

# 5 GROWTH AND DEVELOPMENT

The previous sections of this TMP have focused on the current conditions within Penticton. Addressing the existing gaps and opportunities will be important in better facilitating high quality transportation options for residents of Penticton for the next 25 years. However, to fully plan for and prioritize infrastructure investment across the lifetime of this plan, it is important to understand where and when new development will occur in the City of Penticton.

Details on where and when growth is allocated in the TMP analysis is detailed in **Appendix B**, with a high-level summary included in this section.

## 5.1 GROWTH IN PENTICTON

Based on the most recent 2016 census data, the City’s adjusted population was identified to be 34,440 in 2016. Over the past twenty years the City has seen moderate but steady population growth, averaging at approximately 0.48% between 2006 and 2016. In the 2002 OCP, the City had planned for a population of approximately 45,000 by 2018, however actual growth was significantly less. The 2045 OCP, the City identified a lower growth rate that more closely aligned with historical rates resulting in a median growth rate for future planning within the City to 0.65% between 2016 and 2046.

Key growth statistics identified by the 2045 OCP are summarized in **Table 5-1**.

**TABLE 5-1 OCP LAND USE NEEDS FOR 2045**

LAND USE	QUANTITY/TYPE
Housing/Residential	150 units/year <ul style="list-style-type: none"><li>• 35% Duplex/Infill</li><li>• 32% Low Rise Apartments (&lt;5 Storeys)</li><li>• 21% Single Detached</li><li>• 9% Mid to High Rise Apartments (&gt;5 Storeys)</li><li>• 3% Mobile Homes</li></ul>
Retail	8,000 sq. ft. of retail floorspace per year
Office	5,000 sq. ft. office space per year, focus on Downtown
Industrial	60 acres in or near Penticton

### 5.1.1 WHERE PEOPLE WILL LIVE AND WORK

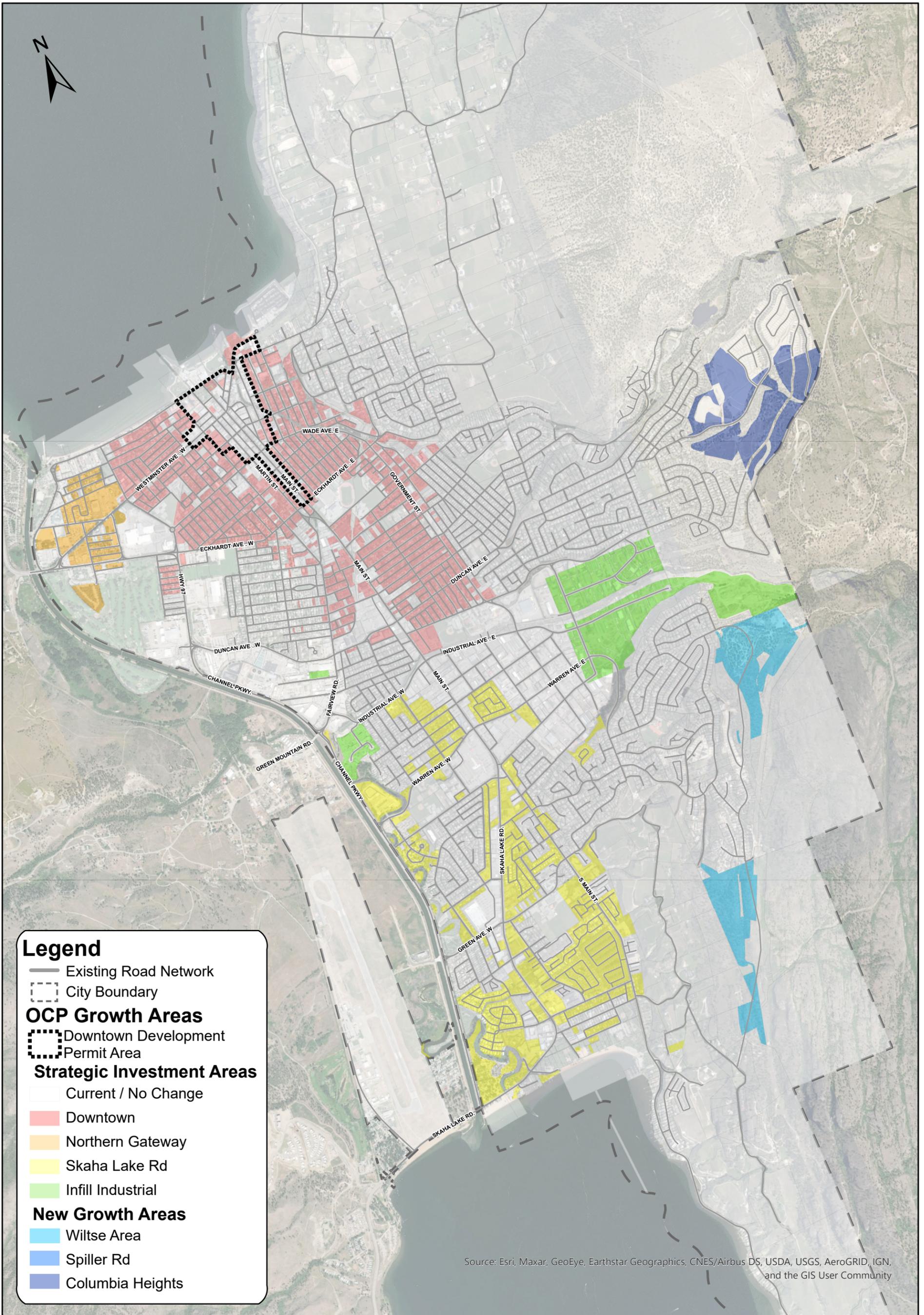
Considering where to strategically grow is a critical outcome of the OCP. The growth plan is founded on four key principles:

- Intensification of existing urban areas;
- Maximizing use of existing assets and infrastructure;
- Creating complete and accessible communities; and

- Minimizing negative impacts on natural areas.

The growth plan therefore focuses on intensifying built up areas while strategically adding lower density housing in Hillside Neighbourhoods. New retail development will occur in the existing built up areas and industrial development will be located within the existing industrial areas.

The new growth areas are summarized in **Figure 5-1**.



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

**Legend**

- Existing Road Network
- - - City Boundary
- ⋯ Downtown Development Permit Area

**OCP Growth Areas**

- ⋯ Downtown Development Permit Area

**Strategic Investment Areas**

- Current / No Change
- Downtown
- Northern Gateway
- Skaha Lake Rd
- Infill Industrial

**New Growth Areas**

- Wiltse Area
- Spiller Rd
- Columbia Heights



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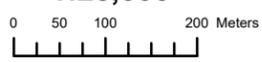



**Figure 5-1**  
**Strategic Growth Areas**  
**Integrated Infrastructure Master Plan**

Project No.: **20M-00462-00**

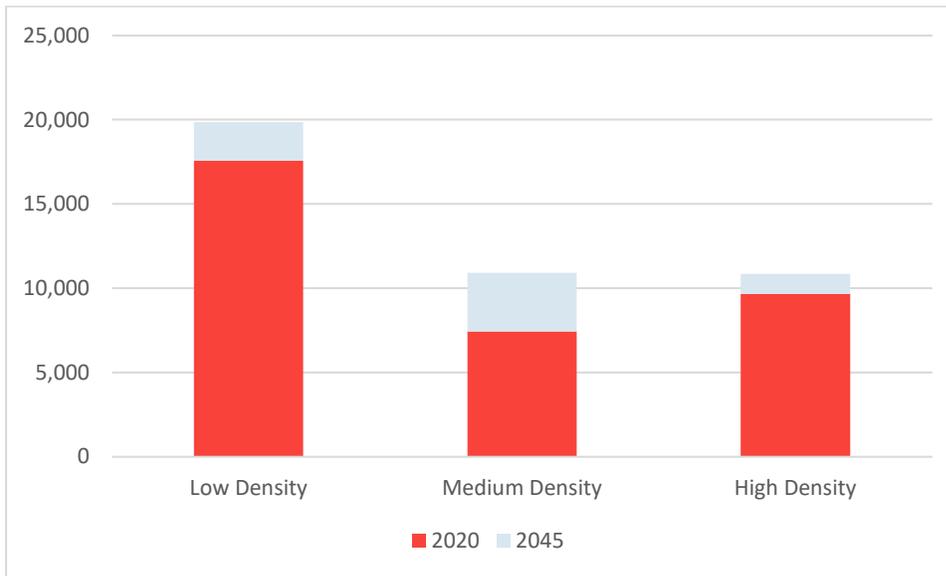
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## 5.1.2 HOW PEOPLE WILL LIVE AND WORK

Through intensification of the built-up area, housing types will trend towards higher density, with increasing opportunities for people to walk and bike for recreation and commuting if they choose. The shift in housing type is illustrated in **Figure 5-2**.



**FIGURE 5-2 FUTURE HOUSING NEEDS (TOTAL RESIDENTS)**

As residential population expands, additional retail, office and industrial development will be strategically added to balance the job and population growth.

## 5.1.3 WHEN GROWTH WILL HAPPEN

The OCP is a high-level plan that assumes a relatively steady growth rate over the next 25 years.

### Residential

Residential development will be consistent from year to year, but different areas will build out at a faster rate. The infill growth in Downtown and in the Skaha Lake Road area is assumed to be fairly consistent from year to year. Of the new Hilltop neighbourhoods, Wiltse North will build out first, followed by Spiller Road, Wiltse South and then Columbia Heights. Build out in the Northern Gateway area is anticipated to be slower, with new population not anticipated until after 2030.

### Office / Industrial / Commercial

Growth for employment areas is summarized in **Table 5-2**.

**TABLE 5-2 EMPLOYMENT AREAS GROWTH**

Year	Horizon	Office Space (1000 sq. ft)	Commercial (1000 sq. ft)	Industrial (Acres)
2025	5-year horizon	39	47	25
2030	10-year horizon	25	32	17
2040	20-year horizon	54	81	13
2045	25-year OCP horizon	28	46	5
<b>2045 Total</b>	<b>25 Year Horizon</b>	<b>147</b>	<b>205</b>	<b>60</b>

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## 5.2 SUMMARY

The TMP is based on the OCP growth projections. With the majority of population and employment growth anticipated to occur in built up areas, the gaps and opportunities identified within the existing conditions assessment will be critical in achieving safe opportunities for people travelling in Penticton over the next 25 years.

