	187	88	115	46
Arrive On Green	0.53	0.53	0.53	0.53	0.53	0.53	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	934	736	736	81	449	30	1077	970	500	140	307	123
Grp Volume(v), veh/h	62	0	628	588	0	0	305	0	394	361	0	0
Grp Sat Flow(s),veh/h/ln	934	0	1471	560	0	0	1077	0	1470	570	0	0
Q Serve(g_s), s	0.0	0.0	45.4	23.8	0.0	0.0	0.0	0.0	29.9	18.7	0.0	0.0
Cycle Q Clear(g_c), s	14.0	0.0	45.4	69.2	0.0	0.0	48.6	0.0	29.9	48.6	0.0	0.0
Prop In Lane	1.00		0.50	0.19		0.05	1.00		0.34	0.31		0.22
Lane Grp Cap(c), veh/h	232	0	782	330	0	0	241	0	549	249	0	0
V/C Ratio(X)	0.27	0.00	0.80	1.78	0.00	0.00	1.26	0.00	0.72	1.45	0.00	0.00
Avail Cap(c_a), veh/h	234	0	785	330	0	0	241	0	549	249	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.6	0.0	24.9	42.2	0.0	0.0	46.4	0.0	34.9	50.5	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	6.2	362.8	0.0	0.0	147.9	0.0	4.5	223.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.2	0.0	25.7	75.3	0.0	0.0	29.0	0.0	18.0	39.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.3	0.0	31.1	405.0	0.0	0.0	194.3	0.0	39.4	273.6	0.0	0.0
LnGrp LOS	B	A	C	F	A	A	F	A	D	F	A	A
Approach Vol, veh/h		690			588			699			361	
Approach Delay, s/veh		30.0			405.0			107.0			273.6	
Approach LOS		C			F			F			F	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		75.0		55.2		75.0		55.2				
Change Period (Y+Rc), s		* 5.8		* 6.6		* 5.8		6.6				
Max Green Setting (Gmax), s		* 70		* 49		* 69		48.4				
Max Q Clear Time (g_c+I1), s		47.4		50.6		71.2		50.6				
Green Ext Time (p_c), s		5.1		0.0		0.0		0.0				

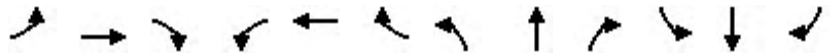
Intersection Summary		
HCM 6th Ctrl Delay		184.9
HCM 6th LOS		F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
14: Hwy 97 & Alberni

2047 PM Option 9 (High Growth)
12/08/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	1689	1	88	1876	166	62	9	35	72	8	37
Future Volume (veh/h)	67	1689	1	88	1876	166	62	9	35	72	8	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1687	1700	1700	1687	1700	1700	1700	1700	1700	1700	1700
Adj Flow Rate, veh/h	82	2060	1	107	2288	202	76	11	43	88	10	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	0	1	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	98	2510	1	174	2280	198	143	23	62	181	15	
Arrive On Green	0.03	0.76	0.76	0.03	0.76	0.76	0.12	0.12	0.12	0.12	0.12	0.00
Sat Flow, veh/h	1619	3287	2	1619	2983	259	846	192	513	1089	126	1441
Grp Volume(v), veh/h	82	1004	1057	107	1213	1277	130	0	0	98	0	0
Grp Sat Flow(s),veh/h/ln	1619	1602	1686	1619	1602	1640	1551	0	0	1215	0	1441
Q Serve(g_s), s	2.6	55.5	55.6	2.1	102.8	107.0	0.0	0.0	0.0	0.8	0.0	0.0
Cycle Q Clear(g_c), s	2.6	55.5	55.6	2.1	102.8	107.0	10.9	0.0	0.0	11.7	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.16	0.58		0.33	0.90		1.00
Lane Grp Cap(c), veh/h	98	1224	1288	174	1225	1253	229	0	0	196	0	
V/C Ratio(X)	0.84	0.82	0.82	0.61	0.99	1.02	0.57	0.00	0.00	0.50	0.00	
Avail Cap(c_a), veh/h	98	1224	1288	219	1225	1253	229	0	0	196	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	48.3	10.5	10.5	25.9	16.0	16.5	58.8	0.0	0.0	59.2	0.0	0.0
Incr Delay (d2), s/veh	44.6	4.6	4.4	3.5	23.4	30.2	9.8	0.0	0.0	8.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.7	31.0	32.4	5.8	59.2	66.2	9.1	0.0	0.0	7.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.8	15.1	14.8	29.4	39.4	46.7	68.6	0.0	0.0	68.0	0.0	0.0
LnGrp LOS	F	B	B	C	D	F	E	A	A	E	A	
Approach Vol, veh/h		2143			2597			130			98	A
Approach Delay, s/veh		17.9			42.6			68.6			68.0	
Approach LOS		B			D			E			E	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	21.0	8.1	110.9	21.0	8.0	111.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	17.0	8.0	103.0	17.0	4.0	107.0
Max Q Clear Time (g_c+I1), s	12.9	4.1	57.6	13.7	4.6	109.0
Green Ext Time (p_c), s	0.2	0.1	32.8	0.1	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	33.1
HCM 6th LOS	C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↳			↑↑↳				↱			↱
Traffic Vol, veh/h	0	1677	57	0	1830	73	0	0	26	0	0	7
Future Vol, veh/h	0	1677	57	0	1830	73	0	0	26	0	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	1	3	0	0	3	1	0	0	0	1	0	1
Mvmt Flow	0	2045	70	0	2232	89	0	0	32	0	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	1058	-	-	1161
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.9	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.3	-	-	3.31
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	224	0	0	190
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	224	-	-	190
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	23.7	24.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	224	-	-	-	-	190
HCM Lane V/C Ratio	0.142	-	-	-	-	0.045
HCM Control Delay (s)	23.7	-	-	-	-	24.8
HCM Lane LOS	C	-	-	-	-	C
HCM 95th %tile Q(veh)	0.5	-	-	-	-	0.1

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	1	95	1	1	1	88	12	1	1	1	8
Future Vol, veh/h	7	1	95	1	1	1	88	12	1	1	1	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	9	1	116	1	1	1	107	15	1	1	1	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	239	238	6	297	243	16	11	0	0	16	0	0
Stage 1	8	8	-	230	230	-	-	-	-	-	-	-
Stage 2	231	230	-	67	13	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	717	665	1080	657	660	1066	1615	-	-	1608	-	-
Stage 1	1016	891	-	775	716	-	-	-	-	-	-	-
Stage 2	774	716	-	946	887	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	678	620	1080	555	615	1066	1615	-	-	1608	-	-
Mov Cap-2 Maneuver	678	620	-	555	615	-	-	-	-	-	-	-
Stage 1	948	890	-	723	668	-	-	-	-	-	-	-
Stage 2	720	668	-	843	886	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9	10.3	6.4	0.7
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1615	-	-	1031	687	1608	-	-
HCM Lane V/C Ratio	0.066	-	-	0.122	0.005	0.001	-	-
HCM Control Delay (s)	7.4	0	-	9	10.3	7.2	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.4	0	0	-	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	44	4	7	108	39	51
Future Vol, veh/h	44	4	7	108	39	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	54	5	9	132	48	62

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	59	0	207	57
Stage 1	-	-	-	-	57	-
Stage 2	-	-	-	-	150	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1558	-	786	1015
Stage 1	-	-	-	-	971	-
Stage 2	-	-	-	-	883	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1558	-	781	1015
Mov Cap-2 Maneuver	-	-	-	-	781	-
Stage 1	-	-	-	-	971	-
Stage 2	-	-	-	-	878	-

Approach	EB	WB	NE
HCM Control Delay, s	0	0.4	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	898	-	-	1558	-
HCM Lane V/C Ratio	0.122	-	-	0.005	-
HCM Control Delay (s)	9.6	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection	
Int Delay, s/veh	493.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1661	128	183	1974	72	72
Future Vol, veh/h	1661	128	183	1974	72	72
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	2026	156	223	2407	88	88

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2182	0	3754	1091
Stage 1	-	-	-	-	2104	-
Stage 2	-	-	-	-	1650	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	247	-	~ 3	213
Stage 1	-	-	-	-	~ 81	-
Stage 2	-	-	-	-	145	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	247	-	~ 3	213
Mov Cap-2 Maneuver	-	-	-	-	~ 3	-
Stage 1	-	-	-	-	~ 81	-
Stage 2	-	-	-	-	145	-

Approach	EB	WB	NB
HCM Control Delay, s	0	6.6	$ 13919.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	6	-	-	247	-
HCM Lane V/C Ratio	29.268	-	-	0.904	-
HCM Control Delay (s)	$ 13919.3	-	-	77.8	0
HCM Lane LOS	F	-	-	F	A
HCM 95th %tile Q(veh)	24	-	-	7.8	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	Yield
Storage Length	-	350	600	-	0	550
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	0	0	0	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	2	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	1	-
Critical Hdwy	-	-	4.12	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	2.21	-	3.51	3.31
Pot Cap-1 Maneuver	-	-	1628	-	1023	1086
Stage 1	-	-	-	-	1024	-
Stage 2	-	-	-	-	1024	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1628	-	1023	1086
Mov Cap-2 Maneuver	-	-	-	-	1023	-
Stage 1	-	-	-	-	1024	-
Stage 2	-	-	-	-	1024	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	-	1628	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	0	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	-	0	-

Council Report

penticton.ca

Date: May 2, 2023 File No: 6480-20
To: Donny van Dyk, Chief Administrative Officer
From: Anthony Haddad, GM Community Services
Subject: **CMHC National Housing Strategy – Housing Accelerator Fund**

Staff Recommendation

THAT Council support the use of up to $40,000 from the Online Accommodator Platform Reserve for the purpose of preparing an application and associated community action plan for the CMHC National Housing Strategy's Housing Accelerator Fund;

AND THAT staff be directed to review any application with the Official Community Plan - Housing Task Force and Council prior to submission.

Background

In its 2022 Budget, the Federal Government announced a $4 billion Housing Accelerator Fund (HAF) to provide incentive funding to local governments to encourage initiatives that lead to new housing supply. The Fund will run until 2026/2027 and is expected to result in permits being issued for 100,000 more housing units across Canada. It is intended to support initiatives that remove barriers to housing supply, accelerate the growth of supply and support the development of complete, low-carbon and climate-resilient communities which are affordable, inclusive, equitable and diverse.

The Housing Accelerator Fund – launching in summer 2023 – will provide incentive funding to local governments to boost housing supply across Canada. The Housing Accelerator Fund provides incentive funding to local governments encouraging initiatives aimed at increasing housing supply. It also supports the development of complete, low-carbon and climate-resilient communities that are affordable, inclusive, equitable and diverse. Eligibility for the fund will be for the following:

- Local governments in Canada with delegated authority over land use planning and development approvals, including First Nations, Métis and Inuit governments, can apply.
- Regional districts, provinces or territories are eligible to apply if there isn't a municipal-level authority.

The primary objectives of the program are to create more supply of housing at an accelerated pace and enhance certainty in the approvals and building process, while also supporting the following priorities:

- Supporting the development of complete communities that are walkable, consisting of appropriate residential density and a diverse mix of land uses, providing access to a wide variety of amenities and services through public and active transportation.
- Supporting the development of affordable, inclusive, equitable and diverse communities that encourage clear pathways to achieving greater socio-economic inclusion largely achieved through the equitable provision of housing across the entire housing spectrum.
- Supporting the development of low-carbon and climate-resilient communities.

As a result of investments towards these objectives and priorities, the HAF is expected to result in permits being issued for 100,000 more housing units than would have occurred without the HAF.

Attachments A & B to this report provide further detail on the funding and process required, however staff have summarized the major components of the opportunity that could provide Penticton with significant funding to open up more housing development opportunities.

- **Housing Accelerator Fund Requirements**

  Two application streams are available based on population and specific to Penticton, we would be able to qualify as a community in a Canadian province that has a population of greater than 10,000 (Large / Urban Stream).

  The Large/Urban Stream of the Housing Accelerator Fund provides incentive funding to local governments. The funding is meant to remove barriers and support the development of affordable, inclusive, equitable and climate-resilient communities.

  To be eligible for the Large/Urban Stream, applicants must have a population of 10,000+ and be in a Canadian province. Approved participants can use incentive funding for investments in:

  - Housing Accelerator Fund (HAF) action plans
  - Affordable housing
  - Housing-related infrastructure
  - Community-related infrastructure that supports housing

  The framework for determining the amount of incentive funding includes base funding, top-up funding and an affordable housing bonus.

  To be eligible for incentive funding, a municipality will need to:

  - present an application, including an action plan that outlines supply growth targets and specific initiatives to grow housing supply and speed up housing approvals;
  - have a minimum of 7 initiatives in its action plan;
  - commit to a housing supply growth target within the action plan that increases the average annual rate of growth by at least 10%. ***The growth rate must also exceed 1.1%;***
  - complete or update a housing needs assessment report (this requirement may be waived if you recently completed or updated a housing needs assessment); and
  - agree to follow the program's reporting requirements.

  The action plan will need to include the following:

- a housing supply growth target, which reflects the total number of permitted housing units projected with the support afforded by the HAF;
- additional targets related to the type of housing projected, as well as affordable housing; and
- proposed initiatives such as measures to increase density, revise parking requirements, enhance processes or systems, etc. that will help the applicant achieve their committed targets and support the objectives of the program.

➢ **Community Action Plan Requirements**

The following list of initiatives are aligned with the objectives of the HAF program and reflect common practices in urban planning, contributing to more housing supply. Applicants are encouraged to select from this list where it makes sense to do so given the local context. There is flexibility for CMHC to consider alternative initiatives proposed by applicants. Actions that do not support the objectives of the program will not be considered.

