VILLAGE OF PEMBERTON

CYCLING NETWORK PLAN

JANUARY 2020 DRAFT

Report Prepared for:

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SECTION 1: INTRODUCTION

The purpose of the Pemberton Cycling Network Plan is to make cycling in Pemberton safe, comfortable, and convenient for residents and visitors of all ages and abilities (AAA). The Cycling Network Plan establishes a long-term vision for cycling in the Village, including identifying the bicycle network and focusing on maintenance, end-of-trip facilities, education, and awareness. It also lays out steps to implement the plan's action items, ultimately helping to increase transportation choices in Pemberton and better connect the Village to the surrounding region.

The Pemberton Cycling Network Plan is divided into four sections. Section 1 provides background on the Village of Pemberton, outlines the benefits of cycling, and explains the planning objectives. Section 2 sets the context, providing key background on demographics, existing policies, and current transportation conditions. Section 3 contains the planning themes and actions, which are divided into four themes: Building and Connecting the Network, Maintenance and Accessibility, End-of-Trip Facilities and Amenities, and Education and Awareness. Finally, Section 4 outlines the Implementation Strategy, which is key for ensuring that the Plan's actions translate into real, on-the-ground results in Pemberton.

The Pemberton Cycling Network Plan was developed with support from the Provincial BikeBC Infrastructure Fund. The implementation of the Cycling Network Plan will improve safety for all road users, improve network accessibility, reduce barriers for people of all ages and abilities, promote multi-modal transportation, and support cycling tourism.

BACKGROUND

The Village of Pemberton is a rural community located in the Sea to Sky Corridor, in the middle of the Squamish-Lillooet Regional District (SLRD). The Village core is small, compact, and connects to a number of existing trails, making it a relatively walkable and bikeable community. There is a strong existing cycling culture in Pemberton, with tourists and locals alike enjoying the Valley Loop Trail, Friendship Trail, and the generally relaxed pace of Pemberton streets.

The Village's natural beauty and topography also support cycling. The valley floor provides relatively flat terrain, while the surrounding mountains provide a stunning backdrop to any cycling trip, with views of the northernmost summit of the Garibaldi Ranges, including Mount Currie. Pemberton is

known as a "Gateway to Adventure" due to its proximity to provincial parks and wilderness, making it popular for young adults and families.

The Village of Pemberton is located within the unceded territory of Líl̓wat Nation and honours the language, culture and history of the Lil'wat7ul. Much of the Líl̓wat Nation reserve land is in and around the community of Mt. Currie. A key objective of this Cycling Network Plan is to prioritize connections to the Friendship Trail to ensure these communities are well connected.

Additional information about the Pemberton community, including demographics and existing cycling conditions, is provided in Section 2.

BENEFITS OF CYCLING

There are a number of reasons to support cycling in Pemberton through the creation of a Cycling Network Plan. Investment in cycling and other forms of active transportation result in a more balanced transportation system—one that is more accessible, cost-effective, and efficient in terms of infrastructure investments. Promoting cycling as an attractive and convenient transportation choice can help reduce automobile dependence, increase physical activity levels, improve public health, reduce infrastructure demands, and create a more livable and vibrant community. Some additional benefits of cycling are outlined below.

Health Benefits: Cycling for transportation and recreation increases physical activity levels, making it an effective way to enhance physical and mental health and build a healthier and happier community. The World Health Organization has identified physical inactivity as one of the main risk factors for global mortality, and as an underlying factor for many chronic diseases. Providing cycling routes with direct access to schools and other community facilities can also help encourage and build cycling skills at a young age, which can promote healthy lifestyles that continue into adult life.

Environmental Benefits: Cycling instead of driving helps reduce congestion, air pollution, and greenhouse gas (GHG) emissions. It also produces virtually no light or noise pollution and may reduce demand for impervious surface area (pavement) through more efficient use of existing road space.

Economic Benefits: Constructing bicycle facilities is less expensive per kilometer than motor vehicle infrastructure. By installing appropriate bicycle facilities, residents are provided a safe, comfortable, and convenient cycling option, reducing vehicle congestion. In turn, fewer motor vehicles on the road

leads to a reduction in infrastructure wear and tear, which reduces the need for additional maintenance on roadways.

Equity: Upgrading cycling facilities can improve equity by providing transportation options for all community members, especially for those residents that do not have access to a motor vehicle. This includes children and youth, some seniors, people that may have a physical disability preventing them from driving, those that do not have access to vehicle or are not interested in driving as a means of regular transportation.

Quality of Life: Communities that support cycling contribute to more vibrant streets, with improved social interactions. Bicycle-friendly communities promote livability, a stronger sense of place, and the freedom of mobility.

Safety: Bikeable communities contribute to a safer overall transportation system by making cycling more visible and through improved cycling infrastructure. Streets that accommodate a cycling network are designed for slower vehicle speeds, provides a safer cycling environment and can reduce the risk of collisions. Furthermore, studies have shown that slower motor vehicle speeds exponentially increase survival rates for people cycling when they are involved in a collision with a motor vehicle. When cycling rates increase, rates of collisions with motor vehicles decrease as a result of the "safety-in-numbers" principle.

PLAN PROCESS

The Village of Pemberton's Cycling Network Plan was created following a five-step process that began in October 2019 and concluded in February 2020. This process is outlined below.

Step One: Assessing the Conditions (October 2019)

Existing cycling facilities, including marked bicycle lanes and bicycle parking locations, were inventoried and assessed based on data and expertise from Village staff. This assessment revealed a lack of on-street bicycle facilities within the Village. However, there is an existing trail network that, although unsigned, offers safe connections to neighborhoods and community facilities. Existing municipal and region-wide policies were also reviewed to ensure the state of cycling in Pemberton was well understood.

Step Two: Day of Learning (October 2019)

The project team facilitated a community bicycle tour with various stakeholders, including Village staff from Public Works, Administration and Planning, Pemberton Valley Trails Association (PVTA), Pemberton Off-Road Cycling Association (PORCA), Squamish-Lillooet Regional District (SLRD), and interested members of the public. This allowed the project team to see firsthand the challenges and barriers facing the Village of Pemberton in regard to cycling infrastructure. The tour also highlighted opportunities for the Village to build on existing trail networks and neighborhood streets to improve the overall connectivity of the proposed network. In the afternoon, stakeholders were invited to join the project team to learn about different types of bicycle facilities, discuss the potential cycling network, and create priorities for implementation.

Step Three: Preparing Draft Network and Policies (November – December 2019)

Once initial input was received from community stakeholders, the cycling network was developed along with policy-focused recommendations. The project team also reviewed best practice resources such as the British Columbia Active Transportation Design Guide and the Transportation Association of Canada's Geometric Design Guide for Canadian Roads to aid in the Plan development process. The proposed cycling network includes high level (Class D) cost estimates for the proposed cycling facility types.

Step Four: Community Engagement (January 2020)

Public engagement will occur following the development of the draft Cycling Network Plan. This will offer residents and interested stakeholders the opportunity to provide comments on the draft Plan. (TO BE COMPLETE FOLLOWING THE VILLAGE'S JANUARY ENGAGEMENT)

Step Five: Finalizing the Network and Policies (February 2020)

This final phase will focus on refining and prioritizing the draft Cycling Network Plan. The project team will consider all suggestions provided in Step Four while finalizing the network and policies contained in the Plan. This step will also include implementation planning, which is key to getting the Plan's recommendations off the ground. (TO BE COMPLETE FOLLOWING THE VILLAGE'S JANUARY ENGAGEMENT)

Plan Objectives

The Cycling Network Plan is intended to make cycling in Pemberton a safe, attractive, and convenient transportation option for people of all ages and abilities. The Plan sets out a number of key objectives, including:

- Providing guidance for the development of a safe, efficient, and comfortable commuter network.
- Improving connections to the recreational cycling network and connecting to the general trail network, which will help to support cycling tourism.
- Connecting community facilities with the greater cycling network, supporting both recreational and commuting trips. This includes identifying safe cycling routes to schools.
- Promoting cycling both within the Village and between Lílwat Nation and surrounding areas by identifying regional cycling connections.
- Integrating cycling facilities with the regional roadway network and transit services, ensuring that different transportation modes function safely and seamlessly.
- Reducing the number of motor vehicle kilometers travelled, in turn reducing traffic congestion and greenhouse gas emissions.
- Identifying policies and procedures for maintenance, installation of end-of-trip facilities, education, and awareness.

SECTION 2: SETTING THE CONTEXT

This section describes the context for the Cycling Network Plan, including community context (demographics, land use, and geography), relevant policies and bylaws, and existing conditions for cycling in the Village. Combined, these elements have shaped the recommended improvement strategies for the Cycling Network Plan.

COMMUNITY CONTEXT

DEMOGRAPHIC CONSIDERATIONS

Pemberton is growing: The Village of Pemberton had a population of 2,574 in 2016, which represents a 5.8% increase over 2011. According to the SLRD Regional Growth Strategy (RGS), Pemberton's population is expected to reach over 4,200 residents by 2036. Pemberton is also the service hub for the surrounding area, including SLRD Area C, which can be considered within a cycling catchment for the Village. According to the RGS the total population of Area C (incorporated municipalities and electoral areas) in 2016 was 1,663 and is expected to experience slight growth to 1,697 by 2036. In addition, the population of Mount Currie in 2016 was 1,285, a slight decrease of 1.6% over the 2011 – 2016 period indicating minimal growth throughout the rest of the Village's cycling catchment area.

Pemberton is a youth-oriented community: According to the 2016 Census, the median age in Pemberton was 36.2 years, which is well below the provincial average of 44 years. Almost 40% of the population is under the age of 29 and nearly 25% of Pemberton's population is under the age of 15. Only 9% of the total population is over 65 years of age – less than half of the provincial average of 20%.

High density urban population: Pemberton has a land area of just more than 61 square kilometers with approximately 41 people per square kilometre. However, considering only Pemberton's population centre, with a population of 1,957 and a population density of 1,745 persons per square kilometer, this high density provides a great foundation for encouraging active transportation both within the community and throughout the region.

LAND USE CONSIDERATIONS

Neighbourhoods: Pemberton is made up of neighbourhoods that provide a range of living environments, from rural agricultural homes to multi-family residences. For the most part, Pemberton's neighbourhoods are medium density, single and multi-family neighborhoods. However, the Village policies support relatively dense development, which is expected to continue within Village boundaries.

Community Amenities and Land Use: The Sea to Sky corridor is a popular year-round destination for tourists accessing world-class recreational terrain. The Village's municipal boundaries are surrounded by vast agricultural lands and areas governed by the SLRD.

GEOGRAPHIC CONSIDERATIONS:

Challenging Topography: Pemberton's geography leads to physical barriers that create mobility challenges for people on bicycles. Pemberton's current neighborhoods and services are located along the valley floor, offering attractive and comfortable cycling opportunities. However, current and future development is occurring in areas where topography and steep grades may create challenges for people cycling between neighbourhoods and other key destinations. However, these areas do offer access to Pemberton's vast trail network, which is an important destination for cycling in Pemberton.