# 6 FUTURE CONDITION OPTIONS AND RECOMMENDATIONS

The existing conditions assessment identified the opportunities and constraints within the existing network for people using all modes in the City of Penticton. Future growth in Penticton is predicted to occur significantly within the existing built up areas, which will make working towards correcting the existing gaps in the network increasingly important as more people live and work within Central Penticton. Growth in new areas will also occur, and the policies and guidelines established will be critical to support development that continues to align with the OCP. The section discusses the recommendations for the multi-modal transportation network over the next 25 years.

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## 6.1 PEDESTRIANS

The future conditions analysis for pedestrians is an extension of opportunities and constraints assessment completed under the existing conditions analysis. As identified, there is currently a significant sidewalk infrastructure deficit throughout the City that needs to be addressed through the Capital Improvement Program. The Capital Improvement Program refers to a set of recommended projects that should be completed from the short to long term based on high, medium and low priorities to achieve the goals of the OCP. To extend these recommendations across the lifetime of this plan, the following process has been applied:

- Based on proposed pedestrian principles identified in **Section 4.1**, develop a revised Sidewalk Priority Process.
- Apply this process to the sidewalk infrastructure in alignment with the OCP vision.
  - This includes reviewing minimum sidewalk requirements based on street classification and aligning recommendations with the BC Ministry of Transportation Active Transportation Guidelines.
- The resulting prioritization informs improvements from the short to long-term horizon.
- Potential KVR, Penticton Creek and Ellis Creek trail connections were identified in addition to missing sidewalk segments based on the Parks and Recreation Master Plan.
- Review the Lakeshore Drive Corridor based on existing data and public engagement feedback.

Other infrastructure such as upgraded pedestrian crossing controls (crosswalks, pedestrian flashers, etc.) or traffic calmed intersections and public realm improvements that might include enhanced surface materials, landscaping and street furniture were not considered through this analysis. Based on discussions with the City and the Existing Sidewalk Priority Plan an annual lump sum budget has been added to the capital plan for pedestrian improvements at intersections and crossings, to be allocated at the City's discretion.

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### 6.1.1 REVISED SIDEWALK PRIORITY PLAN PROCESS

The purpose of the Sidewalk Priority Plan is to create a process to prioritize the installation of new sidewalks within the City of Penticton based on pedestrian demand and safety. As discussed under existing conditions the process includes 2 stages of analysis: Stage 1 GIS analysis and Stage 2 engineering review which outputs prioritized missing links for capital construction. The existing Sidewalk Priority Plan process captures many appropriate criteria to prioritize the construction of sidewalks. In consultation with the City, it was determined that the Sidewalk Priority Plan process be retained with minor adjustments as outlined below:

- Public engagement occurs through Stage 1 with GIS Analysis instead of Stage 2 Engineering Review to inform where missing links exist; and,

- Casualty collision history considered through Stage 1 with GIS Analysis instead of Stage 2 Engineering Review. Total casualty collisions over a four-year period are used in the absence of pedestrian and cyclist specific data. Any casualty greater than 1 is deemed significant in alignment with Vision Zero Principles. Vehicle volumes and speeds are considered through Stage 1 instead of Stage 2 where available.

These adjustments ensure that sidewalks are prioritized to meet the needs of residents and aligns the Sidewalk Priority Plan with the Transportation Prioritization Framework. The impact of these adjustments includes prioritized segments based on safety and the points system applied in the existing Sidewalk Priority Plan. As described in **Section 4.1.2** the point system prioritizes segments with the highest number of accumulated points. As a result, segments should be confirmed prior to implementation.

Future iterations of the sidewalk priority plan may consider Strategic Investment Area criteria which would prioritize missing sidewalks in lower priority categories within the Strategic Investment Areas of Downtown, Northern Gateway, Skaha Lake Road and the Industrial Area.

The outcome of the revised Sidewalk Priority Plan Process is to inform funding packages for the sidewalk's capital budget. The prioritization should not restrict the City in adding missing sidewalks where corridor improvements are expected to occur with respect to roadway reconstruction or utility upgrades. Missing pedestrian infrastructure should be added with construction projects wherever feasible.

**6.1.1.1 SUBDIVISION AND DEVELOPMENT BYLAW 2004-81:**

Updates are recommended to the Subdivision and Development Bylaw 2004-81 Sidewalk Requirements. Sidewalks are recommended on both sides of roads based on the principle of creating walkable environments through continuous and direct routes between destinations that reflect pedestrian desire lines. The BC MOTI *Active Transportation Design Guide* identifies that sidewalk should be provided on both sides of the road in urban contexts to enhance pedestrian connectivity, provide full accessibility, and limit unnecessary road crossings.<sup>8</sup> Sidewalk on both sides of residential and commercial streets align with the OCP modal priority of pedestrians as top priority. A summary of the recommendations to the Subdivision Bylaw is included in **Table 6-1**.

**TABLE 6-1 PROPOSED SUBDIVISION AND DEVELOPMENT BYLAW SIDEWALK REQUIREMENT UPDATES**

Sidewalk Requirement	Rural Roads		Urban					
	Local	Collector	Local			Collector		
			Residential	Industrial	Commercial	Residential	Industrial	Commercial
Existing <sup>1</sup>	-	-	One Side	<sup>1</sup>	Both Sides <sup>1</sup>	One Side <sup>1</sup>	-	Both Sides <sup>1</sup>
Proposed	<sup>2</sup>	<sup>2</sup>	Both Sides	Both Sides <sup>3</sup>	Both Sides	Both Sides	Both Sides <sup>3</sup>	Both Sides

Notes:

1 – Sidewalk is required on both sides of a street with multi-family development and commercial zones. In industrial areas the sidewalk is required only if it is necessary to form part of an existing sidewalk network or link walkways, crosswalks or bicycle paths.

<sup>8</sup> BC Ministry of Transportation and Infrastructure Active Transportation Design Guide (2019). C1 General Design Guidance, C8.

2 – Pedestrian facilities such as accessible shoulders on one side should be considered and reviewed for feasibility where a rural roadway connects key pedestrian generators, forms part of an existing sidewalk network or link walkways, crosswalks, transit routes or bicycle paths.

3 – Sidewalk is preferred on both sides with priority of sidewalk on one side and lower priority for second side.

In addition to the one or both sidewalks requirement, the City will align with BC MOTI *Active Transportation Design Guide* and TAC GDG that recommends an increased minimum sidewalk width from 1.5 to 1.8 m on urban roads through an update to the Subdivision and Development Bylaw. Rural roadways <60km/hr posted speed may consider buffered pedestrian lanes with minimum 1.8 m width and vertical separation or walkable shoulders with minimum width of 1.5 m.

## 6.1.2 TRAIL CONNECTIONS

Gaps were identified in three trail segments including KVR, Ellis Creek and Penticton Creek Trails. Gaps in trail networks include:

- KVR Trail between the Channel Parkway Trail and the current KVR trail end at Duncan Avenue West and Atkinson Street;
- Ellis Creek trail on Industrial Avenue W from Main Street to the Channel Parkway Trail; and,
- Penticton Creek trail on Ontario Street between the current trail end continuing north across Eckhardt Avenue E to the active modes bridge on Government Street.

Trail connections alignments were assessed based on directness, feasibility and level of property acquisition required. Recommended trail connections are intended to be accessible for pedestrians and cyclists and have been identified in the Capital Projects Program.

Other trail connections that were reviewed based on public engagement results included the connections between Highway 97/Channel Parkway and Airport Road, Vancouver Avenue between Vancouver Place and Grandview Street, Highway 97 and Eckhardt Avenue and the connection to Skaha Lake Beach. Additional detail is required regarding missing infrastructure/issues to assess connections on Vancouver Avenue and Highway 97 and Eckhardt Avenue. Connections between Highway 97/Channel Parkway and Airport Road and Skaha Lake Beach were assessed and is included in **Section 6.5.4.2**.

### 6.1.2.1 KVR

Four different options as shown in **Figure 6-1** below were considered for KVR based on feedback received through public engagement and a review of network connectivity.

**Option 1** is approximately 0.85 km and includes the extension of the KVR Trail from the current end at Duncan Avenue extending west to Fairview Road and continuing south on Fairview Road to connect to the trail on the west side of the Channel Parkway. The benefit of this alignment is that it aligns with the future Capital project of a separated bike lane on Fairview Road. This alignment also utilizes the existing crossing of Okanagan River on Fairview Road. The capital cost associated with this alignment would a new wider sidewalk with enhanced landscaping.

**Option 2:** is approximately 0.48 km and would extend from the trail end at Fairview Road and west on Hastings Avenue. Option 2 would then either continue north-west on Duncan Avenue through the golf course to the existing bridge across Channel Parkway (3A) or cross Duncan Avenue and continue through the KVR right-of-way to a new bridge (3B). This option requires trail users to complete a jog north on Fairview Road in order to cross Fairview Road and connect on to Hastings Avenue. This crossing is not recommended as it within 200 m of the signalized intersection at Fairview Road and Duncan Avenue W.

**Option 3A** is approximately 1.81 km and leverages the existing sidewalk connection on Duncan Avenue West from Atkinson Street to Railway Street. Approximately 380 m of new trail that includes property acquisition from the golf course is required from Railway Street to the existing channel crossing. The City of Penticton has an existing