- Promoting high-density development without the need for rezoning (as-of-right zoning), e.g., for housing developments up to 10 stories that are in proximity (within 1 .5km) of rapid transit stations and reducing car dependency.
- Allowing increased housing density (increased number of units and number of storeys) on a single lot including promoting "missing middle" housing forms typically buildings less than 4 stories
- Encouraging Accessory Dwelling Units—a second smaller unit on the same property as a primary unit
- Enable mixed-use redevelopment of city-owned properties, while where appropriate maintaining the current government use, e.g., building housing on top of a library or office space.
- Promoting infill developments (adding new units to existing communities) with increased housing density and a variety of unit types (e.g., duplexes or secondary suites).
- Implementing rental only zoning.
- Implementing land use changes mandating a minimum number of family units (units with more than two bedrooms) or allowing for office conversions to residential with minimum family unit requirements.
- Implementing revised parking requirements such as reduced or eliminated parking spaces for new developments – Implementing disincentives, costing or fee structures to discourage such things as unit vacancy, underdeveloped/ idle land, and low-density forms of housing
- Ensuring that development and amenity charges – fees that cover necessary infrastructure to support new housing and amenities such as libraries and recreation centres in and adjacent to the communities where development is occurring – are clear, transparent and pre-determined (not subject to negotiation)
- Aligning development charges with the costs of infrastructure and servicing – Implementing incentives, costing or fee structures, for example density bonusing, to encourage such things as affordable housing and conversions from non-residential to residential
- Waiving public hearings on all affordable housing projects that conform to the official community plan

- Implementing measures to address or prevent flood plain or climate change risk for example making flood plains park land and/or creating relocation programs to move housing units out of at-risk areas
- Incorporating a climate adaptability plan into Official Community Plan
- Promoting and allowing more housing types that serve vulnerable populations
- Promoting regulated multi-tenanted housing forms (e.g., boarding houses or single room occupancy)
- Implementing inclusionary zoning (the requirement that a developer builds a certain percentage of their units at affordable (below market) prices or rents) in ways that foster development – Encouraging alternative forms of housing construction such as modular housing, manufactured housing, and prefabricated housing
- Create a process for the disposal of city-owned land assets for the development of affordable housing as-of-right (not requiring rezoning)
- Implementing new/enhanced processes or systems such as case management, e-permitting, land and building modeling
- Implementing changes to decision making such as delegating development approval authority to municipal staff based on established thresholds or parameters
- Partnering with non-profit housing providers to preserve and increase the stock of affordable housing
- Updating infrastructure planning to align with official community plans, growth targets, and housing needs assessment
- Reducing and streamlining urban design and character guidelines, i.e., elimination of height restrictions, visual character requirements, view cones, setbacks, etc.

It is the responsibility of the applicant to determine and confirm that it has the requisite authority, expertise, capacity, and resources to implement any and all chosen initiatives. The contribution agreement shall include a representation and warranty by the applicant confirming the above and CMHC will be relying on the representation and warranty without any independent investigation. All action plans must be approved by elected Council (or equivalent, including delegated authority) and include an attestation of the applicant's Chief Financial Officer (or equivalent) on the viability of the plan using the prescribed form. The attestation must be obtained by the applicant before applying to the HAF. The approval may be obtained by the applicant before applying to the HAF and is required before the contribution agreement is signed.

➢ **Incentive Funding and Permitted Use of Funding**

The HAF is about driving transformational change and creating the conditions for more housing supply over the short and longer term. The HAF is intended to incent applicants to commit to change, show progress and be provided with funding in return. The HAF is not directly underwriting specific housing projects or reimbursing proponents for specific costs incurred. Rather, HAF funding can be used in support of housing under any of the following four categories:

- Investments in Housing Accelerator Fund Action Plans • any initiative included in the proponent's action plan and approved by CMHC.
- Investments in Affordable Housing

    - construction of affordable housing
    - repair or modernization of affordable housing
    - land or building acquisition for affordable housing.
- Investments in Housing-related Infrastructure
    - drinking water infrastructure that supports housing
    - wastewater infrastructure that supports housing
    - solid waste management that supports housing
    - public transit that supports housing
    - community energy systems that support housing
    - disaster mitigation that supports housing
    - brownfield redevelopment that supports housing
    - broadband and connectivity that supports housing
    - capacity building that supports housing
    - site preparation for housing developments

- Investments in Community-related Infrastructure that supports housing
    - local roads and bridges
    - sidewalks, lighting, bicycle lanes
    - fire halls
    - landscaping and green space.

➢ **Funding Methodology**

There are three components of the funding framework: (1) base funding, (2) top-up funding and (3) an affordable housing bonus. For the base funding, the per unit amount will be higher for applications pertaining to the territories or Indigenous communities.

Components of the funding framework will work as follows:

- (1) Base funding is designed to incent all types of supply across the housing spectrum. Base funding is estimated at $20K* per HAF incented unit ($40K* per HAF incented unit for applications pertaining to the territories or an Indigenous community). The per unit amount will be multiplied by the number of HAF incented units. HAF incented units refers to the difference between two projections: (1) the number of permitted units that are anticipated without the support afforded by the HAF program and (2) the number of permitted units that are anticipated with the support afforded by the HAF program. The latter would establish the housing supply growth target, which would be included in the action plan and reflected in the contribution agreement.

Table 2: Base Funding

	Total projected permitted units without HAF	Total projected permitted units with HAF	HAF incented units	Per unit amount	Base funding amount
Base funding	5,500	6,000	500	$20,000*	$10,000,000

- (2) Top up funding is designed to incent certain types of housing supply. Top up funding will depend on the type of housing and the associated projected increase in the number of permitted units. There is no top up funding available for single detached homes. The value ascribed to each category will be multiplied by the associated projected increase in the number of permitted units. The targets established for each unit type would be included in the action plan and reflected in the contribution agreement.

Table 3: Top-up Funding

	Total projected permitted units without HAF by type of housing	Total projected permitted units with HAF by type of housing	Increase in housing type (#)	Per unit amount	Top-up funding amount
Single detached homes	2,000	2,100	100	$0	$0
Multi-unit housing (in close proximity to rapid transit)	400	450	50	$15,000*	$750,000
Multi-unit housing (missing middle)	1,000	1,250	250	$12,000*	$3,000,000
Multi-unit housing (other)	2,100	2,200	100	$7,000*	$700,000
Total units	**5,500**	**6,000**	**500**		
Top up funding					$4,450,000

- (3) Affordable housing bonus is designed to reward an applicant that can increase its share of affordable housing units relative to the total projected permitted units with the support afforded by the HAF. The percentage growth will be multiplied by the ascribed value and then by the total projected permitted units with the support afforded by the HAF. The target would be included in the action plan and reflected in the contribution agreement.

Table 4: Affordable Housing Bonus

	Total projected affordable units permitted without HAF (%)	Total projected affordable units permitted with HAF (%)	Increase in the share of affordable housing units (%)	Per unit amount	Affordable housing bonus amount
Affordable housing bonus	2.00%	3.50%	1.50%	$19,000*	$1,710,000

Financial Implications

While there are significant funds available to support the development of new housing in the community, to begin the process and apply for the grant application, staff are recommending that up to $40,000 be used from the City's Online Accommodator Platform Reserve. As at Dec 31, 2022 that reserve has a balance of $102k.

The budget currently contains approximately $160,000 of anticipated revenues on an annual basis to be transferred to this reserve.

Analysis

To ensure the City is prepared to pursue this significant funding opportunity, there are a number of tasks required in the short term, under a relative quick timeframe, to meet the upcoming summer submission requirements. Much of this work can be undertaken as part of the OCP Housing Task Force's work, however, some of this work needs to be actioned immediately considering the timeline for the opportunity.

Staff have already initiated the commencement of a Housing Needs Assessment with the expectation that this work be completed by early June 2023. This analysis will provide for housing projections over the coming years and help clearly identify the need.

Work on the application however will require technical expertise and resources to enable the timelines to be met, working with a range of City departments over the coming weeks and months. Staff are therefore proposing that up to $40,000 be allocated from the City's Online Accommodator Reserve to assist in hiring a consultant to complete the grant application.

This will allow staff to work with the OCP Housing Task Force and commence the process for updating the City's housing policy, and at the same time, have a professional work on the HAF application in the most efficient manner. As outlined in Attachment B, the application process is quite complex and to ensure that the City has the best opportunities to compete for what will be an extremely competitive process across the country, bringing in a professional will allow for the required work to be completed.

Attachments
Attachment A – Housing Accelerator Fund – Highlight Sheet
Attachment B – Housing Accelerator Fund – Pre-Application Reference Material

Respectfully submitted,

Anthony Haddad
General Manager of Community Services

Director of Finance and Administration	General Manager of Infrastructure	Director of Development Services	Chief Administrative Officer
AMC	KD	BL	DvD

Attachment A

Housing Accelerator Fund – Highlight Sheet

Housing Accelerator Fund — Highlight Sheet

The **Housing Accelerator Fund** (HAF) will provide incentive funding (contributions) to local governments to encourage local initiatives that remove barriers to housing supply, accelerate the growth of supply and support the development of complete, low-carbon and climate-resilient communities which are affordable, inclusive, equitable and diverse.

The HAF is expected to result in permits being issued for 100,000 more housing units across Canada.

ELIGIBILITY

Local governments within Canada, including First Nations, Métis and Inuit governments who have delegated authority over land use planning and development approvals are eligible to apply to the HAF. In the absence of a municipal-level authority, a regional district or province or territory that has authority for land use planning and development approvals may also apply to the HAF.

FUNDING

There are two application streams:

- **Large/Urban:** A jurisdiction located anywhere in Canada with a population[1] equal to or greater than 10,000, excluding those within a territory or an Indigenous community.
- **Small/Rural/North/Indigenous:** A jurisdiction located anywhere in Canada with a population[1] less than 10,000 or within one of the territories or an Indigenous community.

[1] Population based on 2021 census data.

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The HAF is about driving transformational change and creating the conditions for more housing supply over the short and longer term. The HAF is intended to incent applicants to commit to change, show progress and be provided with funding in return. If approved to participate in the HAF program, proponents can use HAF funding towards permitted uses of funds. There are prescribed uses, which fall under the following four categories:

- Investments in Housing Accelerator Fund Action Plans
- Investments in Affordable Housing
- Investments in Housing-related Infrastructure
- Investments in Community-related Infrastructure that supports housing.

There will be mandatory reporting on the use of HAF funding.

MINIMUM REQUIREMENTS

To be eligible for incentive funding, the applicant must:

- Develop an action plan as part of their HAF application. The purpose of the action plan is to outline supply growth targets and specific initiatives to grow housing supply and speed up housing approvals.
- Commit to a housing supply growth target within the action plan that increases the average annual rate of growth by at least 10%. The growth rate must also exceed 1.1%.
- Complete or update a housing needs assessment report. This requirement may be waived if the applicant recently completed or updated a housing needs assessment.

The applicant must also agree to adhere to the reporting requirements of the program.

Action Plans

The action plan will include: (1) a housing supply growth target, which reflects the total number of permitted housing units projected with the support afforded by the HAF (2) additional targets related to the type of housing projected, as well as affordable housing and (3) proposed initiatives such as measures to increase density, revise parking requirements, enhance processes or systems, etc. that will help the applicant achieve their committed targets and support the objectives of the program. The minimum number of initiatives that must be included in the action plan depends on the stream.

- **Large/Urban:** A minimum of seven initiatives.
- **Small/Rural/North/Indigenous:** A minimum of five initiatives.

Applicants are encouraged to select from a list of initiatives that will be provided by CMHC. There is flexibility for CMHC to consider alternative initiatives proposed by applicants. Actions that do not support the objectives of the program will not be considered.

EVALUATION CRITERIA

CMHC will review all applications to determine if they meet program requirements of the HAF. The following criteria will be used to evaluate an application:

- The commitment to increase housing supply (exceeding minimum growth expectations)
- The relevance of proposed initiatives to the objectives of the HAF
- The effectiveness of proposed initiatives on increasing the supply of housing
- The presence of a current housing needs assessment report is considered an asset.

FUNDING METHODOLOGY

A framework (see funding example) will be used to determine the amount of incentive funding per successful applicant. There are three components of the framework: (1) base funding, (2) top-up funding and (3) an affordable housing bonus. For the base funding, the per unit amount will be higher for applications pertaining to the territories or Indigenous communities. Committed targets would be included in the action plan and reflected in the contribution agreement.

1. **Base funding** is designed to incent all types of supply across the housing spectrum. The per unit amount will be multiplied by the number of HAF incented units.

2. **Top up funding** is designed to incent certain types of housing supply. Top up funding will depend on the type of housing and the associated projected increase in the number of permitted units. There is no top up funding available for single detached homes. The value ascribed to each category will be multiplied by the associated projected increase in the number of permitted units.

3. **Affordable housing bonus** is designed to reward an applicant that can increase its share of affordable housing units relative to the total projected permitted units with the support afforded by the HAF. The percentage growth will be multiplied by the ascribed value and then by the total projected permitted units with the support afforded by the HAF.

FUNDING EXAMPLE

Table 1: Base Funding

	Total projected permitted units without HAF	Total projected permitted units with HAF	HAF incented units	Per unit amount	Base funding amount
Base funding	5,500	6,000	500	$20,000*	$10,000,000

A total of 500 HAF incented units * $20K per unit = $10M.

*All per unit amounts for the base funding, top up funding and affordable housing bonus are estimated amounts that may assist potential applicants for budgeting purposes. CMHC may adjust these amounts and this flexibility is to help ensure that CMHC can support higher than anticipated housing supply growth targets and outcomes across Canada within the overall program funding.

Table 2: Top-up Funding

	Total projected permitted units without HAF by type of housing	Total projected permitted units with HAF by type of housing	Increase in housing type (#)	Per unit amount	Top-up funding amount
Single detached homes	2,000	2,100	100	$0	$0
Multi-unit housing (in close proximity to rapid transit)	400	450	50	$15,000*	$750,000
Multi-unit housing (missing middle)	1,000	1,250	250	$12,000*	$3,000,000
Multi-unit housing (other)	2,100	2,200	100	$7,000*	$700,000
Total units	5,500	6,000	500		
Top up funding					$4,450,000

For example, an increase of 250 missing middle housing units * $12K per unit = $3M.

*All per unit amounts for the base funding, top up funding and affordable housing bonus are estimated amounts that may assist potential applicants for budgeting purposes. CMHC may adjust these amounts and this flexibility is to help ensure that CMHC can support higher than anticipated housing supply growth targets and outcomes across Canada within the overall program funding.

Table 3: Affordable Housing Bonus

	Total projected affordable units permitted without HAF (%)	Total projected affordable units permitted with HAF (%)	Increase in the share of affordable housing units (%)	Per unit amount	Affordable housing bonus amount
Affordable housing bonus	2.00%	3.50%	1.50%	$19,000*	$1,710,000

An increase in the share of affordable housing units of 1.50% * 6000 total projected permitted units with HAF * $19K per unit = $1.71M.

*All per unit amounts for the base funding, top up funding and affordable housing bonus are estimated amounts that may assist potential applicants for budgeting purposes. CMHC may adjust these amounts and this flexibility is to help ensure that CMHC can support higher than anticipated housing supply growth targets and outcomes across Canada within the overall program funding.

Total Incentive Funding:
$16,160,000
Base funding ($10M) + top up funding ($4.45M) + affordable housing bonus ($1.71M) = $16.16M

The average amount for each HAF incented unit is: $32,320
Total incentive funding of $16.16M / the number of HAF incented units of 500 = $32,320

MINIMUM DOCUMENTATION REQUIREMENTS

Minimum documentation to support an application under the HAF:

- Completed application form, including action plan
- Signed integrity declaration
- Most recent audited financial statements (if not available publicly)
- Current housing needs assessment report (if available at time of application)
- Attestation letter signed by the applicant's Chief Financial Officer (or equivalent) using the prescribed form on viability of the action plan.