Gaps and Barriers: Highway 99 is a major barrier that runs through the Village. The highway makes it challenging to connect through active means to certain community and regional destinations, including those along the community boundary. In addition to Highway 99, the active CN Rail lines that bisect north-south through the Village present another barrier, especially for active transportation users trying to access the downtown core or the hillside mountain bike trails. The recommended cycling network proposes long-term improved connections across both the highway and rail line. However, it should be noted that addressing these barriers will require a future study. The dykes throughout the Village and region also present barriers. While some dykes host existing trails, connecting to these trails can be complicated from a municipal planning perspective due to jurisdictional challenges with the Pemberton Valley Dyking District being responsible for the dyking system and, with some dyke segments falling on private property. Road jurisdictions can be found in **Appendix A** (Maps).

POLICY FRAMEWORK

LOCAL POLICIES

The Cycling Network Plan is closely linked to and was informed by many of Pemberton's key guiding policies and plans. The following policies, plans, bylaws, and initiatives were reviewed to help inform the development of the Cycling Network Plan.

2011 VILLAGE OF PEMBERTON OFFICIAL COMMUNITY PLAN (OCP)

The OCP encourages multi-modal transportation and promotes "a range of transportation options," stating that "(a)s a compact community, transportation in Pemberton considers movement within the community and to regional destinations." The OCP includes several policies to encourage the community to reduce its automobile dependence in favour of walking, cycling, and transit. Supporting policies also include accommodating the community's mobility needs, barrier-free access throughout the community, increased trail and road connectivity, and expanding legal railway crossings to enhance transportation connections, among others.

2011 PARKS AND OPEN SPACES MASTER PLAN

The Parks and Open Spaces Master Plan provides policy directions, strategies, and recommended actions to improve the Village's Parks and Open Spaces. Many of these recommendations relate to improving connections to park facilities and trail corridors. A supportive action for the development of a cycling network includes expanding an integrated park/trail corridor and open space network. This existing and proposed networks use existing publicly accessible sections of the dyke and, where opportunities arise, acquired dyke land, easements, and right-of-ways to secure public access to waterways, trails, and natural spaces.

Policies also include aligning networks with the Friendship Trail and Valley Loop Trail; expanding the network of hard surface, all season trails to the Downtown from nearby neighbourhoods; and working with SLRD to assist in the development of the Sea to Sky Trail. Each of these actions, and others within the Parks and Open Spaces Master Plan, support the development of a comprehensive cycling network within the Village and connecting to regional destinations.

Zoning Bylaw (Bylaw No. 832, 2018)

The Zoning Bylaw states that all multi-unit residential and mixed-use residential and commercial development shall provide bicycle parking at a rate of 20% of the required vehicle parking. Bicycle parking is an important amenity that makes it easier to use cycling as a convenient and reliable mode of transportation.

2014 Trail Standard Guidelines

The Village's Trail Standards Guidelines address all trail users, including hikers, bikers (recreational and transportation), walkers, dog-walkers, runners, horseback riders, and tourists. Most of the trails are multi-use, meaning that several different user groups may be enjoying the trail at the same time. According to the Pemberton Valley Trails Association, there are eighty-seven (87) trails in the greater Pemberton area, most of which are at least partially within the Village of Pemberton. Of those 87, 83 are recommended for biking, 48 for hiking, and 29 for horseback riding. Consideration of all trail users should remain an important component to planning future cycling infrastructure within the Village.

The Trail Standards Guidelines include a recommended classification system for trails and provide general construction information, such as tread widths, clear widths and heights, and grades. They also suggest appropriate levels of amenities, lighting, and signage. This Cycling Network Plan focuses on cyclist travelling for daily transportation needs as opposed to recreational trail users. As a result, the cycling facility type recommendations do not include recreational pathway types such as single-track trails.

Subdivision and Development Control Bylaw (Bylaw No. 677, 2011)

The regulations outlined within the Subdivision and Development Control Bylaw are intended to provide orderly, safe, and aesthetically pleasing development, preserve the established amenities of the Village, and ensure that subdivisions and developments are appropriately serviced and best suited to their long-term intended use. Currently, this bylaw does not include bicycle facility standards. However, prior to commencing the detailed design process, the bylaw requires that consulting engineers must consult the Village with respect to road classifications, road cross sections, parking, and bicycle lane requirements for all streets in or adjacent to the subdivision. The Village plans to update this bylaw in the near future.

Additional Local Policies

Other Village plans and policies that were reviewed as part of the Cycling Network Plan process included the Downtown Enhancement Strategy, Five-Year Financial Plan, One Mile Lake Master Plan, and Frontier Street Design.

Regional Policies

Regional Growth Strategy

The Regional Growth Strategy (RGS) for the Squamish-Lillooet Regional District (SLRD) is an initiative of the SLRD, the District of Squamish, the Resort Municipality of Whistler, the Village of Pemberton and the District of Lillooet. The purpose of a regional growth strategy under Part 13 of the Local Government Act is to "promote human settlement that is socially, economically, and environmentally healthy and that makes efficient use of public facilities and services, land and other resources."

The RGS includes the mission "to enhance the quality of life of constituents through the facilitation of regional and community services for the benefit of present and future generations. The RGS includes region-wide transportation improvements that includes: seeking opportunities to implement pedestrian/bicycle infrastructure in conjunction with other capital projects, installing 'Share the Road' signage along highways and busy roadways and Highway 99 Cycling Infrastructure Enhancements, expanding bicycle storage facilities, completing the Friendship Trail, and supporting Safe Routes to School programming. In addition, the RGS encourages Complete Streets designs in all new development and road projects, among other recommendations.

Pemberton and Area C Service Area Trails Management Plan

This regional document includes directions from both local jurisdictions (Pemberton and Area C) and identifies key trail improvements or connections that are important to meet community goals. A number of enhancements identified within this Plan are important to developing a cycling network that connects both the Village of Pemberton and the surrounding areas. This includes secured access to proposed parks, public access to local rivers, safe and efficient links between important community nodes, and new trail heads for cycling access. The intended use for existing or planned trails and connections are also included, such as the Valley Loop Routing and rural road routing which considers rural roads and their potential for enhancing or complementing the trail and/or commuting experience.

Additional Regional Policies

The SLRD's Sea to Sky Trail Master Plan, Integrated Sustainability Plan (2013), and the SLRD Regional Growth Strategy (Bylaw 1062, 2008) were also considered as part of the Cycling Network Plan process.

Provincial Considerations

B.C.'s Active Transportation Strategy

"Move. Commute. Connect" is B.C.'s strategy for cleaner, more active transportation, part of the Province's CleanBC Plan to build a better future for all British Columbians.

This Provincial Active Transportation Strategy includes the following goals:

- Double the percentage of trips taken with active transportation by 2030;
- Inspire British Columbians of all ages and abilities to choose active transportation with incentives that encourage active transportation use—like the Scrap-It e-bike rebate, Learn to Ride programs and Active and Safe Routes to School;
- Build on the success of the BikeBC program, so communities can build integrated and accessible active transportation systems that work for all active transportation users; and
- Work together with communities to create policies and plans that enable and support complete active transportation networks across the province.

This strategy also supports several of the Village's goals and, as it is in its earliest stages of implementation, presents opportunities to engage with the Province.

British Columbia Active Transportation Design Guide (2019 Edition)

The British Columbia Active Transportation Design Guide is 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 primary audience for the Design Guide is design professionals in the engineering, planning, landscape architecture, and architecture fields. It may also be a valuable resource for elected officials, community groups, and the general public.

The goals of the Design Guide are:

- To provide a reference that is useful for communities of all types, sizes, and contexts;

- To create consistency in the design of active transportation facilities throughout the province;
- To provide a widely available resource to increase the quality of the design of active transportation facilities throughout B.C. and beyond; and
- To support provincial grant programs with design guidance specific to B.C. to clarify the provincial government's expectations for the design of active transportation facilities.

Some applicable design characteristics from this Design Guide were shared with the stakeholders and Village staff during the Cycling Network Plan's Day of Learning.

CYCLING IN PEMBERTON TODAY

CYCLING MODE SHARE

Based on Journey to Work data from the 2016 Census, approximately 4% of Pemberton residents commute to work and/or school by bicycle. Additionally, conversations with community stakeholders have indicated that people cycle in Pemberton for recreational purposes more frequently than for commuting. This may be in part due to the long-distance nature of many residents' commute; approximately 60% of residents commute to a different census subdivision (beyond the Pemberton population centre). Furthermore, approximately 40% of commuters spend 30-44 minutes commuting. This indicates that many Pemberton residents' daily commute requires them to travel beyond a reasonable cycling distance.

KEY DESTINATIONS

When developing the Cycling Network Plan, it was important to consult the Village's land use designations and to identify key destinations. The key destinations below act as bicycle trip generators and destinations for people of all ages and abilities. A map of land use designations and key destinations can be found in **Appendix A** (Maps).

- Pemberton's Downtown Core
- Signal Hill Elementary
- Pemberton Secondary School
- Pemberton and District Community Centre & Public Library

- Future Recreation Centre and Athletic Fields
- One-Mile Lake
- Business Park
- Recreational Trail Heads
- Key Regional Trail (Friendship Trail, Sea to Sky Trail, and Valley Loop Trail)

EXISTING CYCLING NETWORK

The existing cycling network is made up of a few different types of cycling infrastructure that has been built over the years based off the direction of the existing and previous OCPs, as well as recreation and trails planning. Current cycling facilities (bicycle parking) and active transportation facilities are shown in **Appendix A**. Also included, are off-street pathways and painted accessible shoulders (unsigned) along Portage Road and Highway 99 , and a small section along Mackenzie Basin Forest Service Road.

The Village of Pemberton does not currently contain any on-street cycling facilities under its jurisdiction. The Highway 99 painted bicycle lanes fall under the jurisdiction of the BC Ministry of Transportation and Infrastructure (MOTI) and are therefore not considered to be Village cycling facilities. Still, these highway facilities play a role in connecting the overall cycling network.

Despite the limited network, existing on-street routes, combined with off-street pathways and trails, provide some useful cycling connections. Many of these routes, however, intersect with considerable barriers that are currently either being trespassed upon or offer unsafe cycling access.

Popular routes for on-road recreational cycling can be found in areas surrounding the Village – specifically, along Pemberton Meadows Road, which has posted “ride single file” signage. This route does not offer formal infrastructure to improve the safety of the people cycling but may expand cycling coverage for on-road recreational cyclists. Pemberton does not currently offer cycling facilities that would be considered “all ages and abilities” as described in the following section (Section 3, Planning Themes and Actions).

SECTION 3: PLANNING THEMES AND ACTIONS

The framework of the Cycling Network Plan consists of four overarching themes:

1. **Building and Connecting the Network**
2. **Maintenance and Accessibility**
3. **End-of-Trip Facilities and Amenities**
4. **Education and Awareness**

This section outlines detailed actions related to each theme that will help to improve cycling in Pemberton. The action items under each theme were identified through community group engagement and technical analysis. These actions address a variety of strengths, opportunities, challenges, concerns with cycling infrastructure, policies, standards, and support programs. The implementation of these strategies and actions will support Pemberton in achieving the objectives of the Cycling Network Plan.

