FINAL REPORT

District of Coldstream

BICYCLE & PEDESTRIAN MASTER PLAN

District of Coldstream

1164.0096.01 / January 2007

URBAN SYSTEMS

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EXECUTIVE SUMMARY

The District of Coldstream recognizes that non-motorized users are an important component of the transportation system. Every trip that is made by foot or bicycle instead of by automobile helps to reduce traffic congestion and vehicle emissions, and helps to achieve a more balanced transportation system. As new development continues to occur within the District, the demand for safe and efficient facilities for bicycles and pedestrians will continue to increase.

In the past, the provision of bicycle and pedestrian facilities within the District of Coldstream has been considered on an ad hoc basis, with upgrades being provided as part of development or public pressure, and with limited consideration for overall network connectivity. A Bicycle and Pedestrian Master Plan will provide the overall vision that is required for the systematic implementation of a safe, feasible and convenient bicycle and pedestrian network. In establishing and implementing a Bicycle and Pedestrian Master Plan, the District of Coldstream can achieve increased walking and cycling trips, improved safety for cyclists and pedestrians, promote recreational cycling and tourism, and respond to community concerns and needs.

The Bicycle and Pedestrian Master Plan not only identifies where facilities should go, but also identifies the types of facilities that are appropriate. It includes the following three components:

1. **Overall Bicycle and Pedestrian Route Network** – The key component of the Bicycle and Pedestrian Master Plan is an overall network of bicycle and pedestrian facilities. This represents the ultimate vision for bicycle and pedestrian facilities within the District of Coldstream, and provides guidance as to where facilities or facility upgrades should be implemented.

2. **Comprehensive Design Guidelines** – As part of the Bicycle and Pedestrian Master Plan, design guidelines applicable to the District of Coldstream were established in order to provide further guidance in the implementation of each type of recommended bicycle and pedestrian facility, based on state-of-the-art guidelines used in other jurisdictions. The design guidelines address a wide range of circumstances, including crossing treatments, and signage and pavement markings. Interim standards are also included for retrofit facilities on existing roads.

3. **Implementation Strategy –** An overall strategy was developed for the successful implementation of the Bicycle and Pedestrian Master Plan, and for the District of Coldstream to work towards achieving the 'ultimate vision' of alternate mode travel within the community. The implementation strategy proposed will allow the District of Coldstream to plan and budget for expected future bicycle and pedestrian facility needs over the planning horizon, and to allow for a more systematic and fair approach to the construction of new facilities.

The existing and proposed Bicycle and Pedestrian Route Network for the District of Coldstream is illustrated in **Appendix C**. The network provides for a set of inter-connected bicycle and walking routes throughout the District of Coldstream. These routes, which include on-street routes, bicycle lanes, multi-use pathways and trails, and community walk-way links, are developed in order to provide direct access to major destinations and recreational areas throughout the District. The Bicycle and Pedestrian Route Network is broken down by facility type (marked wide curb lanes, paved shoulders, bike lanes, shared facilities and off road pathways), indicating where each type of facility is envisioned. A review of key pedestrian locations is also included, with a focus on providing safe crossing facilities for high demand locations such as adjacent to schools or parks.

In developing the Bicycle and Pedestrian Route Network, potential route locations were first identified and then evaluated, working towards a prioritized list of high priority projects. Key locations/issues that were addressed included:

- **Kalamalka Beach Area.** Improving safety for bicycles and pedestrians to and from the beach and surrounding amenities.

- **Middleton Mountain Neighbourhood.** Providing connectivity to and from Middleton Mountain for bicycles and pedestrians, particularly down to parks and schools to the south.

- **Kidston Road.** Providing a space either on or adjacent to Kidston Road for walking and cycling between Kal Park and the residential areas to the south and the remainder of the District of Coldstream.

- **Coldstream Valley Estates**. Providing adequate connectivity across Highway 6 and improving safety for pedestrians and cyclists on Uplands Drive for access o to the neighbourhood.

- **Lavington Area.** Providing connectivity to and from the Lavington Area and the remainder of the District, and improving pedestrian and bicycle access within the area without compromising the rural character.

- **Highway 6**. Improving safety for cyclists along Highway 6, particular in the vicinity of Coldstream Ranch.

- **Coldstream Town Centre Area**. Improving safety for bicycles and pedestrians through and within the busy Town Centre Area.

- **Regional Connectivity.** Providing a network that is seamless at the District boundaries, and provides adequate regional connectivity for alternate mode travel to, from and through the District of Coldstream.

A total of 72 proposed new and/or upgraded bicycle and pedestrian routes were identified within the Plan. Although all of the routes have a role to play in terms of bicycle and pedestrian safety, network connectivity, and user convenience, not all routes can be realistically implemented over a short period of time. Instead, an evaluation process was undertaken to first identify those that are high priority, and secondly, to rank the high priority routes in such a manner to identify the order in which they should be implemented. That way, the District of Coldstream can focus resources first on the routes that will provide the maximum benefit to cycling and walking community. The top 22 projects (ranked as 'high') are summarized in **Table ES-1**, and were provided a ranking based on safety, demand, network function, appeal and implementation feasibility. It is recommended that all of the high priority routes be considered and implemented in advance of proceeding to the medium and lower ranked routes. However, it is noted that opportunities may arise, for example through development, where the implementation of a lower ranked route would be prudent earlier and exceptions can be made.

Table ES.1 – High Priority Routes Evaluation Summary

ROUTE	FACILTY TYPE	RATING					OVERALL RATING	OVERALL RANKING	PROJECT SIZE
		Safety	Demand	Network Function	Appeal	Implementation Feasibility			
	WEIGHTING:	**3**	**2**	**2**	**1**	**2**			
Aberdeen Road (Middleton Dr to Hwy 6)	Paved Shoulders	5	5	5	4	4	**4.7**	**1**	MEDIUM
College Way/Kickwillie Loop Rd (Hwy 97 to Westkal Rd)	Paved Shoulders	5	5	5	3	4	**4.6**	**2**	LARGE
Kalamalka Beach (Kidston Rd to Westkal Rd)	Multi-use Pathway	5	5	4	5	4	**4.6**	**3**	MEDIUM
Westkal Road	Sidewalk and Marked Wide Curb Lanes	5	5	5	4	3	**4.5**	**4**	LARGE
Husband Road (Middleton Way to Kalamalka Lake Rd)	Paved Shoulder and Sidewalk	5	4	5	4	4	**4.5**	**5**	LARGE
Husband Road (off-road connection)	Shared Route and Multi Use Pathway	5	4	5	2	4	**4.3**	**6**	SMALL
Okanagan College to College Way (Off-Road Conenction)	Multi-Use Pathway	5	4	4	4	4	**4.3**	**7**	SMALL
Coldstream Creek Road (Kalamalka Rd to Kidston Rd)	Paved Shoulders or Multi-Use Pathway	4	4	5	4	4	**4.2**	**8**	LARGE
Kidston Road (Kalamalka Rd to Coldstream Creek Rd)	Paved Shoulders	4	4	5	4	4	**4.2**	**9**	MEDIUM
Kidston Road (Coldstream Creek Rd to Kal Park)	Multi-Use Pathway	5	4	5	5	2	**4.2**	**10**	LARGE
Buchanan Road (Aberdeen Rd to Uplands Drive)	Paved Shoulders	4	3	5	4	4	**4**	**11**	MEDIUM
Kalamalka Road (Aberdeen Rd to Hwy 6)	Paved Shoulders	4	3	5	4	4	**4**	**12**	LARGE
Middleton Drive	Paved Shoulders	4	3	5	4	4	**4**	**13**	LARGE
Kalamalka Road (Town Centre Area)	Sidewalks	4	4	3	5	4	**3.9**	**14**	MEDIUM
Connections from Middleton Mountain to Kalamalka Road	Multi-Use Pathways and Shared Route	4	4	5	3	3	**3.9**	**15**	SMALL
Railway (Westkal Rd to Vernon)	Multi-Use Pathway	5	5	2	5	2	**3.8**	**16**	LARGE
College Way (Kickwillie Loop Rd to Reservoir Rd)	Multi-Use Pathway	5	4	3	3	3	**3.8**	**17**	MEDIUM
Middleton Way	Marked Wide Curb Lanes	3	3	4	4	5	**3.7**	**18**	SMALL
School Road (Learmouth Rd to Hwy 6)	Paved Shoulder (west side only)	3	3	4	4	4	**3.5**	**19**	MEDIUM
Uplands Drive (Buchanan Rd to Upper Crestview)	Paved Shoulders	3	3	3	4	4	**3.3**	**20**	MEDIUM
McClounie Road (Coldstream Creek Rd to Kalamalka Rd)	Paved Shoulder (east side)	3	3	3	4	4	**3.3**	**21**	MEDIUM
Uplands Drive (Upper Crestview Drive to Cypress)	Shared Route	2	3	3	3	5	**3.1**	**22**	SMALL

Cost estimates were completed for each of the top 13 routes, with rankings greater than or equal to 4.0, as summarized in **Table ES-2**. These costs are order of magnitude estimates, and are intended to provide guidance for budgeting purposes only. More detailed estimates should be prepared as the proposed routes are advanced to the next phase of design. A contingency of 40% was included in all costs to account for unknowns at this time. Utility impacts, property acquisition, geotechnical and environmental considerations were not considered in these estimates.

The total estimated cost for the top 13 bicycle and pedestrian routes is in the order of $6.4 million (in 2006 dollars). If the upgrades were to be completed over a 10-year period, the resulting expenditure would be in the order of $650,000 per year. It is important to note that the estimate includes upgrading Westkal Road, which is approximately $1.5 million and includes not only widening for a sidewalk and marked wide curb lanes, but includes reconstruction of the entire roadway. It is assumed that this upgrade will be completed regardless of the outcomes of this study. The projects have been classified as either small (<$100,000), Medium ($100,000 - $250,000) and Large (>$250,000) for budgeting purposes.

Table ES.2 – Estimated Costs for High Priority Routes (2006 Dollars)

ROUTE	FACILTY TYPE	OVERALL RANKING	COST ESTIMATE	PROJECT SIZE
Aberdeen Road (Middleton Dr to Hwy 6)	Paved Shoulders	**1**	$195,000	MEDIUM
College Way/Kickwillie Loop Rd (Hwy 97 to Westkal Rd)	Paved Shoulders	**2**	$302,000	LARGE
Kalamalka Beach (Kidston Rd to Westkal Rd)	Multi-use Pathway	**3**	$179,000	MEDIUM
Westkal Road	Sidewalk and Marked Wide Curb Lanes	**4**	$1,485,000	LARGE
Husband Road (Middleton Way to Kalamalka Lake Rd)	Paved Shoulder and Sidewalk	**5**	$403,000	LARGE
Husband Road (off-road connection)	Shared Route and Multi-Use Pathway	**6**	$56,000	SMALL
Okanagan College to College Way (off-road connection)	Multi-use Pathway	**7**	$91,000	SMALL
Coldstream Creek Road (Kalamalka Rd to Kidston Rd)	Paved Shoulders or Multi-Use Pathway	**8**	$1,517,000 (shoulders) $714,000 (path)	LARGE
Kidston Road (Kalamalka Rd to Coldstream Creek Rd)	Paved Shoulders	**9**	$332,000	LARGE
Kidston Road (Coldstream Creek Rd to Kal Park)	Multi-Use Pathway	**10**	$475,000	LARGE
Buchanan Road (Aberdeen Rd to Uplands Drive)	Paved Shoulders	**11**	$502,000	LARGE
Kalamalka Road (Aberdeen Rd to Hwy 6)	Paved Shoulders	**12**	$602,000	LARGE
Middleton Drive	Paved Shoulders	**13**	$314,000	LARGE
TOTAL			**$6,453,000**	

1.0 INTRODUCTION

The District of Coldstream recognizes that non-motorized users are an important component of the transportation system. Every trip that is made by foot or bicycle instead of by automobile helps to reduce traffic congestion and vehicle emissions, and helps to achieve a more balanced transportation system. As new development continues to occur within the District, the demand for safe and efficient facilities for bicycles and pedestrians will continue to increase.

In the past, the provision of bicycle and pedestrian facilities within the District of Coldstream has been considered on an ad hoc basis, with upgrades being provided as part of development or public pressure, and with limited consideration for overall network connectivity. A Bicycle and Pedestrian Master Plan will provide the overall vision that is required for the systematic implementation of a safe, feasible and convenient bicycle and pedestrian network.

There have been several studies/reports undertaken that have touched on the future provision of bicycle and pedestrian facilities in the vicinity of Coldstream. These include the following:

- ***Ribbons of Green, Greater Vernon Trail System (1993)*** – The Ribbons of Green initiative was first formalized in 1993, with the objective of providing an overall vision for "a system of linear parks, pathways and bikeways in Greater Vernon which tie urban areas to parks, natural and scenic areas through "green" forms of recreation and transportation". The focus of the trail system is for recreational uses, and the recommendation is made to consider a separate study to address trail needs of commuters within the Region.

- ***Greater Vernon Parks, Recreation and Culture Master Plan (2004)*** – The purpose of this study was to identify a vision for parks and recreation within the Greater Vernon Area, including recommendations for park acquisition, recreation facilities, trails, beaches, and culture and recreation programs over the next 10 years. Specifically, the report addresses the need for additional off-road trails in the region for cycling and hiking. Several future trail corridors within the District of Coldstream were identified in this study.

- ***District of Coldstream Official Community Plan (2005)*** – The Official Community Plan, updated in 2005, identifies Council's objective to establish a road network that provides for safe and efficient circulation of both vehicular and non-vehicular traffic.

Policies include ensuring adequate bicycle lanes along arterial and collector roads, considering walkways and pathways as a requirement for development, and working towards establishing an overall bicycle network plan.

- ***Major Roadway Network Plan (2003)*** – The Major Roadway Network Plan did not include a review of pedestrian and bicycle facilities. However, the roadway cross-sections identified recommended the incorporation of bicycle and pedestrian facilities based on roadway classification.

The studies that have been undertaken are primarily Regional, or from a high level planning perspective only. While regional interconnectivity is important, the District of Coldstream needs a Plan that is specific to the community's needs, and identifies potential bicycle and pedestrian routes in further detail to establish priority, implementation feasibility and cost implications.

1.1 Why is a Bicycle and Pedestrian Master Plan Needed?

The District of Coldstream recognizes that part of encouraging people to walk or ride their bicycles is providing safe facilities and convenient routes upon which to travel. In establishing and implementing a Bicycle and Pedestrian Master Plan, the following primary objectives can be achieved:

- **Increased Walking and Cycling Trips –** The primary goal of the Bicycle and Pedestrian Master Plan is to increase cycling and walking within the District of Coldstream. Developing more bicycle routes and pedestrian facilities, combined with increased awareness and public education, will encourage non-vehicular travel as a viable mode of transportation within the community, and lead to an increase in the number of walking and cycling trips, and a healthier community.

- **Improved Safety for Cyclists and Pedestrians** – Studies have repeatedly found that the most significant deterrent to cycling as a mode of transportation is "fear of traffic". Similarly, the most significant deterrent to walking is a lack of safe crossings on major roads. Improving safety by providing designated bicycle and pedestrian facilities built to a minimum design standard will help to minimize conflicts between pedestrians, cyclists and other road users.

- **Promote Recreational Cycling and Tourism** – The District of Coldstream is home to several attractive recreational routes, attracting both residents and visitors to the community. A Bicycle and Pedestrian Master Plan will further enhance recreational cycling and walking by providing safe and effective access to popular recreational destinations.

- **Respond to the Community** – Many residents within the District of Coldstream have expressed a desire to improve the environment for both cyclists and pedestrians. The Bicycle and Pedestrian Master Plan responds to issues and opportunities that have been identified by residents with facilities that are safe and convenient, providing direct routes to major destinations.

With a Bicycle and Pedestrian Master Plan in place, the District of Coldstream will have the ability and leverage to work towards these objectives.

1.2 Components of the Plan

The Bicycle and Pedestrian Master Plan not only identifies where facilities should go, but also identifies the types of facilities that are appropriate. The Plan includes an implementation strategy, identifying those facility upgrades that are higher priority and should be considered first. By establishing a Bicycle and Pedestrian Master Plan, the District will ensure the best use of funds and be confident that the most appropriate approach is being taken on a project by project basis.

The Bicycle and Pedestrian Master Plan includes the following three components:

1. **Overall Bicycle and Pedestrian Route Network** – The key component of the Bicycle and Pedestrian Master Plan is an overall network of bicycle and pedestrian facilities. This represents the ultimate vision for bicycle and pedestrian facilities within the District of Coldstream, and provides guidance as to where facilities or facility upgrades should be implemented. The network provides for a set of inter-connected bicycle and walking routes throughout the District of Coldstream. These routes, which include on-street routes, bicycle lanes, multi-use pathways and trails, and community walk-way links, are developed in order to provide direct access to major destinations and recreational areas throughout the District. The Bicycle and Pedestrian Route Network is broken down by facility type (such as bike lanes, shared facilities, and off road pathways, indicating where each type of facility is envisioned. A review of key pedestrian locations is also

included, with a focus on providing safe crossing facilities for high demand locations such as adjacent to schools or parks.

2. **Comprehensive Design Guidelines** – As part of the Bicycle and Pedestrian Master Plan, design guidelines applicable to the District of Coldstream were established in order to provide further guidance in the implementation of each type of recommended bicycle and pedestrian facility, based on state-of-the-art guidelines used in other jurisdictions. The design guidelines address a wide range of circumstances, including crossing treatments, and signage and pavement markings. Interim standards are also included for retrofit facilities on existing roads.

3. **Implementation Strategy** – An overall strategy was developed for the successful implementation of the Bicycle and Pedestrian Master Plan, and for the District of Coldstream to work towards achieving the 'ultimate vision' of alternate mode travel within the community. The implementation strategy proposed will allow the District of Coldstream to plan and budget for expected future bicycle and pedestrian facility needs over the planning horizon, and to allow for a more systematic and fair approach to the construction of new facilities. The Implementation Strategy includes the following:

    - A prioritized list of recommended pedestrian and/or bicycle facility upgrades over the short term, medium term, and long term horizons

    - Order of magnitude cost estimates for the high priority improvements to existing facilities and new facilities/connections

    - Recommendations for supporting programs to increase awareness of cycling and pedestrian facilities and opportunities, to encourage people to walk and cycle, and to educate pedestrians, cyclists and motorists on how to safely share the road.

1.3 How the Plan Was Developed

Consultation was an important part of developing the Bicycle and Pedestrian Master Plan. The Plan was developed through a mix of stakeholder and public consultation, District of Coldstream staff input, and field reviews. The study process is summarized in **Figure 1.1**. The involvement of the public was important in order to ensure a Plan that is acceptable, attractive and meets

the needs of the local residents, who will eventually be the primary users of the bicycle and pedestrian network. In addition, the most efficient way to establish desire lines and routes within, to and from the District of Coldstream is through the users themselves. Community consultation activities were included in the study process as follows:

- **Stakeholder Meeting –** A group stakeholder meeting was held in order to provide special interest groups the opportunity to express their issues and ideas independently from the general public. The following groups were included in this session:

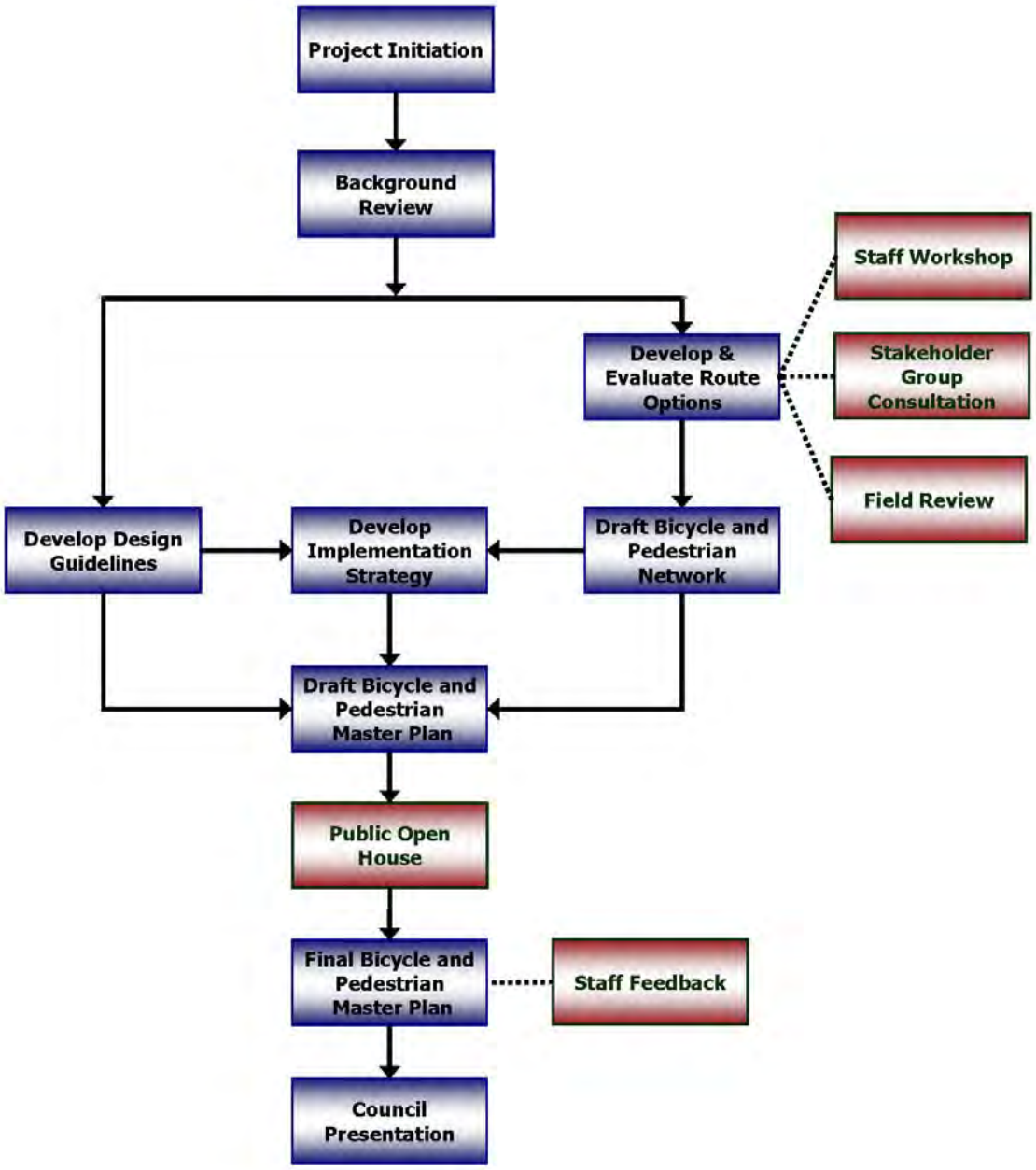
    - Greater Vernon Cycling Advisory Committee
    - Ribbons of Green
    - Schools
    - Vernon Outdoors Club
    - Community Policing
    - Middleton Mountain Neighbourhood Group

- **Public Open House** – A Public Open House was held at the District of Coldstream Municipal Hall where information on the objectives and background of the Plan were presented, and the opportunity for attendees to comment on key issues and route ideas was provided. The attendees were asked to fill out a questionnaire for more formalized input.

In addition to the above noted public consultation, input was also sought from the Regional District Parks Department throughout the study process. The District of Coldstream's Advisory Planning Committee was also included in the consultation process.

Summary notes from the stakeholder meeting, as well as all of the materials from the Public Open House (including a summary of the questionnaire responses) are included in **Appendix A.** Also included is various correspondence from stakeholders and members of the public from throughout the study.

Figure 1.1 – Study Process



2.0 PLANNING FOR BICYCLES AND PEDESTRIANS

In planning for bicycles and pedestrians within the District of Coldstream, two key components were considered: key planning principles to guide the selection and implementation of routes, and the type of bicycle and pedestrian facilities that are appropriate for the community.

2.1 Key Planning Principles

The development of the Bicycle and Pedestrian Master Plan was based on several fundamental principles of bicycle and pedestrian planning, as described below. These principles are based on experience in the District of Coldstream as well as communities in British Columbia and across North America, and are consistent with current planning practices.

- **Crossing treatments are essential.** Locations where pedestrians cross arterial and collector roads are where the majority of collisions occur between motor vehicles and pedestrians. To maximize safety for pedestrians, and to avoid creating barriers to walking within Coldstream, a range of crossing treatments should be used at arterial and collector road crossings.

- **The bicycle network should accommodate all cyclists.** This means cyclists of all skill levels, riding for all purposes. This includes children and adults, novice and experienced cyclists. It includes cyclists commuting to work and school, cyclists riding to the store or a medical appointment, for example, and recreational cyclists, including mountain bikers riding to trails.

- **Cyclists should be accommodated on roadways where possible.** This means that unless it is extremely difficult to do so, space should be provided for cyclists on all arterial and collector roads. This approach recognizes that cyclists fare best when they are treated as vehicles and integrated with other vehicle traffic. Studies of crashes and safety issues indicate that cyclists are generally safer riding on roadways than on pathways. The reason for this is that cyclists share pathways with pedestrians and many other types of users, which can increase the potential for conflicts and crashes. In addition to safety considerations, travel times for cyclists are typically minimized when cyclists travel on roadways.