ADVANCING SCHEDULE

There will be a total of four advances to successful applicants, with one advance planned for each year of the program. An upfront advance will be provided in the first year to assist proponents with implementing action plans. Subsequent payments will be subject to conditions, including satisfactory progress reviews.

REPORTING REQUIREMENTS

There are three main reporting obligations under the HAF that relate to progress on the initiatives and commitments outlined in the action plan, supporting data on housing units permitted during the reporting period and reporting that confirms that HAF funding was used for a permitted purpose.

APPLICATION PROCESS

The following provides a high-level overview of the application process for HAF:

1. **HAF program details announced**
   - CMHC publishes program parameters and pre-application reference material, including an action plan template on its website[2]
2. **Potential applicants consider the HAF**
   - Applicants assess their own local context, including housing challenges and opportunities
3. **Applicants develop action plans**
   - Applicants develop an action plan unique to their needs in support of HAF, aligned with the prescribed template
   - Applicants obtain necessary approvals[3]
4. **CMHC is ready to accept applications**
   - CMHC invites applicants to apply[4]
   - CMHC's intake portal opens for application submissions
   - Applicants submit application, including the action plan[5]
5. **Evaluation and selection**
   - CMHC will evaluate and prioritize applications and obtain final approvals[6]
   - Once approvals and final funding decisions are made, CMHC will advise applicants of the outcome
6. **Contribution agreement**
   - If approved, CMHC will confirm the total amount of funding
   - The proponent signs the contribution agreement[7]
   - First advance processed following signing of the agreement

This material is provided for informational purposes and provides program highlights only. This information is subject to change at any time. CMHC does not guarantee or warrant that the program highlights are complete, adequate, or up-to-date. Additional information on the program can be found within the pre-application reference material made available on CMHC's website[2]. The contribution agreement shall include the terms and conditions of the program and govern the obligations of the recipient and CMHC.

[2] https://www.cmhc-schl.gc.ca/en/professionals/project-funding-and-mortgage-financing/funding-programs/all-funding-programs/housing-accelerator-fund

[3] All action plans must be approved by elected Council (or equivalent, including delegated authority) and include an attestation of the applicant's Chief Financial Officer (or equivalent) on the viability of the plan. The attestation must be obtained by the applicant before applying to the HAF. The approval may be obtained by the applicant before applying to the HAF and is required before the contribution agreement is signed.

[4] CMHC will encourage several anticipated growth leaders within the large/urban stream to apply to the HAF in advance of the intake portal opening. These are cities that are expected to contribute significantly towards the 100K unit target for the HAF. Considering these cities earlier in the process will assist CMHC in managing the overall funding envelope.

[5] There is only one planned intake window. All applicants interested in applying to the HAF must meet the submission deadline.

[6] CMHC will consider take-up across jurisdictions and may adjust application rankings to support a national distribution. CMHC will make formal recommendations to the Minister of Housing and Diversity and Inclusion.

[7] If not already obtained, Council approval (or equivalent) of the action plan is required before the proponent enters into the contribution agreement.

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Learn more at cmhc-nhs.ca

Attachment B

Housing Accelerator Fund – Pre-Application Reference Material

https://assets.cmhc-schl.gc.ca/sites/cmhc/professional/project-funding-and-mortgage-financing/funding-programs/all-funding-programs/housing-accelerator-fund/haf-pre-appplication-reference-guide-en.pdf

Housing Accelerator Fund

Pre-application Reference Material

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1. PURPOSE OF THIS GUIDE

This reference document will help applicants to get ready to apply to the Housing Accelerator Fund (the HAF) administered by the Canada Mortgage and Housing Corporation (CMHC). It informs applicants about program requirements and information that they will need to submit as part of their application. Potential applicants are local authorities as described in section four (4).

Through the provision of incentive funding, the HAF is intended to drive transformational change within the sphere of control of the local government regarding land use planning and development approvals with the overall objective to "accelerate supply" of housing.

As part of the application process, applicants must outline the actions that they will take to increase housing supply and reflect these initiatives in an action plan. Given the time that it may take to prepare the application, including the mandatory action plan and to obtain the necessary local approvals, CMHC is providing this document well in advance of the application intake portal opening.

For greater certainty, the formal application form for the HAF will be made available later in 2023 in support of the launch of the initiative when CMHC is ready to accept applications. It is possible that certain information will be requested within the application form that is not referenced in or that differs from this document.

2. PROGRAM BUDGET

With the launch of the HAF, $4 billion in funds may be available to local authorities (see definition in section four (4)) to incentivize the implementation of local actions that remove barriers to housing supply, accelerate the growth of supply, and support the development of communities that are aligned with several priorities as described in section three (3).

3. OBJECTIVES

The primary objectives of the program are to create more supply of housing at an accelerated pace and enhance certainty in the approvals and building process, while also supporting the following priorities:

- Supporting the development of complete communities that are walkable, consisting of appropriate residential density and a diverse mix of land uses, providing access to a wide variety of amenities and services through public and active transportation.
- Supporting the development of affordable, inclusive, equitable and diverse communities that encourage clear pathways to achieving greater socio-economic inclusion largely achieved through the equitable provision of housing across the entire housing spectrum.
- Supporting the development of low-carbon and climate-resilient communities.

As a result of investments towards these objectives and priorities, the HAF is expected to result in permits being issued for 100,000 more housing units than would have occurred without the HAF.

4. ELIGIBLE APPLICANTS

Local governments within Canada, including First Nations, Métis and Inuit governments who have delegated authority over land use planning and development approvals are eligible to apply to the HAF.

In the absence of a municipal-level authority, a regional district or province or territory that has authority for land use planning and development approvals may also apply to the HAF.

5. APPLICATION STREAMS

There are two application streams, as follows:

- **Large/Urban:** A jurisdiction located anywhere in Canada with a population* equal to or greater than 10,000, excluding those within a territory or an Indigenous community.
- **Small/Rural/North/Indigenous:** A jurisdiction located anywhere in Canada with a population* less than 10,000 or within one of the territories or an Indigenous community.

*Population based on 2021 census data.

6. MINIMUM REQUIREMENTS

To be eligible for incentive funding, the applicant must:

- Develop an action plan as part of their HAF application, including satisfying the prescribed minimum number of initiatives as outlined in section seven (7). The purpose of the action plan is to outline a housing supply growth target and the specific initiatives that the applicant will undertake to grow housing supply and speed up housing approvals.
- Commit to a housing supply growth target within their action plan that increases their average annual rate of growth by at least 10%. The growth rate must also exceed 1.1%*.
- Complete or update a housing needs assessment report** and include a reoccurring scheduled review date within the report to ensure that the needs assessment is kept current.
    - The requirement to complete or update a housing needs assessment report may be waived if the applicant recently completed or updated their housing needs assessment. Applicants that have completed or updated their housing needs assessment within two years of the 2022 federal budget announcement (April 7, 2022) can request that this requirement be waived. If there is no reoccurring scheduled review date on this existing housing needs assessment report, there remains a requirement to add a reoccurring scheduled review date.
- Submit periodic reports to CMHC in the form and timelines prescribed. See section 12 for additional details. This includes:
    - Progress reporting on the initiatives and commitments within the action plan.
    - Micro-level permit data for residential buildings for all permitted units.
    - Details that support that HAF funding was used for a permitted purpose.

*CMHC may consider growth targets that fall outside these program guidelines on a case-by-case basis considering actual applications received. Applicants are encouraged to put forward the strongest application possible. Refer to section nine (9) for details on the evaluation criteria.

**For those that need to complete or update their housing needs assessment, resources are available on CMHC's website. The report is not required to be completed at the time of application submission, but it must be completed within the prescribed timeframe (i.e., the third reporting period). See section 13 for details on the reporting schedule.

7. ACTION PLANS

Applicants must provide an action plan as part of their application, which will assist CMHC in selecting applicants. If selected by CMHC, the action plan will form part of the contribution agreement. Refer to Appendix A for details on the type of information required as part of the application, including the action plan.

Each applicant must assess its own housing needs, challenges, and opportunities in considering whether to apply under the HAF. Applicants are encouraged to consider regional matters in developing their action plans. Applicants may wish to consult the information available on the Statistics Canada website as part of its assessment. Table 98-10-0002-02 provides information on population and dwelling counts for provinces, territories, and census subdivisions.

Housing supply growth target

Within the action plan submitted as part of the application for HAF, the applicant will be required to provide two projections to CMHC as outlined below. The applicant must calculate their own projections based on reasonable assumptions and data sources, including Statistics Canada and/or its own administrative data. There is no prescribed formula; however, projections should be based on a three-year period ending September 1, 2026.

- The total number of permitted housing units projected **without** HAF.
- The total number of permitted housing units projected **with** HAF. This second projection is what is referred to as the "housing supply growth target."

For the purpose of determining if the committed growth rate satisfies the minimum 10% increase and exceeds 1.1%, the following formulas will be used by CMHC:

- The annual projected growth rate without HAF: the total number of permitted housing units projected without HAF/3 years/current total number of dwellings *100%.
- The annual projected growth rate with HAF: the total number of permitted housing units projected with HAF/3 years/current total number of dwellings *100%.

The current total number of dwellings should be consistent with the applicant's 2021 census data adjusted for additional dwellings built since that reporting period.

Additional targets

Applicants will also be able to set targets based on the type of housing supply that is projected to be permitted with the support afforded by the HAF program. These additional targets will increase the amount of funding available to the proponent if selected to participate in the program. The targets can be set for housing types that align with the priorities of the HAF program, which include:

- Multi-unit housing (in close proximity to rapid transit)
- Multi-unit housing (missing middle)
- Multi-unit housing (other)
- Affordable housing units.

Refer to section 10 for an overview of the funding methodology and definitions for each type of housing.

Action plan initiatives

The action plan must include initiatives that will help the applicant achieve their committed housing supply growth target and any additional targets. The action plan items must support enhancements achievable within the program's timeframe, but the intent is for changes to outlive the HAF.

The minimum number of initiatives depends on the application stream, as follows:

- **Large/Urban:** A minimum of seven initiatives.
- **Small/Rural/North/Indigenous:** A minimum of five initiatives.

All initiatives included within the action plan should be new initiatives that have not yet started. In exceptional circumstances, CMHC may be willing to consider initiatives that started after the 2022 federal budget (April 7, 2022), which announced the Housing Accelerator Fund, in cases where an applicant may be challenged to meet the prescribed minimum number of initiatives.

The applicant must indicate how each initiative will increase the supply of housing and associated timelines, as well as any other expected results.

The applicant must identify and explain how each proposed initiative supports at least one of the objectives of the program (see section three (3)).

The following list of initiatives are aligned with the objectives of the HAF program and reflect common practices in urban planning, contributing to more housing supply. Applicants are encouraged to select from this list where it makes sense to do so given the local context. There is flexibility for CMHC to consider alternative initiatives proposed by applicants. Actions that do not support the objectives of the program will not be considered.

- Promoting high-density development without the need for rezoning (as-of-right zoning), e.g., for housing developments up to 10 stories that are in proximity (within 1.5km) of rapid transit stations and reducing car dependency
- Allowing increased housing density (increased number of units and number of storeys) on a single lot including promoting "missing middle" housing forms typically buildings less than 4 stories
- Encouraging Accessory Dwelling Units—a second smaller unit on the same property as a primary unit
- Enable mixed-use redevelopment of city-owned properties, while where appropriate maintaining the current government use, e.g., building housing on top of a library or office space
- Promoting infill developments (adding new units to existing communities) with increased housing density and a variety of unit types (e.g., duplexes or secondary suites)
- Implementing rental only zoning
- Implementing land use changes mandating a minimum number of family units (units with more than two bedrooms) or allowing for office conversions to residential with minimum family unit requirements
- Implementing revised parking requirements such as reduced or eliminated parking spaces for new developments
- Implementing disincentives, costing or fee structures to discourage such things as unit vacancy, underdeveloped/idle land, and low-density forms of housing
- Ensuring that development and amenity charges – fees that cover necessary infrastructure to support new housing and amenities such as libraries and recreation centres in and adjacent to the communities where development is occurring – are clear, transparent and pre-determined (not subject to negotiation)

- Aligning development charges with the costs of infrastructure and servicing
- Implementing incentives, costing or fee structures, for example density bonusing, to encourage such things as affordable housing and conversions from non-residential to residential
- Waiving public hearings on all affordable housing projects that conform to the official community plan
- Implementing measures to address or prevent flood plain or climate change risk for example making flood plains park land and/or creating relocation programs to move housing units out of at-risk areas
- Incorporating a climate adaptability plan into Official Community Plan
- Promoting and allowing more housing types that serve vulnerable populations
- Promoting regulated multi-tenanted housing forms (e.g., boarding houses or single room occupancy)
- Implementing inclusionary zoning (the requirement that a developer builds a certain percentage of their units at affordable (below market) prices or rents) in ways that foster development
- Encouraging alternative forms of housing construction such as modular housing, manufactured housing, and prefabricated housing
- Create a process for the disposal of city-owned land assets for the development of affordable housing as-of-right (not requiring rezoning)
- Implementing new/enhanced processes or systems such as case management, e-permitting, land and building modelling
- Implementing changes to decision making such as delegating development approval authority to municipal staff based on established thresholds or parameters
- Partnering with non-profit housing providers to preserve and increase the stock of affordable housing
- Updating infrastructure planning to align with official community plans, growth targets, and housing needs assessment
- Reducing and streamlining urban design and character guidelines, i.e., elimination of height restrictions, visual character requirements, view cones, setbacks, etc.

It is the responsibility of the applicant to determine and confirm that it has the requisite authority, expertise, capacity, and resources to implement any and all chosen initiatives. The contribution agreement shall include a representation and warranty by the applicant confirming the above and CMHC will be relying on the representation and warranty without any independent investigation. All action plans must be approved by elected Council (or equivalent, including delegated authority) and include an attestation of the applicant's Chief Financial Officer (or equivalent) on the viability of the plan using the prescribed form. The attestation must be obtained by the applicant before applying to the HAF. The approval may be obtained by the applicant before applying to the HAF and is required before the contribution agreement is signed.

Note: CMHC may provide successful applicants with an opportunity to propose additional initiatives and increase their housing supply growth target in the event there is unused funding in the later years of the program.

8. INCENTIVE FUNDING AND PERMITTED USES

The HAF is about driving transformational change and creating the conditions for more housing supply over the short and longer term. The HAF is intended to incent applicants to commit to change, show progress and be provided with funding in return.