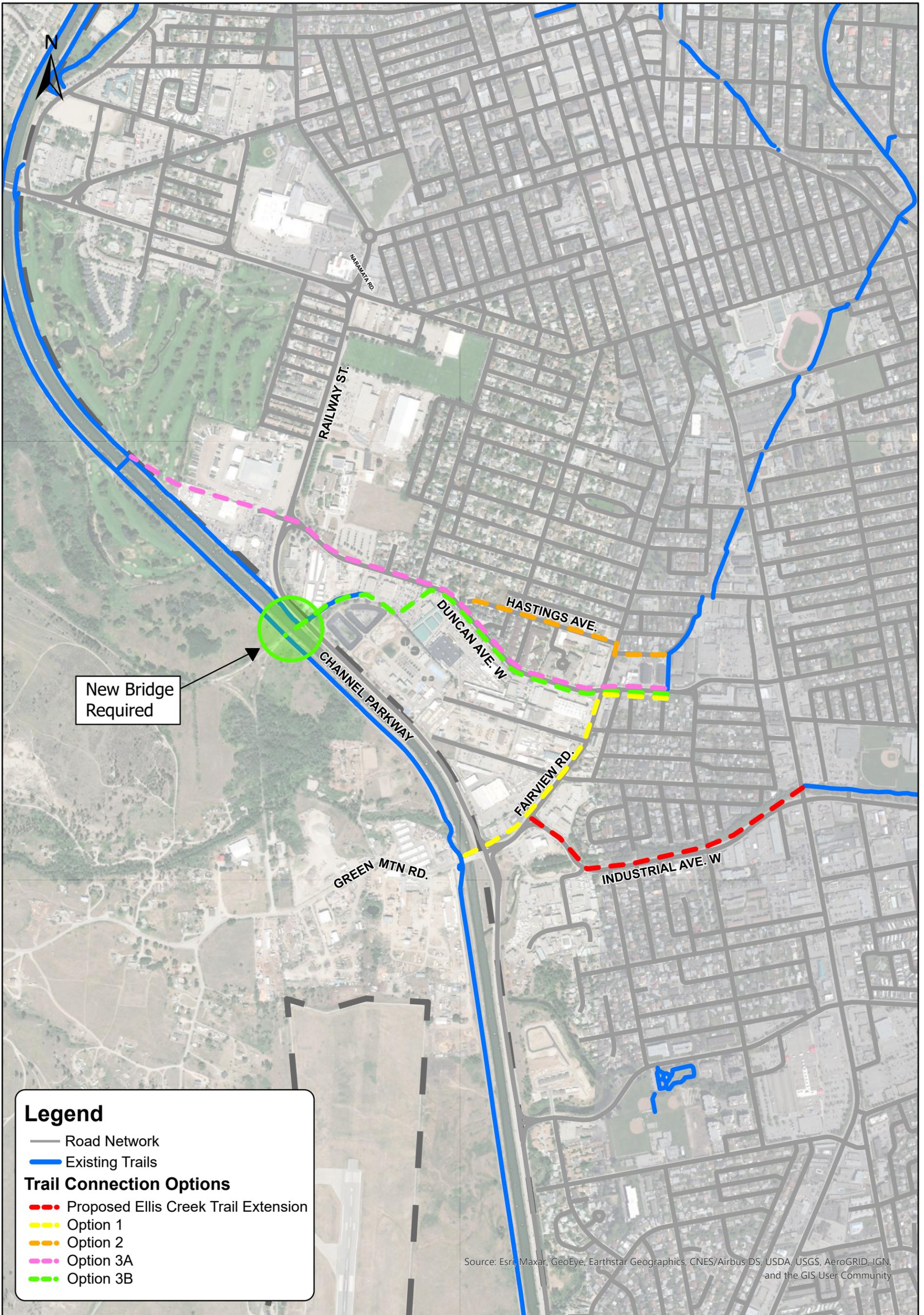
easement on properties immediately west of Railway Street. This alignment follows a largely urban section on Duncan Avenue West before connecting with Channel Parkway Trail. The new trail connection would connect cyclists from the proposed standard bicycle lanes on Duncan Avenue West to the Channel Parkway multi-use trail.

**Option 3B** is approximately 1.37 km and leverages the existing sidewalk connection on Duncan Avenue West from Atkinson Street to Moosejaw Street where it connects with a new trail south of Duncan Avenue West through KVR right-of-way and across the Channel on a new bridge that connects to the Channel Parkway Trail and Kettle Valley Rail Trail located west of the Channel. Capital investment for this connection includes approximately 464 m of new trail north of the wastewater treatment plant and a new bridge across the Channel. This connection is identified in the RDOS Regional Trails Master Plan and would require negotiation with the PIB. The wastewater treatment plant may restrict the opportunity for adding this connection and may not be the most enjoyable trail user environment.

Option 1 is recommended in the short term as it achieves the objectives of the Park and Recreation Master Plan by extending both Ellis Creek Trail and the KVR Trail. This alignment utilizes existing City of Penticton right-of-way and existing Channel crossing on Fairview Road. Option 3B has also been identified in the short-term with the exception of the bridge.

### **6.1.2.2 ELLIS CREEK TRAIL**

A proposed extension of Ellis Creek Trail would extend along Industrial Avenue from Main Street to Fairview Road. The trail then continues west on Fairview Road/Green Mountain Road to connect with the Channel Parkway Trail. This alignment also utilizes the existing crossing of Okanagan River on Fairview Road. The capital cost associated with this alignment includes trail construction from Main Street to Fairview Road. This connection creates connectivity with the broader network.



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**Figure 6-1**  
**KVR Trail Connection Options**  
**Integrated Infrastructure Master Plan**

Project No.:  
**20M-00462-00**

Date:  
**4/19/2021**

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### 6.1.2.3 PENTICTON CREEK TRAIL

A new trail connection is recommended to extend the Penticton Creek trail from Ontario Street to Eckhardt Avenue East, Eckhardt Avenue East from Ontario Street to Government Street and north on Government Street to the existing trail crossing. This connection supports the continuation of the Penticton Creek Pathway and aligns with the Parks and Recreation Master Plan.

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### 6.1.3 RECOMMENDATION ON LAKESHORE DRIVE MULTI-USE TRAIL

As identified in the existing conditions assessment, there are a number of issues related to pedestrian connectivity along Lakeshore Drive. Public engagement results indicated concerns regarding conflicts between different modes, speeding, sightline issues at intersections and missing pedestrian / cyclist infrastructure. The existing conditions analysis confirmed that a corridor study is required to determine appropriate modifications to intersections and facilities to better support active transportation in the corridor. Lakeshore Drive is a constrained corridor that serves several modes and functions and modifications to the corridor will require trade-offs that should be informed by in depth public engagement.

As part of this TMP a high-level review identified that one of the key issues that could address a number of the complaints along the corridor is providing better opportunities for separation between pedestrians and cyclists. An identified issue in this area is cycling on sidewalk. This is both a pedestrian safety and cycling safety issue, as typically, people cycling on sidewalks is an indication that there are no other routes available where they feel safe. Therefore, providing higher quality cycling infrastructure facilities which accommodate users of all ages and abilities may pull less confident cyclists off of sidewalks.

The multi-use trail located on the north side of Lakeshore Drive supports the movement of both pedestrians and cyclists and is a segment that experiences congestion. The BC MOTI *Active Transportation Design Guide (2019)* provides guidance on the separation of pathway. The decision to separate bicycle users from other users is based on several factors including right-of-way width available, the total volume of current and anticipated pathway users, and the ratio of pedestrians to all daily pathway users. Table E-21 in the BC MOTI *Active Transportation Design Guide* identifies when separation should be considered based on pathway width<sup>9</sup>.

Based on a review of available pedestrian and cyclist intersection volumes and application of the guidelines, separation between cyclists and pedestrians is required on the Lakeshore Drive multi-use trail. Cycle improvements along this corridor can be categorized into short term improvements where the existing curb line is retained and long-term improvements where curbs are adjusted. Short term improvements include reducing the WB lane width to 3.2 m and increasing the EB Lane width in other to convert it into a shared lane. The multi-use trail on the north side of Lakeshore Drive would support pedestrians and WB cyclists using signage. This modification provides an additional facility for cyclists that may support a reduction in volumes on the multi-use trail but does not support an all ages and abilities cycle network.

Other short-term improvements that could be considered on Lakeshore Drive includes designating Lakeshore Drive and Churchill Avenue as one-way couplets or modifying angle parking to parallel parking in order reallocate space towards designated cycle facilities. Each option requires further review in terms of traffic analysis, cost implications, alignment with OCP objectives and consultation with the public.

Long term improvements to the corridor may consider the addition of an eastbound unidirectional cycle track on the south side. The multi-use trail located on the north side would support pedestrians and westbound cyclists. Intersections improvements including bike signals and conflict zone markings would be required. Potential cross-sections are provided in **Section 6.11**.

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<sup>9</sup> BC MOTI Active Transportation Design Guide (2019). E.2 Multi-Use Pathways. Page E-17

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## 6.1.4 CROSS SECTIONS FOR IMPROVED PEDESTRIANS & CYCLING

Three general elements that should be addressed to improve the pedestrian experience includes the provision of sidewalks, width of sidewalks and separation of pedestrians and cyclists on shared facilities. The BC MOTI *Active Transportation Design Guide (2019)* provides a comprehensive set of planning and engineering guidelines offering recommendations for the planning, selection, design, implementation, and maintenance of active transportation facilities across the province. The guidelines include best practices and is meant to supplement any existing local guidelines, standards or regulations. The guidelines include recommendations for pedestrian facilities, cycling facilities, multi-use facilities, context specific applications, intersections and crossings, amenities and integration, and post implementation. It is recommended that the City review and update existing standards to align with these guidelines.

Proposed Subdivision and Development Bylaw modifications that identify sidewalk requirements on one or both sides and widths are included in **Table 6-1** above and align with the BC MOTI *Active Transportation Design Guide (2019)*. Pedestrian and bicycle separation should be reviewed for multi-use trails 3 m or greater with 1,000 users or more per day.

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## 6.2 CYCLING

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### 6.2.1 VALIDATE CYCLING NETWORK PLAN

For the future conditions assessment of the cycling network, the TMP validated the cycling network plan developed in 2012 by Urban Systems based on network connectivity to growth nodes, key active mode generators and public feedback. Bike facility type was not reviewed through this exercise as bike volume, motor vehicle volume and speeds and grades were not available. It is recommended that bike facility types are confirmed at concept and preliminary design phase in alignment with the BC MOTI *Active Transportation Design Guide (2019)*.

The desktop validation of the cycling plan identified a number of small gaps. The following recommendations will help fill in the cycling network.

- Extend the Warren Avenue proposed standard bike facility east by one block to connect with the Atkinson Avenue proposed separated bike facility, and including the small segment of Hemlock Street as a Shared bike facility to connect the trail between Guelph Avenue and the laneway north of Yorkton with the proposed Yorkton Avenue standard bike facility.
- Remove the proposed Highway 97 bike facility alignment from Eckhardt Avenue to Skaha Lake Road and adjust the cycling links to Highway 97. For example, truncate the Warren Avenue West facility to Baskin Street and add a bike facility on Baskin Street from Warren Avenue West to Cornwall Drive.

The Lake to Lake All Ages and Abilities bike route has been incorporated into the existing cycling network and is reflected within the capital project list, segmented according to the sections presented in the November 3, 2020 Council Report.