- **Bicycle and pedestrian routes should form a continuous network,** using local streets where appropriate to bridge gaps in the network. Many cyclists who are attracted to pathways are cyclists who would not be comfortable riding on arterial or collector roads. Recognizing this, these cyclists should be able to ride to destinations throughout the District of Coldstream on a combination of pathways and local streets, without the need to travel along arterial and collector roads. Although local streets may be used to complete gaps in the pathway network, desirably a continuous pathway connection should be provided.

- **The pedestrian and bicycle network should serve all important destinations.** Just as the road network provides access to commercial, office, institutional, cultural and recreational destinations throughout the community, so should the bicycle and pedestrian network. Desirably, each important destination is served by an on-street bicycle route and a walkway/pathway connection.

- **The "quality" of the walking and cycling experience is important.** The "quality" of the cycling and walking experience is determined by perceptions of safety, traffic volumes, noise and aesthetics. Although providing a direct route and avoiding steep grades are important, some pedestrians and cyclists will prefer a longer route or one with steeper grades if it is perceived as significantly safer, has lower traffic volumes, and provides a more enjoyable walking and cycling experience.

- **Facilities should be developed to an acceptable standard.** No-one would consider constructing a road to be used by motor vehicles with lane widths narrower than the minimum standard, or without traffic signals at major intersections, for example. The road would not be safe. For the same reason, pedestrian and bicycle facilities should not be constructed to less than the minimum standard — they would not be safe, either. Constructing bicycle and pedestrian facilities to acceptable standards maximizes safety for pedestrians and cyclists, increases the attraction of the bicycle and pedestrian facilities to potential pedestrians and cyclists, minimizes maintenance costs and helps to avoid expensive liability claims.

2.2 Types of Bicycle and Pedestrian Facilities

Within the Bicycle and Pedestrian Master Plan, specific types of facilities were considered, that are reflective of the character and nature of the roadways within the District of Coldstream, as well as the interests and needs of the potential users. The bicycle facilities recommended for implementation within the District of Coldstream include 'on-street' (part of the roadway network), and 'off-street' (separate from the roadway network) facilities. Also discussed here are pedestrian facilities, and crossing treatments.

2.2.1 On-Street Facilities

On-street facilities are those that are located on roadways. These include shared routes, marked wide curb lanes, bicycle lanes and paved shoulders, as described below. **Appendix B** summarizes specific design guidelines for various on-street facilities.

Shared Routes

Shared routes are typically applicable on low traffic volume roads such as local streets and lower-volume collector roads. When traffic volumes and speeds are generally low, cyclists and motorists are able to safely share the road without the need for physical improvements to the roadway. In most case, the only improvement needed is signage identifying the road as a bicycle route and alerting motorists to the presence of cyclists on the road. No additional road space is provided for pedestrians or cyclists. Traffic calming measures such as traffic circles, speed humps and obstructions can be used to reduce motor vehicle speeds and volumes on shared routes if needed.

Shared routes are applicable within the District of Coldstream due to the high number of local streets with low traffic volumes. They have the added benefit of being low cost and low maintenance. Shared routes can be successfully implemented on many existing roads, in particular on residential streets.

Marked Wide Curb Lanes

A marked wide curb lane is essentially a wide travel lane, with the addition of bicycle lane symbols marked on the pavement at regular intervals. The symbols identify the right side of the lane as the area used by bicycles, and serve to alert motorists to the potential presence of bicycles even when there are no bicycles on the roads. Because an area of the roadway is identified for bicycle use, marked wide curb lanes are attractive to cyclists who are uncomfortable riding in traffic and feel the need for an identified bicycle facility.

Marked wide curb lanes do not include a white line separating bicycles from other traffic, which means cyclists may travel in the lane where they feel most comfortable. Many motorists – and even cyclists – interpret the white line of a bicycle lane to mean that cyclists are confined to the bicycle lane. With marked wide curb lanes, on the other hand, motorists and cyclists both recognize that cyclists are free to ride elsewhere on the roadway as necessary (such as to make a left turn, avoid an obstacle such as a parked car, or when traveling through an intersection). Marked wide curb lanes are typically utilized on roads with low to medium traffic volumes, where on-street parking, frequent transit stops, or large proportions of turning vehicles exist. Lanes are 4.3 m wide for vehicles and cyclists to share which allows for vehicles to safely overtake cyclists without having to cross into adjacent lanes.

Paved Shoulders

On rural arterial and collector roads without curb and gutter, bicycles and pedestrians may travel on the paved shoulder. Paved shoulders are a shared facility, and must provide adequate width for both pedestrians and cyclists. A minimum width of 1.5 metres is recommended. Paved shoulders may be signed and/or have stencils but this is not

necessary. Within the District of Coldstream, particular attention must be made to ensure that parking is prohibited on the paved shoulders dedicated to pedestrian and bicycle use, and that the shoulders are maintained throughout the year.

Bicycle Lanes

Bicycle Lanes are separate travel lanes designated for the exclusive use of bicycles only on urban roads where there is curb and gutter. In most cases, they are located on the right-hand side of the road, adjacent the curb. In general, bicycle lanes are preferred for roadways that have higher volumes, higher speeds, no on-street parking and limited driveway and/or bus service. The lanes are a minimum width of 1.5 metres and are identified with solid white lines, bicycle stencils and appropriate signage.

2.2.2 Off-Street Facilities

Off-street facilities are separated from roadways, and often are located within parks, open space corridors, utility corridors and adjacent rail lines. They can also be located parallel to existing roadways. Off-street facilities are designed to accommodate a wide range of uses, including cyclists, pedestrians, runners, wheelchair users, people with strollers, in-line skaters, equestrians and people with dogs. **Appendix B** summarizes specific design guidelines for various off-street facilities.

Multi-Use Pathways

Multi-use pathways are shared off road facilities used for commuting and recreational use. All types of non-motorized users including pedestrians, cyclists, in-line skaters, and persons in wheelchairs or with strollers are accommodated. Because the speeds of users can vary significantly, it is important

that pathways are sufficiently wide enough that faster moving users can travel around slower moving users, thereby avoiding conflicts and collisions. A minimum width of 4.0 metres is recommended for multi-use pathways.

Desirably, multi-use pathways are hard surfaced, using concrete or asphalt. This means that all non-motorized users can be accommodated, including in-line skaters, persons in wheelchairs and cyclists on bicycles with narrow tires. Soft-surfaced pathways can also be considered if a more 'natural' feeling pathway is desired, however this may limit some of the potential users.

Sidewalks

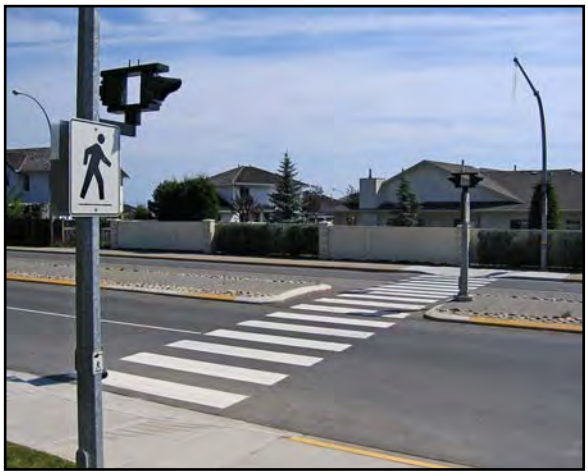
Sidewalks are located within the road right-of-way and provide pedestrian only access along the same direct routes used by vehicles. They are typically located directly behind the curb and gutter on urban roads. The minimum standard for sidewalk width is 1.5 metres; however, a width of 1.8 metres or more (depending on predicted usage) is preferable in multi-family or commercial areas. Sidewalks are recommended within the District of Coldstream on all urbanized (i.e. curb and gutter) roads. However, given the desire to maintain the rural character of the community, the use of sidewalks within Coldstream will most likely be minimal.

2.2.3 Crossings

Where on-street and off-street facilities cross major roadways, special crossing treatments are usually required. Different types of crossing facilities are recommended, depending on the function, traffic volumes, and speeds of the roadway as well as the type of pedestrian and bicycle facility and the crossing demand.

Four types of crossings are typically considered, including:

- **Marked crossings** are used on lower-volume roadways, where there is a need to identify the crossing to motorists. Crosswalk signage and pavement markings can be supplemented with enhancements, including flashing amber lights and overhead internally-illuminated signs, which also shine light onto the crossing area.



- **Median islands** at marked crossings make it easier for pedestrians, cyclists and others to cross the roadway, as they only need to wait for a gap in one direction of traffic in order to cross half the road at a time. These are also referred to as pedestrian refuge areas.

- **Signalized crossings** are used where the number of persons crossing the roadway is higher, and where traffic volumes and speeds are higher. Signals can only be activated by pedestrians and cyclists who must push a button – motor vehicles on the side street cannot activate the signals.

- **Grade-separated crossings** (overpasses and underpasses) are expensive, and are typically used only where there is a high volume of high-speed motor vehicle traffic, with no opportunity for a signalized at-grade crossing.

2.2.4 End-of-Trip Facilities

End-of-trip facilities are an important component of the Bicycle and Pedestrian Master Plan wherever possible. End-of-trip facilities are specific to bicycle use, and include bike storage facilities such as racks and lockers (see **Figure 2.1**).

Figure 2.1 – Examples of End of Trip Facilities

3.0 THE BICYCLE AND PEDESTRIAN ROUTE NETWORK

The existing and proposed Bicycle and Pedestrian Route Network for the District of Coldstream is illustrated in **Appendix C**. It is comprised of a combination of shared routes, marked wide curb lanes, paved shoulders, sidewalks, multi-use pathways and crossings. In developing the Bicycle and Pedestrian Route Network, potential route locations were first identified and then evaluated, working towards a prioritized list of high priority projects. This process, along with details of key components of the recommended Bicycle and Pedestrian Route Network are discussed in the following pages.

3.1 Route Inventory

The first step in developing the Bicycle and Pedestrian Route Network was to identify all existing bicycle and pedestrian facilities within the District of Coldstream. These include the following:

- Paved shoulders on both sides of Kalamalka Road (Westkal Road to Aberdeen Road), Aberdeen Road (Kalamalka Road to Middleton Drive) and Kalamalka Lake Road (Westkal Road to Vernon)

- Paved shoulders on one side of McClounie Road, School Road, around Kidston Elementary School, Cunliffe Road (Coldstream Creek Road to Kidston Elementary School) and Husband Road (Kalamalka Lake Road to Sunflower Drive)

- Sidewalks on one side of the road on Cunliffe Road (Palfrey Drive to Coldstream Creek Road), Postill Drive, Stoneridge Drive, a short stretch on Kidston Road near Juniper Heights, Husband Road (Kalamalka Lake Road to the beach parking area), Middleton Way, Mt. Thor Drive, Mt. York Drive, and a small stretch on Kalamalka Road in the Town Centre Area.

- Multi-use pathways in Kalamalka Provincial Park (parallel to Kidston Road between the Red Gate entrance and the main park entrance) and at Okanagan College.

The existing bicycle and pedestrian facilities within the District of Coldstream are illustrated on the Bicycle and Pedestrian Route Network map in **Appendix C**.

Potential new bicycle and pedestrian route locations were identified through input from stakeholders and community representatives, discussions with District Staff, and field reviews. In addition, the consulting team also conducted a review of potential routes. Each of the key issues that were raised through the consultation process was reviewed and addressed by identifying additional routes and/or upgrades to routes as appropriate.

Focus was placed on four main areas in the development and selection of new/upgraded pedestrian and bicycle routes:

- Identifying any gaps in the network, including any discontinuities in existing on and off-street facilities.

- Ensuring that all major generators throughout the District of Coldstream are served by some sort of facility. The major generators in Coldstream are parks (including Kalamalka Provincial Park), schools, beach accesses, neighbourhoods (including Middleton Mountain and Lavington), and the Town Centre area.

- Providing alternate routes to on-street routes on high volume arterials or roads with high vehicular travel speeds.

- Ensuring connectivity to major regional routes and origins/destinations.

All potential new/upgraded pedestrian and bicycle routes are summarized on the Bicycle and Pedestrian Route Network as provided in **Appendix C**. For each route, the most appropriate facility type was noted, including sidewalks, paved shoulders, multi-use pathways, shared bicycle routes, marked wide curb lanes and new or upgraded crossing locations. A total of 72 new routes and/or route upgrade locations within the District of Coldstream were identified through this review.

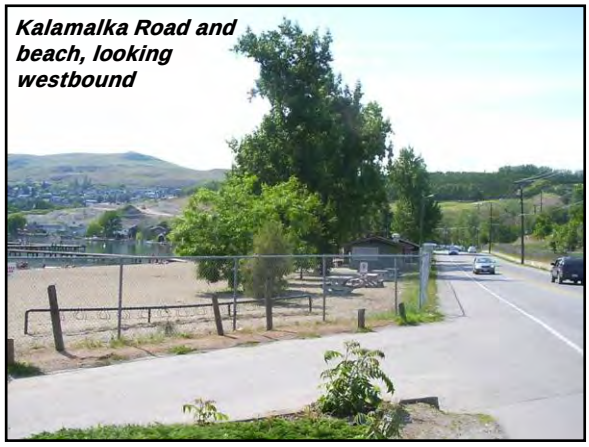
3.2 Key Network Components

The proposed Bicycle and Pedestrian Route Network was developed to address key bicycle and pedestrian related issues and problematic areas. The key components of the proposed Bicycle and Pedestrian Route Network are summarized and discussed in the following sections.

3.2.1 Kalamalka Beach Area

- *Establish a new multi-use pathway parallel to Kalamalka Road between Kalavista Drive and Westkal Road.*
- *Enhance safety and visibility of pedestrian crossings on Kalamalka Road and Westkal Road at the General Store.*
- *Protect property adjacent to pub/liquor store for future pathway alignment.*
- *Establish a multi-use connection between Husband Road and Kalamalka Road through the beach parking area.*
- *Relocate and enhance crossing on Husband Road at beach parking.*

The area surrounding Kalamalka Beach (namely, Kalamalka Road between Westkal Road and Kalavista Road) is busy, in particular in the summer months, with a large amount of pedestrian and bicycle activity. This is compounded by heavy traffic volumes along Kalamalka Road, motorists traveling to and from the pub and liquor store adjacent Kalavista Drive, parking on Kalamalka Road, and boat launch traffic. Currently, the pedestrian and bicycle facilities in the Kalamalka Beach area include paved shoulders on both sides of Kalamalka Road, and marked (zebra) crossings at Westkal Road and for access to the parking area north of Kalamalka Road. Although prohibited, parking often occurs on the paved shoulder reserved for bicycle and pedestrian use, limiting the options for safe passage through the area for pedestrians and cyclists.



Kalamalka Road and beach, looking westbound

It is recommended that a new multi-use pathway be established between Kalavista Drive and the west side of the Westkal Road & Kalamalka Road intersection to accommodate the pedestrian and bicycle traffic to and from the beach area, and to minimize their exposure to this busy stretch of Kalamalka Road. The alignment of the recommended pathway is illustrated in **Figure 3.1**. The pathway should provide connections to the existing marked crossings on Westkal Road and Kalamalka Road.

Figure 3.1 – Kalamalka Beach Area – Recommended Upgrades

It is noted that the recommended pathway alignment adjacent to the pub/liquor store is shown on private property. If/when this property redevelops right-of-way should be protected for public access and to complete the connection between the beach and Kalavista Drive. At the west end, the pathway should extend west of the creek perpendicular to Westkal Road, which will require a creek crossing.

Additional enhancements in the area are also recommended as follows:

- Upgrading the existing pedestrian crossing between Kalamalka Beach and the parking area to the north of Kalamalka Road. Given it's function as the primary connection between the beach and the parking area, this is an important crossing location with high demand. It is recommended that it be enhanced with warning flashers and improved advanced warning signage. The proposed improvements are intended to increase the visibility of this well-used crossing, and to encourage motorists to stop for pedestrians. In addition, the north access to the crossing (from the parking area) should be upgraded to a hard surface with ramp to facilitate bicycle, pedestrian and other user access from the parking, across the railway tracks and down to Kalamalka Road.

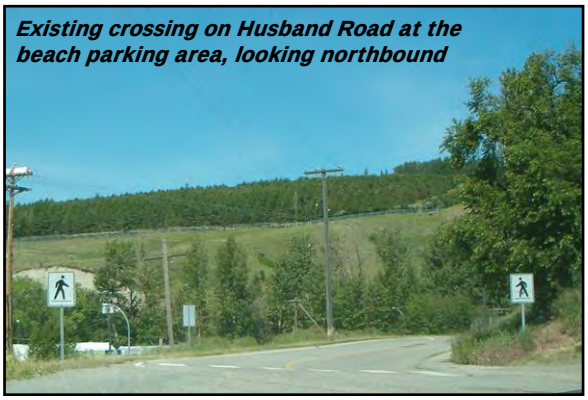
Kalamalka Road looking westbound at the main beach/parking crossing

- Reconfigure or restrict the Kalamalka Road access to the pub and liquor store to improve safety and reduce conflicts.

- Establish a multi-use connection between Husband Road and Kalamalka Road to improve access through the parking area and to/from Middleton Mountain.

Kalamalka Road looking westbound at the Pub/Liquor Store Entrance

- To provide access between the sidewalk on Husband Road and the beach parking, a marked crossing has been provided across Husband Road. However, the location of the crossing is such that visibility is limited, and it is in an unexpected location (i.e. just past the side road access as opposed to at the side road access). It is recommended that this crossing be relocated to align with the access to the beach parking and be supplemented with advanced warning signage to alert motorists of the potential for pedestrians on the road.



Existing crossing on Husband Road at the beach parking area, looking northbound

3.2.2 Middleton Mountain Neighbourhood

Extend paved shoulder on south side of Husband Road to Middleton Way.

Extend sidewalk on north side of Husband Road to Middleton Way.

Upgrade off-road connection between Sunflower Place and Michael Drive and establish shared route to provide connections at both ends.

Establish public walkways at unused easements.

Ensure adequate pedestrian/bicycle connectivity to and from future school site.

Provide pathway connection between Middleton Mountain and Kalamalka Road.

Protect linear park along hydro easement.

Middleton Mountain is a relatively new neighbourhood within the District of Coldstream, with ongoing residential development to the north and south of Middleton Way. It is home to a significant number of residents, with little to no bicycle or pedestrian facilities, particularly to and from the mountain. However, the newly developed areas have incorporated sidewalks on a single side of the roadway for all new roads.

The following additional bicycle and pedestrian facilities and routes are recommended on Middleton Mountain:

- Husband Road is a relatively busy roadway, and provides the primary connection between Middleton Mountain and the rest of Coldstream and Vernon, with access down to Kalamalka Lake Road. With the exception of a short stretch of sidewalk between Kalamalka Lake Road and the beach parking access, a marked crossing, and a paved shoulder on the south side of the roadway between Kalamalka Lake Road and Sunflower Place, there are no bicycle or continuous pedestrian provisions along Husband Road. It is recommended that the paved shoulder on the south side of the roadway be extended between Kalamalka Lake Road and Middleton Way to provide a designated bicycle area uphill on the roadway. A continuation of the sidewalk on the north side of the road up to Middleton Way is also recommended to safely accommodate pedestrians.

End of Sunflower Drive, looking eastbound towards Middleton Way

- An existing un-built road right-of-way between the end of Sunflower Place and Michael Drive provides an attractive and viable alternative from Husband Road up to Middleton Way. Currently, there is a narrow asphalt pathway and wood and concrete staircase for this link. It is recommended that this be upgraded to full multi-use pathway standard and that Sunflower Drive, Michael Drive and Lambert Drive be signed as shared routes to complete the connection.

- There are several easements throughout the Middleton Mountain Neighbourhood that were protected for public use, but never established as walkways. Instead, many of them have been landscaped by property owners, and do not appear as public walkways. Some examples of these easements are at the end of Mariposa Drive and Michael Drive. It is recommended that the designated easements that are functional and provide connections be established as public walkways.

- A future school location on Middleton Mountain has been identified at the eastern end of Mt. York Drive and north of Mt. Thor Drive, with an associated park. Safe and convenient bicycle and pedestrian access to the school is recommended to be protected for when the school is implemented. A shared route with a short

multi-use pathway is recommended on Mt. Thor Drive, noting that additional traffic calming and/or crossing facilities may be required in association with the school once developed. An additional short multi-use pathway is recommended between Mt. Thor Drive and Middleton Way to provide direct access to the shared route/alternate Husband Road connection down the mountain.

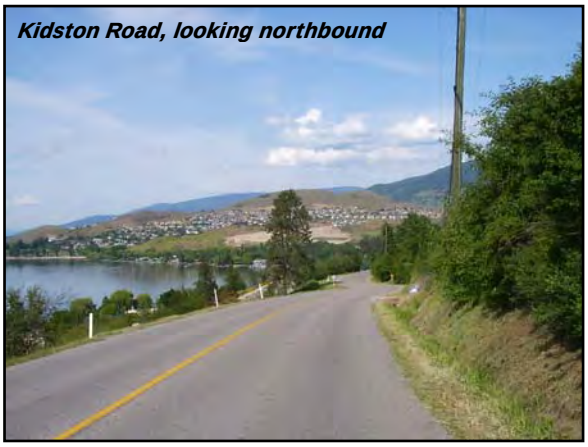
- There is a significant demand for pedestrian and bicycle connectivity between Middleton Mountain and schools, parks and beach facilities to the south. The provision of off-road north/south links down from the Mountain would offer the benefit of decreased travel time and convenience for cyclists and pedestrians, as well as eliminating the need for them to use Husband Road. It is recommended that a primary link be considered between Braeburn Drive and Kidston Road, with an associated at-grade railway crossing and crossing on Kalamalka Road for safe access to Kidston Road. Additional links could also be considered from the end of Mariposa Drive, Sunflower Drive and further to the west from Webster Park. These links would be for pedestrians and bicycles only, and would not be used by motor vehicles.

- The hydro easement, which runs roughly parallel to Middleton Way on the east side of the mountain, offers an attractive off-road alternative to Middleton Way and Middleton Drive. It is recommended that a multi-use pathway be considered for this corridor. This pathway could function as a linear park with play structures and benches installed along its length.

3.2.3 Kidston Road

Implement a multi-use pathway on the east side of Kidston Road between Kalamalka Lake Provincial Park and Coldstream Creek Road.

Kidston Road, in particular between Coldstream Creek Road and Kalamalka Lake Provincial Park, is a narrow roadway, with little to no shoulders and tight horizontal curvature. It provides the only access to residential subdivisions on the east side of Kalamalka Lake, and the main Kalamalka Lake Provincial Park entrance. As such, Kidston Road accommodates significant vehicular and non-vehicular traffic as both a commuter route and with tourism and recreation related activity.


Kidston Road, looking northbound

An off-road pathway currently exists parallel to Kidston Road between the main park entrance and the 'Red Gate' park entrance, a distance of approximately 700 metres. The pathway is unpaved, and is often not well maintained during winter months. Between the 'Red Gate' park entrance and Coldstream Creek Road, there are no other official bicycle or pedestrian facilities, forcing cyclists and pedestrians to share the road with motorists.

It is recommended that an off-road multi-use pathway be provided adjacent Kidston Road between Kalamalka Lake Provincial Park and Coldstream Creek Road as a continuation of the existing pathway. This pathway should be hard surfaced (i.e. asphalt) to accommodate all users, and be maintained throughout the winter months. By providing a multi-use pathway, pedestrians and cyclists can avoid traveling on Kidston Road.

The road right-of-way for this stretch of Kidston Road will not allow for the implementation of a multi-use pathway within existing property lines. Because the potential implementation of the pathway hinges on negotiations with several property owners, this is most likely a longer term solution. In the interim, it is recommended that the District of Coldstream work towards enforcement of vehicle speeds and motorist awareness along the Kidston Road corridor through applicable curve warning signage and 'share the road' signs, and eventually upgrade the roadway to current design standards.

3.2.4 Coldstream Valley Estates

Paved shoulders on Buchanan Road from Highway 6 to Uplands Drive and on Uplands Drive from Buchanan Road to Upper Crestview Drive.

Shared route on Uplands Drive to Gray Canal.

Multi-use pathway along Coldstream Valley Estates power line.

Coldstream Valley Estates is located in the north of the District of Coldstream, north of Highway 6. Despite its separation from the remainder of the community by Highway 6, there is a significant bicycle and pedestrian demand for north-south movements from Aberdeen Road. There are no bicycle or pedestrian facilities within, to or from Coldstream Valley Estates. Buchanan Road is a popular walking and cycling destination as a result of relatively low traffic volumes and scenic beauty.

As part of the Bicycle and Pedestrian Master Plan, it is recommended that the following be considered for this area:

- Paved shoulders on Buchanan Road from Highway 6 to Uplands Drive, to improve safety where cycling and pedestrian use is expected to occur for travel to and from Coldstream Valley Estates.