For clarity, HAF is not directly underwriting specific housing projects or reimbursing proponents for specific costs incurred. Rather, HAF funding can be used in support of housing under any of the following four categories. For further details on how HAF funding would be advanced refer to section 13.

Permitted uses of HAF funding:

- Investments in Housing Accelerator Fund Action Plans
  - any initiative included in the proponent's action plan and approved by CMHC.
- Investments in Affordable Housing
  - construction of affordable housing
  - repair or modernization of affordable housing
  - land or building acquisition for affordable housing.
- Investments in Housing-related Infrastructure
  - drinking water infrastructure that supports housing
  - wastewater infrastructure that supports housing
  - solid waste management that supports housing
  - public transit that supports housing
  - community energy systems that support housing
  - disaster mitigation that supports housing
  - brownfield redevelopment that supports housing
  - broadband and connectivity that supports housing
  - capacity building that supports housing
  - site preparation for housing developments.
- Investments in Community-related Infrastructure that supports housing
  - local roads and bridges
  - sidewalks, lighting, bicycle lanes
  - firehalls
  - landscaping and green space.

Proponents will be asked to estimate how much of their funding will be allocated to each category as part of their application (% of total estimated funding). If approved to participate in the program, proponents must report on how HAF funding was used in the form and timelines prescribed. Additional information on reporting requirements can be found in section 12.

Subject to the permitted uses outlined above, HAF funding can be used in conjunction with other CMHC or federal government programs, unless expressly prohibited under the terms of such initiatives. Please note that funding from the HAF will not be considered as local or PT (Provinces & Territories) cost-matching under the existing CMHC-PT NHS bilateral agreements, which exclude contributions from Government of Canada sources or from CMHC.

9. EVALUATION CRITERIA

CMHC will review all applications to determine if they meet program requirements of the HAF. The evaluation of the application will be based on the criteria listed in Table 1. All applications will be assessed and scored.

All initiatives outlined in the action plan will be individually assessed and scored; however, for prioritization purposes only the top five initiatives under the Small/Rural/North/Indigenous stream or top seven initiatives under the Large/Urban stream will be considered. While only the top five or seven initiatives will be used for prioritization purposes, additional initiatives should still be put forward within the action plan as required to support the committed housing supply growth target and alignment with HAF priorities.

The evaluation criteria are used to assess the application and to determine which applicants are selected to participate in the HAF. It will **not** dictate funding amounts. There is a separate funding framework for those that are selected to participate in the program. Refer to section 10 for the funding methodology.

Table 1: Evaluation criteria

Criteria	Assessment and Prioritization
The commitment to increase housing supply **Total available points: 10**	Strong proposals will demonstrate a commitment to increase the supply of housing above the minimum requirements of the program. • Annual growth rate: – over 2.5% - 5 points – 1.5% to 2.5% - 3 points – 1.1% to 1.4% - 1 point. • Annual growth rate percentage change: – over 20% - 5 points – 15% to 20% - 3 points – 10% to 14% - 1 point.
The relevance of the initiative outcome(s) to one or more of the objectives of the HAF **Total available points: NA (pass/fail)**	Proposed initiatives within the action plan will be assessed to confirm if they support one or more of the following objectives, including priority areas: • Creating more supply of housing at an accelerated pace and/or enhancing certainty in the approvals and building process. • Supporting the development of complete communities that are walkable consisting of appropriate residential density and a diverse mix of land uses providing access to a wide variety of amenities and services through public and active transportation. • Supporting the development of affordable, inclusive, equitable and diverse communities that encourage clear pathways to achieving greater socio-economic inclusion largely achieved through the equitable provision of housing across the entire housing spectrum. • Supporting the development of low-carbon and climate-resilient communities.
The effectiveness of the initiative on increasing the supply of housing **Total available points: 20**	Proposed initiatives within the action plan will be assessed based on: • **Implementation:** The time it will take to complete the initiative. – within 1 year - 5 points – within 2 years - 3 points – over 2 years - 1 point. • **Timeliness:** The time it will take to start to achieve additional permitted units as a result of the initiative. – within 1 year - 5 points – within 2 years - 3 points – over 2 years - 1 point. • **Supply Impact:** The extent to which the initiative will improve housing and community outcomes. – high degree of improvement - 5 points – medium degree of improvement - 3 points – low degree of improvement - 1 point. • **System Impact:** The extent to which the initiative increases stability and predictability in the housing system. – high degree of stability and predictability - 5 points – medium degree of stability and predictability - 3 points – low degree of stability and predictability - 1 point.
The need for increased housing supply **Total available points: 5**	While not a mandatory requirement at the time of application submission, strong proposals will demonstrate housing needs as evidenced by a current housing needs assessment report. • Yes, a current report is available - 5 points • No, a current report is not available - 0 points.

There is only one planned intake window. CMHC will consider take-up across jurisdictions and may adjust application rankings to support a national distribution. CMHC will make formal recommendations to the Minister of Housing and Diversity and Inclusion. Once approvals and final funding decisions are made, CMHC will advise applicants of the outcome.

10. FUNDING METHODOLOGY

For those applicants that are selected for participation in the HAF program (see section nine (9)), a funding framework will be used to determine the amount of funding per successful applicant.

There are three components of the funding framework: (1) base funding, (2) top-up funding and (3) an affordable housing bonus. For the base funding, the per unit amount will be higher for applications pertaining to the territories or Indigenous communities.

While the funding envelope is determined on the basis of per unit amounts, the HAF incentive funding is designed to support the costs associated with the initiatives within the action plan, as well as any other permitted use of funds in order to accelerate the supply of housing in Canada (see section eight (8) for permitted uses of funds). The proponent will have flexibility in how HAF funding is used provided it is for a permitted use.

Components of the funding framework:

1. **Base funding** is designed to incent all types of supply across the housing spectrum. Base funding is estimated at $20K* per HAF incented unit ($40K* per HAF incented unit for applications pertaining to the territories or an Indigenous community). The per unit amount will be multiplied by the number of HAF incented units. HAF incented units refers to the difference between two projections: (1) the number of permitted units that are anticipated **without** the support afforded by the HAF program and (2) the number of permitted units that are anticipated **with** the support afforded by the HAF program. The latter would establish the housing supply growth target, which would be included in the action plan and reflected in the contribution agreement.
2. **Top up funding** is designed to incent certain types of housing supply. Top up funding will depend on the type of housing and the associated projected increase in the number of permitted units. There is no top up funding available for single detached homes. The value ascribed to each category will be multiplied by the associated projected increase in the number of permitted units. The targets established for each unit type would be included in the action plan and reflected in the contribution agreement.
3. **Affordable housing** bonus is designed to reward an applicant that can increase its share of affordable housing units relative to the total projected permitted units with the support afforded by the HAF. The percentage growth will be multiplied by the ascribed value and then by the total projected permitted units with the support afforded by the HAF. The target would be included in the action plan and reflected in the contribution agreement.

*All per unit amounts for the base funding, top up funding and affordable housing bonus are estimated amounts that may assist potential applicants for budgeting purposes. CMHC may adjust these amounts and this flexibility is to help ensure that CMHC can support higher than anticipated housing supply growth targets and outcomes across Canada within the overall program funding.

The following tables provide an illustrative example of the funding framework.

Table 2: Base Funding

	Total projected permitted units without HAF	Total projected permitted units with HAF	HAF incented units	Per unit amount	Base funding amount
Base funding	5,500	6,000	500	$20,000*	$10,000,000

A total of 500 HAF incented units * $20K per unit = $10M.

*All per unit amounts for the base funding, top up funding and affordable housing bonus are estimated amounts that may assist potential applicants for budgeting purposes.CMHC may adjust these amounts and this flexibility is to help ensure that CMHC can support higher than anticipated housing supply growth targets and outcomes across Canada within the overall program funding.

Table 3: Top-up Funding

	Total projected permitted units without HAF by type of housing	Total projected permitted units with HAF by type of housing	Increase in housing type (#)	Per unit amount	Top-up funding amount
Single detached homes	2,000	2,100	100	$0	$0
Multi-unit housing (in close proximity to rapid transit)	400	450	50	$15,000*	$750,000
Multi-unit housing (missing middle)	1,000	1,250	250	$12,000*	$3,000,000
Multi-unit housing (other)	2,100	2,200	100	$7,000*	$700,000
Total units	**5,500**	**6,000**	**500**		
Top up funding					$4,450,000

For example, an increase of 250 missing middle housing units * $12K per unit = $3M.

*All per unit amounts for the base funding, top up funding and affordable housing bonus are estimated amounts that may assist potential applicants for budgeting purposes.CMHC may adjust these amounts and this flexibility is to help ensure that CMHC can support higher than anticipated housing supply growth targets and outcomes across Canada within the overall program funding.

Table 4: Affordable Housing Bonus

	Total projected affordable units permitted without HAF (%)	Total projected affordable units permitted with HAF (%)	Increase in the share of affordable housing units (%)	Per unit amount	Affordable housing bonus amount
Affordable housing bonus	2.00%	3.50%	1.50%	$19,000*	$1,710,000

An increase in the share of affordable housing units of 1.50% * 6,000 total projected permitted units with HAF * $19K per unit = $1.71M.

*All per unit amounts for the base funding, top up funding and affordable housing bonus are estimated amounts that may assist potential applicants for budgeting purposes.CMHC may adjust these amounts and this flexibility is to help ensure that CMHC can support higher than anticipated housing supply growth targets and outcomes across Canada within the overall program funding.

Total Incentive Funding: $16,160,000

Base funding ($10M) + top up funding ($4.45M) + affordable housing bonus ($1.71M) = $16.16M

The average amount for each HAF incented unit is: $32,320

Total incentive funding of $16.16M / the number of HAF incented units of 500 = $32,320

Definitions

- Single-detached homes refers to a building containing 1 dwelling unit, which is completely separated on all sides from any other dwelling or structure. This includes link homes, where 2 units may share a common basement wall but are separated above grade. It also includes cluster-single developments.
- Multi-unit housing in close proximity to rapid transit refers to any form of multi-unit housing in close proximity (1500m) to rapid transit, which operates frequent service with high capacity and priority over other modes of transportation typically achieved through an exclusive right-of-way.
- Multi-unit housing characterized as missing middle refers to ground-oriented housing types that exist between single-detached and mid-rise apartments. This includes garden suites, secondary suites, duplexes, triplexes, fourplexes, row houses, courtyard housing, low-rise apartments (less than 4 stories).
- Other multi-unit housing refers to all multi-unit housing excluding missing middle and multi-unit housing in close proximity to rapid transit.
- Affordable housing refers to housing units that are intended for households whose needs are not met by the marketplace. The local definition will be used for the purposes of HAF or in the absence thereof the provincial/territorial definition.

11. MINIMUM DOCUMENTATION REQUIREMENTS

To support their application, applicants will be asked to submit the following minimum documentation:

- Completed application form, including action plan
- Signed integrity declaration
- Most recent audited financial statements (if not available publicly)
- Current housing needs assessment report (if available at time of application)
- Attestation letter signed by the applicant's Chief Financial Officer (or equivalent) using the prescribed form on viability of the action plan.

The action plan template will provide applicants with an opportunity to outline stated goals, objectives, and expected results. The applicant should be able to provide analysis or statistics to support the initiatives put forward in the action plan. This supporting information could be referenced directly in the application or be submitted as supporting documentation, for example, the applicant may wish to refer to a recent housing needs assessment, or other report outlining needs or opportunities for increased housing supply growth.

12. REPORTING REQUIREMENTS

There are three main reporting obligations under the HAF. The proponent will be required to adhere to specific reporting requirements, which include:

- Progress on the initiatives and commitments outlined in the action plan.
  - Actual start and completion date of each initiative
  - Percentage complete for each initiative
  - Overall status for each approved initiative (i.e., Completed, On Track, Delayed, Not Started)
  - Start and completion date of the milestone(s) for each initiative
  - Overall status for the milestone(s) for each initiative (i.e., Completed, On Track, Delayed, Not Started)
  - Rationale for the status of each initiative and/or milestone. Where there are delays and/or milestones have not been met, the applicant must provide a detailed rationale, including a proposed plan to get the initiative back on track
  - Number of net new units permitted for residential buildings during the reporting period*.

    *Permitted unit refers to units for which building permits for new housing construction were issued during the reporting period for residential buildings. The reference to "net" is to consider any demolitions or conversions that may have also taken place during that period.

- Permit data for all housing units permitted during the reporting period. CMHC plans to leverage the data points consistent with Statistics Canada Building Permits Survey for consistency purposes.
  - Permit number
  - Submission date of permit request
  - Issue date of permit
  - Construction/demolition location (site address)
  - Type of building code
  - Type of work code
  - Dwelling units created (if applicable)
  - Dwelling units lost (if applicable)
  - Units demolished (if applicable)
  - Secondary suite
  - Number of stories.
- Details on how HAF funding was used during the reporting period.
  - Category and sub-category of incentive funding (see section eight (8) of this document)
  - Annual dollar amount per category and sub-category
  - Cumulative dollar amount per category and sub-category.
  - Details on capital projects facilitated with HAF funding.

There may be additional data points required as part of the reporting requirements listed above. Explanations for the data points will be made available for each reporting requirement in support of the HAF application intake opening later in 2023.

Proponents will be required to make progress reports and how funds were used public through normal governance mechanisms or other means deemed appropriate by the proponent.

13. ADVANCING AND REPORTING SCHEDULES

There will be a total of four advances to successful applicants (referred to herein as proponents), with one advance planned for each year of the program. Each advance will be subject to conditions including those noted below.

The reporting obligations for proponents will be outlined in the contribution agreement. Reporting will be required at the following intervals: (i) a report on a prescribed form due no later than 6 months following the date the agreement is signed; and (ii) for each subsequent advance, reports on a prescribed form due within 60 days of the anniversary of the agreement. A final report on the use of the HAF funds will be due within 90 days of the fourth anniversary of the agreement.

The reports provided below must be accompanied by an attestation of the applicant's Chief Financial Officer or equivalent (on a prescribed form), which confirms that the proponent remains in compliance with the terms and conditions of the contribution agreement and that the proponent's representations and warranties remain true. Requests for annual payments are dependent on meeting applicable reporting obligations.