Additionally, the following are considerations for inclusion in Penticton's proposed cycling network to ensure all schools and community centres are connected to cycling facilities:

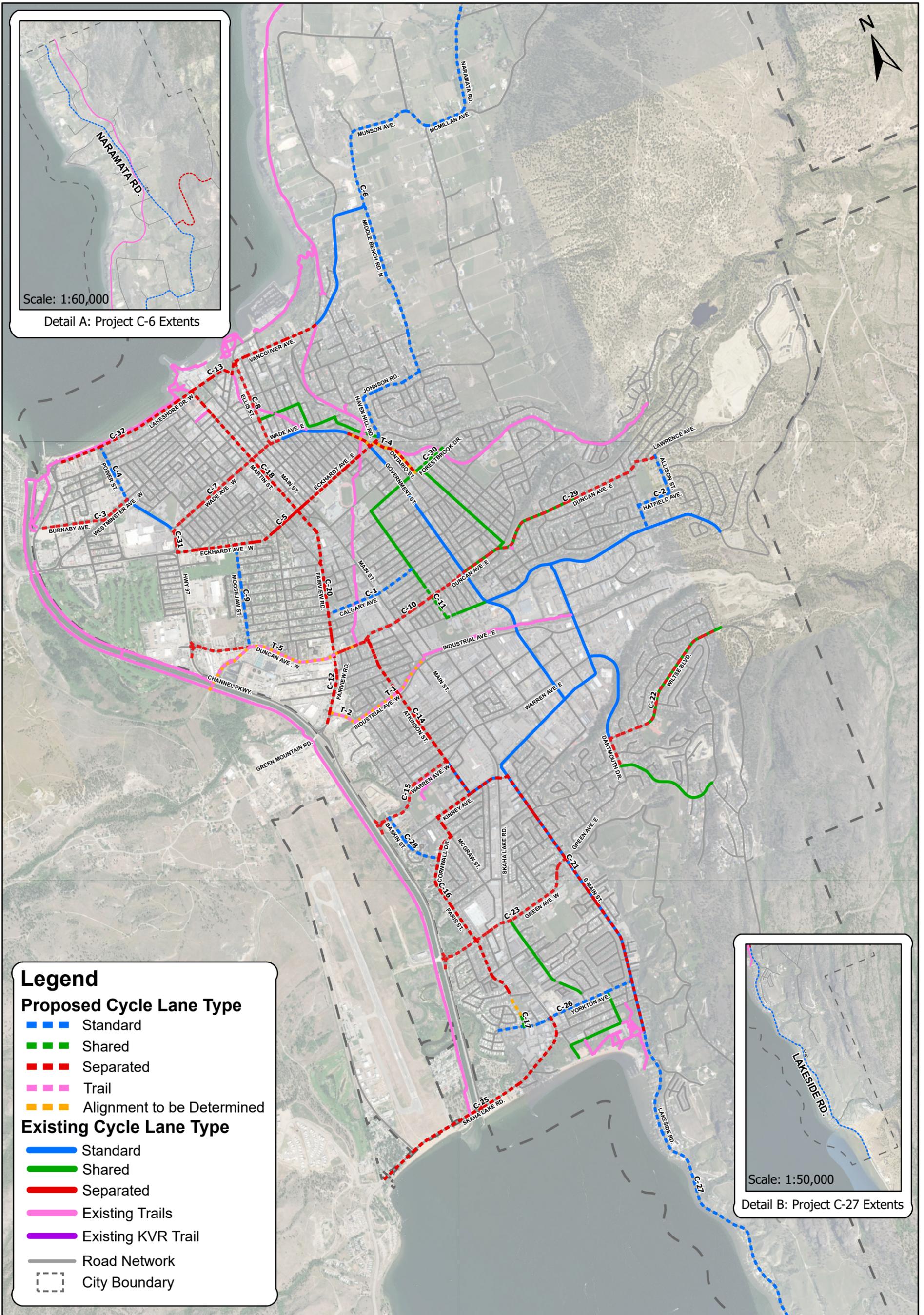
- Connect Holy Cross School to the bike network via a proposed standard facility on Calgary and Bennett Avenues, connecting Fairview Road with Manitoba Street.
- Connect Columbia Elementary School to the bike network via a proposed standard facility on Columbia Street, between Hatfield Avenue to Carmi Street, on Hatfield Avenue to Allison Street and Allison Street to Lawrence Avenue.

Proposed cycling connections were also identified to connect growth areas defined as Wiltse Area, Spiller Road and Columbia Heights to the broader cycling network. The connections are conceptual only and need to be validated based on feasibility. Key factors that may affect the feasibility of these facilities include slope and available right-of-way:

- Extension of shared bicycle lane on Pineview Road to Evergreen Drive between Pineview Road and Partridge Drive. Extension of bike facility on Wiltse Drive with future roadway connection to Partridge Drive through the Wiltse growth area.
- Extension of Carmi Avenue standard bicycle lane from Holden Road to Syer Road, Syer Road from Carmi Avenue to Holden Road, Holden Road from Syer Road to trail connection through residential area to Lawrence Avenue, and finally Lawrence Avenue from the trail connection to Allison Street. This section connects the Columbia Heights Area.
- A new bike path is planned with the Spiller Road development that will connect to Naramata Road and the KVR Trail.

Public engagement also yielded the recommendation to improve cycling facilities on the western end of Eckhardt Avenue. The proposed standard bicycle route which is already identified in the cycling network plan addresses the west Eckhardt Avenue public concern. Improvements options to Skaha Lake Road from the Channel Parkway to the Skaha Lake Road Development Access and connection to Skaha Lake beach is included in **Section 6.5.4.2**.

The proposed cycling network is shown in **Figure 6-2**.



**Legend**

**Proposed Cycle Lane Type**

- Standard
- Shared
- Separated
- Trail
- Alignment to be Determined

**Existing Cycle Lane Type**

- Standard
- Shared
- Separated
- Existing Trails
- Existing KVR Trail
- Road Network
- City Boundary

Scale: 1:50,000

Detail B: Project C-27 Extents

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**Figure 6-2**  
**Existing and Proposed Cycle Network**  
**Integrated Infrastructure Master Plan**

Project No.:  
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Date:  
**5/28/2021**

Scale:  
**1:25,000**

0 50 100 200 Meters

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## 6.2.2 CYCLING FACILITY SELECTION TOOLKIT

Cycling facility selection is a key consideration for the concept design phase of a cycling project. Each future cycling project has not been reviewed as part of this TMP, but some guidance is offered for selecting the appropriate facility type. Factors that impact bike facility selection and the requirement to separate users (pedestrian from cyclist or cyclist from motor vehicles) include:

- Motor Vehicle Speed;
- Motor Vehicle Volume;
- Slope or Grade;
- Types of users, mix of users, volume of users;
- Climate, topography, land use;
- Available right-of-way;
- Conflict points including vehicle accesses, intersections and transition points;
- On-Street Vehicle Parking;
- Truck and bus traffic;
- Aesthetics; and,
- Maintenance practices.

The BC MOTI *Active Transportation Design Guide (2019)* identifies several options for bike facilities and intersection treatments based on context. Bike facility options fall on a spectrum for on-street facilities between high volume / high speeds to low volume / low speed streets for urban and rural contexts. The guidelines include a bicycle facility selection decision support tool that should be consulted during concept design, to validate the facility type. Bike facility options include:

- Neighbourhood bikeways;
- Protected bicycle lanes;
- Painted + buffered bicycle lanes;
- Advisory bicycle lanes;
- Rural Cycling design;
- Multi-use pathways;
- Separated bicycle + Pedestrian Pathways;
- Shared Spaces; and,
- Current practices for highway rights-of-way.

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## 6.2.3 EMERGING ISSUES WITH SEPARATED CYCLING FACILITIES AND BUS STOPS

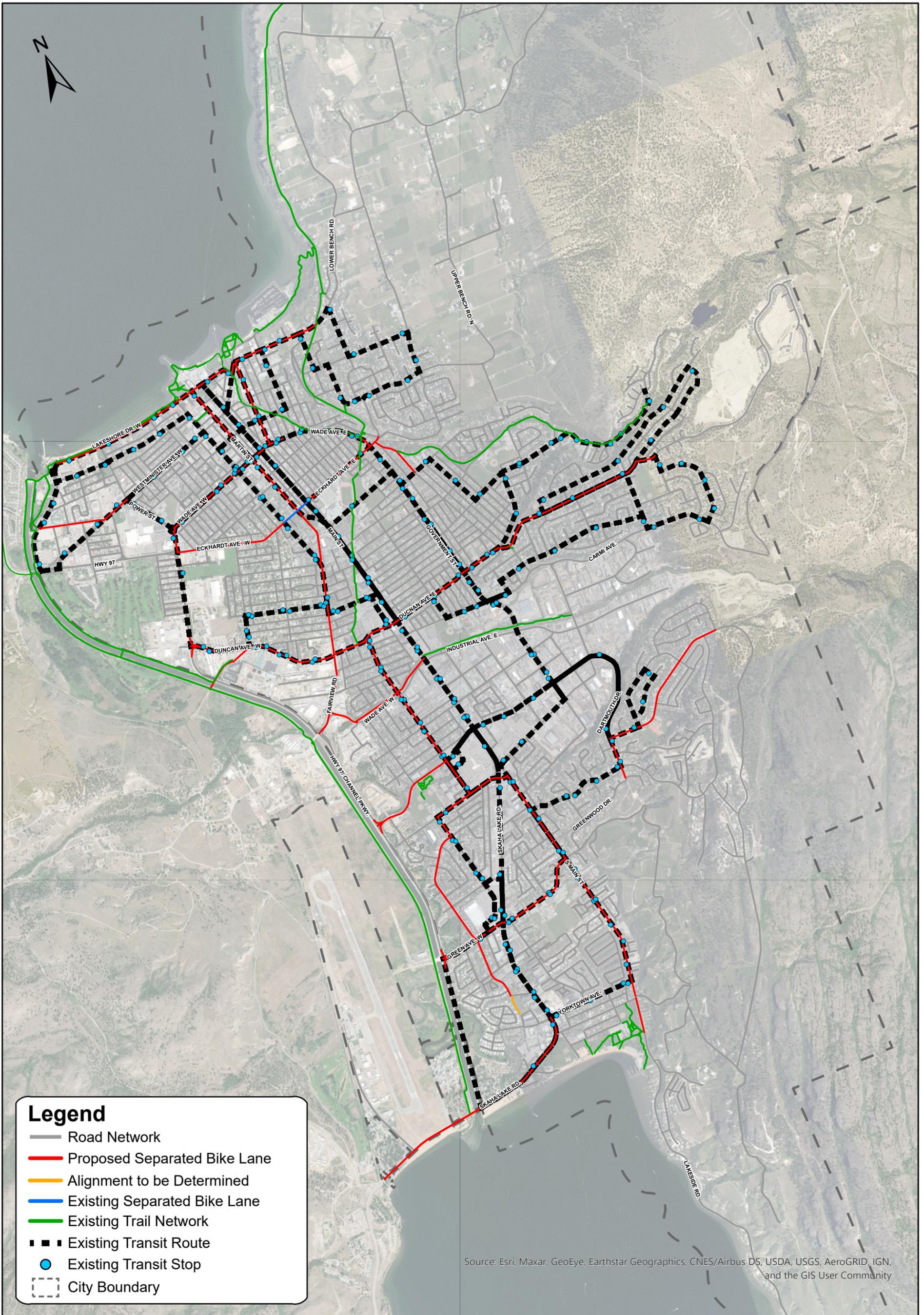
In 2018, the Canadian Federation of the Blind (CFB) submitted a complaint to the City of Victoria regarding floating bus stops. The floating bus stops in this case are located on the opposite side of a bi-directional cycle track from the sidewalk, requiring transit users to cross the cycle track to access the bus stop. The CFB said the concern is that blind pedestrians and transit users are unable to hear cyclists approaching and, cyclists have been shown to not

stop for individuals waiting to cross the cycle track. In late 2020, the BC Human Rights Tribunal determined that this complaint is justified.