- Paved shoulders on Upland Drive between Buchanan Road and Upper Crestview Drive (the Park on Uplands Drive)

- A shared route for the remainder of Uplands Drive to provide connectivity to Cypress Drive and the Gray Canal. This is expected to be sufficient as a result of the low traffic volumes on this portion of Uplands Drive.

- A multi-use pathway or linear park along the Coldstream Valley Estates power line.

3.2.5 Lavington Area

It is recommended that the Lavington area in the east of the District of Coldstream be addressed in terms of connectivity to the western areas of the District as well as access to and from the Lavington Community School and park and the residential areas within Lavington. A shared route is recommended for the length of Buchanan Road, which will provide an alternate route to Highway 6 for cyclists traveling to and from Lavington. Within Lavington, the following are recommended:

Paved shoulders on both sides of School Road (a paved shoulder currently exists on the east side).

A pedestrian crossing on School Road at Lavington Way for access between the residential pocket to the west of School Road, and the Lavington Community School.

Paved shoulders on Learmouth Road between School Road and the first 90° bend in Learmouth Road.

Other shared routes have also been identified to enhance the connectivity of Lavington to the rest of the community.

3.2.6 Highway 6

Establish paved shoulders with accompanying signage on Highway 6 through Coldstream Ranch area, with the possibility for a future off-road pathway.

Highway 6, in the vicinity of the Coldstream Ranch and the Kalamalka Road intersection, was identified as a problematic location where cyclists feel unsafe due to narrow or no paved shoulders, and tight horizontal curves leading to decreased visibility for both motorists and cyclists. Although it is recognized that any proposed improvements along Highway 6 would fall outside of the District of Coldstream's jurisdiction, they have been noted in order that discussions can be initiated with the Ministry of Transportation to move the recommendations ahead. It is recommended that this stretch of Highway 6 be investigated further for the possible upgrading/implementation of paved shoulders on both sides of the highway, particularly through the horizontal curves, along with appropriate warning signage to increase motorist awareness of the presence of bicycles on the highway. Alternatively a multi-use pathway could be considered on the south side of the highway through this area. This would be a longer term solution as it would require the cooperation of the adjacent property owner.

Highway 6 at Kalamalka Road and Coldstream Ranch

3.2.7 Coldstream Town Centre Area

Provide sidewalk on both sides of Kalamalka Road.

Maintain bicycle lanes on both sides of Kalamalka Road.

Enhance pedestrian crossings and relocate as needed.

Protect for multi-use pathway on north side of Kalamalka Road between Aberdeen and the west side of Town Centre.

* Note that recommendations are to be confirmed as part of the Coldstream Town Centre Area Pre-Design Study.

The Town Centre Area within the District of Coldstream is located along Kalamalka Road between Whetzell Drive in the west and Aberdeen Road in the east. This area has been identified as the 'heart' of the community, where the District of Coldstream would like to focus commercial uses. It is currently the home of the District Hall, Coldstream Elementary School, Policing Station, Park, and several commercial businesses, attracting a significant amount of existing and potential future pedestrian and bicycle activity. As a result, special attention has been provided to this area.

The primary recommendation for the Town Centre Area is the provision of sidewalks on both sides of the road. On the south side of Kalamalka Road, it is recommended that the sidewalk be extended to Coldstream Creek Road to serve the residential uses and pedestrian trips to and from the residential areas and the Town Centre Area. It is recommended that the paved shoulders through this area be maintained as bicycle lanes.

Kalamalka Road in the Town Centre Area, looking westbound

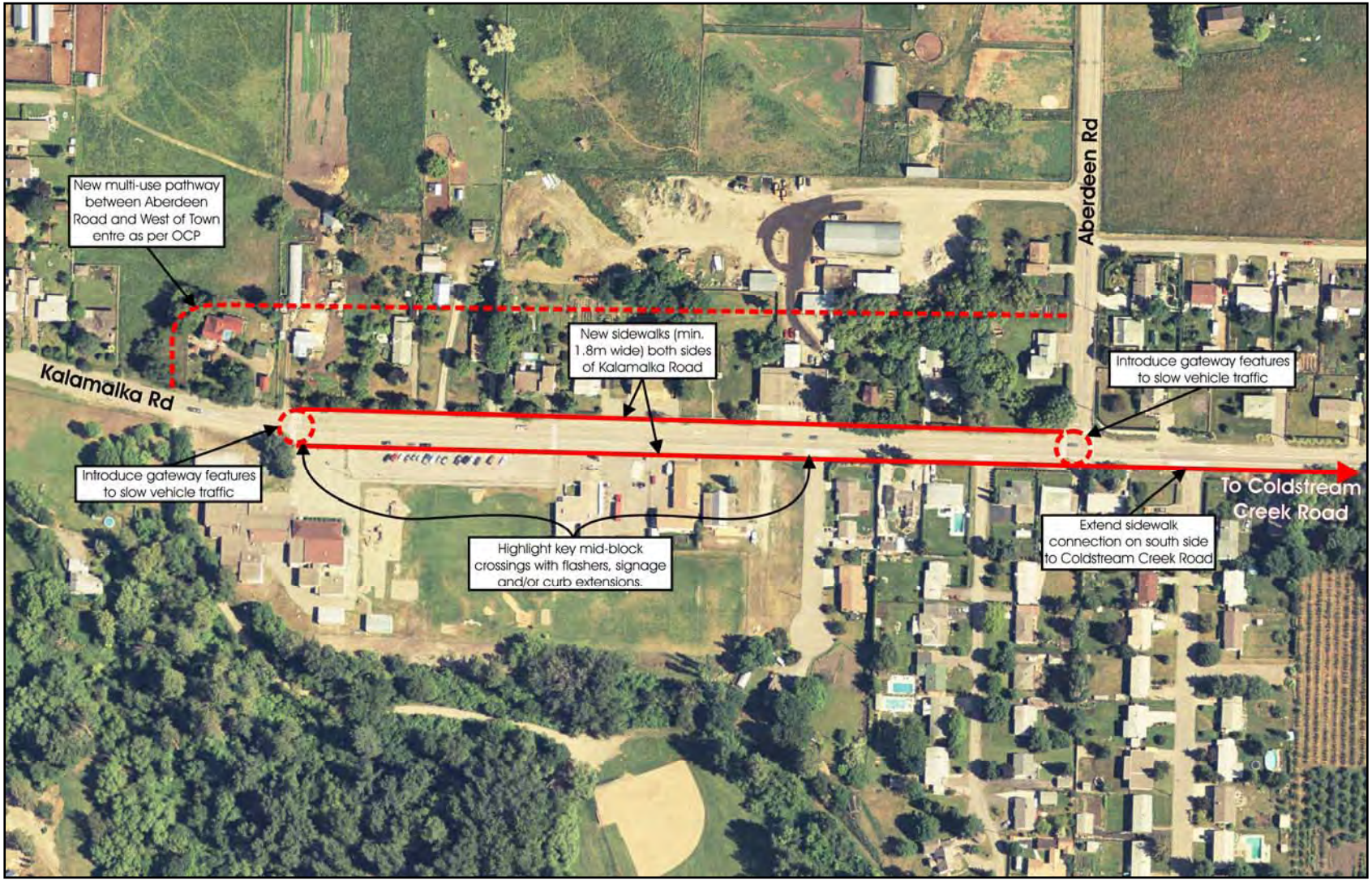
There are currently three marked crossings across the short stretch of Kalamalka Road through the Town Centre Area. Given the high amount of traffic volumes along Kalamalka Road through this area, as well as its function as an arterial roadway, the number of crossings should be maintained. The key crossing locations can be enhanced through the use of curb extensions, signage and/or flashers.

As per the OCP, a multi-use pathway should be protected for and provided on the north side of the Town Centre. This pathway would connect Aberdeen Road to the cenotaph and further west to the west side of the Town Centre for access down to Coldstream Park. The alignment of this link would need to be confirmed as part of the Town Centre Pre-design.

Figure 3.2 provides a schematic of Kalamalka Road through the Town Centre Area, illustrating the location of the proposed sidewalks and multi-use pathway. Note that these recommendations should be reviewed and confirmed as part of the Coldstream Town Centre Area Pre-Design Study and may be subject to change.

Figure 3.2 – Town Centre Area – Recommended Upgrades

**To be confirmed pending Town Centre Pre-Design Study*



3.2.8 Regional Connectivity

- *Paved shoulders on College Way/ Kickwillie Loop Road*
- *Maintain paved shoulders the length of Kalamalka Lake Road (to Vernon)*
- *Provide multi-use pathway along railway between West Kal Road and Polson Park*
- *Provide marked wide curb lanes and sidewalks on Middleton Way beyond District boundary to tie in at Highway 6*
- *Establish Cypress Drive/Gray Canal route for regional connectivity*
- *Multi-use pathway and shared route connection between OUC and Old Okanagan Highway*
- *Multi-use pathway connection to Allan Brooks Nature centre and beyond.*

The proposed Bicycle and Pedestrian Route Network for the District of Coldstream recognizes that Coldstream is a component of the larger Greater Vernon Area, which in turn forms part of the Okanagan. Providing a network that is seamless at the District boundaries, and provides adequate regional connectivity for alternate mode travel to, from and through the District of Coldstream was a key component of this Plan. The following Regional connections were considered:

- **College Way/Kickwillie Loop Road** – This is an arterial roadway within the District of Coldstream, providing the primary access between Highway 97, OC, and the District of Coldstream. There is an off-road pathway parallel to Highway 97 between College Way and Vernon. College Way and Kickwillie Loop Road have varying widths of paved shoulders on either one or both sides, all of which are substandard. It is recommended that the length of College Way/Kickwillie Loop be upgraded to provide paved shoulder in both directions and to complete the bicycle/pedestrian connection between Westkal Road and Highway 97. A multi-use pathway can also be provided on the east side to supplement the paved shoulders.

Kickwillie Loop Road, looking northbound

- **Kalamalka Lake Road** – Kalamalka Lake Road between Westkal Road in the south and Highway 6 in the north is a key connection between the District of Coldstream and Vernon. Currently, there are paved shoulders on both sides of this roadway past the northern District boundary. These should be maintained.

- **Railway Connection, Westkal Road to Polson Park** – Given that Kalamalka Lake Road is a high volume arterial roadway, it is recommended that a multi-use pathway adjacent to the railway between Westkal Road and Polson Park in Vernon be considered to provide an additional route for cyclists and pedestrians. This connection also has the potential to continue to the north through Vernon as a major Regional thoroughfare.

- **Middleton Way** – Middleton Way is the primary collector for Middleton Mountain, terminating at Highway 6 in the north (in Vernon). This roadway provides an important regional connection between Coldstream and Vernon. Within the District of Coldstream, Middleton Way should be widened to provide marked wide curb lanes, and it is recommended that appropriate signage and stencils be incorporated to mark this as an official bicycle route. Sidewalk currently exists on one side, although this does not extend all the way to Highway 6. As development continues, it is recommended that this sidewalk be extended beyond the District boundary to Highway 6.

- **Cypress Drive and the Gray Canal** – This route is identified in the proposed network as a regional route extending from Vernon, through the upper region of the District of Coldstream, out to Lavington and beyond. It has a significant tourist draw as a result of the gentle slopes and scenery. The incorporation of this route will require the cooperation of the Coldstream Ranch.

From Old Okanagan Highway, looking northbound along Lakeview Drive

- **Old Okanagan Highway** – Connectivity from the District of Coldstream to the south can be served in part by providing access to Old Okanagan Highway. A multi-use pathway between

Okanagan College and the Kelview residential area, and a designated shared route along Lakeview Drive with another short pathway connection up to Old Okanagan Highway is recommended to serve this function. This will improve access to Old Okanagan Highway from the District of Coldstream as well as provide an alternate route to Highway 97 between OC and Old Okanagan Highway.

- **Allan Brooks Nature Centre Connection** – This connection across Highway 97 will provide connectivity to the West of Coldstream and Okanagan Landing.

3.2.9 End of Trip Facilities

Cyclists need facilities at the end of their trip, just as motorists need parking lots and other facilities. In particular, the District of Coldstream should consider incorporating bicycle racks and/or lockers at various places throughout the community.

Bicycle storage facilities should be provided at the following locations:

- *Coldstream Town Centre Area (District Hall, Coldstream Elementary School)*
- *Kalamalka Beach Area*
- *All Schools*
- *All Parks*

3.3 Route Evaluation and Prioritization

As noted, a total of 74 proposed new and/or upgraded bicycle and pedestrian routes were identified within the Plan. Although all of the routes have a role to play in terms of bicycle and pedestrian safety, network connectivity, and user convenience, not all routes can be realistically implemented over a short period of time. Instead, an evaluation process was undertaken to first identify those that are high priority, and secondly, to rank the high priority routes in such a manner to identify the order in which they should be implemented. That way, the District of Coldstream can focus resources first on the routes that will provide the maximum benefit to cycling and walking community.

3.3.1 Preliminary Screening

A preliminary screening process was initially undertaken to further break down the overall proposed bicycle and pedestrian route list. This process highlighted the routes that were clearly high priority, which should be evaluated in further detail as candidates for shorter term implementation. The remaining routes were classified as either medium priority or low priority. The screening process subjectively considered the following three criteria:

- **Demand** – A measure of the existing bicycle and pedestrian usage in the corridor (if any) and potential future usage.

- **Network Function** – A measure of the relative significance of the route within the overall bicycle and pedestrian network, and how it relates to the rest of the network.

- **Implementation Feasibility** – A measure of the ease of constructing the route along the identified corridor and whether or not it will be achievable to the applicable design standards.

Although there is other criteria that should be considered when comparing different routes, such as the safety and appeal of the route, these three criteria are the most significant within the context of filtering out the highest priority pathways. A detailed evaluation with more criteria was completed later on in the process.

Each route was given an overall preliminary ranking of 'High', 'Medium' or 'Low'. Potential routes that were rated as 'High' overall are priority routes that were evaluated and investigated in further detail. These were identified as essential links within the bicycle and pedestrian network, and were designated as priorities for implementation within the next ten years. These include routes that provide an important network function by completing gaps in the existing network, routes with high potential demand, and routes recommended for safety reasons. A total of 22 high priority routes were identified.

Routes that were rated as 'Medium' overall are recommended for consideration beyond the ten year horizon, after the priority routes have been established. In the interim,

actions should be undertaken to protect corridors for 'Medium' rated routes for future implementation. As well, land development, roadway projects and/or other projects may provide opportunities to implement some 'Medium' routes at an earlier time. A total of 34 medium priority routes were identified.

Routes that were rated as 'Low' overall should be considered after the implementation of 'High' and 'Medium' priority routes, most likely in the longer term. These are routes with low potential demand and usage, significant obstacles to implementation such as property acquisition issues, and little importance in the overall bicycle and pedestrian network. However, these routes have been maintained on the proposed future bicycle and pedestrian network in order to identify their location should property and/or funding become available, in particular through redevelopment. A total of 18 low priority routes were identified.

Appendix D provides a summary of all of the routes that were evaluated, and the ranking of each route in each category. In addition, each project was given a 'Project Size' to further refine the lists. The 'Project Size' was either 'Large' (> approximately $400,000), 'Medium' (between $100,000 and $400,000) or 'Small' (< approximately $100,000). The Project Sizes identified were approximate, meant to provide the District with an order of magnitude feel for project cost. They were not based on detailed cost estimates.

3.3.2 Detailed Evaluation of High Priority Routes

Each of the high priority bicycle and pedestrian routes identified in the screening process was investigated and evaluated in detail in order to prioritize and estimate the cost of their implementation. The criteria which were used in prioritizing the high priority routes included the following:

- **Safety (weighting = 3)**. This is a measure of the potential for improvement in safety which implementation of the bicycle/pedestrian facility could provide. It considers current safety conditions on the route which cyclists and pedestrians currently use in the absence of the proposed facility.

- **Demand (weighting = 2).** This is a measure of existing usage in the corridor (if any) and potential future usage. It includes an assessment of nearby generators and adjacent land uses.

- **Network Function (weighting = 2).** This is a measure of the relative importance of the route within the overall bicycle and pedestrian network. High rated routes would be those which provide a critical link in the network, whereas low rated connections would be those with minimal network importance.

- **Appeal (weighting = 1).** This is a measure of the potential appeal of a route to cyclists and pedestrians, and considers aspects such as aesthetics, grade, adjacent traffic volumes and land uses, and other factors affecting the quality of the cycling/walking experience. High rated routes would be those which would have a strong appeal to all users (skilled and novice, adult and child, commuting and recreational), whereas low rated routes would have negligible appeal to users.

- **Implementation Feasibility (weighting = 2).** This is a measure of the ease of constructing the bicycle/pedestrian facility. This considers issues such as property acquisition, topography constraints, environmental implications and jurisdictional issues.

Each high priority route was rated on a scale of 1 through 5 for each criterion, where 5 reflects an excellent rating and 1 reflects a poor rating. Criteria were weighted as indicated to emphasize the most important factors. **Appendix D** provides a summary of the rating values used for each criteria.

As noted, 22 out of the 74 proposed bicycle and pedestrian routes were rated as having high priority through the initial screening process and were evaluated in further detail. The routes and their evaluation results are summarized in **Table 3.1**.

Table 3.1 – High Priority Routes Evaluation Summary

ROUTE	FACILTY TYPE	RATING					OVERALL RATING	OVERALL RANKING	PROJECT SIZE
		Safety	Demand	Network Function	Appeal	Implementation Feasibility			
	WEIGHTING:	**3**	**2**	**2**	**1**	**2**			
Aberdeen Road (Middleton Dr to Hwy 6)	Paved Shoulders	5	5	5	4	4	**4.7**	**1**	MEDIUM
College Way/Kickwillie Loop Rd (Hwy 97 to Westkal Rd)	Paved Shoulders	5	5	5	3	4	**4.6**	**2**	LARGE
Kalamalka Beach (Kidston Rd to Westkal Rd)	Multi-use Pathway	5	5	4	5	4	**4.6**	**3**	MEDIUM
Westkal Road	Sidewalk and Marked Wide Curb Lanes	5	5	5	4	3	**4.5**	**4**	LARGE
Husband Road (Middleton Way to Kalamalka Lake Rd)	Paved Shoulder and Sidewalk	5	4	5	4	4	**4.5**	**5**	LARGE
Husband Road (off-road connection)	Shared Route and Multi-Use Pathway	5	4	5	2	4	**4.3**	**6**	SMALL
Okanagan College to College Way (Off-Road Conenction)	Multi-Use Pathway	5	4	4	4	4	**4.3**	**7**	SMALL
Coldstream Creek Road (Kalamalka Rd to Kidston Rd)	Paved Shoulders or Multi-Use Pathway	4	4	5	4	4	**4.2**	**8**	LARGE
Kidston Road (Kalamalka Rd to Coldstream Creek Rd)	Paved Shoulders	4	4	5	4	4	**4.2**	**9**	MEDIUM
Kidston Road (Coldstream Creek Rd to Kal Park)	Multi-Use Pathway	5	4	5	5	2	**4.2**	**10**	LARGE
Buchanan Road (Aberdeen Rd to Uplands Drive)	Paved Shoulders	4	3	5	4	4	**4**	**11**	MEDIUM
Kalamalka Road (Aberdeen Rd to Hwy 6)	Paved Shoulders	4	3	5	4	4	**4**	**12**	LARGE
Middleton Drive	Paved Shoulders	4	3	5	4	4	**4**	**13**	LARGE
Kalamalka Road (Town Centre Area)	Sidewalks	4	4	3	5	4	**3.9**	**14**	MEDIUM
Connections from Middleton Mountain to Kalamalka Road	Multi-Use Pathways and Shared Route	4	4	5	3	3	**3.9**	**15**	SMALL
Railway (Westkal Rd to Vernon)	Multi-Use Pathway	5	5	2	5	2	**3.8**	**16**	LARGE
College Way (Kickwillie Loop Rd to Reservoir Rd)	Multi-Use Pathway	5	4	3	3	3	**3.8**	**17**	MEDIUM
Middleton Way	Marked Wide Curb Lanes	3	3	4	4	5	**3.7**	**18**	SMALL
School Road (Learmouth Rd to Hwy 6)	Paved Shoulder (west side only)	3	3	4	4	4	**3.5**	**19**	MEDIUM
Uplands Drive (Buchanan Rd to Upper Crestview)	Paved Shoulders	3	3	3	4	4	**3.3**	**20**	MEDIUM
McClounie Road (Coldstream Creek Rd to Kalamalka Rd)	Paved Shoulder (east side)	3	3	3	4	4	**3.3**	**21**	MEDIUM
Uplands Drive (Upper Crestview Drive to Cypress)	Shared Route	2	3	3	3	5	**3.1**	**22**	SMALL

4.0 IMPLEMENTATION

It is recommended that a strategy be put in place to provide guidance and planning for the future implementation of the Bicycle and Pedestrian Master Plan within the District of Coldstream. Although many routes and potential upgrades have been identified through this study, it would not be possible for the District of Coldstream to incorporate them all at once. The availability of funds and staff resources, as well as the time required for design, construction, consultation with users adjacent to pedestrian and bicycle routes, property acquisition, and coordination with other plans all add to the overall time required to implement the Plan. An implementation strategy has been developed that not only considers these factors, but ensures that the most important components of the Bicycle and Pedestrian Network are given the highest priority and are implemented early on in the process.

4.1 Improvement Priorities

As described in Section 3.0, each of the proposed new/upgraded pedestrian and bicycle routes was ranked and prioritized based on a series of criteria including safety, demand, network function, appeal and implementation feasibility. A total of 22 high priority routes were identified. It is recommended that all of the high priority routes be considered and implemented in advance of proceeding to the medium and lower ranked routes. However, it is noted that opportunities may arise, for example through development, where the implementation of a lower ranked route would be prudent earlier and exceptions can be made.

The top 13 recommended bicycle and pedestrian routes are summarized in **Table 4.1**, which are recommended for implementation over the short term (10-year) period, recognizing that available funding sources will dictate the ability of the District to do so. The top 13 high priority routes all received an overall ranking of 4/5 or higher. All of the top 13 priority routes should be achievable within existing District right-of-way, with the exception of a few minor locations with decreased right-of-way width, and the recommended multi-use pathways parallel to Kidston Road and Coldstream Creek Road.

A brief description of each of the top priority routes is provided as follows:

1. **Aberdeen Road – Middleton Drive to Highway 6**

   (Paved Shoulders)

   In 2006, the District of Coldstream completed the widening of Aberdeen Road between Kalamalka Road (in the Town Centre) to Middleton Drive to provide 1.5 metre wide paved shoulders in both directions. Although improving the safety for this stretch of road, the current configuration leaves pedestrians and cyclists to shared travel lanes for the remainder of the route up to Highway 6. This is an incomplete and highly traveled connection in the bicycle and pedestrian network that needs to be upgraded.

2. **College Way/Kickwillie Loop Road – Highway 97 to Westkal Road**

   (Paved Shoulders)

   College Way and Kickwillie Loop Road provide the primary connection between Highway 97, Okanagan College, and the District of Coldstream. This is a key link not only for bicycle and pedestrian access, but for vehicle travel as well. Due to the steep grade and high traffic volumes, it is essential that bicycles and pedestrians be provided their own space on this roadway. Between Highway 97 and Westkal Road, there are paved shoulders for some of the route. However, these are mostly substandard (i.e. less than 1.5 metres wide) and discontinuous. It is recommended that 1.5 metre paved shoulders be provided in both directions for the length of College Way/Kickwillie Loop Road. It is noted that as part of a recent development at the south end of the roadway (from Westkal Road north), instead of a paved shoulder in the northbound direction, a 2.0 metre sidewalk was provided. Although this is beneficial to pedestrians, it leaves no roadway space for cyclists. In particular, this is problematic as it is in the uphill direction, where bicycle speeds will be low and the roadway space will be needed the most. It is recommended that the District of Coldstream consider 'share the road' signage for this stretch of roadway to alert motorists to the presence of cyclists on the roadway.

3. **Kalamalka Beach – Kidston Road to Westkal Road**

   (Multi-Use Pathway)

   A multi-use pathway is recommended to provide access through the Kalamalka Beach area. This route is high priority as it provides a safe facility for high volumes of pedestrian and bicycle traffic that is separate from the busy Kalamalka Road.

4. Westkal Road – Kickwillie Loop Road to Kalamalka Road

(Sidewalk and Marked Wide Curb Lanes)

As with College Way and Kickwillie Loop Road, Westkal Road acts as the primary connection between the District of Coldstream and Highway 97. It is a key link in the Major Roadway Network for the District, and is subject to significant traffic, bicycle and pedestrian volumes. Currently, the roadway has a narrow rural cross-section, with no designated space for bicycles or pedestrians. Due to limited right-of-way, a full urban cross-section is recommended that incorporates a sidewalk on the north side, with marked wide curb lanes.