Advance	Conditions
Year 1 **First advance: 25% of total approved funding***	An upfront advance will be provided to the proponent. The upfront advance is intended to enable the proponent to start the initiatives outlined in their action plan and to pursue other investments in housing provided the funds are used for a permitted use(s). **First reporting period (first 6 months of agreement):** No later than 6 months following the agreement date the proponent must submit to CMHC a letter (in a prescribed form) attesting that it is on track to undertake items outlined in its action plan and otherwise fulfil its reporting obligations under HAF. No supporting details are required to be submitted unless expressly requested by CMHC at that time.
Year 2 **Second advance: 25% of total approved funding**	**Second reporting period (first year of agreement):** Within 60 days of the first anniversary of the agreement the proponent must submit to CMHC the following: • A progress report on the action plan initiatives and commitments. This report will be on a prescribed form. • A report that includes micro-level permit data for residential buildings for all permitted units issued during the annual reporting period. This report will be on a prescribed form. • A report that outlines how HAF funds were spent by the proponent during the annual reporting period. This report will be on a prescribed form. • A letter attesting that the proponent is on track to completing the items outlined in their action plan and has fulfilled its annual reporting obligations. This letter will be on a prescribed form.
Year 3 **Third advance: 25% of total approved funding**	**Third reporting period (second year of agreement):** Within 60 days of the second anniversary of the agreement the proponent must submit to CMHC the following: • A progress report on the action plan initiatives and commitments. This report will be on a prescribed form. All initiatives are required to be completed in support of the request for the third annual advance, including the housing needs assessment, as applicable. • A report that includes micro-level permit data for residential buildings for all permitted units issued during the annual reporting period. This report will be on a prescribed form. • A report that outlines how HAF funds were spent by the proponent during the annual reporting period. This report will be on a prescribed form. • A letter attesting that the proponent has completed the initiatives outlined in their action plan, is on track to achieving growth targets and has fulfilled its annual reporting obligations. This letter will be on a prescribed form.

*CMHC may on a case-by-case basis consider a higher first advance.

(Continued)

Advance	Conditions
Year 4 **Fourth advance: 25% of total approved funding**	**Fourth reporting period (third year of agreement):** Within 60 days of the third anniversary of the agreement the proponent must submit to CMHC the following: • A report confirming achievement of the housing supply growth target and any other targets established in the action plan. This report will be on a prescribed form. • A report that includes micro-level permit data for residential buildings for all permitted units issued during the annual reporting period. This report will be on a prescribed form. • A report that outlines how HAF funds were spent by the proponent during the annual reporting period. This report will be on a prescribed form. • A letter attesting that the proponent has achieved the housing supply growth target and any other targets outlined in the action plan and has fulfilled its annual reporting obligations. This letter will be on a prescribed form.
NA	**Fifth reporting period (fourth year of agreement):** Within 90 days of the fourth anniversary of the agreement the proponent must submit to CMHC the following: • A report that outlines how HAF funds were spent by the proponent during the annual reporting period. It is expected that all funds be spent before this final report is submitted and fully accounted for in the report. This report will be on a prescribed form.

CMHC will consider all relevant circumstances when determining whether to approve a request for advance during the prescribed timelines. CMHC will work with the proponent to address situations where achievement is delayed or not progressing as planned. If satisfactory arrangements to rectify the situation are not implemented, then CMHC may reduce or withhold payment of advances. CMHC will communicate funding decisions in writing.

14. CONTRIBUTION AGREEMENT

To participate in the program, approved applicants will be required to enter into a contribution agreement with CMHC in which it agrees to the commitments and to undertake the initiatives set out in the action plan. The form of contribution agreement will be made available closer to when the portal will be opening later in 2023.

15. APPLICATION PROCESS

The following provides a high-level overview of the application process:

- CMHC publishes program parameters and pre-application reference material, including an action plan template on its website
- Applicants assess their own local context, including housing challenges and opportunities
- Applicants develop an action plan unique to their needs in support of HAF, aligned with the prescribed action plan template
- Applicants obtain appropriate approvals
- CMHC invites applicants to apply/portal opens for application submissions
- Applicants submit their application to CMHC, including their action plan
- CMHC will evaluate and prioritize applications
- CMHC will advise the applicant on the status of their application
- For approved applications, CMHC will confirm the total amount of funding available to incent new housing supply, expectations on progress reports, and the planned schedule of payments
- If approved, the proponent signs the contribution agreement. If not already obtained, Council approval (or equivalent) of the action plan is required before the proponent enters into the contribution agreement
- The action plan will form part of the contribution agreement between CMHC and the proponent.

16. IMPORTANT DATES

The following provides an overview of planned activities. Some modifications may be required as CMHC prepares for implementation. CMHC will provide further details as they become available.

- Detailed program parameters published by CMHC March 2023
- Potential applicants consider the program and develop their action plans if interested in applying
- Launch and opening of the application intake portal Summer 2023
- All HAF participants selected Summer/Fall 2023
- First advances processed Summer/Fall 2023
- First reporting period is 6 months following the date the agreement is signed
- Second reporting period is the first anniversary of the agreement, reports due within 60 days
- Second advances processed Summer/Fall 2024
- Third reporting period is the second anniversary of the agreement, reports due within 60 days
- Third advances processed Summer/Fall 2025
- Fourth reporting period is the third anniversary of the agreement, reports due within 60 days
- Fourth advances processed Summer/Fall 2026
- Fifth reporting period is the fourth anniversary of the agreement, final use of funds report due within 90 days.

APPENDIX A: APPLICATION DETAILS

CMHC anticipates that the following information will be required in the HAF application form, but applicants should be aware that additional information may be requested in CMHC's sole discretion.

1. GENERAL

Section A: Applicant Information

1.1. Organization Name (English)					
1.2. Organization Name (French)					
1.3. Organization Legal Name					
1.4. Organization Office Address	Street Number	Street Name	Street Type	Street Direction	Unit
	City	Province/Territory	Postal Code		
1.5. Applicant Contact Name (First and Last Name)					
1.6. Contact Email					
1.7. Contact Business Phone					
1.8. Contact Office Address	Street Number	Street Name	Street Type	Street Direction	Unit
	City	Province/Territory	Postal Code		
1.9. Primary Contact Preferred Language	☐ English ☐ French				
1.10. Applicant Stream	☐ Large/Urban ☐ Small/Rural/North/Indigenous				
1.11. Applicant Type	☐ Local government ☐ Indigenous government ☐ Regional district ☐ Provincial or territory				
1.12. Council Approval	Indicate if Council approval (or equivalent) of the application has been obtained at the time of application submission. ☐ Yes ☐ No				

2. ACTION PLAN

Section B: Targets and Other Estimates

Projections should be based on a three-year period ending no later than September 1, 2026.

1.	Total number of housing units projected to be permitted **without** any support afforded by HAF. If this projection does not align with historical trends, use the comment box below to explain and provide supporting details or analysis.	[insert number]
	Provide a breakdown by type of housing:	
	1.1 Single detached homes	[insert number]
	1.2 Multi-unit housing (in close proximity to rapid transit)	[insert number]
	1.3 Multi-unit housing (missing middle)	[insert number]
	1.4 Multi-unit housing (other)	[insert number]
	Total:	[calculated field: row 1.1 + row 1.2 + row 1.3 + row 1.4 must equal row 1]
2.	Total number of housing units projected to be permitted **with** the support afforded by the HAF. This is referred to as the "HAF housing supply growth target."	[insert number]
	Provide a breakdown by type of housing:	
	2.1 Single detached homes	[insert number]
	2.2 Multi-unit housing (in close proximity to rapid transit)	[insert number]
	2.3 Multi-unit housing (missing middle)	[insert number]
	2.4 Multi-unit housing (other)	[insert number]
	Total:	[calculated field: row 2.1 + row 2.2 + row 2.3 + row 2.4 must equal row 2]
	Provide a breakdown by year of the HAF program:	
	2.5 For the year ending September 1, 2024	[insert number]
	2.6 For the year ending September 1, 2025	[insert number]
	2.7 For the year ending September 1, 2026	[insert number]
	Total:	[calculated field: row 2.5 + row 2.6 + row 2.7 must equal row 2]
3.	Total number of "HAF incented units" (units projected with HAF minus units projected without HAF).	[calculated field: row 2 minus row 1]
4.	Percentage of affordable units projected to be permitted **without** any support afforded by HAF.	[insert percentage] %
5.	Percentage of affordable units projected to be permitted **with** the support afforded by HAF.	[insert percentage] %
6.	Total number of dwellings (i.e., current housing stock)	[insert number]
7.	Projected average annual housing supply growth rate **without** HAF	[calculated field: row 1 / 3 years / row 6 * 100] %
8.	Projected average annual housing supply growth rate **with** HAF	[calculated field: row 2 / 3 years / row 6 * 100] %
9.	Projected increase in the housing supply growth rate	[calculated field: (row 8 minus row 7)/ row 7]

Comments

Section C: Initiatives	
Initiative 1	[name the initiative]
Initiative Type	[select initiative from drop down – select the best one that applies]
Description	[provide a brief description of the initiative, including its goals and objectives]
Start Date	[start date or estimated start date yyyy/mm/dd]
Completion Date	[estimated completion date yyyy/mm/dd]
Estimated Costs	[estimated costs for implementing the initiative $0.00]
Expected Results	[estimated number of permitted units the initiative will incent] [estimated number of permitted units the initiative will incent within the 3-year projection period] [other expected results]
Evaluation Criteria	**The following evaluation criteria will be used to assess the application.** – The committed housing supply growth rate will be used as part of the assessment criteria. **This initiative supports the following objectives (select all that apply):** ☐ Creating more supply of housing at an accelerated pace and enhancing certainty in the approvals and building process. [explain how the initiative supports the area selected] ☐ Supporting the development of complete communities that are walkable consisting of appropriate residential density and a diverse mix of land uses providing access to a wide variety of amenities and services through public and active transportation. [explain how the initiative supports the area selected] ☐ Supporting the development of affordable, inclusive, equitable and diverse communities that encourage clear pathways to achieving greater socio-economic inclusion largely achieved through the equitable provision of housing across the entire housing spectrum. [explain how the initiative supports the area selected] ☐ Supporting the development of low-carbon and climate-resilient communities. [explain how the initiative supports the area selected] **Answer the following questions in relation to the proposed initiative:** – Duration: How long will it take to complete/implement the initiative? [options include: within 1 year, within 2 years, over 2 years] [explain] – Timeliness: How long will it take to start to achieve additional permitted units as a result of the initiative? [options include: within 1 year, within 2 years, over 2 years] [explain] – Supply Impact: The extent to which the initiative will improve housing and community outcomes. [options include: high degree of improvement, medium degree of improvement, low degree of improvement] [explain] – System Impact: The extent to which the initiative increases stability and predictability in the housing system. [options include: high degree of stability and predictability, medium degree of stability and predictability, low degree of stability and predictability] [explain] – While not a mandatory requirement at the time of application submission, the presence of a current housing needs assessment will be considered as part of the assessment criteria.
Milestone 1	[name of milestone]
Description	[provide a brief description of the milestone]
Start Date	[estimated start date yyyy/mm/dd]
Completion Date	[estimated completion date yyyy/mm/dd]
+ADD Milestone	
+ADD Initiative	

Section D: Housing Needs Assessment

The applicant is expected to complete or update a housing needs assessment report to support its efforts to accelerate the supply of housing. This report is required in support of the request for the third annual advance. Applicants that have recently, within two years of the 2022 federal budget announcement (April 7, 2022), completed or updated their housing needs assessment can request that this requirement be waived. If there is no reoccurring scheduled review date on this existing housing needs assessment report, there remains a requirement to add a reoccurring scheduled review date in support of the request for the third annual advance.

Select the appropriate option below:

- ☐ The applicant has recently, within two years of the 2022 federal budget announcement (April 7, 2022), completed a housing needs assessment report and there is a reoccurring scheduled review date already included in the report. The applicant is requesting that the housing needs assessment requirement be waived. If this option is selected, please submit the most recent housing needs assessment report with the application.
- ☐ The applicant has recently, within two years of the 2022 federal budget announcement (April 7, 2022), completed a housing needs assessment report, but it will need to be updated to include a reoccurring scheduled review date. The applicant will add a reoccurring scheduled review date in support of the request for the third annual advance.
- ☐ The applicant does not have a housing needs assessment report. The applicant will complete one and include a reoccurring scheduled review date in the report. This will be completed in support of the request for the third annual advance.

3. OTHER INFORMATION

Section E: Historical Building Permit Issuances

Summarize the number of net new units permitted for residential buildings over the prescribed reporting period and associated number of permits issued (i.e., the new construction permit/first permit issued only).

	Number of Units Permitted	Associated Number of Permits Issued
For the year ending December 31, 2022		
For the year ending December 31, 2021		
For the year ending December 31, 2020		
For the year ending December 31, 2019		
For the year ending December 31, 2018		

Section F: Permitted Use of Funds

For information purposes only. Using the illustrative examples provided by CMHC in its published program material, the applicant estimates that they may be eligible for a total of $_____ under HAF. Based on this assumption, it is estimated that HAF funding will be used for the following purposes:

Permitted Uses	Applicant's Estimate %	Applicant's Estimate $
Investments in HAF action plan items (include estimates by year of program)	YR1 _____% YR2 _____% YR3 _____% Total _____%	YR1 $_____ YR2 $_____ YR3 $_____ Total $_____
Investments in affordable housing	_____%	$_____
Investments in housing-related infrastructure	_____%	$_____
Investments in community-related infrastructure that supports housing	_____%	$_____

Supplementary information if available. Describe all known capital projects that HAF funding could help facilitate.

Comments

Section G: Infrastructure Needs

For information purposes only. To ensure better alignment and integrated planning of housing and infrastructure investments, CMHC is collecting the following information. The applicant consents to CMHC sharing this information and other information pertaining to its application under the Housing Accelerator Fund with Infrastructure Canada, other federal departments and agencies and provincial and territorial governments to support coordination.

Describe how the local authority will ensure that new housing supply adequately aligns with local or regional infrastructure plans, if applicable.

Describe how the local authority will ensure that new housing supply will be timely supported by infrastructure, such as public transit, drinking water and wastewater connections, as well as parks and green spaces and other vital community amenities.