The implementation of this Plan will be dependent on financial resources and commitment from partners and stakeholders. While the Plan recommends the implementation of a long-term cycling network and priority projects, it is understood that identified projects and actions are dependent on resources and should be implemented through an opportunistic approach. A variety of funding mechanisms will likely be required for the Plan's implementation. Examples of funding sources have been identified in Section 4.

THEME 1: BUILDING AND CONNECTING THE NETWORK

Communities across North America are increasingly focusing on expanding their bicycle networks to increase levels of cycling. Providing a complete and interconnected network of bicycle routes throughout Pemberton is critical to supporting and encouraging cycling. Providing direct routes that connect to key destinations will ensure that cycling travel times are competitive with automobiles.

Expanding and enhancing Pemberton's bicycle network will require a combination of strategies, ranging from upgrading existing on-street spaces and pathways to addressing safety concerns, connecting gaps, and providing additional bicycle routes. Bicycle facilities should be designed based on best practices and should be comfortable for people of all ages and abilities (AAA).

Expanding and enhancing the cycling network will require operating and maintenance budget increases for items such as snow clearing, vegetation management as well as signage and enforcement by Bylaw and RCMP to ensure reduced, posted limits are enforced. Allocated budget for these types of projects will be required even if grant opportunities are pursued, as contributions from local governments are often required.

ACTION 1.1: PROVIDE A CONTINUOUS BICYCLE NETWORK THROUGH A PHASED IMPLEMENTATION APPROACH

Developing a complete and connected network of bicycle routes is crucial to encouraging more cycling over the long-term. A well-designed cycling network needs to be visible, intuitive, and provide links between destinations and neighbourhoods. Many cities within Canada and internationally have been moving towards providing 'All Ages and Abilities' (AAA) bicycle infrastructure that is safe, comfortable, and attractive for a broad array of users, from children to seniors and everyone in between. These facilities should be comfortable to use for most bicycle users, regardless of their ability and experience.

WHAT ARE ALL AGES AND ABILITIES BICYCLE FACILITIES?

Cycling facilities that are comfortable, convenient, safe, and attractive for everyone, regardless of age or ability, are often referred to as 'All Ages and Abilities', 'AAA', or 'Triple A' facilities. This best practice should be aspired to for all cycling facility design and network implementation. In addition, these facilities should be accessible at all times of day, in all seasons, and in all weather conditions, with maintenance and operations considered at the outset of the planning and design process and on an ongoing basis.

The network should also provide village-wide coverage, ensuring that most residents are within proximity of a designated bicycle facility. In addition, the network should provide direct routes to key destinations such as downtown Pemberton and other commercial destinations, schools, parks and community facilities. Finally, an important component of improving the connectivity of the bicycle network is ensuring that existing routes are high quality and are well integrated into the proposed network.

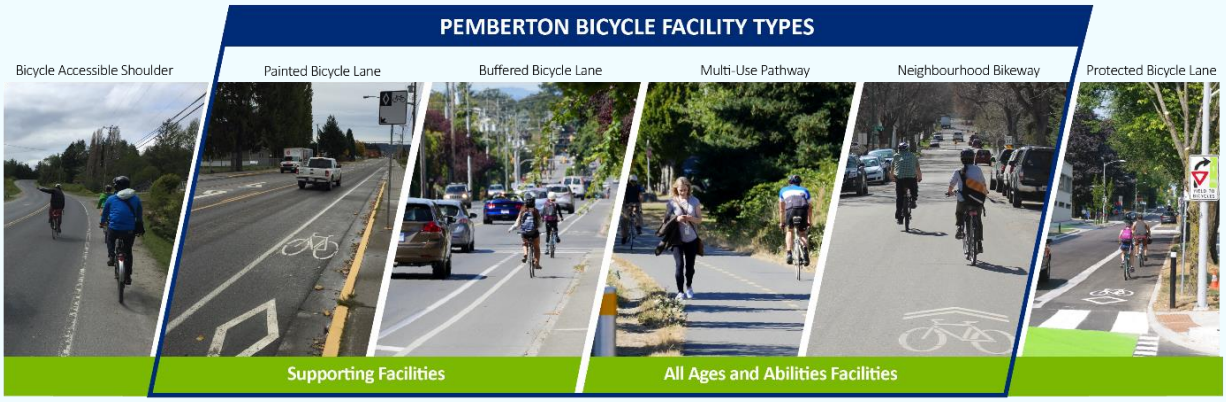
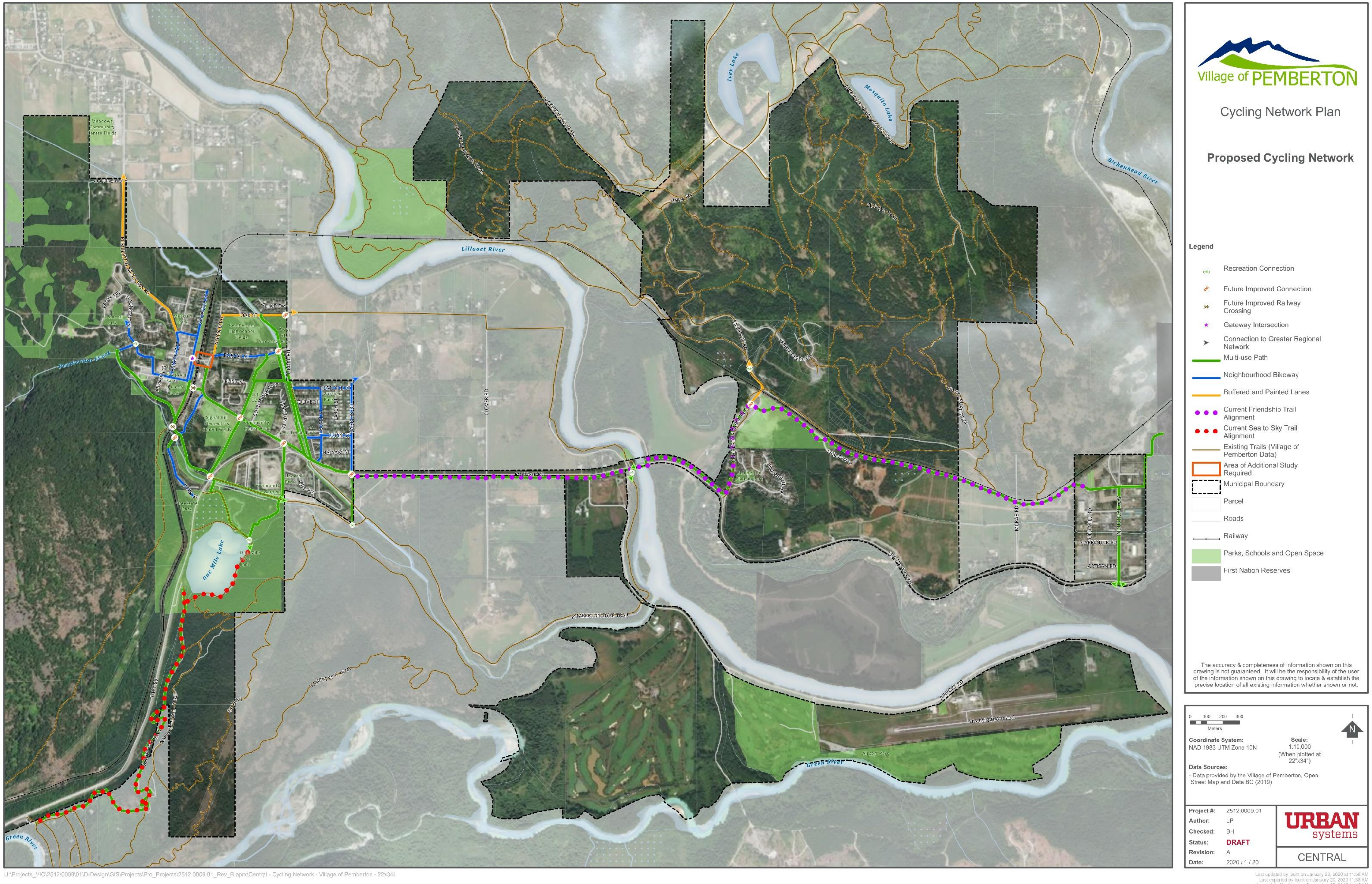


FIGURE 1: RECOMMENDED BICYCLE FACILITY TYPES

Map 1 and **Map 2** present the recommended long-term cycling network for Pemberton. By developing this complete network, the Village is helping to make cycling a competitive and viable transportation option. A key focus of the Cycling Network Plan is to identify opportunities to enhance existing infrastructure to improve comfort, safety and accessibility. Examples of existing popular but informal routes include the trails along Arn Canal, numerous dyke trails, and Poplar Street.