5. Husband Road – Middleton Way to Kalamalka Lake Road

(Paved Shoulder and Sidewalk)

Husband Road is one of the key routes between Middleton Mountain and other areas in the District of Coldstream. In particular, it is the primary route to and from the beach, schools and many parks. Husband Road currently has a rural cross-section and, due to the steep grade up Middleton Mountain, is subject to higher than typical vehicle speeds. There is currently a paved shoulder on the south side of Husband Road between Kalamalka Lake Road and Sunflower Place, and a sidewalk on the north side of Husband Road between Kalamalka Road and the beach parking area access. It is recommended that both the sidewalk and paved shoulder be extended up Husband Road to Middleton Way. A paved shoulder is not required on the north side (downhill direction), as it is anticipated that cyclists will be traveling downhill and at higher speeds, minimizing the speed differential between cyclists and vehicles and decreasing the need for a designated facility. Pedestrians in both directions can use the sidewalk.

6. Husband Road – Off-Road Connection

(Shared Route and Multi-Use Pathway)

This route is also highlighted as high priority as it provides an alternate route for bicycles and pedestrians up Middleton Mountain, that is not directly adjacent to Husband Road.

7. Okanagan College to College Way – Off-Road Connection

(Multi-Use Pathway)

This link will provide a connection between the existing multi-use pathway adjacent to Highway 97 at Okanagan College, down to College Way at the intersection of Kickwillie

Loop Road. It will provide an alternate route to and from the College and Highway 97 that would not require travel along College Way.

8. Coldstream Creek Road – Kalamalka Road to Kidston Road

(Paved Shoulders or Multi-Use Pathway)

This is a highly utilized corridor, particular for recreational walking and cycling. It is recommended that some form of bicycle and pedestrian facilities be provided, noting that the widening for paved shoulders may be difficult and costly as a result of right-of-way requirements, and utility pole relocations. A multi-use pathway could be considered which would provide an attractive off-road facility for recreational users.

9. Kidston Road – Kalamalka Road to Coldstream Creek Road

(Paved Shoulders)

Kidston Road provides the primary connection between Kalamalka Road, Kidston School, Kal Park and the residential areas along Kalamalka Lake. It is a highly traveled route with discontinuous paved shoulders. It is recommended that the section of Kidston Road between Kalamalka Road and Coldstream Creek Road be upgraded to provide 1.5 metre wide paved shoulders on both sides to accommodate the school related and through pedestrian and bicycle traffic.

10. Kidston Road – Coldstream Creek Road to Kal Park

(Multi-Use Pathway)

As previously noted in the report, this route is a key link in the pedestrian and bicycle network, providing access to and from Kal Park and the remainder of the District. An off-road multi-use pathway is recommended and is the most feasible in terms of implementation due to the challenging topography in the area.

11. Buchanan Road – Aberdeen Road to Uplands Drive

(Paved Shoulders)

Buchanan Road between Aberdeen Road and Uplands Drive provides the primary connection between Coldstream Valley and Highway 6, Aberdeen Road, and the remainder of the District of Coldstream. It is essential that this area is connected via safe bicycle and pedestrian facilities. Paved shoulders are recommended on both sides of the roadway.

12. Kalamalka Road – Aberdeen Road to Highway 6

(Paved Shoulders)

The paved shoulders on Kalamalka Road currently terminate in the area of Aberdeen Road, leaving an incomplete connection within the bicycle and pedestrian network for access to Highway 6 and Lavington in the east. It is recommended that this connection be established through an extension of the paved shoulders on both sides of Kalamalka Road.

13. Middleton Drive

(Paved Shoulders)

Middleton Drive between Aberdeen Road and the newer residential areas on Middleton Mountain is currently a narrow rural roadway with limited to no shoulders. This leaves a large gap in the overall bicycle and pedestrian network, for access to/from Middleton Mountain to the east. Because of the rural character of this roadway, paved shoulders on both sides of the roadway are recommended.

Cost estimates were completed for each of the top 13 routes, also summarized in **Table 4.1**. These costs are order of magnitude estimates, and are intended to provide guidance for budgeting purposes only. More detailed estimates should be prepared as the proposed routes are advanced to the next phase of design. A contingency of 40% was included in all costs to account for unknowns at this time. Utility impacts, property acquisition, geotechnical and environmental considerations were not considered in these estimates. Full cost estimate details are provided in **Appendix E**.

The total estimated cost for the top 13 bicycle and pedestrian routes is in the order of $6.4 million (in 2006 dollars). If the upgrades were to be completed over a 10-year period, the resulting expenditure would be in the order of $650,000 per year. It is important to note that the estimate includes upgrading Westkal Road, which is approximately $1.5 million and includes not only widening for a sidewalk and marked wide curb lanes, but includes reconstruction of the entire roadway. It is assumed that this upgrade will be completed regardless of the outcomes of this study. The projects have been classified as either Small (<$100,000), Medium ($100,000 - $400,000) and Large (>$400,000) for budgeting purposes.

Table 4.1 – Estimated Costs for High Priority Routes (2006 Dollars)

ROUTE	FACILTY TYPE	OVERALL RANKING	COST ESTIMATE	PROJECT SIZE
Aberdeen Road (Middleton Dr to Hwy 6)	Paved Shoulders	**1**	$195,000	MEDIUM
College Way/Kickwillie Loop Rd (Hwy 97 to Westkal Rd)	Paved Shoulders	**2**	$302,000	LARGE
Kalamalka Beach (Kidston Rd to Westkal Rd)	Multi-use Pathway	**3**	$179,000	MEDIUM
Westkal Road	Sidewalk and Marked Wide Curb Lanes	**4**	$1,485,000	LARGE
Husband Road (Middleton Way to Kalamalka Lake Rd)	Paved Shoulder and Sidewalk	**5**	$403,000	LARGE
Husband Road (off-road connection)	Shared Route and Multi-Use Pathway	**6**	$56,000	SMALL
Okanagan College to College Way (off-road connection)	Multi-use Pathway	**7**	$91,000	SMALL
Coldstream Creek Road (Kalamalka Rd to Kidston Rd)	Paved Shoulders or Multi-Use Pathway	**8**	$1,517,000 (shoulders) $714,000 (path)	LARGE
Kidston Road (Kalamalka Rd to Coldstream Creek Rd)	Paved Shoulders	**9**	$332,000	LARGE
Kidston Road (Coldstream Creek Rd to Kal Park)	Multi-Use Pathway	**10**	$475,000	LARGE
Buchanan Road (Aberdeen Rd to Uplands Drive)	Paved Shoulders	**11**	$502,000	LARGE
Kalamalka Road (Aberdeen Rd to Hwy 6)	Paved Shoulders	**12**	$602,000	LARGE
Middleton Drive	Paved Shoulders	**13**	$314,000	LARGE
TOTAL			**$6,453,000**	

4.2 Sidewalk Plan

The identified sidewalk projects were highlighted in order to provide the District of Coldstream with further guidance for the implementation of sidewalks only. **Table 4.2** provides a summary of the location of the sidewalk projects; as with the bicycle/pedestrian routes, these have been evaluated and prioritized as summarized. The independent costs to implement these sidewalk improvements have not been identified as it is assumed that they would be done concurrently with other bicycle /pedestrian upgrades on the same stretch of roadway.

Table 4.2 – Recommended Sidewalk Upgrades

ROUTE	DESCRIPTION	OVERALL RANKING
Husband Road (Middleton Way to Kalamalka Lake Rd)	North Side Only	**1**
Westkal Road	North Side Only	**2**
Kalamalka Road (Town Centre Area)	Both Sides	**3**
Kidston Road (Kalamalka Rd to Cunliffe Road)	East Side Only	**4**
Cunliffe Road (Coldstream Creek Road to Kidston Road)	East Side Only	**5**

4.3 Funding Sources

The District of Coldstream does not currently have dedicated funding for the implementation of bicycle and pedestrian facilities. Under existing resources, the District would need to reallocate a portion of general revenues toward the implementation of the proposed routes. In the future, the District may wish to explore other funding strategies for the provision of bicycle and pedestrian facilities, including:

- Local Motion Program – The Province has identified a new Local Motion fund of $40M over 4 years for capital projects that improve physical fitness and safety, reduce air pollutions and meet the diverse needs of British Columbians. This fund is intended for projects such as bicycle and pedestrian pathways. The Province will provide 50% of the funding for approved projects up to $1M per year. More information can be found at www.localmotion.gov.bc.ca.

- Cycling Infrastructure Partnerships Program (CIPP) – The CIPP is a cost-shared program where the Government of British Columbia will partner with local governments in the construction of new transportation cycling infrastructure. The goal of the program is to promote transportation cycling (cycling to work, school, or errands) as a means of reducing traffic congestion and green house gas (GHG) emissions. All British Columbia municipalities and regional districts are eligible to apply for up to $250,000 in CIPP funding each year.

- Partnership Opportunities – Partnership opportunities exist, particularly with the Greater Vernon Regional District, City of Vernon (for regional connections) and stakeholder and neighbourhood groups.

- Development – As development and/or redevelopment occurs adjacent to a proposed route, the opportunity exists to incorporate a portion of the upgrade into the developer's requirements for on or off-site improvements, or collect funding for such. In addition, property can be acquired for proposed future bicycle and pedestrian route upgrades through redevelopment.

- Development cost charges for transportation projects.

It is suggested that the District of Coldstream allocate in the order of $300,000 per year towards bicycle and pedestrian projects, with additional funding secured through cost sharing opportunities.

4.4 Promotion and Education

Through the public consultation that was undertaken as part of the study process, it became apparent that the success of encouraging cycling and walking as modes of transportation throughout the District of Coldstream is highly dependant on not only increasing and upgrading the existing pedestrian and bicycle facilities, but on a raised awareness of their location and availability. In addition, in order for the facilities to be safe and function as they are intended, cyclists, pedestrians and motorists should be educated on the rules and rights of each roadway user.

It is recommended that the District of Coldstream include a promotion and education program as part of their strategy to implement the proposed Bicycle and Pedestrian Master Plan. The program should consider the following two components:

- **Promotion** – The best way to promote the existing Bicycle and Pedestrian Route Network is through the distribution of route maps, indicating where existing routes are, as well as the major generators such as schools, parks, neighbourhoods and beaches. These maps would be updated as appropriate as new routes are implemented. Circulation of the route maps could be via District Hall, the District of Coldstream's website, the special interest groups (ex. Greater Vernon Cycling Advisory Committee, Kal Rats, Ribbons of Green, Vernon Outdoors Club) or schools. Alternatively, the District of

Coldstream could partner with Greater Vernon Regional District Parks and Recreation to produce route maps of the entire Region, incorporating Coldstream's network. Promotion of the Bicycle and Pedestrian Route Network is an important component of the implementation of the Bicycle and Pedestrian Master Plan, as a method of advertising the presence of safe and attractive facilities to residents.

- **Education** – In order to feel safe using the recommended pedestrian and bicycle facilities throughout the District of Coldstream, users must be comfortable with the rules and regulations, particularly for on-street bicycle routes. Through the study process, residents also identified that the education process must go both ways – motorists should be accepting and knowledgeable of the rights of bicyclists and pedestrians within the road right-of-way, for vulnerable road users to feel safe on the roadway. This can be achieved through the following:

    - Signage to increase motorists awareness of cyclists and pedestrians on the road, and to provide direction to cyclists and pedestrians on where to cross the road, where in the road right-of-way they are permitted, and in what direction to travel.
    - Inclusion of bicycle and pedestrian rules and regulations with the route maps
    - Periodic announcements, information pamphlets or articles in the local newspaper
    - Information on the District of Coldstream's website
    - Enforcement

4.5 Maintenance

Maintenance of bicycle and pedestrian facilities is particularly important, as vulnerable road users are extremely susceptible to poor road and pavement conditions. Debris swept to the sides of roadways – such as loose gravel, broken glass and snow – can easily destabilize a bicycle or puncture a tire. Other problems such as potholes, encroaching vegetation and pavement break-up are also common bicycle hazards. Multi-use pathways, unless cleared of snow during the winter months, become unusable, forcing cyclists and pedestrians to utilize the roadways that they are trying to avoid.

A maintenance program is important to ensure that facilities are adequately maintained, and to minimize potential liability for the District of Coldstream. Such a program should include:

- **Designating responsibilities for maintenance of specific bicycle facilities.** Typically, this function would fall under Public Works. General maintenance responsibilities for bicycle facilities should include, but would not be limited to:
    - Regular sweeping of on-street routes and off-street pathways
    - Repairing broken asphalt, potholes and cracks in the road or pathway surface
    - Installing, maintaining and replacing route signs and pavement markings
    - Replacing hazardous sewer grates with bicycle friendly grates
    - Removing or cutting back encroaching vegetation which can impair sight lines or reduce the width of a facility
    - Replacing burned out street lights
    - Installing bicycle racks
    - Snow removal

- **Establishing a reporting mechanism.** Cyclists and pedestrians should be given the opportunity to notify the appropriate contact person with regard to maintenance problems.

- **Establishing a regular maintenance schedule.** A maintenance schedule, which reflects varying seasonal maintenance demands should be developed for the District of Coldstream. Resources should be allocated for maintenance crews to be able to respond to unscheduled maintenance requests.

- **Responding quickly to maintenance requests.** Prompt follow-up enhances the importance of the entire bicycle and pedestrian program. If maintenance requests are not followed up on in a timely manner, the District of Coldstream could be held liable for any subsequent injury to a cyclist or pedestrian. In some cases, a cyclists or pedestrian's request may warrant a more prompt response than a motorist's request. For example, while a pothole may only create some minor discomfort for a motorist, it may present a much greater danger for a cyclist, causing them to either lose control or swerve into the

path of a motor vehicle. By responding quickly to the request, the District of Coldstream can encourage the importance of cycling or walking as viable modes of transportation.

- **Providing for cyclists and pedestrians during road construction projects.** Often, road construction projects eliminate the travel portion at the side of roads typically used by bicycles and pedestrians. On all roads, when motorized traffic is detoured, temporary signage should be installed which also directs cyclists and pedestrians to detours. When motorized traffic is not detoured, cyclists and pedestrians should be directed onto the roadway and integrated with other traffic, with appropriate 'share the road' signage.

APPENDIX A

COMMUNITY CONSULTATION MATERIALS AND FEEDBACK

#500 - 1708 Dolphin Avenue, Kelowna, BC V1Y 9S4
Telephone: 250-762-2517 Fax: 250-763-5266

URBANSYSTEMS.

MEETING NOTES

subject:	**District of Coldstream Bicycle and Pedestrian Master Plan STAKEHOLDER MEETING**
date:	June 21, 2006
meeting date:	Wednesday, June 21st, 2006
location:	District Hall
file:	1164.0096.01
prepared by:	Erica Farnworth
distribution:	District of Coldstream

attendees	company	e-mail
Craig Broderick	District of Coldstream	planner@district.coldstream.bc.ca
Erica Farnworth	Urban Systems Ltd.	efarnworth@urban-systems.com
Stakeholder Groups (see below)		

The following groups and attendees were present at the Stakeholder Meeting:

Stakeholder Group	Representatives	Email	Phone
Middleton Mountain Neighbourhood Group	Frank Hamilton Ingrid Neumann Ross Parsons	flhamilton@shaw.ca ineumann@junction.net rwparsons@shaw.ca	542-9537 549-1770 545-3887
Greater Vernon Cycling Advisory Committee	Greg O'Neill Ward Strong	Greg.oneill@gov.bc.ca Ward.strong@gov.bc.ca	260-4776 548-3543
Kal Rats	Kit Johaneson	kljohanes@shaw.ca	545-3147
Ribbons of Green	Peter Tassie Rob Sawatzky Laurie Kitchen	ptassie@telus.net rbsawatzky@shaw.ca lauriekitc@hotmail.com	545-7673 558-5646 545-2417
Vernon Outdoors Club	Walt Duncan Donna Ferguson Brandt Robbenhaar Kaydonna Stone	coppdunc@shaw.ca georgendonnaferguson@shaw.ca BPRobbenhaar@telus.net kaydonna@telus.net	558-5051 260-3541 - -
Community Policing	Kate Leedu	-	545-3440
Coldstream Elementary School	Gaila Erickson, Principal	gerickson@sd22.bc.ca	542-5184
Kalamalka Secondary School	Grant Badgero	gbadgero@sd22.bc.ca	545-1396

Also invited, but not in attendance, were representatives from the Lavington Community School, Kidston Elementary School, and the Regional Parks and Recreation department.

An informal Powerpoint presentation was given to familiarize attendees with the objectives and scope of the study, and preliminary issues that have been identified. Each representative from each group was given the chance to speak in turn and provide input, summarized as follows:

Middleton Mountain Neighbourhood Group

- Provided a map of the Middleton Mountain Area illustrating existing and desired off-road pathways, trails and connections
- Provided a letter from 2005 to the District of Coldstream
- Would like to have a 'ring trail' around the mountain to connect the parks and provide a recreational facility
- Want a trail up to Webster Park
- Want a multi-use pathway along the Hydro easement
- It is not difficult and indirect to get by foot/bike from Middleton Way (north) down to Husband Road – desire an off-road link
- Husband Road is dangerous, want a sidewalk or paved shoulders
- Formalize walkways through easements that were never established

Kal Rats

- Safety on Highway 6 at Coldstream Ranch is an issue
- Would like to see improved connectivity between Buchanan and Highway 6 (Gray and Ricardo). These roadways are in bad shape.

Greater Vernon Cycling Advisory Committee

- Interested mainly in Regional connections (ex. to Vernon)
- Key link is along Kalamalka Lake Road
- Highway 6 after Coldstream Ranch (Kalamalka Road) needs upgrading to provide paved shoulders
- Promotion and education need to be addressed
- Funding should be secured – want to see the Plan implemented

Ribbons of Green

- Sent a letter to the District of Coldstream in 2004 (see attached)
- Trail to Deep Lake desired
- Improve McClounie and Coldstream Creek Road for bikes and pedestrians (paved shoulders sufficient)
- Improve Buchanan
- Trail from Polson Park to Kal Lake along Railway
- Kalamalka Road – Paved shoulders are bad for maintenance during the winter
- Ensure continuity with Vernon trails

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Schools

- Speeding is sometime an issue around schools, but not a hug problem
- Not many pedestrians to and from Kalamalka Seconday (most drive/are driven)
- Pedestrians on Aberdeen Road walking to school – not a fan of the tight 'blind' corner

Other

- Kidston Road is unsafe and needs shoulders or multi-use pathway
- Railway pathways
- Parking on paved shoulders a problem – how can we eliminate this?
- Parking/end of trip facilities for recreational routes should be addressed
- Comment on safety of roads where bicycle facilities are being added
- Connectivity to Regional routes a must

The preceding is the writer's interpretation of the proceedings and any discrepancies and/or omissions should be reported to the writer.

URBAN SYSTEMS LTD.

Erica Farnworth

/ef

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October 26, 2005

District of Coldstream
8901 Kalamalka Road
Coldstream, BC V1B 1L6

Attention: Mayor Brian Postill and Councillors

Re: Parks and Trails on Middleton Mountain

We have followed Council's resolution to meet with the Development Services Officer and discuss our goals which we presented to Council on June 27, 2005.

On September 15, 2005, our group met with Craig Broderick; Susan Abbott, Greater Vernon Services Parks and Recreation Assistant Director; and Dave Kennedy from the Ribbons of Green.

Given the increasing number of homes being built on Middleton Mountain, we feel there is a definite lack of parks and trails. We are also concerned about protecting the natural environment and ecosystem of the mountain. Our goals are within the ***District of Coldstream's Official Community Plan***, as well as within the recommendations of the ***Natural Area/Feature Inventory*** created by GVPRD.

During our meeting with Craig and Susan, we clarified our goals and investigated what is achievable. We then estimated a realistic timeframe.

In regards to Council's request to provide a proposed budget, we feel our group does not have the expertise to supply such information. We have neither the resources nor the experience to provide a cost for our goals. We feel it is the responsibility of Council to create a realistic budget.

Regarding funds available for the development of parks and trails within the District's budget, there is currently no money set aside specifically for the acquisition of land for future trails and parks in the District of Coldstream. Coldstream funding for parks and trails is obtained through taxes collected for the Parks and Recreation function of Greater Vernon Services; however it is questionable how much of the land acquired is located in the District of Coldstream.

We suggest that Council establish a reserve fund for Parks and Trails with an annual amount to be placed in the fund.

Goal 1: Create Tot Lots in The Highlands Development.

We feel there is a lack of playing area for children in the Highlands Development. Past and current billboards advertising lots in the Highlands Subdivision boast of "Extensive Parks and Trails". Phase 7 of the Highlands is currently under construction and residents have yet to see and use these promised parks and trails.

Webster Park, which was donated by the Webster family, is a rocky knoll that is not suitable for young children to play on. The park being built adjacent to the future school site is located too far for young kids from the Highlands to be used as a neighbourhood park.

Achievable solution:

- A Tot Lot on the empty land under the hydro lines on the corner of Middleton Way and Mt Ida Drive.

Realistic Timeframe: begin planning immediately and complete by Spring 2006

Goal 2: Reinstate and develop easements for trails and pathways on Middleton Mountain.

We would like to ensure trails and pathways are created on Middleton Mountain, and existing intra neighbourhood paths are reinstated. Our group has drafted a trail that encircles the mountain and links with existing and future parks and trails.

Across from our proposed Tot Lot in the Highlands subdivision, hydro lines span across the mountain between houses. We propose that a walking/biking trail be built on this Open Space under these lines. This land is currently vacant and will have to be maintained - a walking/biking trail would serve this purpose and provide a desperately needed trail.

Upon observation of community maps provided by Craig, there are several intra neighbourhood paths that are not in service. We propose that these paths be reinstated to provide better access to future and existing trails and parks. This land is designated as a path, but has been neglected or reclaimed by adjacent landowners. These paths are situated in Mariposa, Sunflower Place, below Anjou Drive, Michael Drive, Husband Road to Guildford Court, Husband Road to Middleton Way.

We also discussed creating a walking trail from Braeburn Road to Kalamalka Lake Road. Many students living on Middleton Mountain attend school at Kidston and Kal Secondary and currently use this route.

Achievable solutions:

- Create a trail under the hydro lines in the Highlands Subdivision.

Realistic Timeframe: immediate

- Plan a trail that will eventually encircle the mountain.

Realistic Timeframe: begin planning immediately in consultation with Greater Vernon Services and the Ribbons of Green

- Reinstate existing intra neighbourhood paths that have been neglected on Michael Drive, Husband Road to Guildford Court, Husband Road to Middleton Way.

Realistic Timeframe: immediate

- Create a trail from Braeburn Road, through Braeburn Heights, to Kalamalka Lake Road along the existing easement.

Realistic Timeframe: immediate, and plan Braeburn Heights subdivision with this trail in mind

Goal 3: Protect Open Spaces in perpetuity for parkland and hiking trails

We would like to see the undeveloped land at the summit of Middleton Mountain, (which is currently designated as 'Open Space'), be rezoned as 'Park Land'.

At our meeting with Craig, we discussed a document entitled 'GVPRD Natural Area/Features Inventory'. Many of the document's proposals for the Protection and Management of Middleton Mountain are the same as our goals, namely:

- designate and manage the Open Space on Middleton Mountain as parkland;
- ensure that developing subdivision provide adequate opportunities for public access from all directions to natural parkland in summit areas.
- ensure that these access opportunities are not available for motorized use (eg. trail bikes, ATVs)
- plan ahead for a main public parking and trailhead area for Middleton Mountain.

Achievable solution:

- Rezone the Open Space at the summit of Middleton Mountain as Parkland.

Realistic Timeframe: immediately
Proposed Budget: no cost

Goal 4: Develop and publish a pamphlet and a website page to inform the public of the parks and trails in Coldstream.

We would like to educate Coldstream residents and visitors on the location of our current parks and trails.

Even though our group members are avid park and trail users, we were all amazed to learn of the current trails and parks that exist in the District of Coldstream. Most of us have lived in Coldstream for several years, however we did not know that these parks and trails exist and where they are located.

Achievable Solution:

- Develop and publish both a paper pamphlet, and a webpage on the District of Coldstream's website, to inform the public of the Parks and Trails in Coldstream.

This does not have to be an elaborate process, but a simple map created by a summer student.

Realistic Timeframe: two months

We appreciate Craig Broderick, Susan Abbott, and Council's time and effort in listening to our goals and helping us to achieve them.

After the November election, we would like to meet with the new Council to proceed with our goals.

Sincerely,

Ingrid Neumann	549-1770
Frank Hamilton	542-9537
Sandi Tapping	542-6402
Ross Parsons	545-3887
Brian Bain	545-7818
Chris & Gina Alveberg	558-7856

cc: Susan Abbott, Assistant Director, Parks, Recreation & Culture
Greater Vernon Services

Attn. Lourie
Kitchen

Ribbons of Green
P.O. Box 1953
Vernon, B.C.
V1T 8Z7

May 31/04
Mr. Craig Broderick – MCIP
Development Services Officer
District of Coldstream
9910 Kalamalka Lake Road
Coldstream, B.C.