Comments

4. APPLICATION TERMS AND CONDITIONS

By creating, or attempting to create an application to Canada Mortgage and Housing Corporation ("CMHC") for funding, transfer of real property or any other Initiative or a Program under the ***National Housing Strategy*** (the "NHS") or the ***National Housing Act*** (Canada) (the "NHA"), (each individually, an "Initiative" or a "Program", and collectively, the "Initiatives" or the "Programs"), the Applicant hereby acknowledges and agrees to the following terms and conditions:

1. **Collection of Corporate Information and Personal Information (collectively, the "Information")**. CMHC (and parties working on its behalf or collaborating with CMHC to administer the Initiatives and the Programs, where applicable) may collect information about the Applicant, including information about the organization/corporation ("Corporate Information") and Personal Information (meaning any information about an identifiable individual that is recorded in any form), from or through: (i) discussions with the Applicant; (ii) the online application form and its attachments (whether upon the saving of inputted Information into the form prior to submission of the application, or upon submission of the application) and supplementary Information provided by or on behalf of the Applicant; or (iii) other sources such as references, credit reporting agencies, provinces, territories, municipalities or Indigenous groups as will be specified in the Initiative. In addition, CMHC may collect Corporate Information that is presently in CMHC's possession arising out of, or in connection with, the Applicant's prior or existing relationship(s) with CMHC, such as from CMHC Initiatives, Programs or products. Completion of the application for funding, transfer of real property or any other purposes of an Initiative or a Program under the Initiatives or the Programs and the delivery to CMHC of signed consents referred to in Section 9 is voluntary; however, failure of the Applicant to provide such signed consents and any required Information in connection with its application (including within stated deadlines that may be specified in writing by or on behalf of CMHC) may result in the elimination of the application from consideration. If any of the collected Information changes or becomes inaccurate, the Applicant must promptly notify CMHC in writing of the change.
2. **Use and Disclosure of Information.**
   a) The Applicant agrees that the Information collected in connection with an application may be used or disclosed for the following purposes:
      (i) to assess the Applicant's eligibility under the applicable Initiative(s) and/or Program(s);
      (ii) to assess the application, including for prioritization of applications received;
      (iii) to communicate to the Applicant possible opportunities under other Initiative(s) and /or Program(s);
      (iv) to communicate to the Applicant possible collaboration opportunities with external parties;
      (v) for Information verification and due diligence purposes, including to detect and protect CMHC from errors and fraud;
      (vi) for any purpose related to the provision of mortgage loan insurance generally, where applicable;
      (vii) for analytics, policy analysis, data analysis, auditing and research by CMHC;
      (viii) for evaluation and efficient administration of the Initiatives and/or Programs; and
      (ix) for use by CMHC and the Government of Canada for any purpose related to the ***National Housing Act*** (Canada) and/or the ***National Housing Strategy***.

b) Prior to submission of the application, any Information collected through the online application process may only be used by CMHC for internal administration and planning purposes in respect of initiatives and/or programs under the National Housing Strategy and/or the ***National Housing Act*** (Canada), unless the Applicant's prior written consent to the disclosure of such Information to parties external to CMHC, for the purposes outlined in subsection 2(a) above, has been obtained.

c) Upon submission of the application, CMHC and parties working on its behalf or collaborating with CMHC to administer the Initiatives and/or Programs, where applicable, are authorized to process and store the Information and disclose it, on a need to know basis, for the purposes outlined in subsection 2(a) above, to:

(i) the office of the Minister responsible for CMHC;

(ii) Employment and Social Development Canada ("ESDC"), the office of the Minister responsible for ESDC, Public Services and Procurement Canada ("PSPC"), the office of the Minister responsible for PSPC, Canada Lands Company CLC Limited ("CLC"), the office of the Minister responsible for CLC and the municipality in which the project is located, Indigenous Services Canada ("ISC"), the office of the Minister responsible for ISC, Crown-Indigenous Relations and Northern Affairs Canada ("CIRNAC"), the office of the Minister responsible for CIRNAC, the municipality or reserve in which the project is located, Infrastructure Canada ("IC"), the office of the Minister responsible for IC, and to any other successor organization of the organizations listed herein.

(iii) the Government of Canada; and

(iv) provinces, territories, municipalities or Indigenous groups that may invest in or provide support for the Applicant's project or otherwise collaborate with CMHC as will be specified in the Initiative.

3. **Agreements**. If the Applicant is selected by CMHC to receive funding and/or a transfer of real property, then the Applicant will enter into (and will cause related parties including guarantors, if any, to enter into) agreements that set out the terms and conditions of such funding and/or transfer of real property. Where CMHC is providing funding, the agreements may specify, among other things, the amount to be advanced to the Applicant as well as any terms and conditions of repayment, where applicable. The granting of loan or contribution funding or any part thereof or approval for mortgage loan insurance by CMHC is not to be construed or relied on by the Applicant or any other party as representing a confirmation of the value or condition of the underlying property, whether or not appraisals or inspections are carried out by or for CMHC; nor is it to be construed or relied on by the Applicant or any other party as representing a confirmation of the ability of the borrower(s) and any guarantor(s) to repay the loan, where applicable.
4. **Intellectual Property Rights**. The Applicant owns and holds all rights, title and interests in, or has a valid right to use, all intellectual property in and to all information and materials produced in connection with the Applicant's project and the application (including, without limitation, all patents, industrial designs, trademarks, trade names, service marks, copyrights, trade secrets, inventions, know-how, domestic or foreign, and any registrations and applications for registration for any of the foregoing) to the extent it is neither published nor otherwise in the public domain. Subject to the terms and conditions of this application, the Applicant hereby grants to CMHC a non-exclusive, perpetual, irrevocable, assignable, royalty-free sub-licensable license to use, make, have made, sell, offer for sale, and import the intellectual property worldwide, with the right to make such modifications as may be desirable for any purpose related to the current or future operation of CMHC. Where an Applicant's intellectual property, in connection with its project under the Affordable Housing Innovation Fund, is modified by or on behalf of CMHC, CMHC shall own and hold all right, title and interests in and to the intellectual property as modified by or on behalf of CMHC. This provision, including the license so granted, shall survive the application.
5. **Proprietary and/or Confidential Information**. All Information regarding the terms and conditions and financial and/or technical aspects of the Applicant's proposal that are proprietary or confidential in nature have been and will be marked "PROPRIETARY" or "CONFIDENTIAL" when submitted to CMHC. Proprietary and confidential markings shall be included beside each item or at the top of each page containing Information that the Applicant wishes to protect from disclosure. CMHC will make all reasonable efforts to protect the Applicant's documents and Information so marked from disclosure. Notwithstanding the foregoing, (i) CMHC shall have no liability of any kind to the Applicant, or any other party, based on inadvertent or unintentional disclosure of proprietary or confidential Information; and (ii) CMHC is authorized to disclose proprietary or confidential Information, on a need to know basis, to the parties listed in subsection 2(c). The Applicant has been advised that as a Crown corporation, CMHC is subject to federal legislation including the ***Access to Information Act*** and the ***Privacy Act***. In certain specific circumstances, Information submitted to CMHC by the Applicant may be required to be disclosed pursuant to federal legislation. In such cases, to the extent reasonably possible and permitted under the law, CMHC will make efforts to advise the Applicant of the required disclosure prior to releasing the Information.
6. **Publicity**. If the Applicant is selected by CMHC to receive funding and/or a transfer of real property, CMHC, the Government of Canada and any other province, territory, municipality or Indigenous group that invests in or provides support for the Applicant's project shall have the right to publicize details of the project, the funding assistance and the name of the successful Applicant. By submitting its application, the Applicant confirms its consent to the disclosure of this information. The Applicant is not permitted to make any announcement regarding any of the Initiatives and/or Programs, including without limitation, any funding or transfer of real property without the express written consent of CMHC.

7. **Contact**. CMHC and parties working on its behalf are each authorized to contact any person listed in this application (including any agent of the Applicant) to consider the Applicant's eligibility for the funding or transfer of real property requested or in connection with the administration of the Initiatives and /or Programs and may send such person(s) program information by email or other means of communication.
8. **Verification and Credit Inquiries**. Where applicable to determine creditworthiness for funding in the form of a loan, the Applicant authorizes CMHC and parties working on its behalf to: (i) obtain business credit reports or individual credit reports or both, where applicable (for example, on sole proprietors, surety/guarantors, for-profit corporate entities, not-for-profit organizations) to perform a credit check and verify information provided by or on behalf of an Applicant and to assess the Applicant's application; and (ii) make any other inquiries required, including without limitation, obtaining corporate and business information, to assess the Applicant's application.
9. **Integrity Checks**. The Applicant authorizes CMHC (and parties working on its behalf or collaborating with CMHC to administer the Initiatives and/or Programs, where applicable) to conduct general integrity and criminal record checks and other similar screening ("Integrity Screening") of the Applicant to assess the Applicant's eligibility for receipt of funding or transfer of real property under an Initiative and/or Program. CMHC may additionally require Integrity Screening to be performed on any parties affiliated with the Applicant, including without limitation, its directors, shareholders and beneficial owners, and the Applicant shall cause to be delivered to CMHC, consents to such Integrity Screening being performed duly signed by such affiliated parties.
10. **Acknowledgement**. The Applicant acknowledges that: (i) any acknowledgement of receipt of the submitted application shall not constitute an approval of the application or a guarantee that the Applicant will receive any funding and/or transfer of real property; (ii) the application and any other submitted materials will not be returned to the Applicant; and (iii) the Applicant is not entitled to any compensation for any work related to, or materials supplied in connection with, the application.
11. **Release and Indemnity**. By creating or attempting to create an application to CMHC under any of the Initiatives and/or Programs, and upon submission of an application, each Applicant and purported Applicant agrees to indemnify, release and forever hold harmless CMHC, its officers, directors, employees, agents and any other parties working for or engaged by or collaborating with CMHC or otherwise involved in connection with the administration of the Initiatives and /or Programs (including without limitation, provinces, territories, municipalities, and Indigenous groups) from any and all claims, actions, demands, causes of action, suits, debts, damages (including without limitation, direct, indirect, special, incidental, punitive, third party or consequential damages) or any other losses, expenses or liabilities of whatever nature or kind sustained by the Applicant or any other person arising out of, or in connection with, the Applicant's application or attempted application made to any of the Initiatives and/or Programs, including the assessment, evaluation and any selection process and any use of this website. CMHC is not responsible for applications that are lost, late, misdirected or delayed for any reason, including for any failure of the website or technical malfunctions related thereto.
12. **Access to Information and Privacy Statement**.

    CMHC is committed to protecting the privacy, confidentiality and security of the personal information that it holds by adhering to the requirements of the ***Privacy Act*** with respect to the management of personal information. By providing CMHC with your personal information for the purposes of one of the Programs, you are consenting to CMHC's collection, use and disclosure of your personal information in strict accordance with the ***Privacy Act***. Personal Information collected by CMHC for the purposes of one of the Programs, can be found in their Info Source Publication on their website under the following Personal Information Bank:

    - **CMHC PPU 220, National Housing Strategy Program and**
    - **CMHC PPU 180, Shared Equity Mortgage Providers Fund**

    The ***Privacy Act*** provides individuals with a right to access their personal information that is under the control of CMHC, to request corrections of their personal information and to file a complaint to the Privacy Commissioner of Canada regarding CMHC's handling of personal information. Any questions, comments, concerns, requests for personal information or complaints may be directed to CMHC's Access to Information and Privacy Office at ATIP-AIPRP@cmhc-schl.gc.ca or you may also visit their website.
13. **Headings for Convenience Only**. The headings used in these terms and conditions are intended for convenience or reference only and do not affect the interpretation of the provisions of these terms and conditions.
14. **Paramountcy**. To the extent of any conflict, ambiguity or inconsistency between the provisions of these terms and conditions and any other documents provided to the Applicant, the provisions of these terms and conditions shall prevail and replace any existing terms and conditions in place with the Applicant, with regard to the subject-matters set forth herein.

If you have any questions or concerns regarding these Terms and Conditions, please email CMHC.

5. ACKNOWLEDGMENT AND SIGNATURE

By signing below, I certify that I am authorized to agree to the Terms and Conditions described above and to complete and submit this application for and on behalf of the Applicant. I certify that the information provided is, to the best of my knowledge and ability, complete, accurate and correct and that if any of the information changes or becomes inaccurate, I shall promptly notify CMHC. I have read and understood the Terms and Conditions described above and acknowledge that they shall continue to apply upon my submission of this application. I confirm the Applicant has voluntarily consented to the collection, use and disclosure of information as set forth in these terms and conditions.

This application may be executed by electronic signature and such electronic signature shall be deemed to be an original signature for the purpose of this application with the same legal effect as a manual signature.

Full legal name of Applicant	Date Signed
Signature of Applicant authorized signatory	
Name of Applicant Authorized signatory	Title of Applicant Authorized Signatory

70130 20230210-004A

Council Report

penticton.ca

Date: May 2, 2023 File No: RMS/517 Alexander Ave
To: Donny van Dyk, Chief Administrative Officer
From: Jordan Hallam, Planner I
Address: 517 Alexander Avenue

Subject: **Zoning Amendment Bylaw No. 2023-16**

Staff Recommendation

THAT Council give first reading to "Zoning Amendment Bylaw No. 2023-16", for Lot 9 District Lot 2 Group 7 Similkameen Division Yale (Formerly Yale-Lytton) District Plan 3348, located at 517 Alexander Avenue, a bylaw to rezone the subject from RD2 (Duplex Housing: Lane) to RD3 (Residential Infill);

AND THAT Council forward "Zoning Amendment Bylaw No. 2023-16" to the May 16, 2023 Public Hearing.

Strategic Priority Objective

Livable and Accessible: Proactively plan for deliberate growth; focused on an inclusive, healthy, safe and desirable place to live.

Proposal

The applicant is proposing an addition to their existing home. The plans include removing the existing attached carport and replacing it with an enclosed garage and workshop, with a secondary suite above. The subject property has an existing carriage house at the rear of the property.

In order to proceed with the proposed development to provide a third dwelling unit on the property, the applicant has requested to rezone the property from RD2 (Duplex Housing: Lane) to RD3 (Residential Infill).

Figure 1 – Conceptual Rendering of the Proposed Development

Further, the applicant will require a Building Permit in order to move ahead with the construction of the proposed secondary suite, should Council adopt the rezoning.

Figure 2 – Property Location Map

Background

The subject property is currently zoned RD2 (Duplex Housing: Lane) and is designated as 'Infill Residential' by the Official Community Plan (OCP). The subject property contains a single family home that was constructed in the 1940's, and a carriage house. The property has frontage on Alexander Ave as well as on Churchill Ave. The carriage house, fronting onto Churchill Ave, was constructed in December of 2017. The surrounding area is primarily residential with a mix of building types including single family homes, duplexes, and apartments. The property is within walking distance of Downtown and Okanagan Lake. The property is also located within close proximity of the South Okanagan Events Centre, Community Centre and Queen's Park Elementary.

Climate Impact

The proposed development would add a third unit on the subject property. This increases densification in a core area of the City of Penticton. The subject property is located close to Westminster Ave W, where there is a transit stop within walking distance, which will allow residents and tenants to be less dependent on their vehicles. The South Okanagan Events Centre, Okanagan College, and Okanagan Lake are also in close proximity, promoting walkability. No bicycle parking is required as per the Zoning Bylaw, and none has been provided for this proposed development, although the enclosed garages on the property may be used for bicycle storage.