Village of PEMBERTON
Cycling Network Plan
Proposed Cycling Network
Legend
Recreation Connection
Future Improved Connection
Future Improved Railway Crossing
Gateway Intersection
Connection to Greater Regional Network
Multi-use Path
Neighbourhood Bikeway
Buffered and Painted Lanes
Current Friendship Trail Alignment
Current Sea to Sky Trail Alignment
Existing Trails (Village of Pemberton Data)
Area of Additional Study Required
Municipal Boundary
Parcel
Roads
Railway
Parks, Schools and Open Space
First Nation Reserves
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- Data provided by the Village of Pemberton, Open Street Map and Data BC (2019)
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Lillooet River
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Green River
Ivey Lake
Mosquito Lake
One Mile Lake
Pemberton Creek
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PEMBERTON MEADOWS RD
OAK ST
ALDER DR
ASPEN BLVD
FRONTIER ST
POPLAR ST
PROSPECT ST
PIONEER ST
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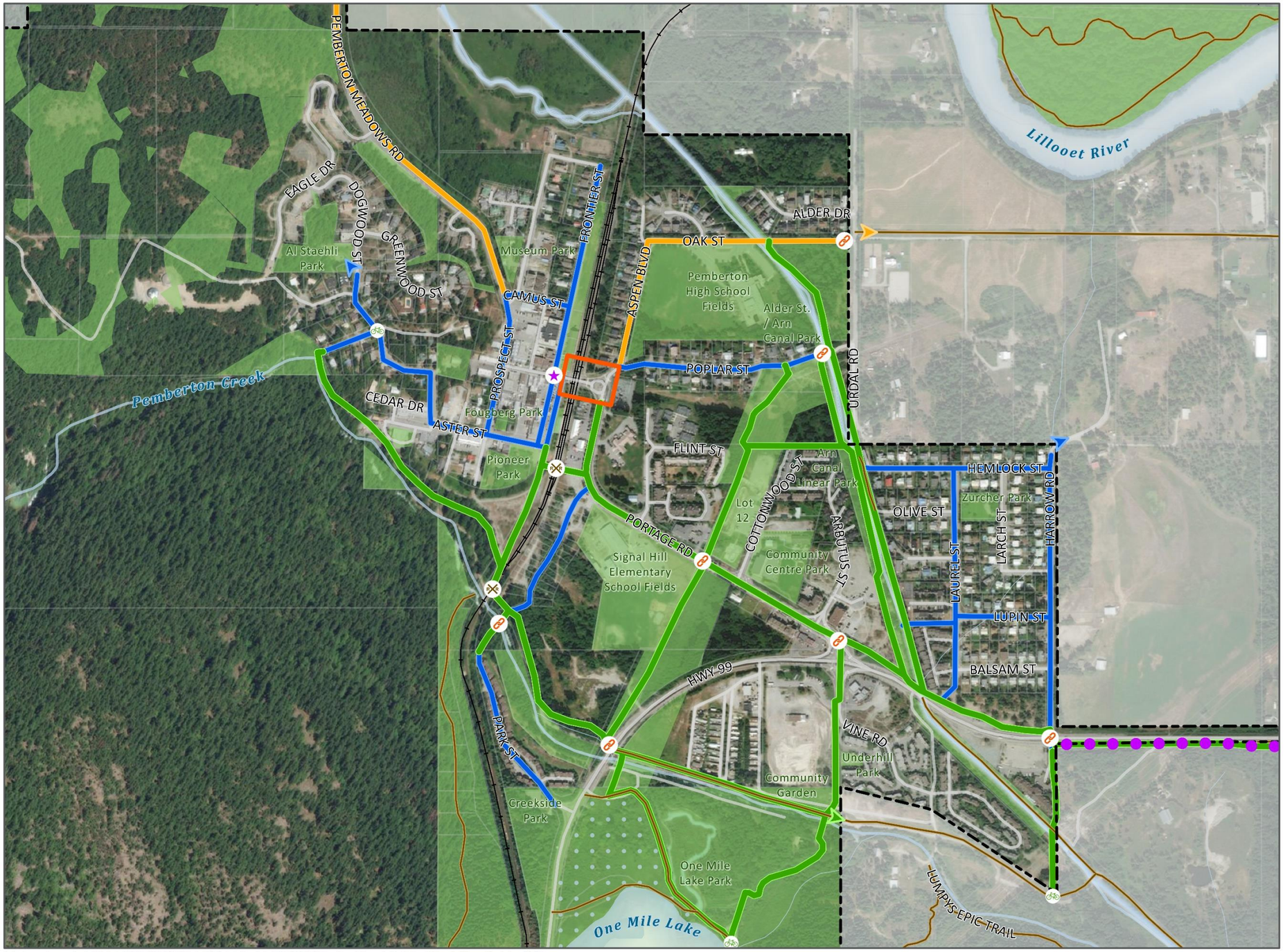
PARK ST
VINE RD
CLOVER RD
PORTAGE RD
PEMBERTON DYKE TRAIL
MCKENZIE BASIN FSR
LOWER MCKENZIE TRAIL
MCKENZIE BASIN ACCESS TRAIL
LINDA RD
MCKENZIE RD
PEBBLE CREEK DR
CREAM PUFF TRAIL
PEMBERTON FARM RD E
PINEWOOD DR
SABRE WAY
SEA TO SKY HWY
MCRAE RD
OLD MILL RD
INDUSTRIAL WAY
CARPENTER RD
ARTISAN RD
AIRPORT RD
YPS RUNWAY 06-24
Airport Park
PWY 99
SEA TO SKY TRAIL
NARIN ONE MILE TRAIL
LUMPYS EPIC TRAIL
Meadows Community Centre Fields
Museum Park
Pemberton High School Fields
Signal Hill Elementary School Fields
Community Centre Park
Underhill Park
Community Garden
Creekside Park
One Mile Lake Park
Pemberton Plateau Park



Village of PEMBERTON

Cycling Network Plan

Proposed Cycling Network

Legend

- Recreation Connection
- Future Improved Connection
- Future Improved Railway Crossing
- Gateway Intersection
- Connection to Greater Regional Network
- Multi-use Path
- Neighbourhood Bikeway
- Buffered and Painted Lanes
- Current Friendship Trail Alignment
- Existing Trails (Village of Pemberton Data)
- Area of Additional Study Required
- Municipal Boundary
- Parcel
- Roads
- Railway
- Parks, Schools and Open Space

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Research conducted by the UBC Cycling in Cities Program suggests that three types of bicycle infrastructure are most effective at increasing ridership: off-street pathways (including Multi-Use Pathways), protected bicycle lanes, and neighbourhood bikeways. These facility types are the most effective because they tend to be the safest and most accommodating, making them attractive to cyclists.

The cycling network map identifies three different bicycle facility types for Pemberton: multi-use pathways, painted or buffered lanes, and neighborhood bikeways.[1] These bicycle facilities are shown and described in further detail below, with details based on the British Columbia Active Transportation Design Guide as described above in Section 2.

Multi-Use Pathways (Off-Street Pathways) are off-street routes that are physically separated from motor vehicle traffic and can be used by any nonmotorized user, including people cycling, walking, skateboarding, and equestrians, among others. Multi-use pathways may also be referred to as off-street pathways or multi-use trails. Typically, multi-use pathways accommodate bi-directional travel for all users. Multi-use pathways can be accommodated in a variety of contexts and can be installed parallel to major roadways such as Highway 99 or Portage Road, within a park, along a linear park or natural feature, along a dyke, or along a utility corridor. Multi-use pathways are typically

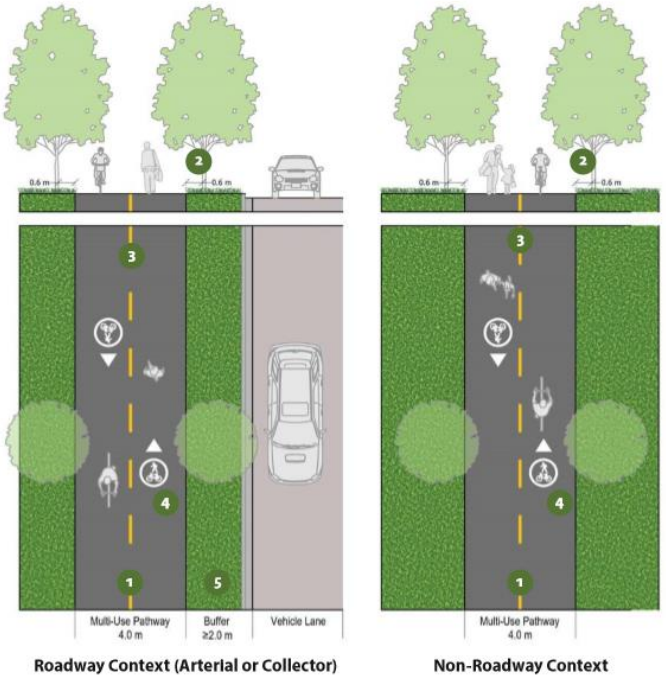


Figure 2:Multi-Use Pathway Cross-Section - Desired Widths and Key Features (Source: BC Active Transportation Design Guide 2019, Chapter E)

[1] Protected bicycle lanes were not included at this time as they tend to be more appropriate in more urban contexts. Off-street pathways serve as a AAA alternative. However, they may be considered in the future.

considered AAA bicycle facilities and are hard surfaced to accommodate all abilities. However, during implementation phasing, often MUPs are hard-packed gravel prior to paving. Care should be taken to mitigate conflicts between active transportation users that are using different modes and travelling at different speeds.

The following features of multi-use paths are highlighted in Figure 2 and are applicable according to the characteristics of each proposed multi-use path such as available widths and align with the Province's design guidelines:

1. Desired width of 4.0 metres
2. Horizontal buffer of 0.6 metres on both sides of pathway
3. Optional dashed directional dividing line striping to separate direction of travel
4. Pavement markings providing guidance for types of users and direction of travel
5. Buffer from motor vehicle travel lanes

Neighborhood Bikeways are streets with low motor vehicle volumes and speeds that have been enhanced to varying degrees to prioritize bicycle traffic. Because vehicle volumes and speeds are relatively low, neighbourhood bikeways can be comfortable facilities for people of all ages and abilities. Neighbourhood bikeways should include signage and pavement markings to raise awareness to all road users that it is a shared facility between people cycling and driving.

Figure 3: Key Features of Neighborhood Bikeways (Source: BC Active Transportation Design Guide 2019, Chapter D)

The following features of neighborhood bikeways are highlighted in Figure 3 and are applicable according to the characteristics of each proposed neighborhood bikeway route such as traffic volumes and posted speeds and align with the Province's design guidelines:

1. Signage and pavement markings
2. Curb extensions acting as traffic calming measures and traffic diversion measures to reduce vehicle speeds and volumes (unlikely to be a factor on Pemberton's proposed neighborhood bikeways)
3. Speed humps to reduce motor vehicle volumes
4. Diversion measures to facilitate bicycle movement and reduce vehicle volumes (unlikely applied within Pemberton)
5. Crossing treatments for people walking and cycling

Buffered and Painted Lanes are separate travel lanes on existing roads designated exclusively for bicycle use that are delineated by a painted line and, in some cases, a painted buffer area. Painted and buffered bicycle lanes allow uni-directional bicycle travel, with bicycle users travelling in the same direction as the adjacent motor vehicle lane. Painted bicycle lanes should not be installed next to on-street motor vehicle parking, as this puts cyclists at risk of 'dooring' (running into the open door of a parked motor vehicle). If bicycle lanes are desired on a street with existing on-street parking, options can include removing (or relocating) the parking, adding a painted buffer between the bicycle lane and the parking to increase separation between users, or considering an alternative corridor or bicycle facility type.

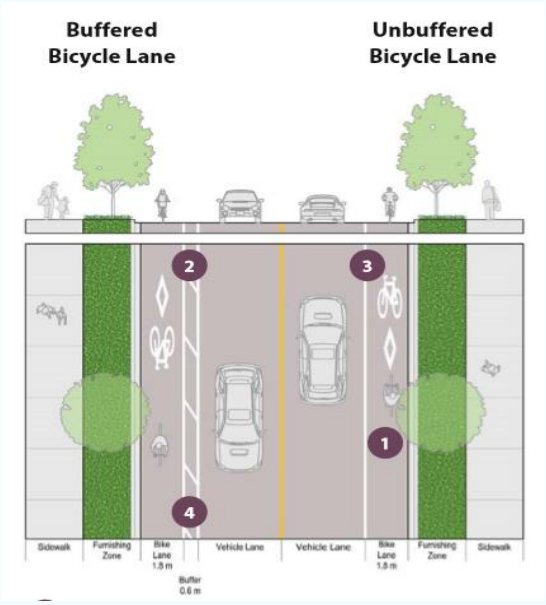


Figure 4: Curbside Bicycle Lane Cross-Section - Desired Widths and Key Features (Source: BC Active Transportation Design Guidelines, Chapter D)

The following features of buffered and unbuffered bicycle lanes are highlighted in Figure 4 and are applicable according to the characteristics of each proposed buffered or painted bicycle lane such as traffic volumes and available roadway widths and align with the Province's design guidelines:

1. Desirable width of 1.8 metres
2. For widths greater than 1.8 metres, provide buffer between motor vehicle lane and bicycle lane
3. 100-200mm solid white longitudinal line
4. If buffer space is provided, diagonal hatch markings can be provided for buffers of at least 0.6 metres

In addition to the above facilities, there are several informal or recreational routes in Pemberton that are used primarily for recreational purposes. These routes have a certain amount of wayfinding signage, but no on-street pavement markings or regulatory signage. This Cycling Network Plan builds upon, and formalizes, these informal cycling routes.