Re: Review of District of Coldstream Official Community Plan

Dear Mr. Broderick:

The following parts summarize our comments and concerns for the OCP:

1. We would encourage the OCP to work with Coldstream Ranch and other owners to develop and connect the Grey Canal Trail section that runs from BX to Lavington through Coldstream
2. Consider Deep Lake Trail possibilities for the future
3. Improve McClounie and Coldstream Creek Road with shoulders for bikes and pedestrians to make a loop with Kal Lake Road
4. Develop shoulders and improvements for Aberdeen and Buchanan Roads for bikes
5. Pursue bike and pedestrian path proposals for Middleton Way and Middleton Mtn as per the OCP
6. Commit to establishing overall bicycle/walkway/parkway network plan
7. Commit to including walkways and bicycle paths as a requirement for development with standards specified in bylaws
8. Support the completion of a trail from Polson Park to Kal Lake
9. Adapt Kidston Road for bike and pedestrian access to Kal Park at the main parking lot entrance

10 Try to achieve continuity with Vernon's District Trails

These suggestions are not necessarily in order of priority but we do feel they enhance the quality of life and attractiveness of Coldstream. Thus, the value of Coldstream property is enhanced and the tax base broadened making them a good investment for the future.

Yours truly,

cc Ward Strong- Chairman of the Cycling Advisory Committee

The District of Coldstream

Invites you to attend a

PUBLIC OPEN HOUSE

TO DISCUSS AND OBTAIN YOUR FEEDBACK ON THE

DRAFT COLDSTREAM BICYCLE AND PEDESTRIAN MASTER PLAN

WEDNESDAY,
June 28th, 2006
5:00 PM – 8:00 PM

COLDSTREAM
DISTRICT HALL
9901 KALAMALKA ROAD

WHY IS A BICYCLE & PEDESTRIAN MASTER PLAN NEEDED?

The District of Coldstream recognizes that non-motorized transportation users are an important component of the transportation system. In order to encourage cycling and walking within the community, the provision of safe and attractive facilities is essential.

Although some facilities such as sidewalks and paved shoulders have been implemented in the past, the District of Coldstream needs a big picture vision for the systematic implementation of a safe, feasible and convenient bicycle and pedestrian network, providing access to and from major destinations such as schools, parks and neighbourhoods.

PURPOSE OF THE OPEN HOUSE

The primary purpose of this open house will be to inform the community of the background, objectives and process behind the development of the Master Plan. In doing so, we hope to solicit your input. We want to provide you with the opportunity to share your thoughts, ideas and experiences, to help us identify pedestrian and bicycle issues and key network routes.

Please contact **Craig Broderick**, District of Coldstream Planner at 545-5304 if you have any questions about the Bicycle and Pedestrian Master Plan.

WELCOME

TO TONIGHT'S OPEN HOUSE ON COLDSTREAM'S BICYCLE AND PEDESTRIAN MASTER PLAN

JUNE 28th, 2006
DISTRICT HALL
5:00 – 8:00 p.m.

District of
NULLI SECUNDUS
Coldstream

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ANOTHER PLAN?

The District of Coldstream recognizes that non-motorized transportation users – particularly cyclists and pedestrians – are an important component of the transportation system. In order to encourage cycling and walking within the community, the provision of safe and attractive facilities is essential.

Although some facilities have been implemented in the past, the District of Coldstream needs a big picture vision for the systematic implementation of a safe, feasible and convenient bicycle and pedestrian network, providing access to and from major destinations such as schools, parks and neighbourhoods.

The *Bicycle and Pedestrian Master Plan* that is being developed for the District of Coldstream will include the following:

1. A map of the District's **Cycling / Walking Route Network**, identifying existing and future facilities.

2. A set of **Design Guidelines** for the implementation and construction of safe bicycle and pedestrian facilities.

3. An **Implementation Strategy** with a prioritized list of recommended upgrades, allowing the District to plan and budget for future bicycle and pedestrian facility needs.

TYPES OF BICYCLE AND PEDESTRIAN FACILITIES

SHARED ROUTE

- Bicycles and motorists share the road space (i.e. no additional road space provided for cyclists).
- Typical on roads with low traffic volumes.
- Identified with 'Bicycle Route' signs to alert motorists to the presence of bicycles on the road.

MARKED WIDE CURB LANE

- Vehicles and Cyclists share wide (4.3 m) lanes.
- Allows for vehicles to safely overtake cyclists without crossing into adjacent lane.
- Marked with bicycle stencils on right side of roadway.
- Typically applied on roads with low to medium traffic volumes, on-street parking, frequent transit stops and high volumes of turning vehicles.

PAVED SHOULDER

- On rural roads without curb and gutter.
- Minimum 1.5 m wide.
- Used by both cyclists and pedestrians.
- Examples along Kalamalka Road and Aberdeen Road.

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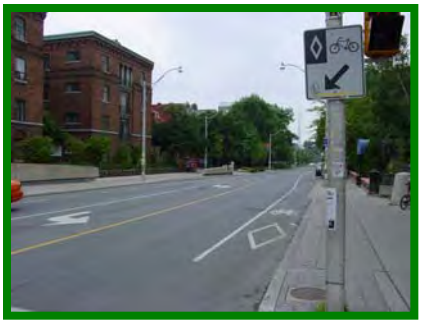
District of Coldstream

TYPES OF BICYCLE AND PEDESTRIAN FACILITIES

BICYCLE LANE



- Separate travel lanes designated for exclusive use of bicycles.
- On urban roads with curb and gutter.
- Minimum 1.5 m wide.
- Identified with solid white line and bicycle stencil.

SIDEWALK

- Designated pedestrian area behind curb and gutter on urban roads.
- Minimum 1.5 m wide, preferably 1.8 m.
- Existing examples in Middleton Mountain.

MULTI-USE PATHWAY

- Shared off road facility for commuting and recreation use.
- Accommodates all types of users including pedestrians, cyclists, in-line skaters, persons in wheelchairs or with strollers, or equestrians.
- Minimum 4.0 m wide.
- Can be paved or not paved.

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KEY ISSUES

- **Middleton Mountain Neighbourhood** – Pedestrian and bicycle access to and from Middleton Mountain, as well as a need for internal trails, connections and parks.
- **Kalamalka Beach** – Safety of vulnerable road users on and across Kalamalka Road near the beach. This is compounded by on-street parking and high traffic volumes.
- **Regional Connectivity** – Bicycle and pedestrian network needs to provide connectivity to Regional Routes (i.e. fit in with the big picture vision for bicycling and walking within the Greater Vernon Area).
- **Schools** – Safe access for cyclists and pedestrians to and from the schools within the District of Coldstream.
- **Lavington** – Improved access to the school and park.
- Others? You tell us!

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THE PROPOSED NETWORK

We have developed a **Draft** Bicycle and Pedestrian Network for the District of Coldstream (See map). The network aims to:

- Provide connectivity to, from and between major bicycle and pedestrian generators such as schools, parks and neighbourhoods.
- Identify the location and type of **Existing** bicycle and pedestrian facilities.
- Fill in 'Gaps' in the existing network with recommended **Future** facilities or facility upgrades.
- Identify both large scale routes through the District to improve community connectivity as well as smaller inter-community links such as walkways to improve local access.
- Address the key connectivity and safety issues that we have identified so far.

However, the network is a work in progress. We need your help and local knowledge of the District of Coldstream to identify links or connections you think we may have missed.

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GET INVOLVED

Your input is valuable to us in developing an effective Bicycle and Pedestrian Network. Do you have any ideas for additional routes or connections? Do you have any issues that are important to you that you feel need to be addressed as part of this plan?

There are several ways by which you can provide feedback to the study:

- Discuss your ideas or concerns with staff at the open house tonight. Maps are available throughout the room to mark up and brainstorm your thoughts.

- Complete one of the questionnaires and drop it in the box provided, or leave it with the staff. Take a few home with you if you think someone who isn't here tonight may wish to contribute, or if you want to think about it further. Just mail, email or fax it in later.

THANK YOU FOR COMING!

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District of
Coldstream

The District of Coldstream

Bicycle and Pedestrian Master Plan

PUBLIC OPEN HOUSE

COMMENT SHEET

The District of Coldstream recognizes that non-motorized transportation users – particularly cyclists and pedestrians – are an important component of the transportation system. In order to encourage cycling and walking within the community, the provision of safe and attractive facilities is essential.

Although some facilities have been implemented in the past, the District of Coldstream needs a big picture vision for the systematic implementation of a safe, feasible and convenient bicycle and pedestrian network, providing access to and from major destinations such as schools, parks and neighbourhoods. The purpose of this open house is to present a Draft Network showing where we think the most important connectors lie as well as the location of existing and future facilities.

Your comments and suggestions are very important to this study. Please take a minute to provide your input!

QUESTION 1

We have identified some **key issues** in terms of bicycle and pedestrian accommodation in Coldstream as part of this Open House, including:

- Connectivity to/from Middleton Mountain
- Access to/from schools
- Access to/from Kalamalka Beach
- Regional Connectivity

Are there any that we have missed? Are there any other general safety/facility related concerns that you have?

FLIP SHEET OVER FOR PAGE 2

QUESTION 2

Do you have any ideas for **potential facilities** that haven't yet been identified? These could include:

- Gaps in the network – You want to get from one place to another but there are no existing bicycle or pedestrian facilities
- Routes that you use currently but are not identified in the Draft Network
- Routes through the District to improve community connectivity as well as inter-community links such as walkways to improve local access.

QUESTION 3

Do you have any further comments or suggestions?

Thank you for your input!

You can return this Comment Sheet by either dropping it in the 'Completed Comment Sheets' box provided, or leaving it with any staff member here tonight. Alternatively, you are free to take copies of this questionnaire home and return it by **mail** or **fax** to the following:

Craig Broderick, District of Coldstream
9901 Kalamalka Road
V1B 1L6
Fax: (250) 545-4733

All feedback must be received by Friday July 8th for consideration.

#500 - 1708 Dolphin Avenue, Kelowna, BC V1Y 9S4
Telephone: 250-762-2517 Fax: 250-763-5266

URBANSYSTEMS.

MEETING NOTES

subject:	**District of Coldstream Bicycle and Pedestrian Master Plan** **PUBLIC OPEN HOUSE**
date:	July 25th, 2006
meeting date:	Wednesday June 28th, 2006
location:	District Hall
file:	1164.0096.01 - M
prepared by:	Erica Farnworth, P.Eng.
distribution:	District of Coldstream

attendees	company	e-mail
Craig Broderick	District of Coldstream	planner@district.coldstream.bc.ca
Erica Farnworth	Urban Systems Ltd.	efarnworth@urban-systems.com
Emily Sabo	Urban Systems Ltd.	esabo@urban-sytems.com
Ehren Lee	Urban Systems Ltd.	elee@urban-systems.com
Public Attendees (approximately 50)		

In total, 27 questionnaires were completed and returned. The comments from the questionnaires are summarized below.

KIDSTON ROAD:

- Access to / from Kalamalka Lake Park by bicycle or walking along Kidston Road. The current access is only car friendly. How about a multi-use pathway?
- Access to Kal Park especially Jade, Juniper. Currently not safe to ride bike or walk to there because Kidston Rd too dangerous. Need separate multi-use pathway along Kidston Road.
- Yes, a safe multi-use link to Kal Park. Kidston Road is dangerous for pedestrians and cyclists.
- One extremely dangerous route is along Kidston Road to Kal Lake Park and the subdivisions at the end. It is extremely unsafe for runners, walkers and bikers. I have already come across a biker who came off her bike heading north on Kidston from Kal Park who suffered severe head injuries with permanent disabilities (Lisa Diel) do I let my kids ride this road or even walk it to school. We need a safe route to travel.
- Reduce summertime speed limit of Kidston Road to 40 km/hr (same as Kalamalka Road).
- Please do something about Kidston Road from Juniper Park to Kidston School. I would like to see a designated bike lane!
- My preference would be for dedicated bike lanes on both sides of Kidston Road, long with straightening to two bad corners (red gate, S curve).

- Kidston Road is a major concern – not only because I live just off of it. It is an increasingly busy road for cars, walkers and bikers going to and from our gorgeous Kal Prov. Park. So many more people would bike and walk to these places if there was a safer route ~ bike/walking lane (at least on one side) and those already using the road need to have a safer way to get along Kidston Road.
- I would prefer to see a widened road (bike lane), not a sidewalk on Kidston. Please refer to my letter (submitted June 28th).
- We would like to see a sidewalk/bikepath/anything safe for our kids to walk on from Kidston School all the way to the Red Gate and/or Juniper and Jade Bay.

HIGHWAY 6:

- Rail crossing on Hwy 6 where Kalamalka Road comes out is very dangerous.
- Railway crossing at Hwy 6 & Kalamalka Road is dangerous and in very poor condition.
- Lack of shoulder on Hwy 6 westbound and inconsistent shoulders eastbound Hwy 6.
- Railway crossing Hwy 6 (before Lavington) diagonal crossing in poor condition and dangerous.
- Improvements at lights at Hwy 6.
- Highway 6 from Kalamalka Road – east through the Coldstream Ranch is narrow and should have a proper wide shoulder for cyclists going toward Lavington and east (e.g. to Learmouth Road, etc)
- Also would like shoulder on Hwy 6 west bound.
- Widen Hwy 6 for bicycle lane by Coldstream Ranch.

COLDSTREAM VALLEY ESTATES:

- Yes – You have pretty much overlooked a large urbanized are of Coldstream: Coldstream Valley Estates – We have been there a long time we feel as do all residents there, that we also deserve to have some paved shoulders, bike paths & routes, etc. – on Upland Drive (main road in) & on Scenic Drive too. Thank you. There is a huge population of people living here.
- Please, please don't forget to give Coldstream Valley Estates some attention & amenities. Thank you. e.g. paved shoulders, sidewalks, bike paths, etc. More street lights too would be a huge safety improvement.
- Why is there nothing in Coldstream Estates?

REGIONAL CONNECTIVITY:

- We should have a walking path around Kalamalka Lake
- Is it possible to have a walking path along the beach – continuing from Kal Beach? These paths are VERY popular in Kelowna, Vancouver, English Bay & in New West.
- Another way to connect to Vernon rather than through Polson Park – personal safety concerns!
- A flat route south – like RAIL BED! It would be great to hook up with Oyama.
- Regional connections to Vernon
- I would like to see a truly multi-use trail system linking Vernon, Kal Park, and greater Coldstream. In the interest of the residents of Coldstream and area and the tourists who visit.
- Rails to Trails concept is excellent. Connect Polson Park to Kal Beach and beyond. Could connect all the way to Oyama.
- I think that ideally a multi-use path would extend from Kalamalka Park Juniper Bay entrance to Polson Park.
- Rails to Trails – great idea.

OTHER ROUTE IDEAS/REQUESTS:

- A walking/cycling path along McClounie/Coldstream Creek Rd/Kal Rd. High volume. I have been hit by vehicles several times while walking. The road is narrow, with several young (fast) drivers. This is a beautiful path and would suit the community.
- We should have a walking path all along Coldstream Creek – it is a beautiful stream and would allow walkers some peacefulness off the roads.
- Buchanan! Sooner than later please.
- A flat route southbound → using rail bed? Existing side roads that can be connected?
- Create a bike path → a paved & marked shoulder along Coldstream Creek Road → there is one hairpin turn which offers no visibility for a driver and the rest of the road going towards Kal Secondary is a speedway (people often travelling 90 km/hr +) and is dangerous to both cyclists and joggers who proliferate the road.
- Our major concern is from Linden Drive continuing through to Tamarack! There is NO SAFE PASSAGE for kids/adults to get to schools, beaches, etc. This needs to be addressed before there is a serious accident! Thanks for you concern!!
- Please develop access: Palfrey Drive to Kidston Road; Kidston to Juniper Road with bicycle way, not stairs.
- Complete cement pavement at Hachmans new property.

- Better access to Coldstream Park off of Coldstream Creek Road.
- Should be paved shoulder on Mackie Drive to deal with Coldstream Meadows expansion.
- North side of Kal Road from Aberdeen to Coldstream Creek needs a bike path NOW. The southside has a path and not having it on both sides is dangerous. This is a major part of circle route for bikers/walkers/runners.
- There is no need for sidewalk on Kal Road from school to Coldstream Creek Road. The paved lane works well and will work better if on both sides. Bikes are not supposed to be on sidewalks and neither should horses. Paved paths more economical to build and cheaper to maintain than sidewalks.
- It would be nice to have a route along Coldstream Creek like the Mission Park way in Kelowna. The cost would be prohibitive now with all the private homeowners but it would be nice to preserve what is left and make a cool and shady path through.
- You show sidewalk and marked wide curb lane on West Kal Road. In reality this is a very narrow strip of land that requires parking space for the Pump House Park. Where are the bicycle users and walkers going to go when parked vehicles are on the areas you have set aside for them? Try to use the bike lanes on Kal Lake Road when there is a function on at Vernon Golf Club.
- Please consider stair well from Braeburn to Kalamalka Road.
- Middleton connection to Aberdeen – also trail to Kal.
- Widen Buchanen Road to include bike lane (in the busy part near Aberdeen Road).

GENERAL COMMENTS:

- Subdivisions should have walkways as short cuts for pedestrians and cyclists. Especially important for kids going to school – safer and lessens traffic.
- The controls to activate lights by pedestrians are often in awkward locations for a cyclist. In Europe, cyclists have often their own button, close to curb, very handy!
- I commend the council for this initiative! If Vernon and NORD do the same, we will be getting somewhere!
- Pedestrians and cyclists don't mix well. Try to separate with lines or some difference in elevation e.g. and signed!
- In many places there are grates or shut offs right in the location where a cyclist would ride. Safety would also be enhanced by more frequent sweeping of shoulders to get rid of glass and other debris.

- Good job so far. Meeting needs of all types of cyclists is difficult but PLEASE keep planning for kids safety, recreation and novice cyclists AND commuter cyclists who want safe efficient routes to work and utilities. Have you considered sponsoring CAN-BIKE safety courses?
- Glad to see Coldstream is planning for bike/ped facilities and seeking public input.
- I'm so pleased that you are planning to improve/build bike and pedestrian paths in the Coldstream. Thank you!
- What to do with bicycle to keep it safe when you arrive at destination.
- There is a lot of debris on the sides of roads that are hazards to bicyclers either puncturing tires or causing swerving to avoid debris.
- If we are serious about getting people out of their cars and participating in a healthy lifestyle, then let's take some leadership in a positive direction. We need to provide safe and appealing alternatives for travel and exercise.
- School PE classes cycling to Kal Beach – love pathway.
- Great presentation – well informed personnel. Thanks.

IMPROVEMENTS TO EXISTING INFRASTRUCTURE:

- Coldstream Creek Road has a high number of walkers & cyclists throughout the year. The public works should consider installing 50 km/hr signs up. Many people speed along this road.
- Consider a "STOP" sign at the corner of McClounie Road & Coldstream Creek Road.
- Yes, the Red gate at Kal park to Kidston school is extremely hazardous for pedestrians & cyclists, it is used by more than just houses in the area – park entrance is extremely busy, cover drainage ditches & expand road to include bike/walk path.
- Shrubs in area of Kal store block view of drivers, these should be exchanged for rock or something that does not impact view.
- Traffic flow bottom of Husband very congested at 7:30 – 8:30 ? need for traffic lights.
- The existing right of ways off of Husband Road should be re-established.
- Signage in Kalamalka Park needs to be clarified.
- Consider traffic lights at Husband & Kalamalka. Traffic flow has increased dramatically in the last year.

In addition, the following petition was submitted:

- Comment sheet from Jennifer King (545-9889; 13614 Ponderosa Way) had attached a "Petition for Multi-Use Pathway along Kidston Road from the Red Gate to Kidston School" containing 13 signatures.

The preceding is the writer's interpretation of the proceedings and any discrepancies and/or omissions should be reported to the writer.

URBAN SYSTEMS LTD.

Erica Farnworth, P.Eng.
Transportation Engineer

/ef

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10-13341 Kidston Road
Coldstream, B.C.
V1B 1Z4
June 30, 2006

Re: Future pathways in Coldstream

Mayor Gary Corner, District of Coldstream
9901 Kalamalka Road
V1B 1L6

Dear Mr. Corner,

After reviewing the comment sheet in regards to the bicycle and pedestrian master plan I wanted to elaborate on some of my thoughts and concerns.

Let me begin by saying that my greatest wish would be to see a multi-use path extending from Long Lake Estates to Kidston School and beyond to Kalamalka Lake Road to eventually end at Polson Park. I also was thrilled to hear that it could be possible to have a multi-use path next to the railroad tracks taking us to Oyama and beyond. I know this is a big (and expensive dream) but here are some reasons why we need to make it happen.

Presently I know of very few children that walk or ride bikes to Kidston School, and I know of few families that want to venture along Kidston Road for family strolls and bike rides. What we are being told is that we are seeing childhood obesity and diabetes growing at alarming rates. We are being told that we rely too heavily on our vehicles and it is having a negative impact on our environment. I read that we are becoming a society that does not know our neighbors; that we drive in and out of garages and are increasingly isolative and detached from our communities.

A multi-use path would have an enormously positive effect on the community of Coldstream. Imagine a "walking" school bus with parents taking turns supervising instead of a stream of vehicles dropping their kids off at the school entrance. Our children would be a greater part of the community and would be getting exercise and fresh air at the same time. Think of how vibrant Coldstream would be if the pathway existed and was filled with people exercising, socializing and engaging in the community. Moms and dads getting together for social walks after accompanying kids to school. Seniors feeling less threatened about their safety and feeling more connected to other generations of Coldstream residents. A safe place to rollerblade, which we presently have a lack of in all of the Vernon area. I have seen the effect of this model in other cities and the impact it has is incredible. I believe that people who may not normally exercise, or even socialize, are inspired to do so when they see the community around them doing just that.

Currently I am disappointed that we appear to be adding subdivisions and more motorized vehicles to our community and continue to be "trapped" in our cars because of a lack of safe paths and sidewalks. We need to evolve and focus on lifestyle, health,

community and well-being....the things that drew most of us outside of the "big city" to begin with, and the things that ultimately give us joy. Coldstream has the possibility to be a leader among small towns, the sort of place you read about in magazine articles and long to relocate to. This is an amazing opportunity for Coldstream to live up to its slogan 'Rural living at its best,' and for future generations to marvel at the fabulous foresight of Council in 2006.

Thank you so much for taking the time to read about my Coldstream dream!

Sincerely,

Melanie Wagner-Collins

cc.Mr. Craig Broderick

Craig,

As you are aware, I reside at the address below in the Kallinish subdivision. I write to express my concerns about the lack of a SAFE path or sidewalk along Kidston Road for walkers and bike riders, especially all the kids now up this way.
As more homes are built along this busy traffic corridor and as more residents, many with children, move in, the increase in the use of Kidston (the only road in and out of here) is exploding.
Also, as Kal Park becomes more and more popular, it also obviously adds to the increased traffic volume on an already extremely busy, steep, windy and unsafe road.
As you are also aware, the majority of the Primary and High School age children on Kidston and the arterial subdivisions it services, attend either Kidston Elementary or Kal Secondary Schools. Alot of them ride their bikes or walk up and down Kidston to get to school. Currently there is no safe route for them to use as they are either forced onto the road or it's very narrow gravel shoulder.
This is an ACCIDENT WAITING TO HAPPEN and no one wants to see a child or anyone else hurt or worse because of this unacceptable but correctable situation.
The fix is easy. It will cost a little money but we NEED SAFE PASSAGE along Kidston Road in the form of a sidewalk or path that will take the bikers and walkers off this street or it's shoulder BEFORE the inevitable happens and some family is forced to deal thier AVOIDABLE loss and grief, not to mention the potential fallout in the form of serious and very expensive legal liability that will be without doubt heaped upon the Municipality of Coldsteam ... -ie- you and I and all the other good tax payring citizens of Coldsteam who love the tranquility of our "rural living at it's best".
Surely, with the increased tax base from hugely inflated property values and the additional funds this generates, Council has now the available resouces to act sooner rather than later on this pressing issue. How about starting with a sidewalk around the back of our subdivision in advance of the planned road realignment
to expand the Red Gate parking area?
Craig,I would appreciate it if you would bring our concerns to the attention of Council at the earliest possible opportunity.
Thankyou for your consideration.

Alan Gaudette and Family.

Alan M. Gaudette

Alan M Gaudette Law Corp.
Okanagan Family Law Offices
#9 13341 Kidston Road
Coldstream, BC
V1B 1Z4
Phone: (250) 545-3132
Fax: (250) 545-1617

6/27/2006

June 27, 2006

Attn: Craig Broderick

Re: Open House on Coldstream's Bicycle and Pedestrian Master Plan

We, the undersigned, fully support the proposed plan to include safe access to and from schools and regional connectivity of bicycle and pedestrian facilities to regional routes.

We feel that one important area to be considered would be Kidston Rd; specifically between Linden and Ponderosa. Currently there is a dangerous combination of pedestrians, cyclists and vehicles sharing this narrow, winding road which does not include a shoulder.

We feel that those who require the use of Kidston Road to get to and from school, local parks, beaches and other recreational areas cannot currently do so in a safe manner; that includes over 100 children at this time. Such close proximity with vehicle traffic is simply unsafe; for drivers (both those who are familiar and those who are unfamiliar with the road), for foot traffic and for cyclists.