Technical Review

This application was reviewed by the City's Technical Planning Committee. Staff confirmed that all RD3 zone requirements were met, and no variances are required. Typical servicing requirements have been identified for the Building Permit stage of the project, if the rezoning application is supported by Council. These items have been communicated to the applicant.

Development Statistics

The following table outlines the proposed development statistics on the plans submitted with the development application:

	RD3 Zone Requirement	Provided on Plans
Minimum Lot Width*:	9.1 m	15.2 m
Minimum Lot Area*:	275 m^2	566.56 m^2
Maximum Lot Coverage:	55%	41.5%
Maximum Density:	1.0 Floor Area Ratio (FAR)	0.426 FAR
Vehicle Parking:	Single Detached Dwelling: 2 Secondary Suite: 1 Carriage House: 1 Total: 4 on site	Single Detached Dwelling: 2 Secondary Suite: 1 Carriage House: 1 Total: 4 on site as tandem parking
Required Setbacks Front Yard (south): Side Yard (east): Side Yard (west): Rear Yard – Secondary Suite: Rear Yard – Carriage House:	 4.5 m 1.2 m 1.2 m 6.0 m 1.5 m	 4.63 m 1.5 m 1.25 m 14.82 m 1.5 m
Maximum Building Height	10.5 m	6.8 m
Other Information:	*Lot width and lot area are only applicable at the time of subdivision.	

Analysis

Zoning Amendment

When considering a rezoning application, staff review the proposal for conformity with the Official Community Plan. The Official Community Plan (OCP) designation for the subject property is 'Infill Residential', which supports transitional lower-height residential areas with new housing types compatible with existing single detached houses in character and scale, but providing more units per lot. Single detached houses with or without secondary suites and/or carriage houses, duplexes with or without suites, triplexes are some of the building types envisioned in this designation. The applicant is proposing to construct a secondary suite as an addition to their existing single family dwelling, with an existing carriage house on the subject property. The development and density proposed on the property are aligned with the vision of properties within the 'Infill Residential' designation.

In addition to alignment with the future land use designation, staff consider that the proposed zoning amendment will also allow for a development that is supported through the following OCP Goals and Policies:

OCP Policy 4.1.1.1	Focus new residential development in or adjacent to existing developed areas.
Staff Comments	• The subject property is located in an established area of Penticton and is surrounded by single family dwellings, duplexes, and multi-family residential buildings.
OCP Goal 4.1.3	Housing Diversity

	Ensure a range of housing types, sizes, tenures and forms exist throughout the city to provide housing options for all ages, household types, and incomes.
Staff Comments	• The proposed development has an existing single family dwelling and carriage house on the property. The proposed secondary suite will add another unit on the property, which can provide another housing type within the City of Penticton. The proposed secondary suite does not change the appearance of the character of the neighbourhood.
OCP Policy 4.1.3.5	Ensure through the use of zoning that more-intensive forms of residential development are located close to transit and amenities, such as parks, schools and shopping.
Staff Comments	• The subject property is close to Lakawana Park, Okanagan Lake, transit routes on Westminster Ave W, and Queen's Park Elementary school.
OCP Policy 4.1.4.1	Work with the development community – architects, designers and buildings – to create new residential developments that are attractive, high-quality, energy efficient, appropriately scaled and respectful of their context.
Staff Comments	• The proposed development meets all the Zoning Bylaw requirements such as setbacks, and is well below the height requirement at 6.8 m, where the maximum permitted is 10.5 m.
OCP Policy 4.1.5.1	Recognize that some traditionally single-family neighbourhoods will see intensification as the city grows, but ensure that new forms of residential development are compatible with the neighbourhood in scale and design, and are appropriately located (e.g., greater density closer to collector roads, services and amenities).
Staff Comments	• The subject property is located within walking distance of Westminster Ave W, which is considered a 'Minor Collector' road by the Official Community Plan (OCP). The proposed development is compatible with the neighbourhood, as it does not change the character. The subject property is close to amenities such as the Penticton Trade and Convention Centre, Cleland Theatre, and South Okanagan Events Centre.
OCP Policy 4.2.7.8	Ensure new residential developments provide an appropriate amount of parking for residents and guests.
Staff Comments	• The proposed development meets the Zoning Bylaw requirements for parking with a total of four parking spaces provided on the subject property.

Staff consider that the application proposes an appropriately scaled development in an area of the city that has been identified for increased residential density by the OCP. The proposed rezoning to RD3 to allow a total of 3 dwelling units on the subject property is consistent with the increased density and building forms envisioned by the 'Infill Residential' designation.

Given that there is adequate policy through the OCP to support the proposed development, staff recommend that Council give first reading to "Zoning Amendment Bylaw No. 2023-16", and forward the bylaw to the May 16th, 2023 Public Hearing to gather comments and feedback from the public.

Alternate Recommendations

Council may consider that while the zoning amendment is aligned with the OCP by increasing density in a desirable area of the city, the development as proposed does not fit the character of the neighbourhood. If

this is the case, Council may choose the alternate recommendation, however, this is not staff's preference as the secondary suite is keeping with the character of the neighbourhood.

1. THAT Council deny first reading to "Zoning Amendment Bylaw No. 2023-16".

Attachments

Attachment A – Zoning Map
Attachment B – Official Community Plan Map
Attachment C – Photos of Property
Attachment D – Letter of Intent
Attachment E – Zoning Amendment Bylaw No. 2023-16

Respectfully submitted,

Jordan Hallam
Planner I

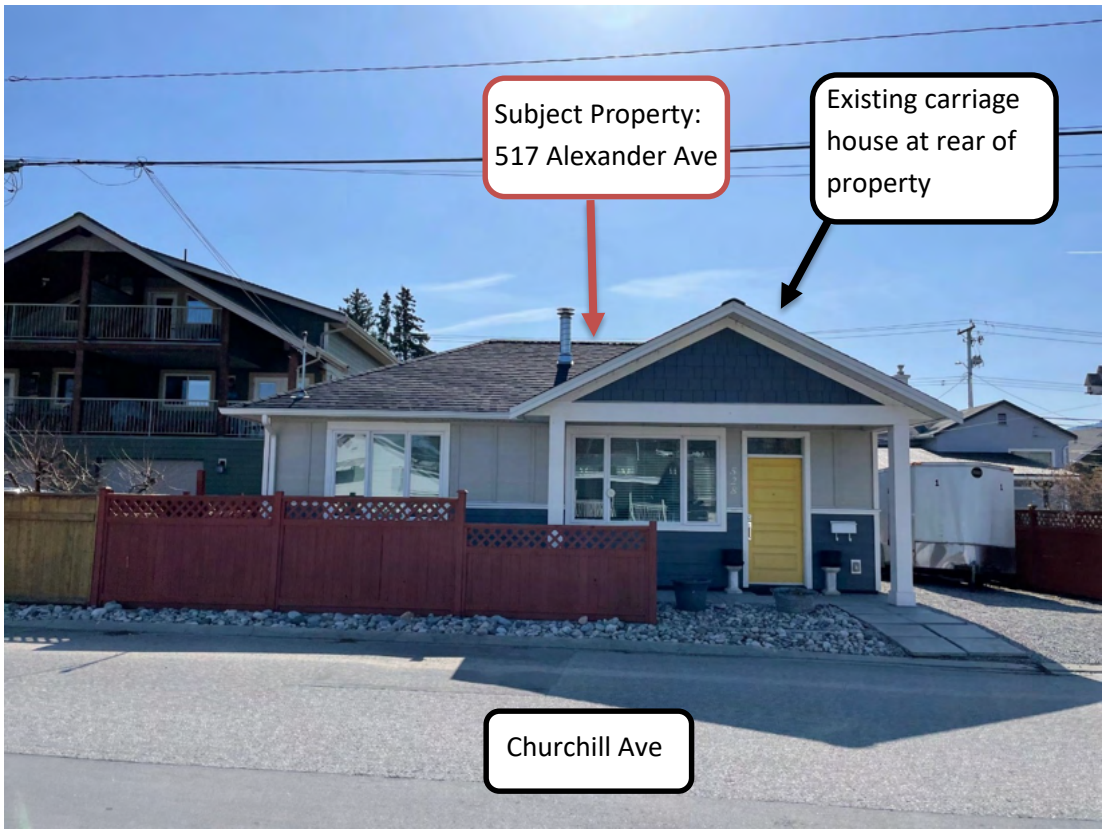
Concurrence

Director of Development Services	GM of Infrastructure	Chief Administrative Officer
BL	KD	DvD

Attachment A – Zoning Map

Attachment B – Official Community Plan Map

Attachment C – Photos of Property



Attachment D – Letter of Intent

Letter of Intent – 517 Alexander Ave RD2 to RD3 zoning change:

The application before you for consideration is to change the current zoning of RD2 to RD3. Currently on the property there is a 1968 square foot single family home along with a 672 square foot carriage house. The plan is to remove the existing carport along the house and replace it with an enclosed garage and workshop and a secondary suite above (approximately 612 sq ft). The front of the existing house would also move forward approximately twelve feet (312 sq ft addition) and get a facelift to match the new construction of the garage and suite.

Many of the duplexes and new construction along Alexander Ave and Churchill Street are the full 3 stories in height whereas our project will only be 2 stories in height to help keep not only the form and character but also the charm of the neighborhood. The modern craftsman style of design retains a traditional look and feel which compliments the area which we see as a neighborhood in transition. RD3 zoning is designated for this area in the current Official Community Plan (OCP).

Having a secondary suite will help the housing market and in particular help the economy attract, and retain skilled labor as they will have a place to live. The suite main amenity area is the front deck; which is on the opposite side of where the current adjacent neighbors have their outdoor amenity space to help maintain privacy for all concerned. Our property is a short walk or bike ride to downtown, the events center, the beach, entertainment and several parks making it possible for its residents to work live and play within walking distance and rarely need other modes of transportation. No variances are requested.

The Corporation of the City of Penticton

Bylaw No. 2023-16

A Bylaw to Amend Zoning Bylaw 2023-08

WHEREAS the Council of the City of Penticton has adopted a Zoning Bylaw pursuant the *Local Government Act*;

AND WHEREAS the Council of the City of Penticton wishes to amend Zoning Bylaw No. 2023-08;

NOW THEREFORE BE IT RESOLVED that the Municipal Council of the City of Penticton, in open meeting assembled, hereby ENACTS AS FOLLOWS:

1. **Title:**

This bylaw may be cited for all purposes as "Zoning Amendment Bylaw No. 2023-16".

2. **Amendment:**

2.1 Zoning Bylaw No. 2023-08 is hereby amended as follows:

Rezone Lot 9 District Lot 2 Group 7 Similkameen Division Yale (Formerly Yale-Lytton) District Plan 3348, located at 517 Alexander Avenue, from RD2 (Duplex Housing: Lane) to RD3 (Residential Infill).

2.2 Schedule 'A' attached hereto forms part of this bylaw.

READ A FIRST time this	day of	, 2023
A PUBLIC HEARING was held this	day of	, 2023
READ A SECOND time this	day of	, 2023
READ A THIRD time this	day of	, 2023
RECEIVED the approval of the Ministry of Transportation on the	day of	, 2023
ADOPTED this	day of	, 2023

Notice of intention to proceed with this bylaw was published on the __ day of ____, 2023 and the __ day of ____, 2023 in an online news source and the newspaper, pursuant to Section 94.2 of the *Community Charter*.

Approved pursuant to section 52(3)(a) of the *Transportation Act*
this _____ day of _____, 2023

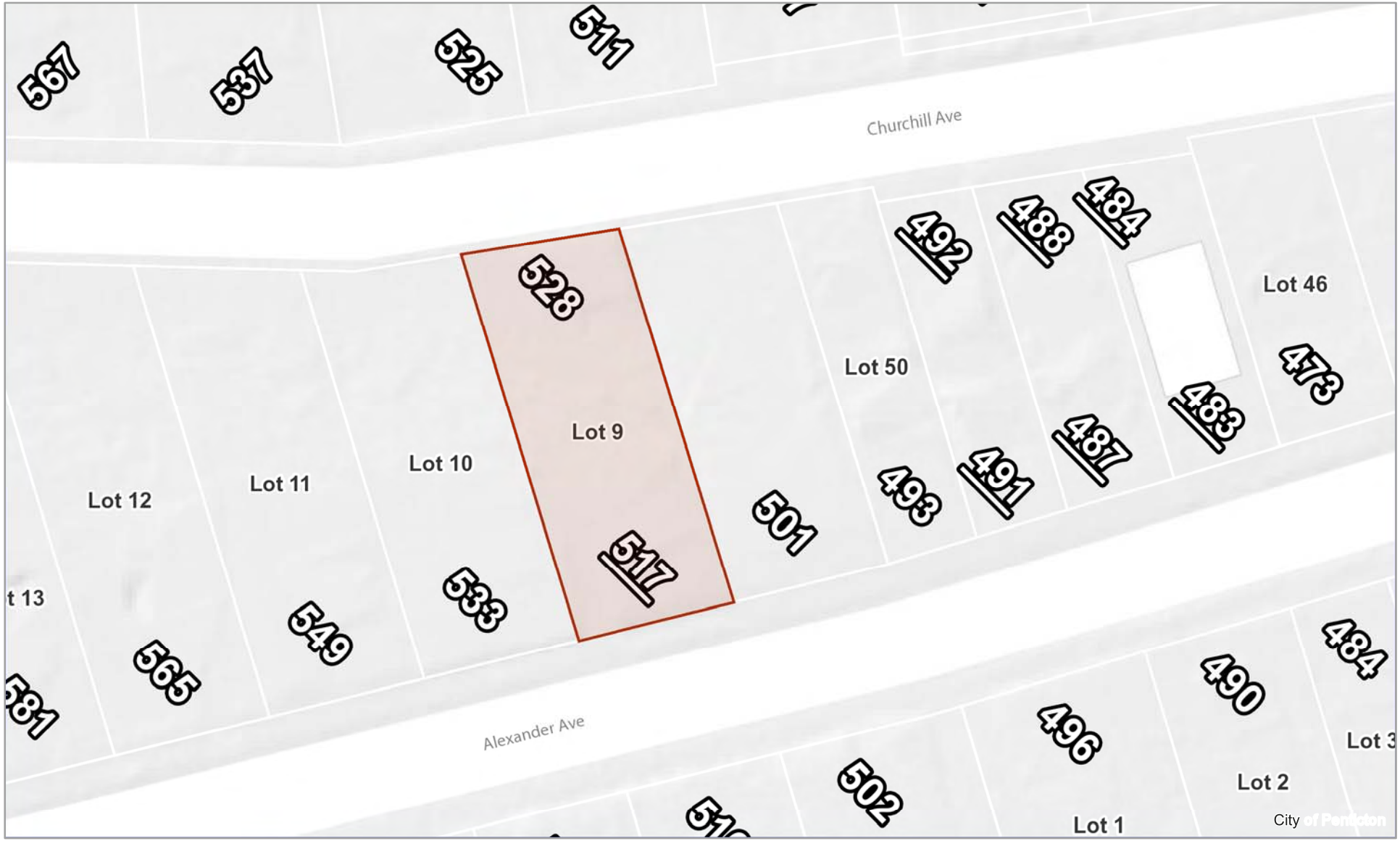
_____
for Minister of Transportation & Infrastructure

_____
Julius Bloomfield, Mayor

_____
Angie Collison, Corporate Officer

Schedule A: Zoning Amendment Bylaw 2023-16

Date: Corporate Officer:



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Coordinate System: NAD 1983 CSRS UTM Zone 11N

The Corporation of the City of Penticton

Bylaw No. 2023-13

A Bylaw for the levying of property tax rates for the year 2023

WHEREAS pursuant to the *Community Charter,* Council is empowered to impose property value taxes by establishing tax rates within the City of Penticton;

AND WHEREAS it is deemed expedient to establish tax rates for the municipal revenue proposed to be raised from property value taxes and the amounts to be collected by means of rates established to meet the City's taxing obligation in relation to another local government or other public body;

NOW THEREFORE the Council of The Corporation of the City of Penticton in open meeting assembled, hereby ENACTS AS FOLLOWS:

1. This Bylaw may be cited for all purposes as "Tax Rates Bylaw No. 2023-13".

2. <u>Interpretation</u>

2.1 In this Bylaw,

a. "**Alternative Municipal Tax Collection Scheme**" means the tax collection scheme established under section 3.1 of this Bylaw;

b. "**Collector"** has the same meaning as in the *Community Charter*; and

c. "**General Tax Collection Scheme**" means the tax collection scheme established under section 234 of the *Community Charter*.