The Pemberton Cycling Network Plan should be implemented using a phased approach, taking advantage of existing infrastructure projects and funding to construct portions of the network. Key gaps and routes connecting important destinations should be prioritized. More information on plan implementation and prioritization can be found in Section 4.

1.2: WORK WITH PARTNERS TO PROVIDE REGIONAL CYCLING CONNECTIONS TO ADJACENT COMMUNITIES

As previously noted, Pemberton is part of the Squamish-Lillooet Regional District (SLRD), with the closest communities being Mt. Currie (7 kilometres to the north) and Whistler (33 kilometres to the south). Líl'wat Nation resides within the SLRD and will be connected to Pemberton by the Friendship Trail, one of two important regional trail systems that connects Pemberton to its regional neighbours. The other regional trail is the Sea to Sky Trail, which begins at the Squamish waterfront and runs 180 kilometres north to D'Arcy. Currently, sections of the Sea to Sky Trail in proximity to urban centres are paved, maintained year-round, and in some cases, lit. The Sea to Sky Trail is an ongoing project.

Continued expansion and improvement to the Sea to Sky and Friendship Trails will be key to improving active transportation and tourism connections to locations outside the Village. Partnerships with neighboring jurisdictions as well as local volunteer organizations are critical to developing these connections. More information about these relationships is outlined in the Pemberton and Area C Service Area Trails Master Plan.

The Village of Pemberton should continue to work with partners to explore opportunities to extend the cycling network into communities and land outside of the Village boundaries. This action ties in closely with strategies outlined in the Trails Master Plan and the proposed off-street pathway routes identified in Map 2. Some of the key partners the Village should work with include the Squamish-Lillooet Regional District, Líl'wat Nation, and the Ministry of Transportation and Infrastructure (for potential cycling connections on highways or adjacent to Ministry infrastructure, as well as intersection improvements).

ACTION 1.3: ENSURE THE CYCLING NETWORK IS SEAMLESSLY INTEGRATED WITH THE TRAILS AND SIDEWALK NETWORKS

The implementation of the Cycling Network Plan will be accomplished through the design and construction of new and upgraded roads and other infrastructure projects. It should be noted that other actions within this Plan can also support cycling, and that capital projects should be implemented through an opportunistic approach and are dependent on available resources. This helps to ensure an efficient and cost-effective process, but it will require collaboration and integration between various internal departments and agencies, as well as external partners. Therefore, it is important that when discussing any new active transportation project in the Village and SLRD, efforts are made to ensure that trails, sidewalks, and multi-use facilities are seamlessly integrated. Additionally, working closely with the Pemberton Valley Trails Association and the Pemberton Off Road Cycling Association will ensure recreational opportunities are aligned and efforts can be capitalized on. This will be critical for the implementation of the Cycling Network Plan.

ACTION 1.4: INCORPORATE BEST PRACTICE BICYCLE FACILITY DESIGN GUIDELINES IN IN FRASTRUCTURE PLANNING AND IMPLEMENTATION

The new British Columbia Active Transportation Design Guide was reviewed throughout the planning process to ensure that best practices were incorporated into the Cycling Network Plan. The Design Guide was developed based on national and international best practices and provides detailed guidance for every step of the cycling network planning process, including corridor selection, facility type selection, and geometric design guidance for designing high quality bicycle facilities and amenities.

Where feasible, the Village should follow the geometric design guidance set out in the BC Active Transportation Design Guide when installing new and/or upgrading bicycle facilities. This will ensure that cycling facilities are planned, designed, and constructed using consistent treatments that have been successfully implemented elsewhere. Additionally, the Pemberton Subdivision and Development Control Bylaw should be updated to incorporate the specific geometric design recommendations for multi-use pathways, neighborhood bikeways, and painted/buffered lanes. Engineering cross sections for new roads should be updated based on these provincial guidelines. In addition, end of trip facilities and bicycle parking requirements as identified in the Village's Zoning Bylaw (No. 832, 2018) should be updated to reflect best practices for bicycle parking.

ACTION 1.5: PRIORITIZE THE SAFETY OF ACTIVE TRANSPORTATION USERS AT INTERSECTIONS AND CROSSINGS

Intersections have the most potential for conflict between motor vehicles and cyclists (and other active transportation users). Crossings – where off-street pathways intersect with a roadway – present similar risks. Intersections and crossings are often the most significant real or perceived barrier to cycling. Therefore, these spaces must be carefully designed to ensure that active transportation users are able to safely navigate from one side to the other.

There are several design principles and considerations that can be applied to increase safety. The British Columbia Active Transportation Design Guide lists six key principles:

1. Design for all ages and abilities
2. Minimize conflicts between users
3. Ensure clarity of right-of-way
4. Reduce speed at conflict points
5. Ensure clear sightlines
6. Make intersection as compact as possible

A variety of design solutions can be applied to address these principles and make it safer for people cycling. This can include geometric design elements such as alignments, profiles, cross-sections, signage, and pavement markings.

Figure 5: Example of a Cross-ride Pavement Marking with Conflict Paint and Cycling Stencils (Vancouver, BC)

Cross-ride markings and conflict zone pavement markings (see image of combined treatments) – two types of pavement markings – are two examples of intersection improvements. The application of green pavement marking does not legally indicate right-of-way, but these surfaces help to raise awareness and visibility of people cycling, making cycling movements more predictable, provide clarity of right-of-way, and guide bicycle users and motorists through conflict zones or complex intersections.

ACTION 1.6: REVIEW DATA COLLECTED BY ICBC AND RCMP TO MONITOR CYCLING COLLISION LOCATIONS AND IDENTIFY SAFETY MITIGATION MEASURES

Every two years, the Village should review safety data to monitor cycling and pedestrian collision locations and identify safety mitigation measures to improve safety. Collision locations refer to locations with a higher concentration of reported collisions or incidents. Collision locations can include on-street corridors as well as specific intersections. Through the identification of collision locations, the Village can develop mitigation measures using engineering, education, or enforcement. When considering ICBC collision data, the only identified collision involving a cyclist was recorded at the roundabout at Portage Road and Aspen Boulevard.

SUMMARY: THEME 1

The actions that have been developed under the theme Build and Connect the Network are summarized below:

ACTION 1.1: PROVIDE A CONTINUOUS BICYCLE NETWORK THROUGH A PHASED IMPLEMENTATION APPROACH

ACTION 1.2: WORK WITH PARTNERS TO PROVIDE REGIONAL CYCLING CONNECTIONS TO ADJACENT COMMUNITIES

ACTION 1.3: ENSURE THE CYCLING NETWORK IS SEAMLESSLY INTEGRATED WITH THE TRAILS AND SIDEWALK NETWORKS

ACTION 1.4: INCORPORATE BEST PRACTICE BICYCLE FACILITY DESIGN GUIDELINES IN INFRASTRUCTURE PLANNING AND IMPLEMENTATION

ACTION 1.5: PRIORITIZE THE SAFETY OF ACTIVE TRANSPORTATION USERS AT INTERSECTIONS AND CROSSINGS

ACTION 1.6: REVIEW DATA COLLECTED BY ICBC AND RCMP TO MONITOR CYCLING COLLISION LOCATIONS AND IDENTIFY SAFETY MITIGATION MEASURES

THEME 2: MAINTENANCE AND ACCESSIBILITY

While the implementation of infrastructure to promote cycling is often viewed as a top priority, undertaking ongoing rehabilitation and maintenance and improving the accessibility of existing infrastructure is a core component of any successful cycling network. Cycling infrastructure should be well maintained and accessible for people of all ages and abilities throughout the year. Poorly maintained infrastructure (including off-street pathways and roadways with bicycle routes), poor pavement quality, and accumulations of water, ice, snow, or debris, can make cycling much more difficult, undesirable, and unsafe. It is important to note that the installation of more facilities – and of certain types of cycling facilities – will have an impact on the Village's operations and maintenance budget. This should be considered and prioritized when approving new capital projects or applying for grants.

ACTION 2.1: DESIGN BICYCLE FACILITIES TO FACILITATE DRAINAGE, SNOW STORAGE, AND SNOW REMOVAL

Unfortunately, painted bicycle lanes often become an area for snow storage and can accumulate gravel, leaves, and other debris. This can be a problem along other types of bicycle facilities as well, forcing people cycling to ride in the motor vehicle lane just to avoid debris, pools of water, or ice. There are several roadway planning and design considerations that can help to mitigate this issue, including:

- Bicycle facility design should proactively consider all-season maintenance, including drainage, street sweeping, and snow storage and removal.
- Ensure drainage issues are addressed at time of construction.
- Plan new or renewed roadways with sufficient right-of-way to provide enough space for a bicycle lane and an adequately sized storage space on the side of the road. This would allow a typical truck-mounted snowplow to plow snow into the storage space rather than the bicycle lane. A 1.8 m bicycle lane would also allow for some narrowing of the bicycle lane due to adjacent snow storage, while still maintaining functionality.
- Provide a wide bicycle lane buffer. Where feasible, a wide protected or unprotected bicycle lane buffer can provide ample storage space for snow, while providing cyclists protection from vehicles. A minimum 0.9 metre buffer is preferable to accommodate moderate snowfall with minimum encroachment upon the bicycle lane. This design would require the use of a smaller bicycle lane snowplow to clear this portion of the roadway.
- Restrict on-street parking during snow events. Where a bicycle lane is located between on-street parking and the vehicular lane, parking along the roadway can be restricted during snow events to allow this space to be used for snow storage. While this is not feasible for all roadways, it could be utilized along priority bicycle routes in the winter. Priority routes may include main east-west or north south connections as well as routes to schools, such as along Aspen Boulevard or Oak Street.
- Provide enough width for small truck snowplows and invest in acquiring vehicles to maintain existing and future off-street pathways and infrastructure in house.
- Where conflict zone markings and other pavement markings are used along the bicycle network, ensure that the pavement markings are properly applied and are well maintained. There are certain strategies that can enhance the lifespan of the pavement

markings throughout the winter months. For example, milling the pavement to a depth of 3 millimetres where thermoplastic pavement markings are applied may reduce damage from snowplows and other maintenance equipment. While this method results in more expensive installation costs, it may reduce long-term maintenance costs and help preserve safety conditions along the roadway.

ACTION 2.2: ENSURE STREETS DESIGNATED AS PART OF THE CYCLING NETWORK ARE MAINTAINED AND KEPT IN GOOD REPAIR

The Village should review road maintenance practices and include considerations of on-street bicycle infrastructure and routes when prioritizing roadway maintenance. This includes painting and resurfacing schedules as well as regular road maintenance, such as street sweeping and snow clearing. The majority of Pemberton's proposed bicycle network is comprised of off-street facilities. It is important to ensure that crossings and access points are well maintained and integrated into maintenance schedules.