Further, we feel that the number of people who would benefit from a bike lane reaches well beyond the local Kidston neighborhoods, as residents from all over Coldstream and Vernon use the Kalamalka Park area, accessing it from Kidston Rd.

We are asking our elected leaders to help make the Kidston bike path a reality.

Sincerely,

Kevin and Karen Cleland
Lionel and Joanne Gray
Steve Pelkey and Karen Betts
Ray and Shelley Wolsey
Warren Jager and Whitney Steel
Craig and Amber Howard
Cal and Kerrie Stewart
Glen and Debra Garvie
Jim and Donna Dixon
Derek and Cindy Parmalee
Joe and Rosemarie Rogers
Andy King and Jacquie Nuyens
Brent and Lydia Phillips
Bruce and Leslie Kolb
Francois + Ursula Dijjchaa.

APPENDIX B

BICYCLE AND PEDESTRIAN FACILITY DESIGN GUIDELINES

TABLE OF CONTENTS

1.0 INTRODUCTION

This section presents a comprehensive set of guidelines for the design and construction of bicycle and pedestrian facilities. These guidelines are intended to supplement the following current design guidelines:

- *Geometric Design Guide for Canadian Roads*, Transportation Association of Canada, 1999
- *Bikeway and Traffic Control Guidelines for Canada*, Transportation Association of Canada, 1998

As such, current TAC guidelines are not repeated in this section, and the designer is requested to consult the above documents if the required guideline is not found in this section. The design guidelines presented in this section are based on state-of-the-art guidelines used in B.C. and elsewhere in North America, and address situations not encompassed in the TAC guidelines.

These design guidelines should be used for the implementation of bicycle and pedestrian facilities throughout the District of Coldstream. Although these guidelines are intended to maximize safety and improve access and efficiency for all users, it should be recognized that the consideration of costs and impacts may result in modified designs. However, in areas where cost or impacts are prohibitive to achieving a design guideline, the District of Coldstream may wish to consider alternate routes, rather than using a modified standard.

2.0 ON-STREET FACILITIES

On-street facilities described in this section include shared routes, marked wide curb lanes, conventional bicycle lanes and paved shoulders. Crossings are discussed separately in **Section 5.0**.

The guidelines presented in this section identify minimum or "desired" dimensions for on-street bicycle and pedestrian facilities. They also include "interim" guidelines where applicable. The intent of these interim guidelines is to indicate minimum acceptable conditions for on-street facilities in situations where these are retrofit to existing roads — which will be the majority of cases. It is expected that at some time in the future when the opportunity arises (such as through road reconstruction or redevelopment of adjacent land uses, for example), an on-street facility constructed to interim guidelines would be upgraded to meet the "full" guidelines described in this section.

2.1 Shared Routes

Shared routes make use of collector roads and local streets with low traffic volumes. Because fewer motor vehicles use these roads, bicycles, pedestrians and motor vehicles can safely share the road space. Consequently, it is not necessary to provide extra width for bicycles or designate specific areas of the roadway for bicycle or pedestrian use. All that is required is "bicycle and pedestrian route" signage, as described in **Section 5.0**.

2.2 Marked Wide Curb Lanes

A marked wide curb lane is wider than a standard travel lane, to provide sufficient width for an automobile to safely overtake a bicycle, without crossing over into the adjacent or oncoming traffic lane. This shared use of a wider curb lane also helps to assimilate bicycles into the domain of the automobile, fostering a mutual respect between motorists and cyclists. This helps to reduce confusion and conflicts between bicycles and motorists at intersections, where the majority of problems with conventional bicycle lanes occur.

A marked wide curb lane incorporates bicycle symbols stencilled on the right side of the lane at regular intervals (See **Section 5.0** for a further description). This identifies the right side of the lane as the area used by bicycles, which serves to alert motorists to the potential presence of bicycles even when there is no bicycle on the road. The roadway stencils are also a means of

increasing awareness of bicycle facilities and encouraging cycling. Unlike a conventional bicycle lane, marked wide curb lanes do not include a white line separating bicycles from other traffic.

Situations where marked wide curb lanes are the preferred method of bicycle facilities include the following:

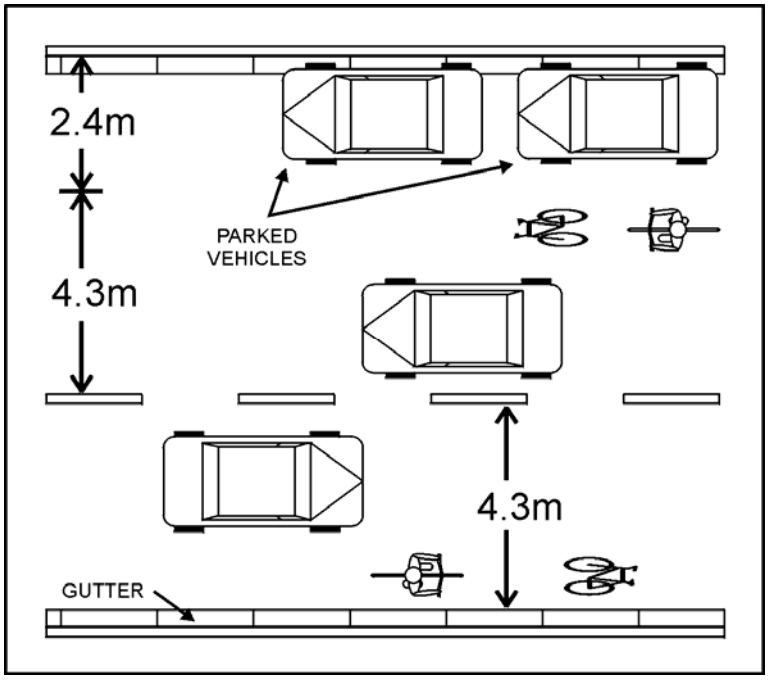
- Roadways with low to moderate traffic volumes
- Roadways with high volumes of turning movements (to/from driveways and intersections)
- Where on-street parking is provided
- Where frequent bus stops are provided

A width of 4.3 m (not including the gutter) is recommended for marked wide curb lanes, as illustrated in **Figure 2.1**. The width of a marked wide curb lane should not exceed 4.5 m, as this would enable vehicles to pass other vehicles on the right.

- It is important that the width of the gutter is not included in the 4.3m width. For safety reasons, cyclists will not ride in the gutter or even within 20 cm to 30 cm of the gutter. Gutters typically collect debris, the surface of the gutter is often not level with the asphalt road surface, and joints in the concrete gutter create bumps.

- If on-street parking exists along the route, a width of 2.4 m should be allowed for parked vehicles, in addition to the 4.3 m required for the wide curb lane with stencils. Where on-street parking is provided, this standard allows enough width for cyclists to avoid conflicts with opening car doors. As illustrated in **Figure 2.1**, the 2.4 m width of the parking lane includes the gutter.

Figure 2.1 – Marked Wide Curb Lane Dimensions

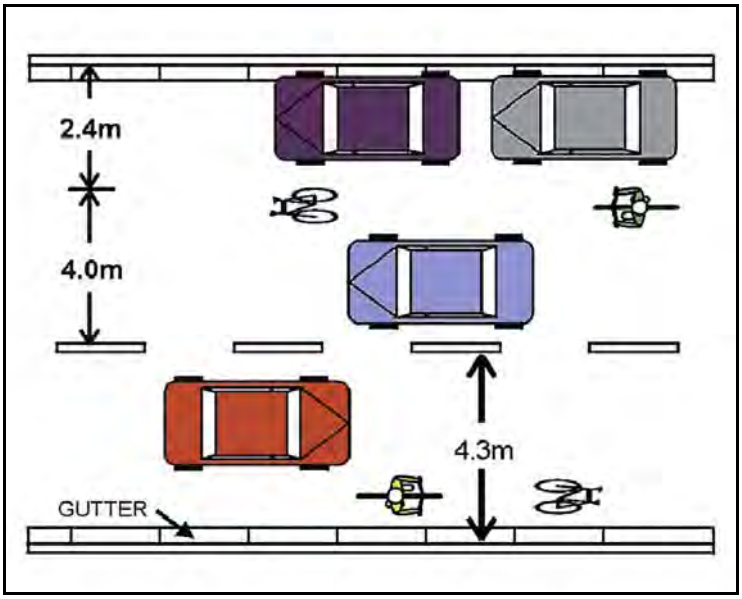


- In situations where marked wide curb lanes are constructed as interim facilities to be replaced at a later date by an improved bicycle facility, the following minimum dimensions apply, as illustrated in **Figure 2.2**:

    - Minimum 4.3 m including the gutter
    - Minimum 4.0 m adjacent on-street parking
    - Minimum 4.0 m adjacent a shoulder provided as a pedestrian facility
    - Minimum 4.5 m adjacent a wall, railing or other barrier over 150 mm in height

- Where a marked wide curb lane ends and the travel lane is reduced to a width of less than 4.0 m, a “Road Narrows” warning sign should be posted in advance to inform cyclists of the road narrowing.

Figure 2.2 – Dimensions for Interim Marked Wide Curb Lanes



2.3 Bicycle Lanes

Bicycle lanes are separate travel lanes on the roadway for cyclists, identified with a solid white line that is dashed at intersections to indicate where motor vehicles may cross the lane for turning movements. Specific guidelines for bicycle lanes include:

- Bicycle lanes should never be planned for two-way travel – cyclists should always travel one-way in the direction of travel of adjacent traffic.

- At a minimum, bicycle lanes should be 1.5 m wide, excluding the gutter as illustrated in **Figure 2.3**. On roadways with posted speeds of 70 km/h or more, bicycle lanes should be 1.8 m wide, excluding the gutter. Bicycle lanes should not be wider than 1.8 m, as this encourages two-way bicycle travel and encourages motorists to park in the lane.

- Where bicycle lanes are provided adjacent to on-street parked vehicles, the combined width of the bicycle/parking lane should be at least 3.9 m. This provides 2.4 m for the parking lane and 1.5 m for bicycles, and provides adequate clearance for cyclists to avoid opened car doors.

- In situations where bicycle lanes are constructed as interim facilities to be replaced at a later date by an improved bicycle facility, the following minimum dimensions apply:

- Minimum 1.2 m excluding the gutter, as illustrated in **Figure 2.4**. With a typical gutter width of 300 mm, this means that an interim bicycle lane is a minimum of 1.5 m wide including the gutter.

- Minimum 1.5 m excluding the gutter on roadways with posted speeds of 70 km/h or more.

Figure 2.3 — Bicycle Lane Dimensions

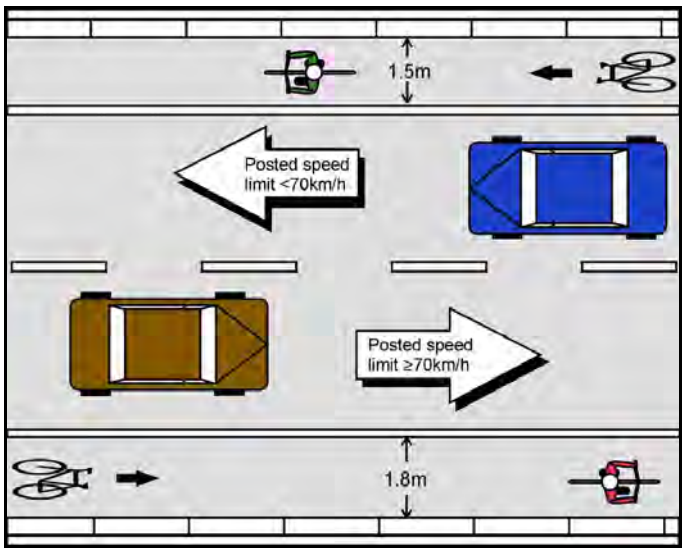
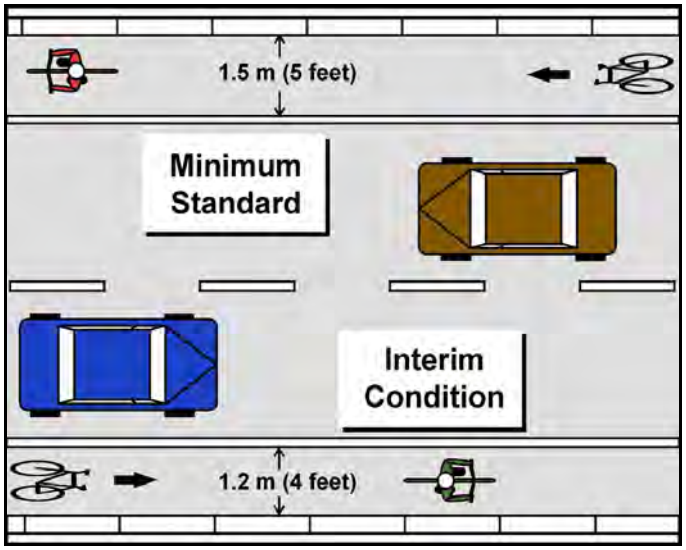


Figure 2.4 – Dimensions for Interim Bicycle Lanes



- Bicycle lanes should be continuous between intersections. If a section of road between two intersections is improved to provide sufficient width for a bicycle lane without improvements to the remaining sections of road, the lane should not be marked or otherwise identified until the remaining sections are improved to provide sufficient width for the bicycle lane.

- When a roadway which is a designated as a bicycle route is reconstructed, widened or overlaid, gravel driveways with significant traffic should be paved to a minimum of 5.0 m from the road edge, as illustrated in **Figure 2.5**, to prevent loose gravel from spilling onto the side of the roadway. It is generally not necessary to pave gravel driveways to single-family residential dwellings, as traffic on these driveways is low.

- Openings in catchbasins should be oriented at an angle to the direction of bicycle travel, so that bicycle wheels are not caught in the openings. Appropriate catchbasin designs are illustrated in **Figure 2.6**.

- Pavement overlays should taper into drainage outlets and manhole covers so they do not cause an abrupt edge. The pavement elevation should match or be within 6mm of the gutter elevation to create a smooth joint.

Figure 2.5 – Paved Driveway Apron on Shared Routes

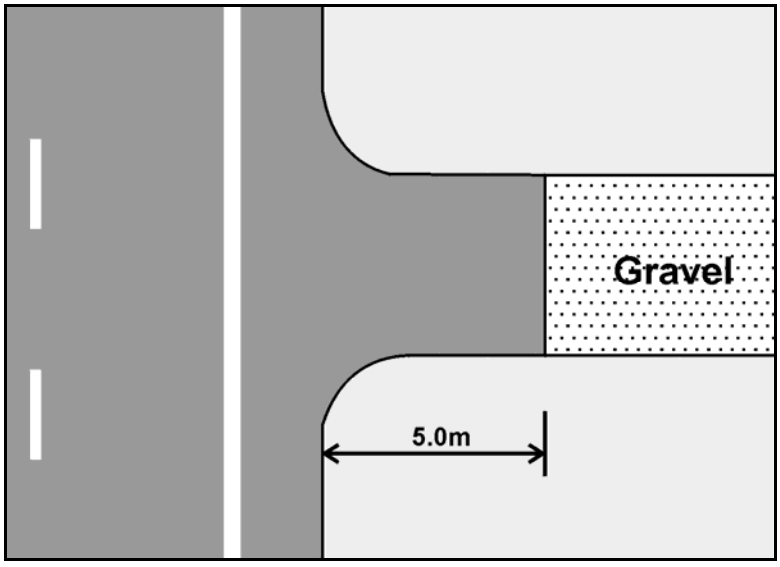
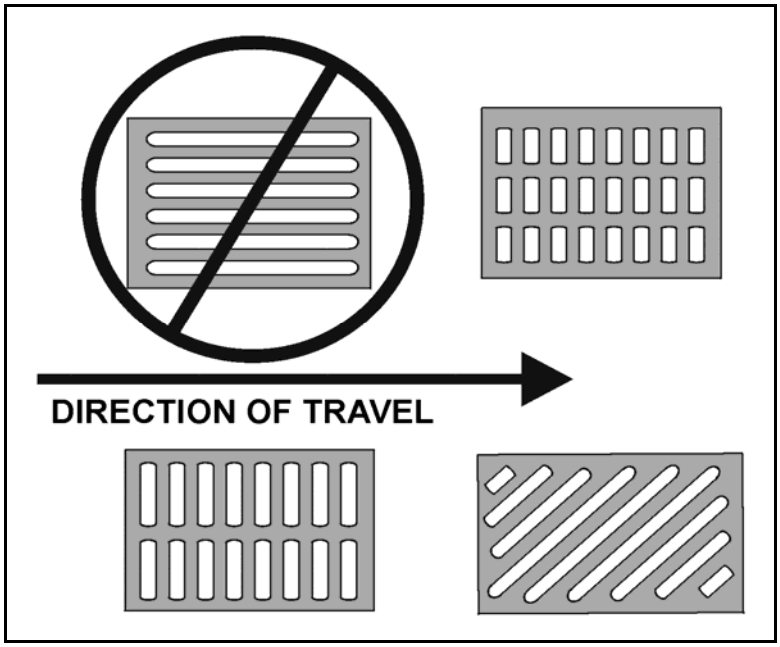


Figure 2.6 – Bicycle-Friendly Catchbasins



2.4 Paved Shoulders

On roads with rural cross sections, where there are no curbs or gutters, cyclists and pedestrians are accommodated on paved shoulders. Specific design guidelines regarding paved shoulders include the following:

- Paved shoulders should never be planned nor designated for two-way bicycle travel – cyclists should always travel one-way in the direction of travel of adjacent traffic.

- Non-emergency parking or stopping should be prohibited on the shoulder at all times.

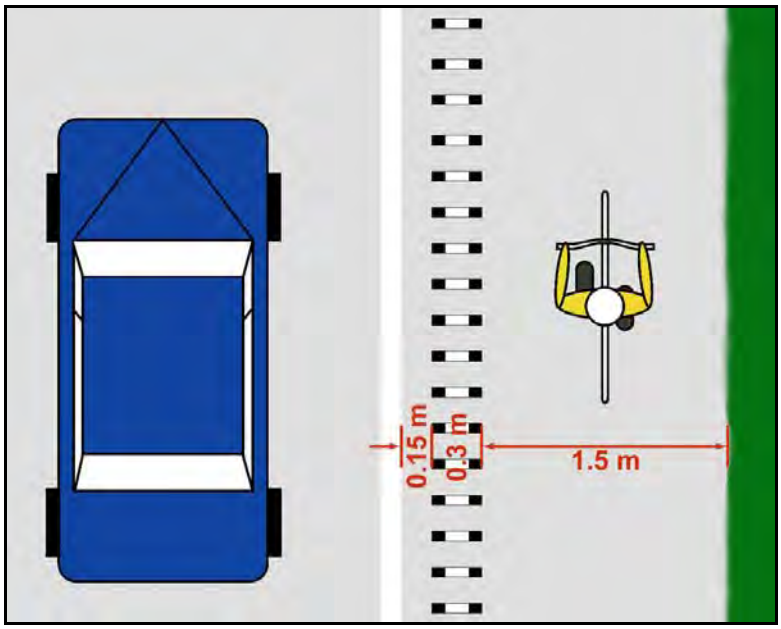
- Shoulders should be a minimum of 1.5 m in width. On roadways with a posted speed in excess of 70 km/h and daily traffic volumes greater than 5,000 vehicles, a paved shoulder width of 2.0 m is desirable. For roadways with posted speeds in excess of 80 km/h and daily traffic volumes greater than 10,000 vehicles, a minimum width of 2.5 m is desirable.

- Shoulders should be paved and free of obstructions, such as drainage aprons. If rumble strips are used to prevent motor vehicle drive-off accidents, they should be located on the far left of the shoulder, within 150 mm of the white fog line, and should be a

maximum of 300 mm wide, as illustrated in **Figure 2.7**. The remainder of the shoulder should be a minimum of 1.5 m wide. Note that the provision of rumble strips is not ideal for cyclists and regular breaks in the rumble strip should be provided to allow safe access and egress from the paved shoulder as needed.

- Shoulders should incorporate a 2.0% crossfall to provide adequate drainage. The crossfall of the shoulders should not exceed 5%.

Figure 2.7 – Paved Shoulder With Rumble Strip



3.0 SIDEWALKS

Sidewalks are pedestrian only facilities located adjacent to the roadway. Key considerations for the implementation of sidewalks include width, boulevards, driveway crossing and curb drops/ramps.

3.1 Width

Properly designed sidewalks are essential to increasing pedestrian mobility, safety and accessibility. This is especially true for persons with disabilities, the elderly and children. Recommended widths for sidewalks depend on the locations where they are installed and the anticipated usage. Recommended minimum widths typically refer to 'clear widths', the width free from all obstructions such as utility poles, fire hydrants, street signs, curbs, building walls and street furniture. Wider sidewalks not only provide a more comfortable pedestrian environment for persons of all abilities, but they also send a positive message to the community regarding the status of pedestrians within the transportation system. If sidewalk widths are reduced or not provided in residential areas, residents may not feel encouraged to walk for either transportation or recreation.

The Transportation Association of Canada (TAC) *Geometric Design Guide for Canadian Roads* recommends a desirable clear sidewalk width of 1.8 m, which is based on two pedestrians passing one another with a 'no-touch' zone of 0.9 m for each pedestrian. Although TAC indicates that the typical minimum clear sidewalk width should be no less than 1.5 m, additional width should be provided in the following conditions:

- Where sidewalks are placed directly against the curb, allowing for street furniture placement, the opening of car doors and additional separation from moving traffic.
- In areas of hospitals and nursing homes, to accommodate persons in wheelchairs
- In commercial areas, to allow for higher pedestrian volumes, the opening of car doors a the curb, street furniture, lateral clearances to buildings, and storefront window shopping
- Where sidewalks abut retaining walls, fences or similar structures

3.2 Boulevards

Although a boulevard strip (the area between the curb and the sidewalk) within a road right-of-way is not considered a pedestrian facility, its presence significantly contributes to the enhancement of the pedestrian environment. In addition to providing a location for surface and underground utilities, street furniture, traffic signs, landscaping, and snow storage, boulevards provide an important buffer zone between pedestrians and vehicular traffic along roadways, particularly where on-street parking is not provided.

Within the District of Coldstream, boulevards would be most appropriate along arterial roadways.

3.3 Driveways

Sidewalks that cross driveways are often sloped. This leads to the potential for wheelchairs to become unstable and tip over, and for other pedestrians to lose their balance. In addition to getting injured by falling, pedestrians could tumble into the roadway, exposing the pedestrian to the potential of a vehicle/pedestrian collision. Therefore, in the design and implementation of driveway crossings, it is desirable to maintain the cross-slope and introduce the driveway crossing by either dropping the driveway to street level for the full width of the sidewalk (accompanied by two ramps on the sidewalk), or maintaining the height of the sidewalk boulevards exist.

3.4 Curb Cuts and Ramps

Sidewalk curbs are barriers and difficult to access for some pedestrians, including:

- Persons in wheelchairs
- Persons with mobility problems
- Pedestrians using strollers, walkers, carts and bicycles and in-line skaters

However, sidewalk curb ramps eliminate this barrier by providing a transition in grade between the street and the raised sidewalk. At intersections, two curb ramps should be provided at each corner of the intersection. Single curb ramps at a corner of the intersection is not desirable, as it directs pedestrians directly into the intersection, which can be hazardous, particularly for visually and physically challenged pedestrians. In addition, if a single diagonal curb ramp is

provided, turning vehicles approach pedestrians from the rear, making it difficult for pedestrians to see the vehicle. Ideally, curb ramps should be located on the straight portion of the curb, and centred inside the crosswalk.

Figure 3.1 – Curb Ramp

4.0 MULTI-USE PATHWAYS

The design guidelines in this section address off-street multi-use pathways. Generally, pathways are hard-surfaced — using concrete or asphalt — which means that all non-motorized users can be accommodated, including pedestrians, runners, in-line skaters, skateboarders, persons in wheelchairs, equestrians, persons pushing strollers, and persons walking dogs, for example. Pathways may be located within a road right-of-way, parallel to a road, or away from any roads.

These design guidelines do not address trails, which are typically narrow, winding and steep, with soft natural surfaces, and are used primarily for recreational purposes — hiking, mountain biking and horseback riding. Pathways with crushed aggregate surfaces are distinguished from trails by wider cross-sections, gentler grades and straighter alignments, and are used for commuter trips as well as recreational trips.

There are several key considerations in the design of off-road multi-use pathways, as summarized below:

- Width
- Pathway Structure
- Pathway Alignment
- Grades
- Clearances
- Illumination, Barriers, Bridges and Stairs

The most important consideration is the width of the pathway. Width is closely related to the potential for conflicts between pathway users, and as a result has a significant effect on the safety and attraction of a pathway. The second-most important (and most-overlooked) consideration is crossings where pathways intersect major roads. Crossings — or more accurately, the lack of crossings — also have a significant effect on the safety and attraction of a pathway. Crossings are discussed in detail in Section 4.0.