To mitigate this issue along one of its cycle tracks, the City of Victoria installed an audible crosswalk signal, intended to notify both drivers and cyclists of a crossing pedestrian. The BC Human Rights Tribunal has required the City to install a similar audible crosswalk signal to mitigate the issue at all floating bus stops. While this audible crosswalk solution satisfies reasonable requirements, it is not considered to be an appropriate long-term or full answer to this issue, and there is an expectation in the ruling that, when they become available, technologies should be implemented which provide fully guaranteed protection for blind pedestrians.

This issue will be relevant to the City of Penticton, as it begins building its Lake to Lake cycle route, and other separated bicycle facilities. At this stage, we recommend staying abreast of developments in the City of Victoria human rights case and monitoring best practices for new and emerging solutions.

A map of Penticton's existing and future separated bike facilities and all existing transit routes and bus stop locations is shown in **Figure 6-3**. Separated bike facilities refer to either on-street uni-directional bike lanes located on opposite sides of the road in each direction of travel that are curb separated from the vehicle through way, on-street bi-directional bike lanes located on one-side of the road that permit cycle traffic in each direction and are curb separated from the vehicle through way or multi-use path connections that are located off-street. This is to provide the City with a starting point for evaluating the extent of this issue in Penticton, as more information becomes available.



**Legend**

- Road Network
- Proposed Separated Bike Lane
- Alignment to be Determined
- Existing Separated Bike Lane
- Existing Trail Network
- ■ ■ Existing Transit Route
- Existing Transit Stop
- City Boundary

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Figure 6-3**

**Separated Cycling and Transit Routes**

**Integrated Infrastructure Master Plan**

Project No.: **20M-00462-00**

Date: **4/19/2021**

Scale: **1:25,000**

0 50 100 200 Meters

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## 6.3 TRANSIT

The recently updated OCP aligns with the transit priorities confirmed in the 2015 *Transit Futures* plan from BC Transit and stakeholders. Preliminary discussions with both BC Transit and the City indicate that this strategic alignment will continue into the 2021 *Transit Futures* plan update. Due to the ongoing *Transit Futures* plan, the recommendations provided in this section are intentionally generalized, to allow for the completion of BC Transit's planning process prior to undertaking any transit capital projects.

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### 6.3.1 TRANSIT AND TRAVEL DEMAND MANAGEMENT RECOMMENDATIONS

BC Transit and the City will jointly work to update the *Transit Futures* plan to advance longstanding transit priorities for the region despite COVID-related budgetary and ridership impacts. Despite the pandemic, the mutual goals of both entities have not changed.

The following are goals, steps, and recommendations to bridge the gap between the OCP objectives, BC Transit's *Transit Futures* update, and other city sustainability goals. They are based on opportunities and gaps identified during this IIMP process:

- Continue collaboration with BC Transit and the 2021 Transit Future Access Plan to integrate that process into the overall IIMP.
- Work with BC Transit to identify, confirm feasibility, design, and build a centralized transit exchange within the City.
- Implement downtown and high-transfer area transit wayfinding strategy to improve legibility of existing system for new and uninitiated transit users.
- Undertake an accessibility audit of existing transit stops to identify and prioritize capital improvements for safe and convenient access for all users.
- Implement the TMP Sidewalk capital program to complete the network of sidewalks, curb ramps, and other appropriate accessibility measures to all transit stops.
- Implement the Main Street transit priority corridor.
- Create a program to prioritize, fund, and update all citywide transit stops per BC Transit bus stop design guidelines.
- Revise traffic planning and engineering practices for city development review and comprehensive planning to consider per-person delays for trips instead of per-vehicle delays along corridors and at intersections.
- In coordination with a future citywide parking strategy, consider parking revenue schemes for high-density and high-demand areas in growth areas, downtown core, and other areas of OCP-recognized growth.
- Investigate bylaw revisions to promote transit ridership and active transportation trips through development-related incentives and disincentives, such as:
  - Off-street parking reduction variance for new developments with approved TDM plans and provisions, by zone and / or land use or building type. Could include subsidized transit passes, enhanced transit stop subsidy, enhanced cycle parking and / or facilities.
  - Decoupling of residential development parking costs from unit costs.
  - Mandated transit infrastructure upgrades for new developments in a defined proximity to transit route or transit stop.

- Flexibility for payments-in-lieu schemes of some development-related fees in exchange for contribution to identified transit and/or active transportation infrastructure upgrades. Would have some physical approximation or nexus of relationship with the development itself.

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## 6.4 GOODS MOVEMENT

Based on the existing conditions described in **Section 4.4** this section highlights some potential improvements to the City's policy framework for goods movement and implications for the goods movement network.

To reiterate a key finding from **Section 4.4**, the existing Penticton Traffic Bylaw appears to address the issue of trucks overnight parking near residential areas in the City. Increasing effort to educate about and enforce this section of the bylaw is recommended as a quick win. According to the bylaw, the penalty for a truck operator parking in a residential area is a fine of up to \$2,000.

Practice from nearby communities is a simpler approach to goods movement, embedded in the local Traffic Bylaws. These Traffic Bylaws include both a map of truck routes, and a written explanation of how trucks are permitted to move within the community. The goods movement networks in these communities are binary – a road is either a truck route, or not. This approach is simpler than Penticton's existing hierarchy of goods movement facilities, and it also aligns with Penticton's existing Traffic Bylaw, which does not distinguish between types of truck routes.

In the feedback provided by the public and advisory group, there were some suggestions for banning or limiting trucks on certain roadways in Penticton. As each of the roadways mentioned (Front Street, Main Street, Westminster Avenue, and Lakeside Road) is a collector road, with some level of commercial activity, these are not good candidates for a truck ban. Prior to considering the truck ban tool, which may be appropriate on residential local roadways, the City should assess the impact of updating the fundamental components of its goods movement network and policy framework.

To update the policy framework for goods movement in Penticton, it is recommended that:

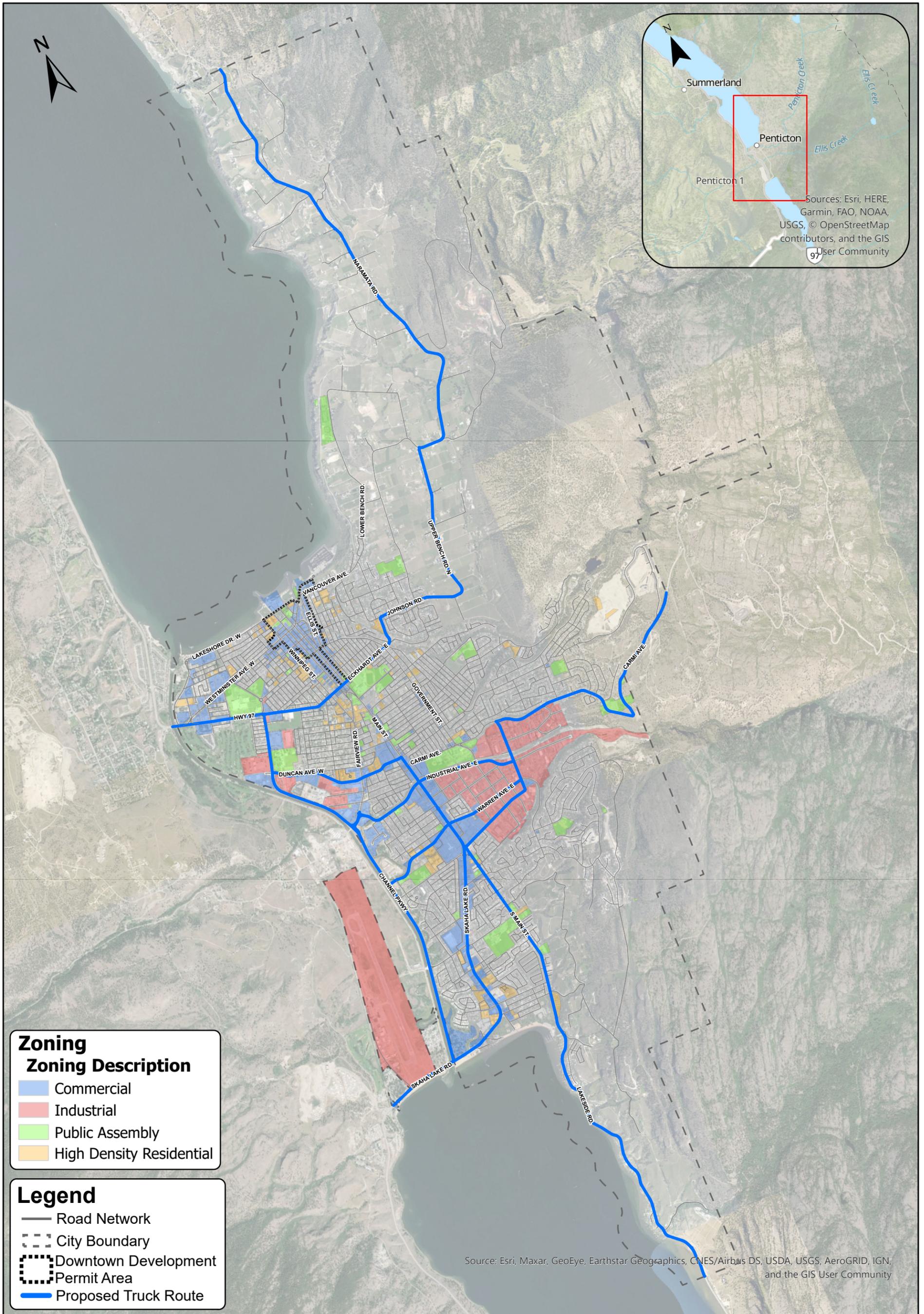
- the City adopt a single category for all truck routes.
- the City limit truck routes to higher-order roadways, such as urban and rural collectors, due to the compatibility between the higher road classification and goods movement function.
- the City refer to the existing Traffic Bylaw and make any required updates prior to undertaking a communications initiative:
  - Consider clarifying the language in the Bylaw about the requirement that, when departing or entering a truck route, trucks take the closest and most direct path to or from their destination.
  - Review whether the exception for trucks carrying fruit from the farm to packing house is still required, or if it is addressed through the closest and most direct route clause.
- the City create public-facing materials such as webpages, brochures and signage to communicate the truck route network and its purpose, and articulate the expectations outlined in the Traffic Bylaw:
  - Develop a signage plan and ensure the truck route network is delineated with road signs prior to conducting any enforcement.
  - Ensure that the rules about taking the closest and most direct path to or from a destination are clearly communicated.
- the City develop an enforcement plan for trucks:
  - Consider administrative costs and staffing.
  - Consider an approach for administering warnings and penalties.