ACTION 2.3: ENSURE THE VILLAGE HAS THE EQUIPMENT TO MAINTAIN ALL TYPES OF PROPOSED BICYCLE INFRASTRUCTURE

Currently, the Village uses several types of snow removal equipment depending on the location. Sidewalks are maintained primarily with a Skidsteer, which has a width of 1.8 metres. Roads are cleared using a large truck, plow, and wing (total width of 1.8 metres). In spaces where these clearing methods are not as effective, such as intersections or side roads, a loader will be used. Snow removal along MOTI roads does not require the Village's snow removal equipment, as the route is maintained by the Ministry's contracted services.

Bicycle facilities and other pathways may present challenges related to maintenance, especially if the appropriate equipment is not available. It is recommended that maintenance costs be factored into the approval process when considering potential cycling capital projects.

Maintenance costs will vary significantly based on the design of the bicycle facilities. The costliest facilities to maintain tend to be protected bicycle lanes. This Cycling Network Plan does not recommend this facility type. However, in the event that this type of facility is identified as desirable

in the future, the costs have been identified to highlight the additional maintenance expenditures that should be considered. The costs in ***TABLE 1*** are provided as rough order of magnitude (ROM) costs, as design and scale has not been applied. They are meant to represent possible considerations for increased maintenance demands and are not prescriptive.

TABLE 1: POTENTIAL ANNUAL BICYCLE FACILITY MAINTENANCE COSTS (ROM)

Bicycle Facility Type	Per Kilometer ROW Maintenance Costs	Facility Type Recommended in Pemberton
Painted or buffered bicycle lanes	$270	Yes
Protected bicycle lanes (concrete buffer)*	$630	No
Protected bicycle lanes (plastic delineators)*	$840	No
Multi-Use Pathways	Variable	Yes
Neighborhood Bikeway	Variable	Yes

*Facility type not recommended for Pemberton, potential costs provided for reference only

It is also important to note that maintenance costs could be higher depending on expectations around clearing snow and debris, bicycle facility design, materials used, and the selected routes, as each roadway presents unique challenges for maintenance.

ACTION 2.4: UPDATE THE VILLAGE'S SNOW AND ICE REMOVAL POLICY TO PROVIDE SNOW REMOVAL PROCEDURES FOR BICYCLE INFRASTRUCTURE

Currently, the Village has no requirements for debris, snow, and ice removal on bicycle routes specifically, as the Village does not have any existing municipal bicycle facilities. However, the Village's Snow and Ice Removal Policy outlines priority areas for snow removal. The highest priority snow

removal areas are main streets and sidewalks, school access roads and sidewalks, emergency services, and all intersections as required. Trails are currently the lowest priority, along with snow build up locations. Table 2 lists the on- priority streets that make up the proposed cycling network.

TABLE 2: ON-STREET BICYCLE NETWORK PRIORITY STREETS BY NEIGHBORHOOD (VILLAGE OF PEMBERTON, SNOW REMOVAL AND ICE REMOVAL POLICY)

ON-STREET BICYCLE NETWORK PRIORITY STREETS BY NEIGHBORHOOD (VILLAGE OF PEMBERTON, SNOW REMOVAL)	
STREETS	**AREA**
Prospect Street	Downtown
Aster Street	
Camus Road	
Frontier Street	
Dogwood Street	Benchlands
Hemlock Street to Laurel Street	The Glen
Pemberton Farm Road East	Plateau/Hillside
Sabre Way	
Industrial Way	Industrial Park
SCHOOL ACCESS TRAILS AND PATHWAYS	
Oak Street and Connecting Trail to Alder Drive	
Aspen Boulevard	
Portage Road (sidewalks)	
Arn Canal Trail (east side)	

Current snow removal practices for on-street routes are based on existing roadway snow removal requirements. However, the storage of snow in bicycle lanes can be a safety issue for people cycling. The Village should consider reviewing existing snow removal requirements and providing additional guidance for snow removal specific to the proposed bicycle network and identify a winter cycling network once implementation of the network begins. Routes that are included in the winter cycling network should have available space for snow storage to help facilitate removal. It is ideal that bicycle routes are plowed to bare pavement (0 to 4 centimetres of snow) to the edge of the curb.

SUMMARY: THEME 2

The actions that have been developed under the theme Maintenance and Accessibility are summarized below:

ACTION 2.1: **DESIGN BICYCLE ROUTES TO FACILITATE DRAINAGE, SNOW REMOVAL, AND SNOW STORAGE**

ACTION 2.2: **ENSURE STREETS DESIGNATED AS PART OF THE CYCLING NETWORK ARE MAINTAINED AND KEPT IN GOOD REPAIR**

ACTION 2.3: **ENSURE THE VILLAGE HAS THE EQUIPMENT TO MAINTAIN ALL TYPES OF PROPOSED BICYCLE INFRASTRUCTURE**

ACTION 2.4: **UPDATE THE VILLAGE'S SNOW AND ICE REMOVAL POLICY TO PROVIDE SNOW REMOVAL PROCEDURES FOR BICYCLE INFRASTRUCTURE**

THEME 3: END-OF-TRIP FACILITIES AND AMENITIES

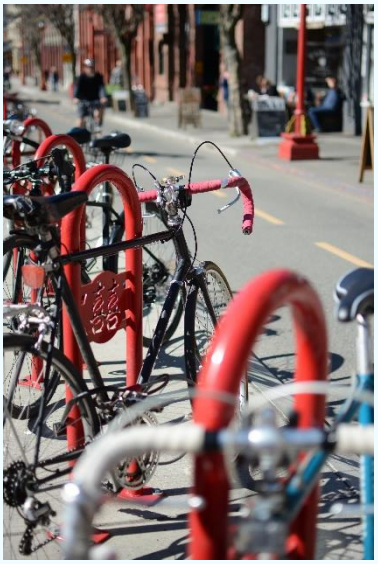
Making cycling convenient focuses on integrating transit and cycling, as well as providing amenities such as bicycle parking and end-of-trip facilities. Investing in these areas will help to make cycling and other forms of active transportation a more practical option for day-to-day transportation needs.

ACTION 3.1: CONSIDER THE PROVISION OF BICYCLE PARKING WITHIN THE PUBLIC RIGHT-OF-WAY AT KEY CYCLING DESTINATIONS

Having safe and secure bicycle parking is critical, as most trips by bicycle require a place to park when the rider reaches their destination. At its most basic, this means locking a bike to something within the street right-of-way. The fear of theft or vandalism is a significant barrier to biking regardless of the cost of an individual's bicycle. However, this may be of particular concern within Pemberton, where many residents have invested in high quality bicycles that are also being used for both transportation and recreation.

There are different types of bicycle parking, each of which is suitable in different situations depending on the duration of the stay and trip purpose. As a result, providing safe and secure bicycle parking at key locations in Pemberton is important for facilitating cycling for various purposes (commuting, errands, tourism, and recreation). There are two primary categories of bicycle parking: short-term and long-term.

Short-Term Bicycle Parking (typically referred to as Class II bicycle parking) often consists of bicycle racks distributed in the public right-of-way in commercial areas and at key destinations. Short-term bicycle parking can take a variety of forms, but the two most user-friendly designs are Inverted 'U' racks and Post-and-Ring racks. Bicycle racks should be located as close to destinations as possible in convenient and highly visible locations. It is desirable to provide a limited number of covered bicycle racks to provide protection from the elements. It also important to install bicycle racks properly using theft-resistant materials, and to position them so as to allow the prescribed number of bicycles to fit against each rack. Examples of inverted U Racks and short-term covered bicycle parking in Victoria and Port Alberni, BC are provided below.



Long-Term Bicycle Parking (typically referred to as Class I bicycle parking) is more secure than short-term bicycle parking. It may include bicycle lockers or larger secure facilities, such as bicycle rooms, bicycle cages, secure bicycle parking areas, or full-service bicycle stations. Long-term parking is generally oriented toward cyclists needing to park a bicycle for an entire day or longer. Major employment areas and multifamily residential buildings are ideally suited to long-term bicycle parking facilities. With the increasing prevalence of electric bicycles, it is also important to provide access to electric outlets for charging bicycles while they are parked. Additionally, a proportion of the bicycle parking spots should be large enough to accommodate non-standard bicycles that are longer or wider, such as cargo bicycles or bicycle with trailers.

The Village should consider the development of a formal program for the installation of bicycle parking at key cycling destinations. These destinations include parks, libraries, and Village businesses, but also within the public right-of-way. When installing short-term bicycle parking on the sidewalk, care should be taken to ensure that a clear pedestrian through zone is maintained – the bicycle rack should not present a barrier or tripping hazard. There are a number of existing documents that provide guidance on the design and placement of bicycle parking, such as the Association of Pedestrian and Bicycle Professionals' Essentials of Bike Parking guide and the British Columbia Active Transportation Design Guide.

The Village may also want to consider a Bike Rack Sponsorship Program. Similar programs have been implemented in other communities across British Columbia. This program would invite individuals, businesses, service clubs, and other organizations to sponsor a bike rack in Pemberton. The Village can then work with sponsors to determine the best location for the bike rack.

ACTION 3.2: REVIEW AND UPDATE REQUIREMENTS FOR SHORT-TERM AND LONG-TERM BICYCLE PARKING AND END-OF-TRIP FACILITIES

According to the Village's Zoning Bylaw, all multi-unit residential and mixed-use residential and commercial developments within Pemberton are required to provide bicycle parking at a rate of 20% of the required vehicle parking. Motor vehicle parking requirements are based on dwelling units and gross floor area. Parking requirements should be reviewed, and changes incorporated to the designated zoning uses and classifications. These requirements should separate out the parking requirements more clearly for short- and long-term bicycle parking requirements. Additional demands for the high quality, end-of-trip facilities are likely as the bicycle network grows.

Other end-of-trip facilities, such as changing rooms, showers, bicycle repair stands, and storage space for equipment can also make cycling more convenient and help build a culture for active transportation. This is particularly important in communities that experience variable weather conditions including rain and snow, as more gear is required at certain times of year.

ACTION 3.3: INVESTIGATE THE PROVISION OF BICYCLE PARKING AT ALL VILLAGE OWNED AND OPERATED FACILITIES

Installing and improving existing bicycle parking and end-of-trip facilities at Village owned and operated buildings can help send a message to residents and businesses that the Village supports cycling as a means of transportation. Continuing these investments can benefit employees, residents, and visitors by providing better access to facilities in Pemberton. This can include the provision of short-term facilities at locations that see a high amount of visitor activity and long-term bicycle parking and other end-of-trip amenities where there are high concentrations of employees or tourists, and where space is available.

Possible locations for short-term facilities include:

- Pemberton Skate and Bike Park
- Pemberton Downtown Community Barn
- Pemberton & District Community Centre

For any future municipal buildings, such as the proposed recreational centre and playing fields, a longer-term end-of-trip facility is recommended to accommodate longer visits and provide protection from the elements. In addition, providing longer-term bicycle parking at any future transit facilities such as proposed park and ride locations, is recommended.