3. <u>Alternative Tax Collection Scheme</u>

3.1 Subject to any owner election under section 3.3, the rates and taxes payable under this Bylaw are due and shall be payable in accordance with this Bylaw on or before July 31,2023.

3.2 An owner may elect to pay the rates and taxes owed under this Bylaw under the Alternative Municipal Tax Collection Scheme by providing written notice of that election to the Collector no later than the first Monday in June, 2023.

3.3 An owner may elect to pay the rates and taxes owed under this Bylaw under the General Tax Collection Scheme on or before July 1, 2023 by giving written notice of that election to the Collector no later than the first Monday in June, 2023.

3.4 An owner may change an election under sections 3.2 or 3.3 by giving written notice to the Collector no later than the first Monday in June 2023, provided that an owner may only change their election once in the same year.

3.5 If an owner makes no election under section 3.2 or 3.3, the Alternative Municipal Tax Collection Scheme automatically applies to the owner.

3.6 An owner must give any notice under this section to the Collector at his or her office at 171 Main Street, Penticton, B.C. V2A5A9.

4. PENALTIES

4.1 If the Alternative Municipal Tax Collection Scheme applies to a parcel of land and its improvements, the Collector must add to the unpaid balance of the current year's taxes, in respect of each parcel of land and the improvements as shown on the tax roll, a penalty of ten (10) percent to be applied in relation to payments made after the tax due date of July 31, 2023.

4.2 If the General Tax Collection Scheme applies to a parcel of land and its improvements, the Collector must apply the penalties and interest set out in any regulation under section 234 of the *Community Charter.*

5. The following rates are hereby imposed and levied for the year 2023.

5.1 For lawful general purposes of the municipality on the value of land and improvements taxable for general Municipal purposes, rates appearing on Column "A" of the Schedule 'A' attached hereto and forming part hereof;

5.2 For hospital purposes on the value of land and improvements taxable for Regional Hospital District purposes, rates appearing in Column "B" of the Schedule 'A' attached hereto and forming a part hereof;

5.3 For purposes of the Regional District of Okanagan-Similkameen on the value of land and improvements taxable for Regional Hospital District purposes, rates appearing in Column "C" of the Schedule 'A' attached hereto and forming a part hereof;

5.4 For purposes of the Regional District of Okanagan-Similkameen 9-1-1 Emergency Telephone Service and Mosquito Control, on the assessed value of improvements taxable for Regional Hospital District purposes, rates appearing in Column "D" of the Schedule 'A' attached and forming a part thereof;

5.5 For purposes of Regional District of Okanagan-Similkameen Sterile Insect Release Program, on the assessed value of land taxable for Regional Hospital District purposes, rates appearing in Column "E" of the Schedule 'A' attached and forming a part hereof.

5.6 For purposes of Downtown Penticton Business Improvement Area Class 5 & 6 properties, on the assessed value of land and improvements taxable for general Municipal purposes, rates appearing in Column "F" of the Schedule 'A' attached and forming a part hereof.

READ A FIRST time this	18	day of	April, 2023
READ A SECOND time this	18	day of	April, 2023
READ A THIRD time this	18	day of	April, 2023
ADOPTED this		day of	, 2023

_____
Julius Bloomfield, Mayor

_____
Angie Collison, Corporate Officer

The Corporation of The City of Penticton

Schedule 'A'

Tax Rates (dollars of tax per $1,000 taxable assessment)

2023	A	B	C	D	E	F
Property Class	**General Municipal**	**Regional Hospital District**	**RDOS**	**RDOS 911 Emergency Telephone Service & Mosquito Control**	**RDOS Sterile Insect Release Program**	**Downtown Penticton Business Improvement Area for Class 5 & 6**
1 Residential	2.9973	0.1744	0.1203	0.0623	0.0318	0.0000
2 Utilities	30.1410	0.6102	0.4212	0.2179	0.1112	0.0000
3 Supportive Housing	2.9973	0.1744	0.1203	0.0623	0.0318	0.0000
4 Major Industry	5.5810	0.5928	0.4091	0.2117	0.1080	0.0000
5 Light Industry	5.5810	0.5928	0.4091	0.2117	0.1080	1.0772
6 Business & Other	6.6541	0.4272	0.2948	0.1526	0.0778	1.0772
7 Managed Forest Land	6.6541	0.5231	0.3610	0.1868	0.0953	0.0000
8 Recreation/Non-Profit	4.1107	0.1744	0.1203	0.0623	0.0318	0.0000
9 Farm	15.5275	0.1744	0.1203	0.0623	0.0318	0.0000

The Corporation of the City of Penticton

Bylaw No. 2023-14

A Bylaw to Amend Zoning Bylaw 2023-08

WHEREAS the Council of the City of Penticton has adopted a Zoning Bylaw pursuant the *Local Government Act*;

AND WHEREAS the Council of the City of Penticton wishes to amend Zoning Bylaw No. 2023-08;

NOW THEREFORE BE IT RESOLVED that the Municipal Council of the City of Penticton, in open meeting assembled, hereby ENACTS AS FOLLOWS:

1. **Title:**

This bylaw may be cited for all purposes as "Zoning Amendment Bylaw No. 2023-14".

2. **Amendment:**

2.1 Zoning Bylaw No. 2023-08 is hereby amended as follows:

Rezone Lot 1 District Lot 250 Similkameen Division Yale District Plan 37914, located at 924 Fairview Road, from RD1 (Duplex Housing) to RM2 (Low Density Multiple Housing) as shown on Schedule 'A'.

2.2 Schedule 'A' attached hereto forms part of this bylaw.

READ A FIRST time this	18	day of	April, 2023
A PUBLIC HEARING was held this	2	day of	May, 2023
READ A SECOND time this		day of	, 2023
READ A THIRD time this		day of	, 2023
ADOPTED this		day of	, 2023

Notice of intention to proceed with this bylaw was published on the 21st day of April, 2023 and the 26th day of April, 2023 in an online news source and the newspaper, pursuant to Section 94.2 of the *Community Charter*.

Julius Bloomfield, Mayor

Angie Collison, Corporate Officer

Schedule A: Zoning Amendment Bylaw 2023-14

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April 12, 2023 9:04:34 AM

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Coordinate System: NAD 1983 CSRS UTM Zone 11N

The Corporation of the City of Penticton

Bylaw No. 2023-15

A Bylaw to Amend Zoning Bylaw 2023-08

WHEREAS the Council of the City of Penticton has adopted a Zoning Bylaw pursuant the *Local Government Act*;

AND WHEREAS the Council of the City of Penticton wishes to amend Zoning Bylaw No. 2023-08;

NOW THEREFORE BE IT RESOLVED that the Municipal Council of the City of Penticton, in open meeting assembled, hereby ENACTS AS FOLLOWS:

1. **Title:**

This bylaw may be cited for all purposes as "Zoning Amendment Bylaw No. 2023-15".

2. **Amendment:**

2.1 Zoning Bylaw No. 2023-08 is hereby amended as follows:

Add the following to 9.2.6 SITE SPECIFIC PROVISIONS:
.13 "In the case of Lot 6, District Lot 155 Similkameen Division Yale District Plan 306 Except Plan 21731, located at 398 Upper Bench Road South, a **carriage house** and **a bed and breakfast home** shall be permitted."

2.2 Schedule 'A' attached hereto forms part of this bylaw.

READ A FIRST time this	18	day of	April, 2023
A PUBLIC HEARING was held this	2	day of	May, 2023
READ A SECOND time this		day of	, 2023
READ A THIRD time this		day of	, 2023
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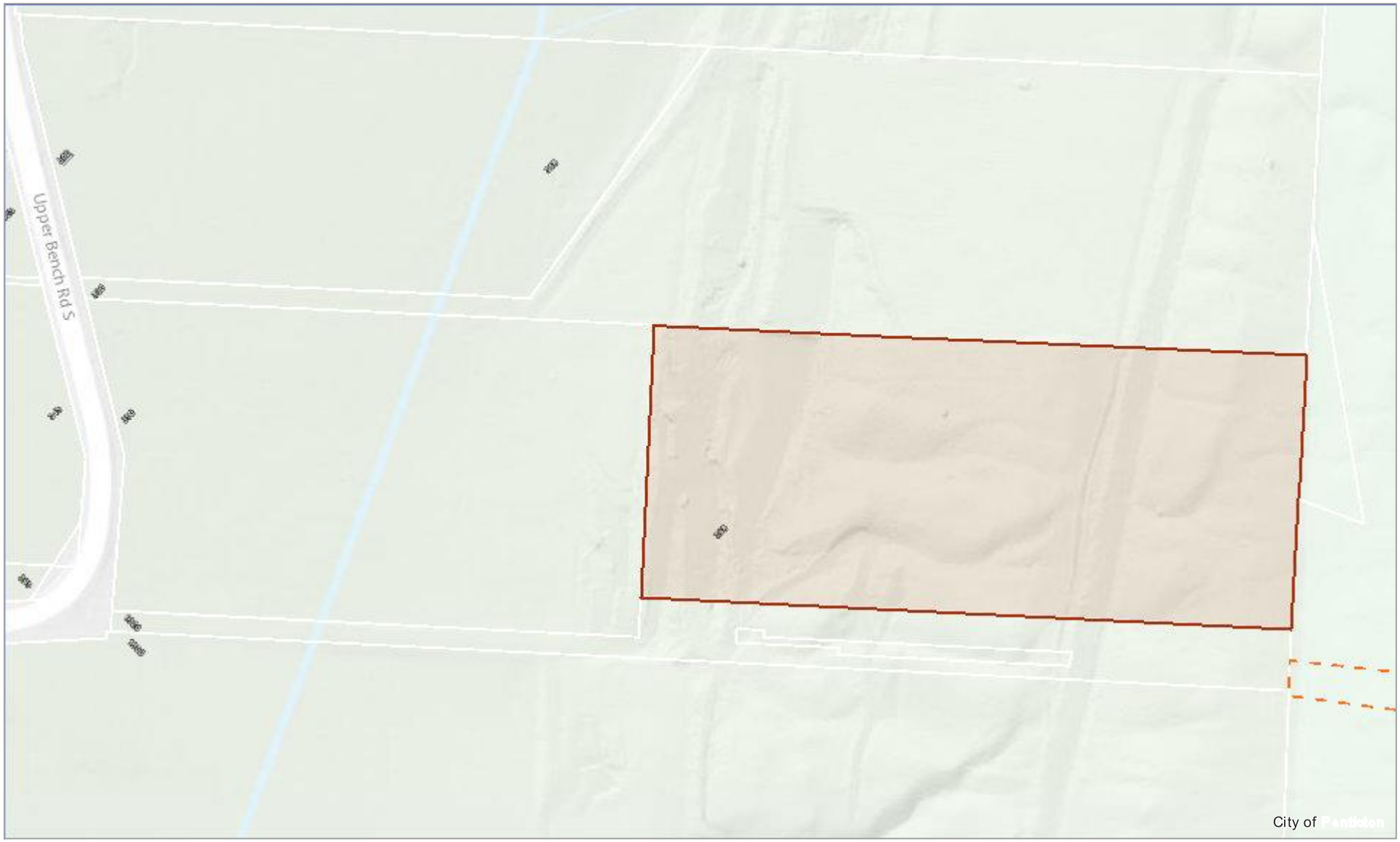
Notice of intention to proceed with this bylaw was published on the 21st day of April, 2023 and the 26th day of April, 2023 in an online news source and the newspaper, pursuant to Section 94.2 of the *Community Charter*.

Julius Bloomfield, Mayor

Angie Collison, Corporate Officer

Schedule A: Zoning Amendment Bylaw 2023-15

Date: Corporate Officer:



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April 12, 2023 8:56:57 AM

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Coordinate System: NAD 1983 CSRS UTM Zone 11N

Notice of Motion

Riverside Park Skate Park Lighting

Strategic Priority Objective

Safe and Resilient: Support strategies that reduce crime and increase a sense of community safety

Vibrant and Connected: Support access to recreational, arts, and culture amenities as key to a healthy, vibrant, and connected community.

WHEREAS

1. Youth and kids deserve to play and hangout out in safe spaces.
2. Riverside park has seen vandalism at the washrooms and in the park boundary. This can lead to more crime and mischief in the park.
3. Lighting is an element of Crime Prevention Through Environmental Design. It allows for better sight lines and observations at night allowing for more eyes to view the park for inappropriate activity. This keeps all community members accountable and makes a space more comfortable to be in, especially at night.
4. Growing Communities Fund from the province allows for the spending of those funds on *“Sidewalks, curbing, and lighting,” “Park additions/maintenance/upgrades including washrooms/meeting spaces and other amenities,”* and *“Recreation-related amenities.”*

THEREFORE BE IT RESOLVED

THAT Council direct staff to use funds from the Growing Communities Fund to install lights at the skate park in Riverside Park.

AND THAT Council direct staff to report on projects that can be funded by the Growing Communities Fund and list them in their priorities.