In the spirit of the above recommendations, and in support of the Advisory Group feedback, a proposed amended truck route map is shown in **Figure 6-4**.

This updated truck route map uses many of the previous “Major Access Routes” and provides truck route coverage in only the key commercial and industrial areas to simplify the network. This simplified network relies on continued education and enforcement of the Bylaw requirement that truck drivers take the closest and most direct route from the truck route network to other destinations.

In alignment with feedback from the public and Advisory Group, a truck route is included to connect Highway 97, through Penticton, with Naramata Road. This link has been added to the network to reflect that there is no alternate route to Naramata and to formalize a specific truck route through Penticton to connect to Naramata.

Both Industrial Avenue and Warren Avenue are included as truck routes, between Highway 97 and Dartmouth Road, to provide efficient connections from Highway 97 into the industrial area.



**wsp**

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Client:

**CITY OF Penticton**

**PENTICTON IIMP**

**Figure 6-4**

**Recommended Truck Route Network**

**Integrated Infrastructure Master Plan**

Project No.: **20M-00462-00**

Date: **4/19/2021**

Scale: **1:40,000**

0 50 100 200 Meters

## 6.5 STREET NETWORK/INTERSECTION OPERATIONS

### 6.5.1 INTERSECTION CAPACITY ISSUES AND LOCATIONS

Top traffic capacity mitigation locations were determined exclusively with the Synchro model discussed in the previous section, with the methodology outlined in **Appendix B**. The model was run for existing conditions, 2025, 2030, 2040, and 2045. **Table 6-2** summarizes all intersection improvements, and description of their improvements based on the 2045 model run. The interim horizon year results are used to inform the priority of the intersection projects, which is discussed in **Section 6.10**. All roundabout locations are discussed in the next section.

**TABLE 6-2 INTERSECTION CAPACITY IMPROVEMENTS SUMMARY (2045 HORIZON)**

Intersection ID	Intersection Main Street	Intersection Minor Street	Capital project	Ultimate (2045) Project Description
I-45	Skaha Lake Road	Kinney Avenue	Construction	Redesign to address queuing
I-12	Fairview	Duncan	Construction	2 EBT, NBL, SB 1L, 1T, 1R WBL phase, SBL phase
I-21	Main	Warren	Construction	add EBL WBL and phases
I-22	Government	Eckhardt	Construction	EBR, NBR but bike lane; alignment; ROW probably needed
I-27	Government	Duncan	Construction	4 lane Government; not likely feasible because of ROW and bike lane
I-31	Government	Industrial	Construction	SBR; low feasibility
I-9	Fairview	Industrial	Construction	add NBL, SBL lanes on Fairview and SBL phase
I-15	Atkinson	Industrial	Construction	NB and SB LT lanes
I-20	Main	Duncan	Construction	add EBL, WBL
I-24	S Main	Green	Construction	EBL, SBR (pavement marking), EBL phase. No land acquisition required.
I-17	Skaha	Lee	Construction	2 WB lanes
I-29	Camrose	Warren	limited capital project	signal subject to warrant
I-32	Government	Okanagan	limited capital project	signal subject to warrant
I-37	Dartmouth	Warren	limited capital project	signal subject to warrant
I-35	Dartmouth	Wiltse	limited capital project	Add 2nd WB approach lane (pavement markings)
I-2	Power	Westminster	limited capital project	Change lane configurations to exclusive NBL, SBL
I-26	Government	Penticton	not capital project	Retime pedestrian signal

I-13	Winnipeg	Eckhardt	not capital project	Retime signal
I-14	Martin	Eckhardt	not capital project	Retime signal
I-18	Atkinson	Warren	not capital project	Retime signal
I-19	Main	Calgary / Bennett	not capital project	Retime signal
I-23	Government	Forestbrook	not capital project	signal timing
I-25	Government	Nelson	not capital project	Retime signal
I-30	Government	Carmi	not capital project	Retime signal
I-16	Skaha Lake	Green	not capital project	Retime signal
I-11	Winnipeg	Wade	not capital project	Retime signal
I-33	Government	Warren	not capital project	Retime signal

### 6.5.1.1 HIGHWAY 97 INTERSECTIONS

**TABLE 6-3 HIGHWAY 97 INTERSECTION CAPACITY IMPROVEMENTS (2045 HORIZON)**

<b>Intersection ID</b>	<b>Intersection Main Street</b>	<b>Intersection Minor Street</b>	<b>Capital project</b>	<b>Ultimate (2045) Project Description</b>
I-1	Hwy 97	Westminster	Construction	3rd WBT
I-3	Hwy 97	Duncan	Construction	3rd NBT, SBL phase
I-7	Hwy 97	Skaha Lake	Construction	2 EBL, 1 EBT, 2 SBR
I-41	Hwy 97	Green Mtn	Construction	2 EBL, 2 WBL, 3 NBT, 3 SBT
I-5	Hwy 97	Fairway	limited capital project	Signalize subject to warrants
I-10	Hwy 97	Warren	limited capital project	Signalize with SBL phase subject to warrant
I-43	Hwy 97	Bench Hill	limited capital project	signal subject to warrant
I-44	Hwy 97	Penticton Oliver Hwy	limited capital project	signal subject to warrant
I-42	Hwy 97	Sage Mesa	limited capital project	signal subject to warrant
I-4	Hwy 97	Oakville	not capital project	A signal at Fairway could help this problem with traffic rerouting
I-6	Hwy 97	Eckhardt	not capital project	For future study
I-8	Hwy 97	Green Mtn	not capital project	Retime signal

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## 6.5.2 CORRIDOR SAFETY MITIGATION LOCATIONS

High-collision corridors were also identified as candidates for future study, and the scope of these studies are briefly discussed in the capital project **Section 6.8.4**. Each of the corridors in **Table 6-4**, below, contains a series of intersections with greater than eight casualty collisions between 2014-2018.

**TABLE 6-4 HIGH COLLISION CORRIDORS**

Street Name	From	To
Government Street	Eckhardt Avenue E	Duncan Avenue East
Skaha Lake Road	Kinney Avenue	Channel Parkway
Westminster Avenue	Maple Street	Main Street
Wade Avenue East	Winnipeg Street	Ellis Street
Padmore Avenue West	Martin Street	VanHorne Street
White Avenue West	Martin Street	VanHorne Street
Nanaimo Avenue West	Winnipeg Street	Ellis Street
Eckhardt Avenue West	Winnipeg Street	Ellis Street
Main Street	Full Extents / Limits to be Confirmed through Study	
Highway 97	Full Extents / Limits to be Confirmed through Study	

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## 6.5.3 REVIEW POTENTIAL ROUNDABOUT LOCATIONS:

WSP also reviewed the key locations for proposed roundabouts, namely:

- Johnson Road / Alder Street/Middle Bench Road (currently a pedestrian signal);
- Lower Bench Road / Tupper Avenue;
- Middle Bench Road / Tupper Avenue;
- Upper Bench Road / McMillan Avenue/Naramata Road; and,
- Naramata Road / Reservoir Road.

This section reviews the current layouts, operations, collision history, and geometric considerations to determine if it is recommended to convert these locations to roundabouts.

### 6.5.3.1 CURRENT LAYOUTS

The intersection of Johnson Road / Alder Street / Middle Bench Road is controlled by a pedestrian signal with traffic on Alder Street / Middle Bench Road being controlled by a stop sign. This intersection has been recently upgraded with temporary measures to extend the curbs to narrow the approach to a single lane to reduce vehicular capacity, slow turning speeds and reduce the pedestrian crossing distances.

The last four of these intersections have the through traffic making a 90-degree turn, while the third leg of the intersection faces a stop sign. In each of these cases, the volume of “through” traffic is significantly larger than the volume of traffic entering from the minor leg of the intersection, which is typically relatively low.

### 6.5.3.2 INTERSECTION OPERATIONS

Based on the most recent count data available, each of these intersections operates well from a capacity and delay point of view both based on existing conditions. The same is anticipated to be true based on future projected volumes. All of these intersections currently operate at Level of Service B or better, both now and into the future, indicating that no improvements are needed to increase capacity or to reduce delays.

### 6.5.3.3 COLLISION HISTORY

From 2015 to 2019 (five years) there were six collisions at Johnson Road / Alder Street / Middle Bench Road, while there were 4 at Naramata Road / Reservoir Road, 3 at Upper Bench Road / McMillan Avenue / Naramata Road and none at Middle Bench Road / Tupper Avenue and Lower Bench Road / Tupper Avenue. This indicates that there is not a collision problem as the City's Traffic Safety Strategy flags an intersection or location with more than two collisions per year as one of the triggers for an investigation.

### 6.5.3.4 SIGHT DISTANCES

A concern was raised about sight distances at the four northern locations resulting from the curvature of the route through the intersections. At the three western intersections of Tupper / Lower Bench, Tupper / Middle Bench and McMillan / Upper Bench the posted speed is 50 km/h, but there is a posted advisory speed of 30 km/h. At Naramata / Reservoir there is a posted speed of 50 km/h but no advisory speed. TAC guidelines were review for visibility distances at these speeds. This was done for vehicles turning left or right from the stop control and for vehicle turning left into the stop-controlled leg.

At Tupper / Lower Bench visibility distances are met. It should be noted however, that for traffic turning from Lower Bench Northbound into Tupper, visibility is not available until the vehicle is almost ready to make its turn as a result of landscaping in the inside of the turn.

At Tupper / Middle Bench the sight distances for traffic turning left into Middle Bench are not met for a 50 km/h speed at the advisory speed of 30 km/h. It should be noted that this distance is met at the turning location, but not when a vehicle is in advance of it. There is restricted visibility due to vines on the inside curve of Tupper Road, so left turn visibility into Lower Bench is not available until a vehicle is close to the intersection. Visibility distances are met for the other movements.