ACTION 3.4: CONSIDER THE ESTABLISHMENT OF A CENTRAL HUB FOR CYCLING

Pemberton's downtown is a hub of activity: being centrally located, it acts as a gateway to many of the area's recreational cycling routes. Establishing a central hub for cycling could include covered, long-term bicycle parking, a bike repair station (example shown), and maps and information regarding the on-street and off-street cycling network as well as other destinations within the region. By expanding this concept, the Village can help to create an area for promoting cycling, sharing information, and combining business, tourism, and transportation interests.

ACTION 3.5: WORK WITH BC TRANSIT TO IDENTIFY OPPORTUNITIES TO IMPROVE BICYCLE-TRANSIT INTEGRATION

Pemberton should work with BC Transit to consider the provision of both short- and long-term bicycle parking at transit stops along the 99 Connector Route. This would help provide a safe and secure place for people to lock up their bicycle if they are travelling the rest of their journey by transit, or if there is no space available on the bike racks on the bus. The Village should also continue to work with BC Transit to look for opportunities to promote the benefits of multi-modal transportation through advertisements and engagement. Exploring future opportunities to increase carrying capacity of

bicycles on BC Transit buses could also be advantageous to encourage commuting by transit and bicycle. This is challenging and would require ongoing work with BC Transit.

SUMMARY: THEME 3

The actions that have been developed under the theme End-of-Trip Facilities and Amenities are summarized below:

ACTION 3.1: CONSIDER PROVISION OF BICYCLE PARKING WITHIN THE PUBLIC RIGHT-OF-WAY AT KEY CYCLING DESTINATIONS

ACTION 3.2: REVIEW AND UPDATE REQUIREMENTS FOR SHORT-TERM AND LONG-TERM BICYCLE PARKING AND END-OF-TRIP FACILITIES

ACTION 3.3: INVESTIGATE THE PROVISION OF BICYCLE PARKING AT ALL VILLAGE OWNED AND OPERATED FACILITIES

ACTION 3.4: CONSIDER THE ESTABLISHMENT OF A CENTRAL HUB FOR CYCLING

ACTION 3.5: WORK WITH BC TRANSIT TO IDENTIFY OPPORTUNITIES TO IMPROVE BICYCLE-TRANSIT INTEGRATION

THEME 4: EDUCATION AND AWARENESS

Although 'hard' measures such as cycling facilities and amenities are critical to encouraging active transportation, a range of 'soft' supporting measures are also recommended to encourage active transportation in Pemberton. These soft measures often include education and encouragement initiatives, which involves advertising the benefits of cycling, giving out information on cycling routes, and providing programs that teach skills and awareness around road safety and cycling. Even recreational cycling courses are beneficial for encouraging active lifestyles and building cycling confidence. Education and encouragement initiatives are important and cost-effective measures to enable residents to feel safe and comfortable cycling throughout the region.

ACTION 4.1: DEVELOP AND IMPLEMENT A CYCLING WAYFINDING PLAN BASED ON BEST PRACTICES

A seamless, consistent, and easy-to-understand Village-wide system of wayfinding signage for cycling is important to make the network easier to navigate. Wayfinding should be simple, easy to read, and provide people cycling with a level of confidence that they are travelling the most efficient and accessible route.

As the Village works to provide more cycling infrastructure, it should consider developing and implementing a wayfinding program and guidelines. This can include a plan for the installation of wayfinding throughout Pemberton as well as agreed-upon protocols for route naming and the identification of destinations, including trailheads and regional connections. Currently, the Village's Trail Standard Guidelines include recommendations for signage and amenities depending on the trail type (including on-street bicycle lanes). Implementing these signage recommendations would support the overall connectivity and convenience of the proposed cycling network and would also benefit tourism.

There are several great examples of wayfinding guidelines the Village can build off, including:

- TransLink's Wayfinding Guidelines for Utility Cycling in Metro Vancouver (specific to cycling, available for free download online);
- District of Tofino Wayfinding Signage Report (for a comparable, recreation focused, small community); and or
- District of Squamish's Community Wayfinding Program Design Strategy.

Pemberton may want to consider partnering with other local organizations to implement a wayfinding program or to provide markers along select routes to improve location identification for emergency response purposes.

ACTION 4.2: DEVELOP AN ONLINE CYCLING NETWORK MAP SHOWING LOCAL ROUTES, REGIONAL CONNECTIONS, AND SIGNED RECREATIONAL ROUTES

The Pemberton Valley Trails Association (PVTA) has developed and distributed maps showing various trail types and other important characteristics for recreational use. It is recommended that as the cycling network is implemented, the Village upload the cycling network to a public GIS mapping tool

to ensure information about the cycling network is easily accessible, printable, and in an easy to read format. This will ensure that people interested in cycling have access to the most accurate network information and can plan their trips accordingly.

The map could also display other information, including key destinations, transit stops, locations for bicycle parking, and bicycle retailers. The Village could consider working in partnership with other organizations or groups to develop and update the map, such as the PVTA.

ACTION 4.3: CONTINUE TO SUPPORT AND DEVELOP CYCLING EDUCATION PROGRAMS

While improving infrastructure can make cycling safer and more attractive, it is also important to ensure that residents have the skills, information, confidence, and support they need to cycle more. There are several education and awareness programs and initiatives that the Village can develop and support with its partners. This can include partnerships with agencies and organizations such as ICBC (i.e. road safety campaigns), RCMP, Vancouver Coastal Health, and local groups and businesses. These partnerships can deliver 'share the road' and road safety campaigns, promote bike or walk to school/work week, and cycling skills workshops. Educational information around active transportation can be delivered through a variety of formats, including an online active transportation webpage on the Village's website, or supporting community groups and recreational programming to help build awareness and bicycle safety skills.

Additionally, the Village can consider developing and maintaining an Active Routes to School program, which improves children's safety as they walk and bicycle to school. The initiative is built on five program elements, typically referred to as the "5 E's" of safe routes to school: engineering, education, encouragement, enforcement, and evaluation. There are sometimes provincial grants available to help fund these types of programs and studies.

ACTION 4.4: CONSIDER THE IMPACT OF CHANGING TECHNOLOGIES AND DIFFERENT USERS ON THE CYCLING NETWORK

The Village should consider the impact of new technologies and the influence they may have on cycling infrastructure. For example, more people are now using electric bicycle (e-bikes), which has implications for bicycle facility design, user conflicts due to variations in speed, and charging requirements. The placement of electric motor vehicle and e-bike charging stations should be considered in future designs and may need to be regulated though Village-wide policies or bylaws.

Ensuring e-bike charging is available at the proposed cycling "hub" would be a great way to incorporate technology into the cycling network. The Village may also want to consider working with a local bike rental business to increase resident and visitor access to e-bikes to visit and tour the Village and the region by bike.

Furthermore, new personal modes of transportation, such as electric scooters and other small, one-person electric vehicles, are beginning to emerge. According to the *BC Motor Vehicle Act*, these devices are not currently permitted to operate on the street network. However, MOTI has recently proposed changes to the *Motor Vehicle Act* that would establish a regulatory framework for these emerging mobility devices.

ACTION 4.5: CONTINUE TO ACTIVELY MARKET AND PROMOTE CYCLING IN PEMBERTON

Village-wide communications through various forums such as radio advertisements, bus shelter advertisements, websites, social media, and other forms of engagement can be effective tools for reaching out to Pemberton residents and potential visitors, increasing awareness and interest in active transportation. The Village should also to support 'Go by Bike' weeks and other initiatives that promote cycling.

ACTION 4.6: CONSIDER THE DEVELOPMENT OF AN ACTIVE TRANSPORTATION ADVISORY COMMITTEE

Through the process of developing the Cycling Network Plan, various stakeholders were identified, and input was requested from representatives from several existing groups, residents, and agencies. This group could form an Active Transportation Advisory Committee, potentially as a sub-committee to an existing Council committee related to health or community safety (if any). The Village should consider creating this committee and convening them to advise on proposed projects, policies, standards, programs, events, and other initiatives to implement the Cycling Network Plan or provide guidance on other active transportation projects.

SUMMARY: THEME 4

The actions that have been developed under the theme Education and Awareness are summarized below:

ACTION 4.1: DEVELOP AND IMPLEMENT A CYCLING WAYFINDING PLAN BASED ON BEST PRACTICES

ACTION 4.2: DEVELOP AN ONLINE CYCLING NETWORK MAP SHOWING LOCAL ROUTES, REGIONAL CONNECTIONS, AND SIGNED RECREATIONAL ROUTES

ACTION 4.3: CONTINUE TO SUPPORT AND DEVELOP CYCLING EDUCATION PROGRAMS

ACTION 4.4: CONSIDER THE IMPACT OF CHANGING TECHNOLOGIES AND DIFFERENT USERS ON THE CYCLING NETWORK

ACTION 4.5: CONTINUE TO ACTIVELY MARKET AND PROMOTE CYCLING IN PEMBERTON

ACTION 4.6: CONSIDER THE DEVELOPMENT OF AN ACTIVE TRANSPORTATION ADVISORY COMMITTEE

SECTION 4: IMPLEMENTATION STRATEGY

The Village of Pemberton's Cycling Network Plan outlines long-term actions that include a variety of projects and policy directions to enhance and encourage cycling within the Village and region. Recognizing that the long-term vision will require significant investment, an Implementation Strategy is required to prioritize improvements and identify priority projects. This Implementation Strategy details the priorities and costs for capital improvements within the Village's jurisdiction that are required for implementation of the Cycling Network Plan. The Implementation Strategy identifies cycling capital projects as a high priority project or a longer-term priority.

The implementation strategy includes order-of-magnitude cost estimates for each capital project based on typical unit costs and recent construction pricing in other similar sized communities in British Columbia. Cost estimates have been provided to identify the relative cost between projects for planning purposes but should not be used for budgeting purposes. Wherever possible, the Village should work with other agencies and levels of governments to establish cost sharing agreements or to seek grant opportunities in order to off-set total project costs. Potential funding opportunities are outlined later in this Section.

It is important to note that the Cycling Network Plan is intended to be a flexible, working, document. For the proposed networks and infrastructure projects, there has been a level of flexibility assigned regarding the specific corridors, facility types, and level of priority that are recommended. These priorities may also change over time. The Village will need to review the feasibility and desirability of each infrastructure project regarding changes to the overall transportation network and as the Village grows and develops.

If an opportunity arises to implement an action or infrastructure project identified as a longer-term priority, such as through a redevelopment or another capital project, the Village should seek to maximize that opportunity. Additionally, the list of projects provided in the Cycling Network Plan is not exhaustive, and the Village recognizes the need to be flexible and adapt to change. Further public consultation is recommended prior to implementing many of the recommendations provided in this Plan in the event that projects could impact neighboring properties or businesses.

STRATEGY / PRIORITIZATION CONTENT FORTHCOMING ONCE NETWORK IS FINALIZED DURING ENGAGEMENT

FUTURE IMPROVED CONNECTIONS

Ten locations for improved connections have been identified. Generally, these proposed connections do not exist or are currently informal and require formalization such as marked crossings, access agreements, pedestrian or cyclist activated crossings and appropriate pavement markings. In some locations, such as Highway 99 and Portage Road a connection exists, yet presents barriers such as undersized pedestrian refuge areas (or cyclist space), is poorly connected to existing trails or pathways, may benefit from increased visibility and added lighting, etc. Other connection improvements are shown where multiple facility types intersect and present opportunities for wayfinding, place making, lighting, and general formalization. Connections generally relate to overcoming a current, previously identified, barrier such as Highway 99, Pemberton Creek, and the existing rail line.