These pathway design guidelines recognize that in many cases, pathways will be retrofit within existing road right-of-ways and utility corridors, and in these locations constraints may mean that some design guidelines cannot be met. In recognition of this, these guidelines also include “interim” guidelines where applicable. The intent of these interim guidelines is to indicate minimum acceptable conditions for pathways in retrofit situations. It is expected that at some

time in the future when the opportunity arises, a pathway constructed to interim guidelines would be upgraded to meet the "full" guidelines described in this section.

4.1 Width

Width is the most important design consideration for off-road pathways. In order to minimize the potential for conflicts between pathway users, the width of a pathway should be sufficient to accommodate the numbers and types of expected users. Applicable guidelines include:

- The minimum desired width for a multi-use pathway is 4.0 m, as illustrated in **Figure 4.1**.

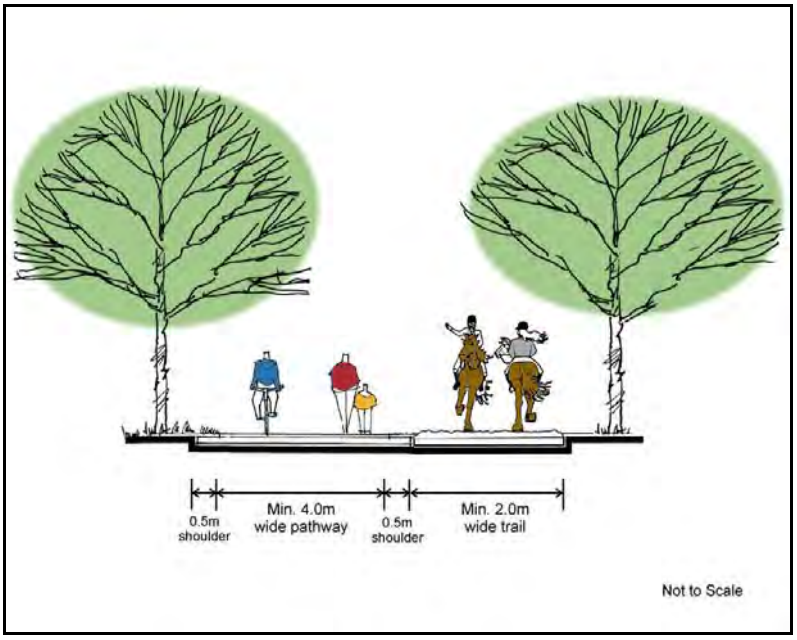
- Widths of 6.0 m or more may be necessary on high-use pathways. A reduced width of 3.0 m is acceptable on low-use pathways with less than 200 persons per hour during peak periods. A constrained width of as little as 2.4 m is acceptable for short sections where there are physical constraints on the pathway width, such as trees, rocks and other objects.

- Where multi-use pathways are expected to accommodate significant numbers of in-line skaters, a minimum width of 4.0 m is required, regardless of the usage of the pathway. The width required by an in-line skater reflects the width of the skating stride as well as a manoeuvring allowance.

- As an interim condition, for pathways constructed in a retrofit situation, pathway widths of 3.0 m are acceptable. In low-use applications, widths of 2.5 m are acceptable as an interim condition.

- Shoulders a minimum of 0.5 m wide should be provided adjacent multi-use pathways, as illustrated in **Figure 4.1**.

Figure 4.1 – Widths of Pathway Elements



Pathways should be designed for two-way travel, as it is difficult to ensure compliance with one-way designations. Separated pathways should be avoided. In communities which have attempted to separate users, pedestrians frequently use the pathways designated for cyclists and in-line skaters, and vice-versa, defeating the purpose of separated pathways. The preferred approach is to construct a single pathway of sufficient width to accommodate all users.

Painted centrelines should not be used to separate directions of travel on multi-use pathways. Centrelines can contribute to conflicts which arise when faster-moving pathway users cross the centreline to pass slower-moving users. Many pathway users also disregard centrelines, which also creates conflicts. The use of centrelines should be restricted to horizontal curves with limited sight distances.

An adjacent, soft-surfaced trail can be provided to accommodate runners, pedestrians, equestrians and others. For pedestrians, an aggregate or crushed bark trail a minimum of 1.0 m wide should be provided. For equestrians, a minimum 2.0 m wide dirt trail should be provided, as illustrated in **Figure 4.1**.

4.2 Pathway Structure

The choice of the pathway surface is important, as it determines whether or not some people will be able to use the pathway. Generally, multi-use pathways should be hard-surfaced, using asphalt or concrete, as hard surfaces accommodate all users, including persons in wheelchairs and in-line skaters. Compacted aggregates can be used where porous surfaces are necessary to address environmental issues. It is important to recognize that aggregates prevent use by in-line skaters, cyclists with narrow tires, and some persons with disabilities.

Dimensions for pathway structures are summarized in **Table 4.1**. Indicated minimum dimensions are sufficient to accommodate occasional use by lightweight vehicles such as automobiles and pick-up trucks for which single axle loads do not exceed 1000 kg. If a pathway is to be used by heavier service vehicles, dimensions should be increased as indicated.

Shoulders should be constructed using 20 mm minus crushed stone, with a minimum 50 mm depth, as illustrated in **Figure 4.2**.

Table 4.1 – Pathway Structure Guidelines

	Asphalt Pathway	Concrete Pathway
Minimum requirement	• 50 mm asphalt • 100 mm crushed stone • Compacted subgrade	• 100 mm concrete • 100 mm sand • Compacted subgrade
Medium trucks (single axle load < 3,000 kg)	• 75 mm asphalt • 150 mm crushed stone	• 125 mm concrete • 150 mm sand
Heavy trucks (single axle load < 6,000 kg)	• 100 mm asphalt • 150 mm crushed stone	• 150 mm concrete • 150 mm sand

Figure 4.2 — Aggregate Pathway Shoulder

4.3 Pathway Alignment

The horizontal alignment of a pathway determines sight distances along the pathway, and as a result has a significant effect on the potential for conflicts between pathway users. Applicable guidelines include the following:

4.3.1 Design Speed

Pathway alignments should be determined based on design speeds of 35 km/h for pathways on level ground, and 50 km/h for pathways with grades of more than 4%. These speeds reflect the maximum speeds which cyclists on pathways can be expected to attain.

4.3.2 Sight Distance

Stopping sight distances are as summarized in **Table 4.2**.

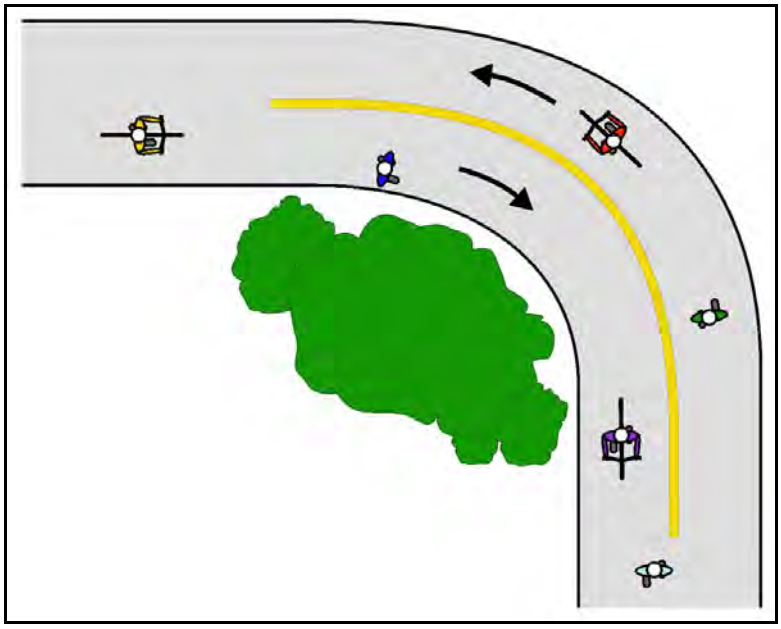
Where minimum sight distances cannot be achieved at horizontal curves, a centreline should be painted on the pathway with arrows indicating that pathway users are to stay

to the right, as illustrated in **Figure 4.3**. As appropriate, "Limited Visibility" signs can also be used to alert pathway users of visibility limitations and potential hazards.

Table 4.2 – Stopping Sight Distances

Design Speed	Level (no grade)	4% Downhill Grade	6% Downhill Grade	8% Downhill Grade	10% Downhill Grade
35 km/hr	44 m	47 m	50 m	53 m	56 m
40 km/hr	53 m	58 m	61 m	65 m	70 m
50 km/hr	74 m	81 m	86 m	92 m	100 m
60 km/hr	98 m	109 m	116 m	125 m	136 m

Figure 4.3 — Centreline on Curve With Limited Sight Distance



4.3.3 Horizontal Curves

Where horizontal curves are less than the required minimum radius, the pathway should be widened by at least 1.0 m through the curve so as to provide additional room for pathways users to manoeuvre through the curve. **Table 4.3** provides a summary of minimum horizontal curve radii for various design speeds.

Table 4.3 – Horizontal Curve Radii (at 2% superelevation)

Design Speed	Coefficient of Lateral Friction	Minimum Curve Radius
35 km/hr	0.27	35 m
40 km/hr	0.25	45 m
50 km/hr	0.22	80 m
60 km/hr	0.18	140 m

4.4 Grades

Grades on pathways create the potential for some wheeled pathway users to gain speed or lose control, and consequently pathway grades should be minimized and steep grades avoided.

Maximum uphill grades on hard-surfaced pathways should not exceed 3% for sustained sections, or 10% in any sections, as indicated in **Table 4.4**. A maximum 3% grade for aggregate surfaces helps to avoid instability for users and minimize erosion.

Table 4.4 — Maximum Grades For Multi-Use Pathways

Pathway Type	Maximum Grade	Length of Segment
Hard surface	3%	For sustained sections
	5%	For sections 30m or less
	10%	For sections 15m or less
Aggregate surface	3%	For all sections

Where grades exceed the maximum grades specified in **Table 4.4**, "Steep Hill" warning signs (TAC code WA-41) should be placed at the top of a steep section to advise pathway users traveling downhill of the steep grade. No part of a pathway should exceed a 15% grade.

A minimum 0.6% grade should be incorporated in the design of a pathway if no crossfall or drainage facilities are provided.

4.5 Clearances

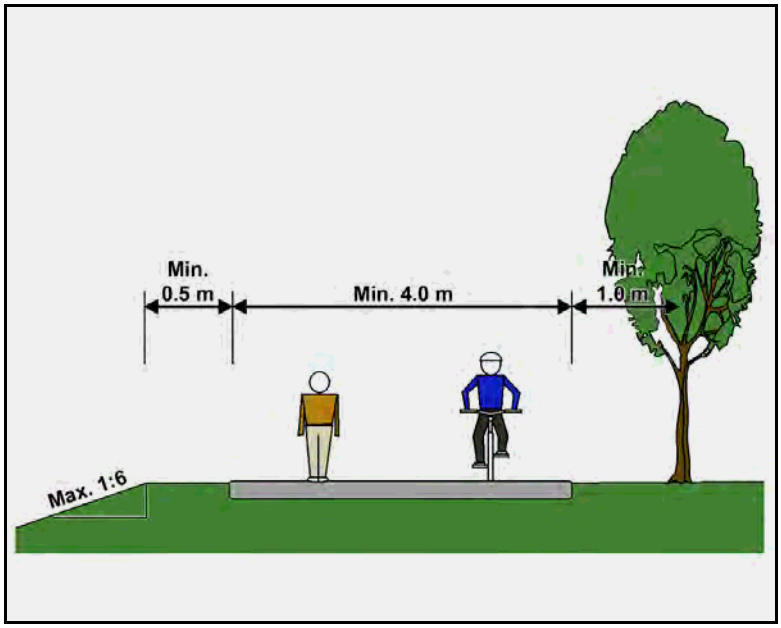
Pathways should be designed to be free of obstructions within and adjacent the pathway, both in terms of horizontal and vertical clearances.

4.5.1 Horizontal Clearance

The horizontal clearance from the edge of a pathway to a fixed object greater than 150 mm in height (a tree or signpost, for example) should be a minimum of 1.0 m, as illustrated in **Figure 4.4**. A minimum 0.5 m horizontal clearance is required adjacent a railing, wall or other barrier. Thus, a pathway that is 4.0 m wide with railings on both sides would have a clear width of 5.0 m from railing to railing.

As an interim condition, for pathways constructed in a retrofit situation, horizontal clearances of 0.5 m are acceptable.

Figure 4.4 — Pathway Clearances



4.5.2 Side Slopes

Next to side slopes, a minimum of 0.5 m clearance is required from the edge of the pathway to the top of the slope, as illustrated in **Figure 4.4**. The desirable maximum slope of a side slope is 1:6. For side slopes steeper than 1:4, the pathway edge should be a minimum of 1.5 m from the top of the slope, and safety railings should be used as illustrated in **Figure 4.5**. To provide adequate horizontal clearance, safety railings should be a minimum of 0.5 m from the edge of the pathway.

The area between the pathway and the side slope should be no steeper than 1:6.

Figure 4.5 — Safety Railing Adjacent Steep Side Slope

4.5.3 Adjacent Roads

Pathways adjacent roads with urban cross-sections (roads with curbs) should be separated from the roadway by the distances indicated in **Figure 4.6** and described below:

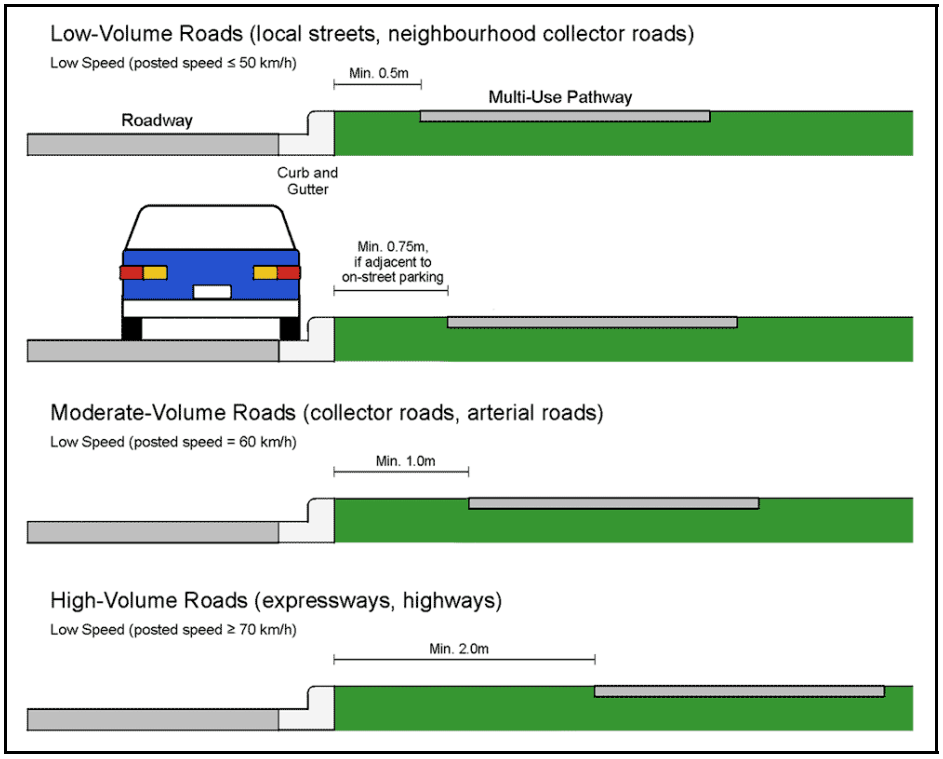
- Minimum 0.5 m separation adjacent roads with low traffic volumes and posted speeds of 50 km/h or less
- Minimum 0.75 m separation adjacent roads with parked vehicles
- Minimum 1.0 m separation adjacent roads with moderate traffic volumes and posted speeds of 60 km/h
- Minimum 2.0 m separation adjacent roads with high traffic volumes and posted speeds of 70 km/h or more

The separation area between a pathway and road may be grass, crushed stone or other aggregate, or a hard surface. If a hard surface is used, colour and texture (such as coloured, stamped asphalt) should be used to differentiate the separation area from the

pathway. Signs, utility poles, trees and other objects should not be placed in the separation area between pathway and road.

Pathways adjacent roads with rural cross-sections (roads with shoulders rather than curbs) should be separated from the edge of the paved portion of the roadway by a minimum of 3.0 m, where the posted speed on the road is 60 km/h or less. A minimum 7.0 m separation should be provided where posted speeds are 70 km/h or greater. Horizontal separation requirements for rural roads can be reduced to the dimensions for curbed roads with the addition of a concrete curb 150 mm in height, anchored to the edge of the road.

Figure 4.6 — Pathway Clearances From Roadway



4.5.4 Vertical Clearance

The vertical clearance to tree branches and other objects should be a minimum of 2.5 m above the multi-use pathway surface. In underpasses and under structures more than 2.0 m in length, the minimum vertical clearance should be 3.0 m. A minimum 3.0 m vertical clearance is required for equestrians.

4.6 Other Pathway Design Considerations

Other design considerations include illumination, the use of barrier posts, special considerations for bridges, and designing stairs to accommodate bicycles, as follows:

4.6.1 Illumination

Generally, illumination of multi-use pathways is not necessary, and may not be considered desirable by residents adjacent to a pathway. Locations where illumination is essential include intersections with roadways, underpasses and locations where night time security is considered an issue.

The following illumination levels are recommended for multi-use pathways. Horizontal illumination is measured at pavement level, and the uniformity ratio is calculated by dividing the average illumination level by the minimum illumination level.

- Multi-use pathways should have a minimum average horizontal illumination level of 5 lux, with a minimum uniformity ratio of 6:1.
- At intersections with arterial and collector roads, illumination levels should be increased to a minimum average horizontal illumination level of 15 lux, with a minimum uniformity ratio of 4:1.
- Illumination levels in underpasses should be a minimum average horizontal illumination level of 45 lux, with a minimum uniformity ratio of 4:1.

Light standards should be located no closer than 1.0 m to the edge of the pathway, and if positioned over the pathway, should provide a minimum 2.5 m vertical clearance.

Pathways should be illuminated for a distance of 25 m on either side of intersecting roads.

4.6.2 Barrier Posts

Barrier posts, also known as bollards, are used to obstruct motor vehicle access to a pathway. They may be tubular or square, and should be 100 mm to 150 mm in diameter. Barrier posts should not incorporate any protrusions.

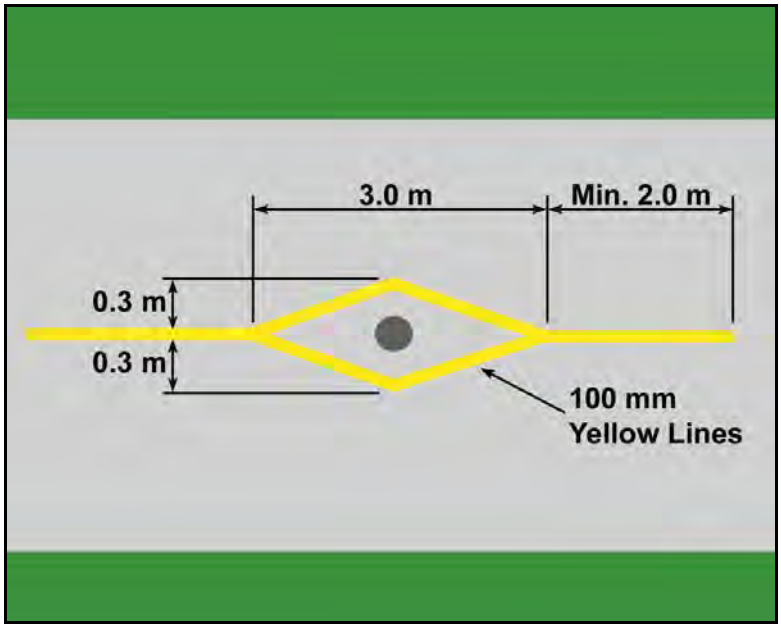
A single barrier post is preferred in the centre of a pathway. Where multiple barrier posts are used, they should be used in odd numbers and spaced far enough apart (a minimum of 1.5 m apart) to allow the passage of cyclists, bicycle trailers and wheelchair users. The use of odd-numbered posts ensures that pathway users travelling in opposite directions pass through different gaps between barrier posts, rather than attempting to pass through the same centre gap as would occur with an even number of posts.

When barrier posts are installed at locations where multi-use pathways intersect roadways, they should be set back a minimum of 7 m from the roadway to allow service vehicles to park at the entrance of the pathway to avoid removal of the bollards or encroachment onto the adjacent roadway.

Barrier posts should be painted with bright, light colours for visibility. Pavement markings should be used to divert pathway users away from barrier posts, as illustrated in **Figure 4.7**.

To accommodate service vehicles, one or more barrier post may be removable. These removable barrier posts should be padlocked or otherwise secured to prevent unauthorized access.

Figure 4.7 — Pavement Markings For Barrier Post



4.6.3 Bridges

The same width guidelines for multi-use pathways also apply on bridges, in addition to appropriate horizontal clearance widths. This means, for example, that a bridge located on a pathway 4.0 m wide should be at least 5.0 m wide – 4.0 m to match the width of the pathway, plus 0.5 m horizontal clearance on either side of the bridge where railings are provided.

Railings on bridges should be a minimum of 1.4 m in height. For existing railings, a height of at least 1.1 m height is acceptable.

Railings on bridges should incorporate a rub rail, as illustrated in **Figure 4.8**. The purpose of a rub rail is to prevent bicycle handlebars from catching on vertical supports of railing. A rub rail should be 200 mm high, and be installed between the elevations of 0.9 m and 1.1 m. A rub rail should provide a smooth surface along the length of the railing, and should be designed to function as a handrail for pedestrians.

Railings at the end of a bridge should be continued a minimum of 2.0 m beyond the bridge end, and should be flared as illustrated in **Figure 4.9**.

Figure 4.8 — Railing with Rub Rail

Figure 4.9 — Railing Flared at Bridge End

4.6.4 Stairs

Where cyclists would be required to climb or descend stairs to reach a pathway, a ramp should be provided on both sides of the stairs to enable cyclists to roll their bicycle up or down the stairs, as illustrated in **Figure 4.10**. Handrails should be provided as

specified in the BC Building Code, and should be located so as to avoid obstructing cyclists rolling their bicycles up or down the ramp.

Figure 4.10 — Bicycle Ramp on Stairs

5.0 CROSSINGS

The critical locations on bicycle or pedestrian routes are where the facilities intersect with roadways. Crossing treatments can be used to assist cyclists, pedestrians and others in crossing roadways, and to minimize potential conflicts with motor vehicles. The type of crossing treatment depends on the width of the intersecting road, the volume of motor vehicle traffic, and the number of cyclists, pedestrians and others using the crossing. This section provides an overview of crossing treatments, including marked/signed crossings, median islands, signalized crossings, grade-separated crossings and railway crossings, that can be applied throughout the bicycle and pedestrian network.

5.1 Marked Crossings

Where bicycle and pedestrian routes cross other roadways, marked crossings can be used. Marked bicycle and pedestrian crossings can be either mid-block or at intersecting roadways, with associated signage and pavement markings.

Marked crossings are appropriate in the following conditions:

- Relatively low volume roads, typically on local or collector roadways
- Posted speed limit of 50 km/hr or less
- Consistent gaps in traffic flow
- Low number of cyclists and pedestrians crossing the road
- Signalized intersections where pedestrian access is accommodated with pedestrian signal indications or pedestrian crossings
- Where a marked crosswalk can concentrate or channel multiple crossings into a single location
- Where confusing geometrics or traffic operations necessitate the delineation of the optimal crossing location and path
- At approved school crossings or along recommended safe school routes

Note that overuse of marked crossings can reduce motorist compliance and, hence, the effectiveness of the crosswalk. This treatment should be used sparingly and strategically.

The signage requirements for marked crossings on multi-use pathways are illustrated in **Figure 5.1.** Yield signs or stop signs should be used to control pathway traffic at marked pathway

crossings. Overhead illuminated signs can be used to further enhance the visibility of crossings (**Figure 5.2**). Yield signs are generally used at low-volume intersections such as driveways and local streets with little traffic, as illustrated in **Figure 5.3**. Where a pathway parallel to a roadway crosses an intersecting road, "Crossing Ahead" signs should be used on the parallel road to alert motorists of the pathway crossing, as illustrated in **Figures 5.4** and **5.5**.