At Tupper / Upper Bench Road sight distances are met.

At Naramata Road / Reservoir Road sign distances are met for traffic at the stop sign. For traffic wishing to turn left into Reservoir Road, the visibility is only available when the vehicle is in or near to the intersection, but not a long distance in advance.

### 6.5.3.5 POTENTIAL SIGNALIZATION

A signal is a method of controlling traffic at an intersection, particularly as traffic volumes increase and stop controlled intersections face capacity constraints resulting in delays and queues for traffic facing the stop sign. Based on the available current volumes, a signal warrant analysis would not be met primarily due to the low volume of traffic on the side street and the lack of delays.

The City will consider the implementation of a full signal at Johnson Road / Alder Street / Middle Bench Road in the future.

### 6.5.3.6 ROUNDABOUT REVIEW SUMMARY

A roundabout is another method of controlling traffic but does not have a defined warrant procedure. It is typically compared to a traffic signal when a stop-controlled intersection results in delays or queueing which is not the case here.

A roundabout has some merit at these locations since they would slow through traffic down and would fit with the pattern of "through" traffic not traveling in a straight line.

In general, roundabouts work well with balanced volumes on all approaches. At all of these locations the minor street volumes are low when compared to the through traffic volumes. In these cases, roundabouts are not as desirable.

Roundabouts are a possibility when the approach grade is less than 4%. This is the case at all these locations except for Naramata Road / Reservoir Road where the grade makes a roundabout less desirable.

Based on a preliminary conceptual layout at Lower Bench / Tupper and Middle Bench / Tupper, the construction of roundabouts at the locations would require additional right-of-way.

Based on the above, it is not considered a high priority to convert any of these locations to roundabouts. At the four northern locations these could be considered in the longer term to improve visibility and normalize intersection operations. In the shorter-term geometric changes or removing vegetation and visibility obstructions can be considered to as to improve the visibility for vehicles turning left into the minor streets.

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## 6.5.4 HIGHWAY 97

The following section reviews key intersections along Highway 97 to identify future considerations to accommodate growth along the Highway.

### 6.5.4.1 RAILWAY STREET ACCESS CONTROLS

Railway Avenue between Eckhardt Avenue and Duncan Avenue is a four-lane road with a speed limit of 50 km/h (transitioning to 70 km/h at the south end just north of Duncan Avenue) and no other traffic signals. There are left turn lanes at the intersection of Fairway Avenue. Fairway Avenue serves a single-family residential area to the west and Canadian Tire and a warehouse building to the east. Traffic from both directions on Fairway Avenue faces a stop sign.

On the west side of Railway Avenue between Eckhardt Avenue and Fairway Avenue three lanes (alley) intersect with Railway Avenue. The northern two are right turn exit only controlled by a raised median and no left turn signs. The southern one is exit only with no “no left turn sign” but a painted hatched median. Entering traffic is prohibited by do not enter signs. On the west side south of Fairway Avenue there is another lane that is exit only controlled by do not enter signs, then further south an all-movements driveway. Theoretically left turns are prohibited due to the painted hatched median.

On the east side of Railway Avenue there is a right-in / right-out access to Canadian Tire north of Fairway Avenue as well as a right-in / right-out intersection at Pacific Crescent further north of that.

Access control is reasonable in this area. One area that could be improved is closing the lanes that connect to Railway Avenue since there are a large number of lanes connecting to Highway 97 relative to the number of residences.

Based on the current layout, all left turns to and from Railway Avenue between Eckhardt Avenue and Duncan Avenue take place at Fairway Avenue.

Currently traffic from the east side of the road – Canadian Tire in particular – that wishes to turn left to travel south on Railway Avenue can face long waits for gaps in traffic. The alternative is to turn right and travel north on Railway Avenue, through the Eckhardt signal, make a U-Turn at the roundabout and then travel south. An alternative, depending on the destination would be to travel north on Railway Avenue, east on Eckhardt Avenue and then south on Moosejaw Street then use Duncan Avenue to access Highway 97.

For traffic on the west side of Railway Avenue wanting to travel north, again this traffic can face a long wait. A long around the block route is also possible or the use of Oakville Street (parallel and west of Railway Avenue) to access Eckhardt Avenue; however, traffic will still be delayed at this location. This would be useful for traffic heading directly north or northeast; however, left turns on Eckhardt Avenue can also be difficult so traffic heading northwest or north on Highway 97 would still need to turn left onto the busy Eckhardt Avenue.

At the intersection of Railway Avenue / Eckhardt Street it should be noted that there is a double northbound left turn movement to westbound and a free eastbound to southbound right turn movement (except for the crosswalk) to facilitate these high traffic volume movements that accommodate Highway 97 through traffic.

Intersection analysis show long delays for traffic wanting to turn left out of Fairway Avenue; however, at the moment traffic signal warrants are not met due to the low volume of traffic making these movements. This can be in part due to how difficult it is to make this movement which forces traffic onto alternate more circuitous routes.

Some alternatives at this intersection, including signalization and a roundabout, were discussed with BC MOTI. BC MOTI has confirmed that they will not consider operational improvement of the Fairway Avenue leg of the intersection, as the existing configuration was a condition of the development along the highway. According to BC

MOTI, the only acceptable change in operation of the Fairway Avenue intersection would be to remove the left turn lane at the south intersection and have both Fairway Avenue accesses be restricted to right-in, right-out.

#### 6.5.4.2 SKAHA LAKE RD; CHANNEL PARKWAY TO SKAHA HILLS ACCESS ROAD

The City of Penticton has identified the provision of a cycling facility on Highway 97 between the Channel Parkway and the Skaha Hills residential development access road (**Figure 6-5**) to support the connection of the proposed 'Lake to Lake' bike route to the existing multi-use trail along the west side of the river channel, the existing old railway trail at Wrights Beach Camp, and the growing residential development on Skaha Hills Drive / Penticton Oliver Highway.

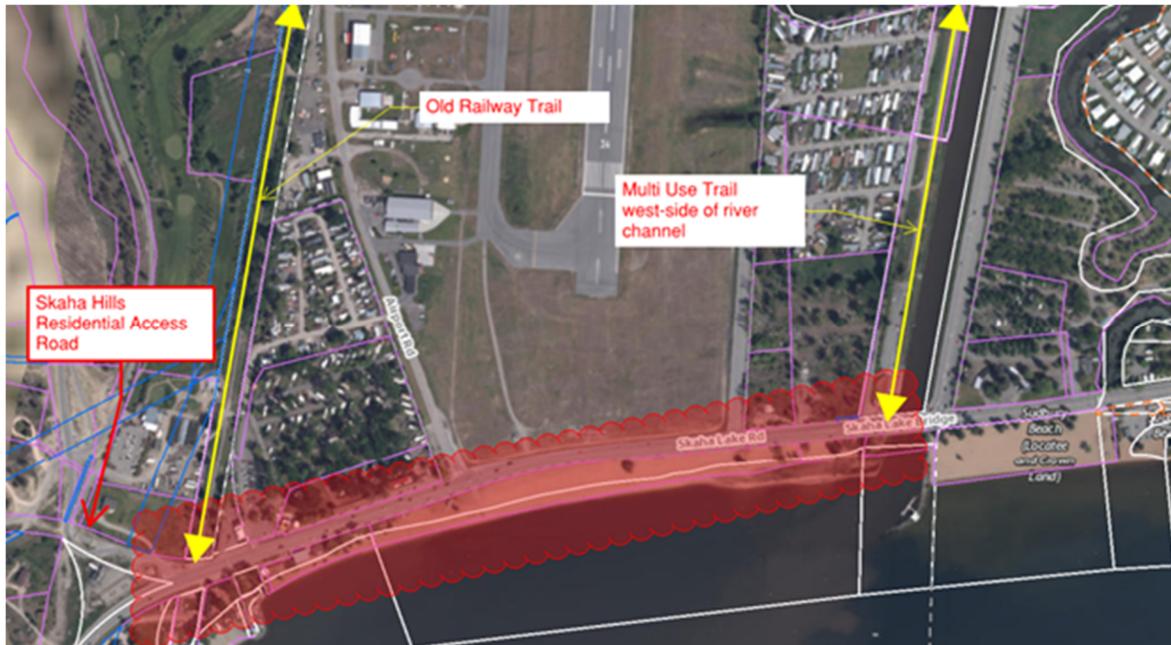


FIGURE 6-5 SKAHA LAKE ROAD STUDY AREA

### Options

WSP completed a review of past corridor studies, traffic counts, site visit and a review of current standards to develop cycling facility options along the corridor. Three different bike facility options were considered along the corridor:

- Multi-Use Pathway;
- Uni-Directional Bike Lanes on both sides; or
- Bi-Directional Bike Lanes.

To accommodate this any new facility, there are two options for the existing right-of-way. To maintain a 4-lane configuration at 60 km/hr posted speed one of the three options above would require property acquisition to widen the ROW. Alternatively, a 3-lane configuration with centre-turning lane and 50 km/hr posted speed could be accommodated within the existing right of way but would reduce current traffic capacity.

### Selection Criteria

Key criteria associated with bike facility selection on Highway 97 between the Channel Parkway and Skaha Hills Residential Development includes:

- Connectivity;
- Safety;

- Available ROW; and,
- Implementation Horizon.

### Facility Review

- Uni-directional protected bike lanes provide the best alignment with long-term bike network plans and support a high-quality ‘Lake to Lake’ bike route but eliminates the opportunity for pedestrian connectivity through the corridor.
- A multi-use pathway would facilitate a connection for both cyclists and pedestrians. The RDOS Regional Trails Master Plan highlights direction to work with PIB landowners to establish right-of-way or beachfront connections through the Locatee lands on north-west side of Skaha Lake as well in order to connect the KVR trail across Highway 97 to the existing trail on the west side of Skaha Lake at Wright’s Beach Camp.

Intersection and driveway / access conflicts will require additional signage and potential signalization to address turning vehicle conflicts. Lane reduction, speed reduction and advanced signage may be required in advance of constrained locations.

Highway 97 between the Skaha Lake Residential Development and Channel Parkway represents an important connection for cyclists and supports the development of a ‘Lake to Lake’ bike route. The highway has a constrained corridor, carries high volumes of vehicles and is a designated truck route. Significant collaboration will be required to implement this facility with the BC Ministry of Transportation and Infrastructure and PIB landowners going forward. Additional studies are recommended to confirm future traffic volumes and determine the viability of roadway reallocation.