AREA OF ADDITIONAL STUDY REQUIRED

This area is identified as a critical component of the overall cycling network and is currently a location of concern by Village emergency response staff and members of the community. Currently this location offers the only access to the Village's core for both active transportation users and motor vehicles. The proposed cycling network includes a multi-use path along Portage Road, and painted of buffered lanes along Aspen Boulevard. Each of these proposed facilities will meet at this intersection which currently does not offer facilities to accommodate cyclists beyond sharing the existing roundabout which is not considered to be all ages and abilities. The roundabout is under the jurisdiction of MOTI, is in close proximity to an active rail corridor, and presents complex challenges to all users.

A secondary access to the Village core could help alleviate conflicts between road users at this location, however with bicycle facilities implemented leading to, and within this 'area of additional study', the Village should aspire to provide access that does not require cyclists to share the lane with motor vehicles. This may be done through a continuous multi-use pathway along the north side of Portage Road between Aspen Boulevard and Frontier Street which could tie into the Village's Gateway Intersection with an improved active transportation crossing at Aspen Boulevard between Poplar Street and Portage Road to ensure continuous access into the Village Core. Further study is certainly required at this location, as will be early engagement and support from MOTI.

PRIORITIES

Strategies for implementing each of the actions identified in the Cycling Master Plan are summarized in **Appendix B**. This summary provides guidance with respect to:

- **Timeframe:** Each action is identified as either short-term/high-priority (within 5 years), medium-term (within 10 years), or long-term/low priority or requires substantial negotiation for implementation (10 years and beyond). Many actions will be implemented on an ongoing basis, in which case they are shown under each timeframe. It should also be noted that these priorities may change over time and should be adaptable to maximize funding opportunities as they arise.
- **Method of Implementation:** This column identifies how each action will be implemented: as a capital project, through ongoing operations and maintenance, or as a policy or programming initiative.
- **Responsibilities:** This column suggests a leader, partner, or Village department responsible for each action. Many actions have identified the Village and a department as a primarily responsible for these efforts, while some can be supported by external agencies and should be pursued with this in mind.

INTERIM DESIGN STRATEGIES

CONTENT FORTHCOMING ONCE NETWORK IS FINALIZED FOLLOWING ENGAGEMENT

FUNDING STRATEGIES

Implementation costs for the improvements listed in the Village of Pemberton Cycling Network Plan can be greatly reduced by securing external funding sources and partnership opportunities. This section describes some funding strategies and potential funding sources the Village may consider to help leverage its investments and to maximize its ability to implement bicycle network improvements.

The Village should regularly check with all levels of government to keep up to date on current funding opportunities. Pemberton should pursue all available sources of funding for transportation facilities and programs, including the programs identified below (note: as funding opportunities change regularly, the information in this section is subject to change)

GENERAL REVENUES

Wherever possible, the Village should incorporate the recommendations from the Cycling Network Plan into its financial plans to ensure that the projects are accounted for in the Village's capital

planning process. To accommodate this, the Village may seek changes to its capital budget to fund the implementation of this plan over the medium- and long-term. The Village should also seek to integrate transportation improvements with utility projects, parks and trails, or other capital projects.

DEVELOPMENT

The Village should leverage transportation investments through the planning process and rezoning of new development. The implementation of projects in the Cycling Network Plan can be encouraged through a number of developer-funded implementation tools, including: public realm or frontage improvements; Community Amenity Contributions (CACs); density bonusing contributions; and requiring high-quality bicycle parking facilities in the Zoning Bylaw. Using revenues from parking cash in-lieu contributions is another mechanism to fund new active transportation and transit facilities. The Village should also consider formalizing or enhancing policies regarding developer required frontage upgrades (typically within the Subdivision and Development Servicing Bylaw), as well as exploring the opportunities of requesting Community Amenity Contributions on a per unit basis for walking/cycling/transit infrastructure at the rezoning stage.

PROVINCIAL PROGRAMS AND INITIATIVES

The Provincial Government administers the Active Transportation Infrastructure Funding program (previously known as BikeBC). Funded projects promote active transportation to work, school, or errands. Funded projects can also generate tourism-related traffic based on their proximity to amenities and points of interest for tourists, and through linkages to other communities. To ensure maximum success at obtaining grant funding, the Village should have grant-ready concepts pre-developed for application.

The Provincial Government also administers the Rural Dividend Program, which is intended to help rural communities navigate changes to their economies and to recognize their contribution to the economic well being of British Columbia as a whole. The Province is providing $25 million per year for four years to assist communities with fewer than 25,000 residents. The program funds a diverse range of projects that help build community capacity, develop the workforce, and promote community, economic, and business sector development. The Rural Dividend Program is provided through the Ministry of Forests, Lands and Natural Resource Operations (note: intake for this program has been suspended; it is recommended that the Village stay up-to-date).

FEDERAL FUNDING

There are several programs that provide funding for environmental and local transportation infrastructure projects in municipalities across Canada. Typically, the federal government contributes one third of the cost of municipal infrastructure projects. Provincial and municipal governments contribute the remaining funds, and in some instances, there may be private sector investment as well.

GREEN MUNICIPAL FUNDS

The Federation of Canadian Municipalities manages the Green Municipal Fund, with a total allocation of $550 million. This fund is intended to support municipal government efforts to reduce pollution, reduce greenhouse gas emissions, and improve quality of life. The expectation is that knowledge and experience gained in best practices and innovative environmental projects will be applied to national infrastructure projects.

CARBON TAX REBATE

Each municipality that has signed the Climate Action Charter receives an annual rebate based on completion of the CARIP form. As a CARIP community, the Village could choose to direct this funding towards sustainable transportation projects, such as funding bicycle, pedestrian, and transit infrastructure.

ICBC

ICBC provides funding for road improvements, including pedestrian and bicycle infrastructure, particularly where these have the potential to reduce crashes, improve safety, and reduce claims costs to ICBC. Funding is available through ICBC's Road Improvement Program. Other ICBC programs include the Speed Watch Program (through the Community Policing Centres), Speed and Intersection Safety Program, Counter Attack, Operation Red Nose, and Road Sense Speaker Program for Schools.

COMMUNITY SUPPORT AND PROGRAMS

Community groups and local businesses and organizations may also support the implementation of the Cycling Network Plan. Programs such as 'adopt-a-rack', trail maintenance and clean up, as well as bicycle training or celebration events and parades can all be led by interested members of the community. Many corporations also wish to be good corporate neighbours, to be active in the community, and to promote environmentally beneficial causes.

MONITORING

CONTENT FORTHCOMING FOLLOWING ENGAGEMENT

CONCLUSION AND NEXT STEPS

CONTENT FORTHCOMING FOLLOWING ENGAGEMENT AND FINALIZATION

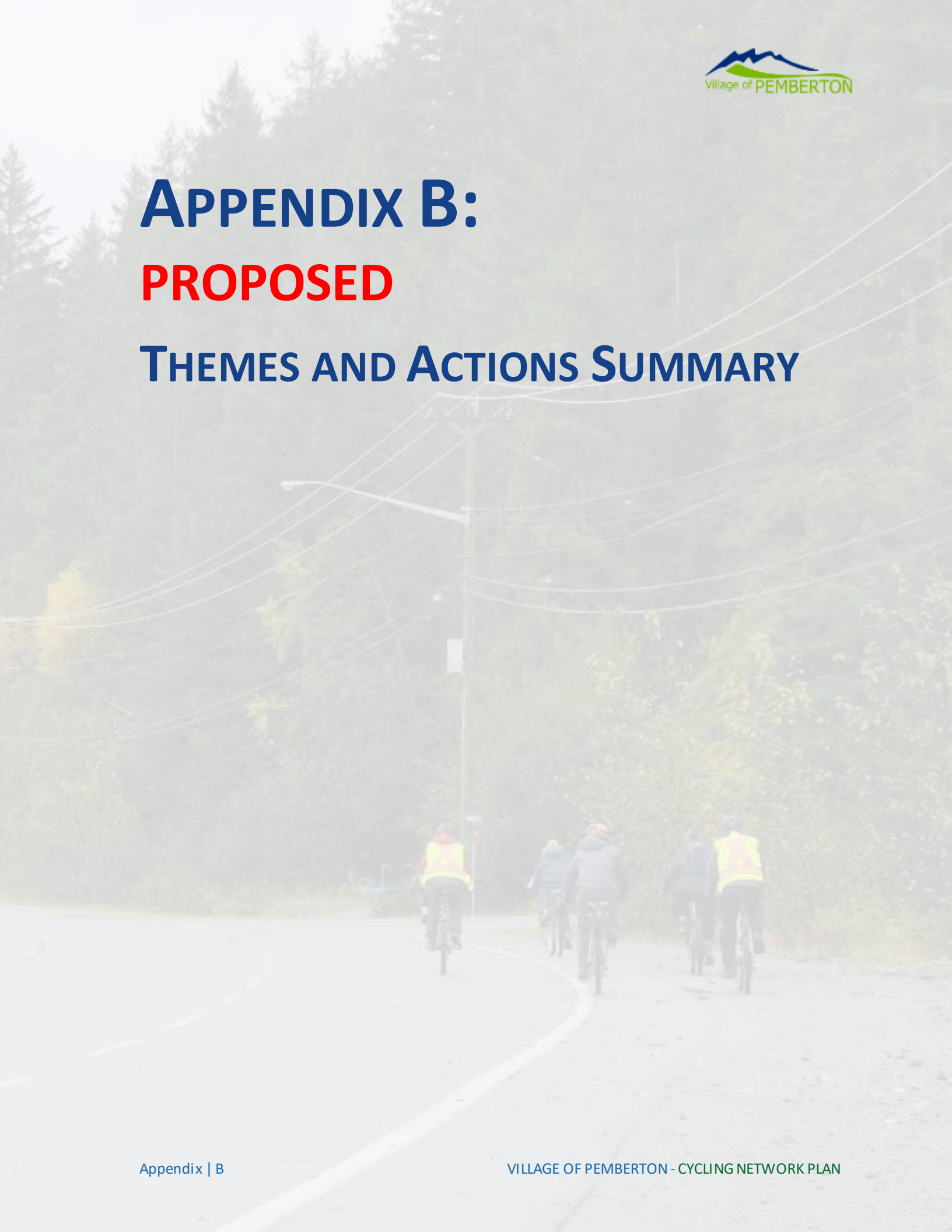
APPENDIX A:

MAPS

APPENDIX B:

PROPOSED

THEMES AND ACTIONS SUMMARY



APPENDIX C:

DETAILED COST ESTIMATES

(DETAILED LIST OF PROPOSED PROJECTS AND COST ESTIMATES)

CONTENT FORTHCOMING FOLLOWING ENGAGEMENT

APPENDIX D:
DAY OF LEARNING PRESENTATION