### Recommendations

Two options are identified in the short term for further review: multi-use path on the north side of Skaha Lake Road and uni-directional bike lanes in each direction. Both options require a speed reduction from 60 km/hr to 50 km/hr and lane width reduction to 3.4 m is required to maintain a four-lane configuration through the corridor and add bike facilities. A multi-use path on the north side of Skaha Lake Road would include a 3 m multi-use trail and a 2.4 m buffer (composed of jersey barrier and painted buffer). Uni-directional bike lanes would include 1.8 m wide bike lanes in each direction with 0.9 m buffer. Both options reflect constrained dimensions below MOTI standards.

Two options are identified for long term improvements through the corridor for further review which assumes widening to address pedestrian and cyclist needs. Option 1 consists of a 4.5 m bi-directional cycle track on the north side of Skaha Lake Road and wide sidewalks on north and south sides. Option 2 consists of 3 m unidirectional bike lanes on north and south sides with wide sidewalks on north and south sides. Both options should be considered with a speed reduction from 60 km/hr to 50 km/hr and lane width reductions to 3.4 m. Cross-sections are provided in **Section 6.11**. **Appendix E** provides a more detailed summary of analysis for Skaha Lake Road.

### Follow-Up Discussion with BC MOTI:

The cross-sections provided in **Section 6.11** were shared with BC MOTI for high level comments. Initial comments indicate that further concept development and collaboration is required with BC MOTI to address safety and mobility concerns before concept designs may proceed. The design should be reviewed to determine if there is an alternative off highway bicycle network alignment that may be pursued. Other key considerations that are required of concept design include addressing highway / intersection upgrades, design elements that improve the safety of active transportation users, further justification to reduce speed limits and lane reductions.

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## 6.6 TRAFFIC CALMING

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### 6.6.1 RECOMMENDATIONS ON LAKESIDE ROAD AND NARAMATA ROAD

**Appendix C** and **Appendix F** contain a detailed review and recommendations for potential traffic calming measures on Naramata Road and Lakeside Road respectively.

#### 6.6.1.1 NARAMATA ROAD

Naramata Road was evaluated for traffic calming measures, with a focus on speed reduction, narrowing of vehicle lanes, and widening of bike lanes/shoulder areas. In addition to general corridor reviews, five intersection locations were evaluated of Naramata Road with:

- Randolph Road;
- KVR (Poplar Grove Road);
- Three Mile Road;
- Reservoir Road; and,
- Riddle Road.

#### Traffic Calming Evaluation

Naramata Road was confirmed as a candidate for traffic calming based on 85th percentile speed ranged from 62 – 67 km/h north of Randolph Road to 76 km/h north of the KVR crossing. ICBC data indicates casualty collisions at Three Mile Road and Randolph Road. Other casualty collisions seem to be result of intoxication, wildlife (deer) or loss of control due to poor weather conditions. Property damage incidents appear to be a result of wildlife and reversing out of driveways.

#### Recommendations

Given the number of accesses and future provision of cycle facilities, isolated posted speed reductions may be warranted but should be combined with changes to the road environment, enforcement, education and engagement. Narrowing of vehicle lanes and widening of bike lane / shoulder area may be considered together.

The BC MOTI *Active Transportation Design Guide* recommends a 1.8 m wide shoulder for rural roads posted 50 km/hr or less and 5,000 or less vehicles per day. The guidelines also recommend a width of 2.5 m for rural roads with posted speeds of 70km/hr or less. To support a bicycle accessible shoulder, lane widths would need to be reduced to 3.3 m and shoulders would need to be widened to 1.8 m. To support a high-quality, safe active transportation facility, widening is required for Naramata Road North of Evans Road.

The City may wish to consider the cost-benefit of widening Naramata to support a cycle facility given that the KVR Trail runs parallel. There may be value in consider opportunities to add connections from the KVR Trail to key destinations on Naramata.

High-level reviews of the intersections of Naramata Road and Randolph Road, KVR (Poplar Grove Road), Three Mile Road, Reservoir Road and Riddle Road were completed to assess options for traffic calming measures. The addition of a bike facility on Naramata Road was not considered through this assessment.

Sightline obstructions were identified at Randolph Road, Three Mile Road and Riddle Road intersections. Ultimately geometric improvements informed by an in-service safety review is required. The cost-benefit of intersection improvements that may include utility pole relocation and regrading needs to be evaluated. It is recommended that the City improve signage and trim or remove existing landscaping in the short term to improve sight lines and provide drivers advanced warning of key intersections. These intersections should continue to be monitored.

Existing crossing controls at the KVR Trail are in good condition. Although no casualty collisions were reported at this location, speeding is an issue. Traffic calming measures that improve the visibility of the pedestrian crossing and reduce vehicle speeds may be considered.

Reservoir Road, Naramata Road and McMillan Avenue connect through a skewed intersection where there is a history of collisions with one casualty. This location was also highlighted by the City as a potential location for a roundabout. Traffic analysis confirmed that a roundabout was not required at this location to address traffic capacity but may be appropriate to address safety issues. It is recommended that an in-service safety review be completed at this location to confirm short and long-term improvements.

### 6.6.1.2 LAKESIDE ROAD

Driving behaviour and conditions on Lakeside Road warrant design mitigations to reduce speed-risk factors while permitting the road to continue to function as a serviceable access to businesses, residences, and recreational land uses as well as secondary route to Okanagan Falls and points south. Short-term recommendations include road narrowing, addition of pavement markings, improved lighting and signage, introduction of gateway treatments in advance of residential areas and isolated speed reductions through residential areas. Other short-term treatments include the addition of pedestrian actuated crossings at specific locations and convex mirrors to improve the visibility of oncoming vehicles.

Long term improvements for Lakeside Road include the reconstruction of Lakeside Road south of Skaha Marina to provide a dedicated cycle facility. A cycle track/multi-use trail should be considered, either on the road or physically separated with posts, curbs, channel/ditches or barriers. Additionally, a roundabout is recommended at Smythe Road to improve visibility, safety and capacity improvements. Vertical deflections have not been recommended as there are noise-induced effects that may impact local residents and impacts to emergency service response times.

### 6.6.1.3 OTHER LOCATIONS

A summary of potential traffic calming measures for each traffic calming location under review is summarized in **Table 6-5**.

**TABLE 6-5 OTHER POTENTIAL TRAFFIC CALMING RECOMMENDATIONS**

Location	Measure							
	Vertical Deflection	Horizontal Deflection	Road Narrowing	Surface Treatment	Pavement Markings	Access Restriction	Gateways	Emerging Technologies
Johnson Road (Upper Bench Road to Middle Bench Road)	Possible	Y	Y	-	Y	-	Y	Y
Lakeside Road (Lee Avenue to City Limits)*	Possible	Y	Y	Y	Y	-	Y	Y
Naramata Road (City Limits to McMillan Avenue)*	-	Y	Y	Y	Y	-	-	Y
Lower Bench Road (Bankview Road to Tupper Avenue)	Possible	Y	Y	-	Y	-	Y	-
Middle Bench Road (Tupper Avenue to Munson Avenue)	-	Y	Y	-	Y	-	-	Y
Upper Bench Road (Johnson Road to McMillan Avenue)	-	-	Y	-	Y	-	-	Y

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## 6.6.2 GENERAL RECOMMENDATIONS ON UPDATES TO TRANSPORTATION SAFETY POLICY

The Transportation Safety Policy (2016) was compared to the traffic calming process and procedures outlined in the Transportation Association of Canada (TAC) *Canadian Guide to Traffic Calming (2018)* and found to be generally in alignment. Minor differences between the TAC *Canadian Guide to Traffic Calming* and the Transportation Safety Policy includes the application of education and enforcement as a primary step before proceeding with traffic calming and additional criteria to inform traffic calming plans. Suggested modifications to the Transportation Safety Policy are provided below:

- Add a step to identify if education or enforcement may be effective as a primary step before proceeding further with a transportation safety or traffic calming plan;
- Adjust existing criteria:
  - Describe how RCMP and Bylaw Criterion are assessed;
  - Describe how the nature of concern is deemed significant;
  - Consider stratifying collision criterion to consider total collisions and severity including serious injury or fatality versus collisions such as property damage. Collisions involving vulnerable users should also be reviewed as it may inform specific transportation safety or traffic calming responses; and,
  - Consider vehicle volumes and collisions together using an index to inform priority;
- Add other criteria that would be beneficial to evaluate:
  - Land use context (rural, urban, residential, commercial); and,
  - Presence of vulnerable users (volume of cyclists and pedestrians, proximity to senior centres, community centres or childcare centres, pedestrian oriented areas).
- Consider application of traffic calming measures on collector roadways:
  - The TAC *Canadian Guide to Traffic Calming* provides recommendations on urban/rural contexts and applications on Local / Collector or arterial applications. The City may consider delineating appropriate traffic calming measures by local, minor and major collector classifications. An example may be to restrict vertical deflection traffic calming measures such as speed cushions to local road or low volume collectors with no transit or trucks.

In addition to the Transportation Safety Policy the City may consider the development of a Safety Strategy centered on Vision Zero and creating safe systems. Vision Zero refers to a strategy to eliminate all traffic fatalities and severe injuries while increasing safe, healthy, equitable mobility for all. The development of this strategy may further inform measures and criteria that could be applied to the Transportation Safety Policy. Implementation of a safety strategy could also focus on a safety program that reviews annual data and addresses safety issues such as collision or speed hot spots which may ultimately reduce the number of requests received from the public.

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## 6.6.3 GENERAL RECOMMENDATIONS FOR ROAD DIET POLICY

There is the opportunity to incorporate a complete streets approach to roadway design with reconstruction and major rehabilitation projects through a Road Diet Policy. This policy would enable the City to redesign roadways according to the context of the street and add facilities that address multi-modal needs such as sidewalks, public realm improvements or cycle facilities. Road Diet Policies often identify criteria that inform where a road diet may be pursued and strategies that may be considered such as reduction in number of lanes, lane width reduction or removal of on-street parking on one or both sides.

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## 6.7 PARKING

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### 6.7.1 RECOMMENDATIONS FOR A PARKING STRATEGY

The City of Penticton should create a future ready and holistic downtown or core area parking strategy which: considers all of the City's policy levers related to parking, assesses the benefits and costs of parking, and balances the goal of supporting businesses with the goal of encouraging mode shift to walking, cycling and public transit.

In identifying issues and scoping a parking strategy, the City should consider emerging issues such as electric vehicle parking and charging, car share parking, and curbside management.

Some key elements to consider in scoping a parking strategy are provided in **Appendix G**.