Figure 5.1 — Marked Crossing Signage

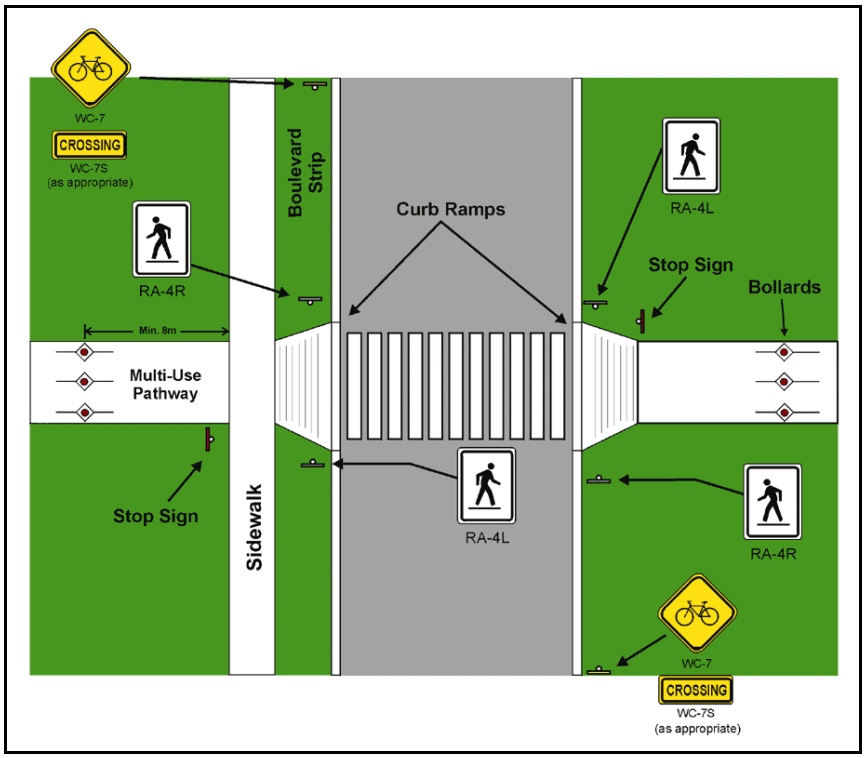
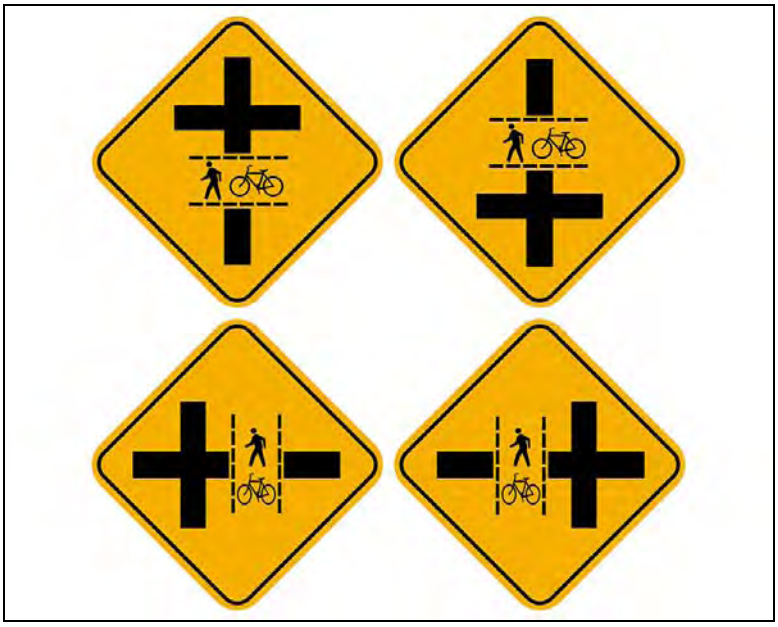


Figure 5.2 — Overhead Illumination for Crossings

Figure 5.3 — Yield Signs At Marked Pathway Crossing

Figure 5.4 — Bicycle/Pedestrian Crossing Sign

Figure 5.5 — "Crossing Ahead" Sign Configurations



Marked crossings can be supplemented with curb extensions and/or raised crosswalks as illustrated in **Figures 5.6** and **5.7**, in order to reduce the crossing distance, slow motor

vehicles at the crossing, increase motorist awareness of the crossing and increase the visibility of cyclists and pedestrians.

Figure 5.6 — Marked Crossing With Curb Extensions

Figure 5.7 — Marked Crossing With Raised Crosswalk

Where a pathway parallel to a roadway crosses an intersecting road, the pathway should be aligned so as to direct pathway users to cross in crosswalk, as illustrated in **Figure 5.8**. This configuration maximizes the visibility of pathway users to motorists. Existing pathways which cross intersecting roadways away from an intersection should be realigned so as to direct pathway users to cross at intersection, as illustrated in **Figure 5.9**.

Figure 5.8 — Parallel Marked Pathway Crossing

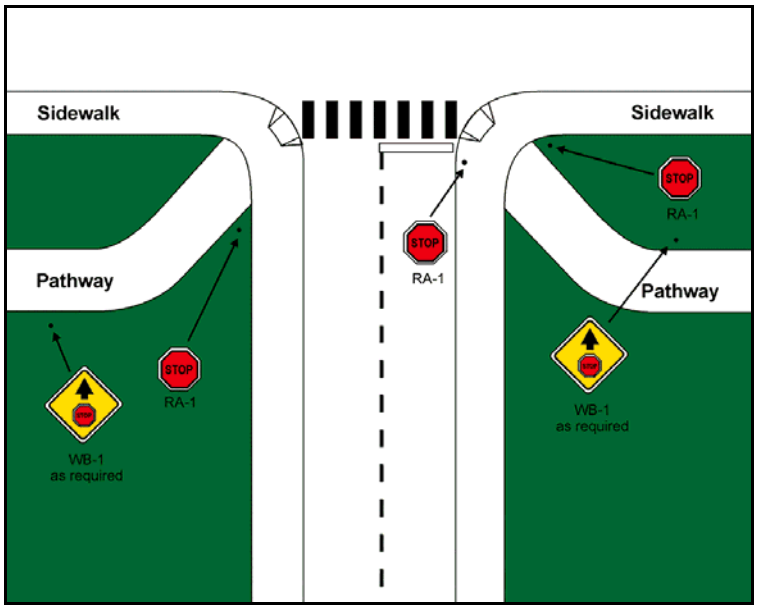


Figure 5.9 — Parallel Pathway Redirected to Intersection

5.2 Median Islands

A median island crossing incorporates a raised island located on the centreline of the road, separating opposing directions of traffic. The median island allows cyclists and pedestrians to cross one direction of traffic at a time, thereby reducing crossing delay. Median islands can be used at either mid-block or intersection crossings.

Median islands are appropriate in the following conditions:

- Moderate-volume roads (up to 10,000 vehicles per day), typically collector and arterial roads
- Few simultaneous gaps in both directions of traffic
- Interruption of traffic flow with signals is not desired.
- Moderate number of cyclists and pedestrians crossing road

Median islands at intersections may be located either side of the crosswalks, as illustrated in **Figure 5.10**. or through the intersection, as illustrated in **Figure 5.11**. Extending the median island through the intersection prevents left turns and through movements to and from the side street, which improves safety for cyclists and pedestrians by reducing the number of conflicting movements.

Figure 5.10 — Median Island Crossing at Intersection

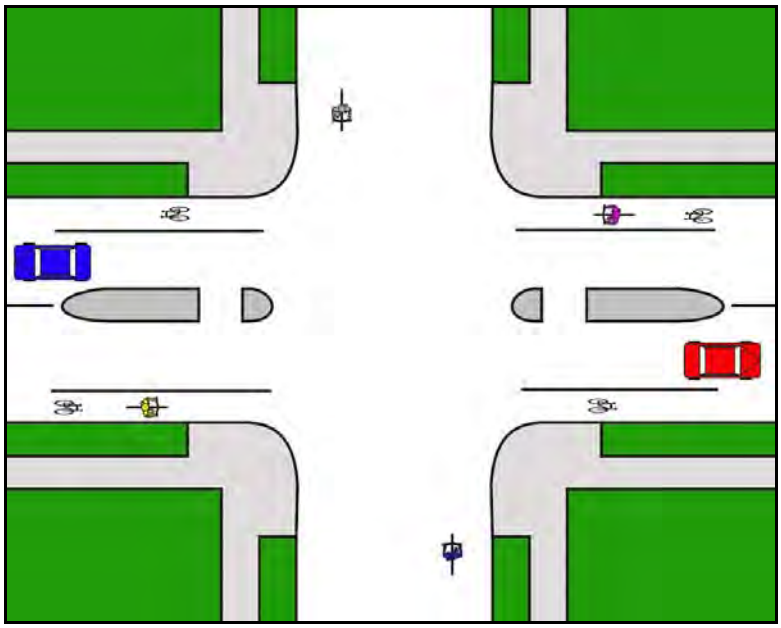
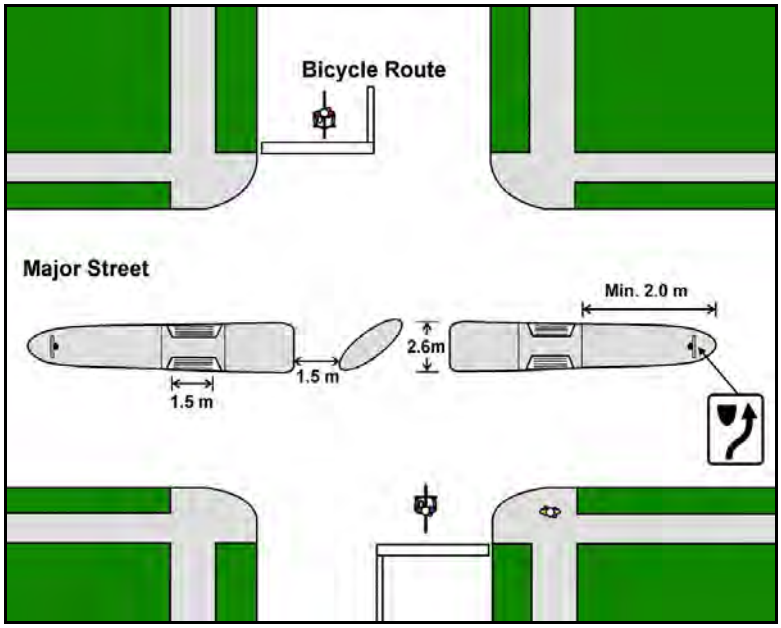


Figure 5.11 —Median Island Crossing Through Intersection



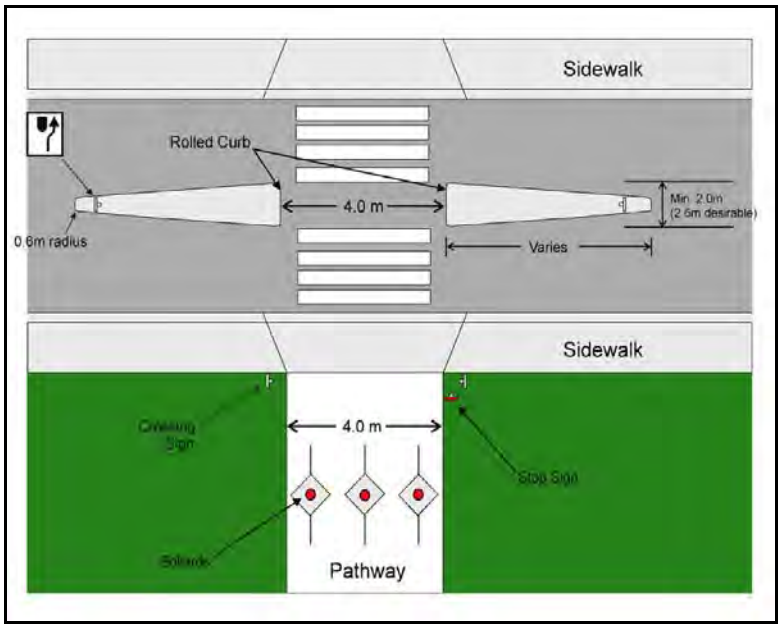
An example of a typical median refuge is provided in **Figure 5.12**. Gaps may be provided in the island to accommodate pathway users, and can be offset to discourage cyclists from riding across the crossing without checking for on-coming traffic on the far side of the island, as illustrated in **Figure 5.13**. The offset should be configured so that pathway users turn to the right on the median island to face oncoming traffic.

Figure 5.12 — Crossing With Median Island

Figure 5.13 — Offset Median Island Pathway Crossing

Dimensions and signage requirements for median island pathway crossings are illustrated in **Figure 5.14**. To minimize the potential for signs on the median islands to obstruct motorists' view of pathway users on the island, the length of the island indicated in **Figure 5.14** as "varies" should be at least 3.0 m.

Figure 5.14 — Median Island Pathway Crossing



5.3 Flashing Lights

Flashing lights can be used to enhance marked crossings and median island crossings. Flashing lights are activated by cyclists and pedestrians prior to crossing the road, and provide additional indication to approaching motorists that the crossing is occupied. Flashing lights may be located in the roadway, at the side of the road or overhead. The preferred configuration is a combination of flashing lights at the side of the road and overhead flashing, to maximize visibility.

Flashing lights may be used as an alternative to signalized crossings. Advantages of flashing lights as compared with signalized crossings include the following:

- No delay for pathway users. Pathway users may cross without any significant delay once they have pressed the button and activated the flashing lights.
- Reduced delay for motorists. Once the crossing is no longer occupied by pathway users, motorists may proceed.

Flashing lights are appropriate in the following conditions:

- Moderate-volume roads (up to 10,000 vehicles per day), typically collector and arterial roads
- Two-lane and four-lane roads
- Interruption of traffic flow with signals is not desired
- Signalization requirements would result in lengthy delays to users
- Moderate number of cyclists and pedestrians crossing the road

Figures 5.15 and **5.16** show examples of flashing lights at a crossing location and appropriate warning signage.

Figure 5.15 — Flashing Lights at Crossing Location

Figure 5.16 — Warning Sign for Crossing with Flashing Lights

5.4 Signalized Crossings

Where high traffic volumes and/or traffic speeds on a major road mean that pedestrians and cyclists cannot safely cross the road, even with a median island, a traffic signal may be required.

Signalized crossings are appropriate in the following conditions:

- Higher-volume roads — arterial roads, expressways and highways
- Higher traffic speeds on major road — posted speeds of 50 km/h or more
- Consistent flow of traffic with few gaps
- High number of cyclists and others crossing road
- Greater crossing distance (four or more lanes)
- Limited visibility of crossing location for motorists

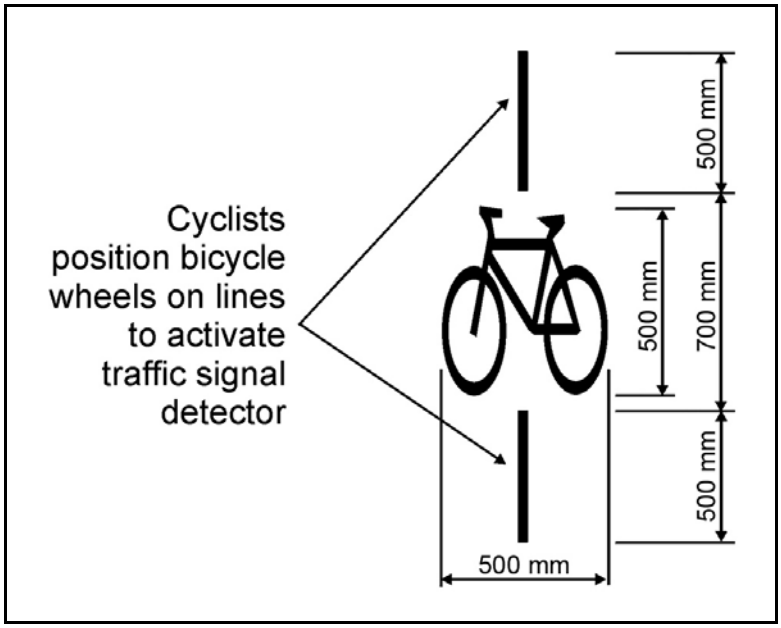
The lack of pedestrian and bicycle signals at signalized intersections can serve as a barrier to pedestrian access by forcing some individuals to take unnecessary risks to cross traffic. Pedestrian signals include the white 'walking person' and red 'stopping hand' symbols to control pedestrian movements in conjunction with traffic signals. Crossing times can be provided as shown in **Figure 5.17**.

Signals can be actuated via pushbuttons, in-ground detectors and/or video detection. Detectors should be marked as illustrated in **Figures 5.18** and **5.19** so that cyclists are better able to actuate the detectors. Pushbuttons should be provided for pedestrians. A minimal delay in signal actuation is desirable to minimize cyclists and others crossing in advance of the signals changing.

Figure 5.17 — Don't walk Signal at Pedestrian Crossing

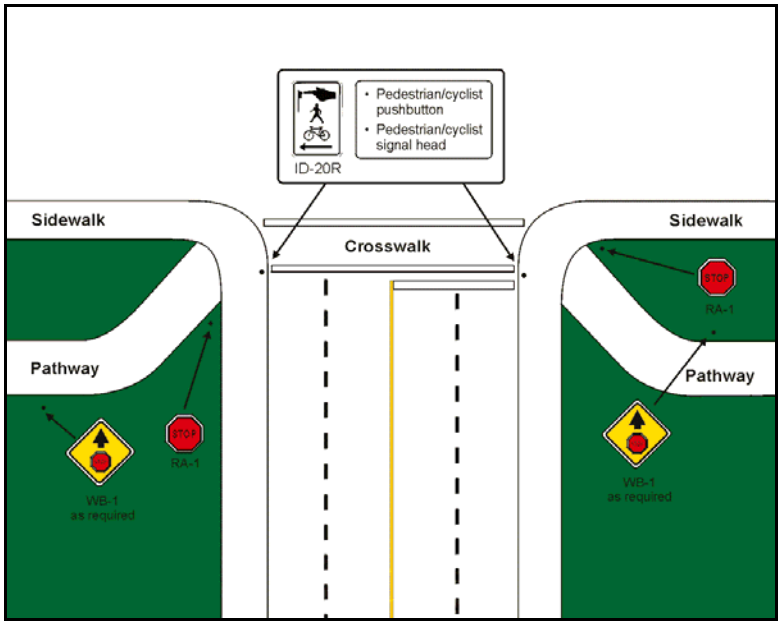
Figure 5.18 — Bicycle Detector Pavement Marking

Figure 5.19 — Bicycle Detector Pavement Marking



Where a pathway parallel to a roadway crosses an intersecting road at a signalized intersection, the pathway should be aligned so as to direct pathway users to cross in the crosswalk, as illustrated in **Figure 5.20.** This configuration maximizes the visibility of pathway users to motorists.

Figure 5.20 — Parallel Pathway Signalized Crossing



5.5 Grade Separation

Grade-separated crossings are provided where it is not possible or desirable to provide an at-grade crossing. Grade-separated crossings include overpasses and underpasses. Due to the relatively high cost (often more than $1 million), grade-separated crossings are generally used only where no other crossing treatment Is possible.

Grade separated crossings are applicable in the following conditions:

- High traffic volumes on major road being crossed
- High traffic speeds on major road
- Consistent flow of traffic with few gaps
- High number of cyclists and others crossing road
- Greater crossing distance (four or more lanes)
- Limited visibility of crossing location for motorists
- Interruption of traffic flow with signals is not desired

Key design guidelines for ***overpasses*** include the following:

- Minimum 4.0 m width
- 1.4 m railings with rub rails
- Minimum 5.7 m clearance over roadway
- Minimum 7.0 m clearance over railway tracks
- Maximum 5% grade on approach ramps in order to accommodate disabled users. This requirement often means that significant amount of property are required on each side of road for access ramps.

Key design guidelines for ***underpasses*** include the following:

- Minimum 4.0 m width.
- Minimum 3.0 m vertical height.
- Maximum 5% grade on approach ramps.
- A high level of illumination to minimize personal safety concerns.

5.6 Railway Crossings

Special care should be taken at locations where a bicycle route crosses railroad tracks at grade. At-grade crossings of railroad tracks should be designed to allow the cyclists to cross at right angles to the rails where possible. A wide curb lane, paved shoulder or bicycle lane should be widened to permit crossings to approach the tracks at 60 to 90 degrees, as illustrated in **Figure 5.21**.

On spur tracks and other rail lines with speed limits of less than 15 km/h, compressible flangeway fillers can also be used to reduce the risk of a bicycle wheel being caught in the flangeway, as illustrated in **Figure 5.22**.

At all railway crossings, rubber or concrete track guards should be used between rails, as illustrated in **Figure 5.23**. The elevation of the track guard should be the same or within 6 mm of the elevation of the top of the rail.

Figure 5.21 — Bicycle Lane Diverted at Angled Railway Crossing

Figure 5.22 — Compressible Flangeway Filler

Figure 5.23 — Rubber Track Guard at Railway Crossing

6.0 SIGNS AND PAVEMENT MARKINGS

The application of signage and pavement markings to bicycle and pedestrian routes must be done in a uniform and consistent manner to ensure that they enhance safety and convenience for all users. Signage and pavement markings must be warranted by use and need. An over-abundance of signage and pavement markings may create a distraction and may be too confusing for motorists, cyclists and pedestrians. The application of too many signs is also unattractive when placed along roadways and pathways.

Some key guidelines for the use and installation of signage and pavement markings for bicycle facilities are provided in this section. This section is meant to correspond and supplement the following documents:

- *Bikeway Traffic Control Guidelines for Canada*, Transportation Association of Canada (December 1998)
- *Manual of Uniform Traffic Control Devices*, Transportation Association of Canada (March 2000)

6.1 Signs

Where applicable, the shape, colour and content of the signs should be consistent with standards specified in the Manual of Uniform Traffic Control Devices for Canada (MUTCDC). The size of signs used on multi-use pathways can be smaller than specified in the MUTCD – typically signs on pathways are 45 cm by 45 cm rather than 60 cm by 60 cm.

6.1.1 Type of Signs

There are three types of signs used on bicycle and pedestrian routes and multi-use pathways, as identified below. The codes used to identify these signs are from the *Bikeway Traffic Control Guidelines for Canada* (TAC, 1998).

- **Regulatory Signs** – These signs indicate traffic regulations. Examples of regulatory signs include stop signs, yield signs, 'Do Not Enter Except Bicycles' signs, and 'No Parking' signs along roads with bicycle lanes, as shown in **Figure 6.1**.

- **Warning Signs** – These signs advise cyclists and motorists of potential hazards or significant changes in conditions on roads and pathways. Warning signs are important for cyclists, as bicycles are more susceptible to poor road conditions than motor vehicles. Warning signs are also important in advising motorists of approaching bicycle and pedestrian crossings. Examples of warning signs include 'Railroad Crossing', 'Steep Grade' and construction detour signs. Examples of warning signs are provided in **Figure 6.2**.

- **Information Signs** – These signs provide direction and information for cyclists, pedestrians and others, and include:

    - **Guide Signs** – Indicate routes to major destinations, as well as parking locations, crossing locations and bicycle routes. Guide signs incorporate white text and arrows on a green background. Examples of guide signs are illustrated in **Figure 6.3.**

    - **Educational Signs** – Provide information regarding appropriate use of bicycle and multi-use facilities. Examples of educational signs are illustrated in **Figure 6.4**, and include 'Share the Road' signs and 'Yield To' signs. Although these signs are officially categorized as Warning and Regulatory signage, they also serve a purpose in educating the public as to the rules of the road.

Figure 6.1 – Examples of Regulatory Signs

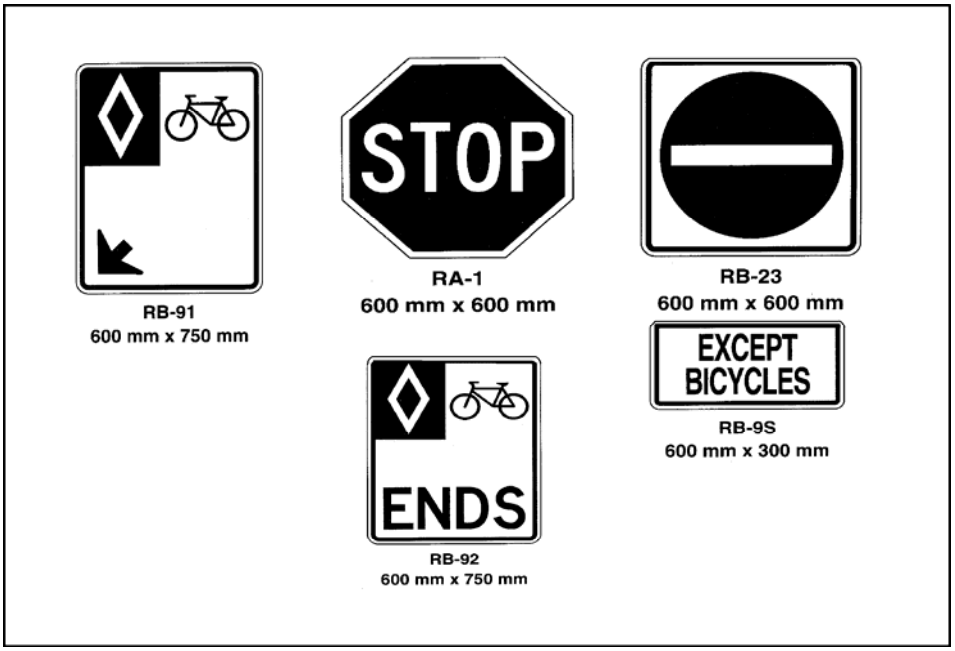


Figure 6.2 – Examples of Warning Signs

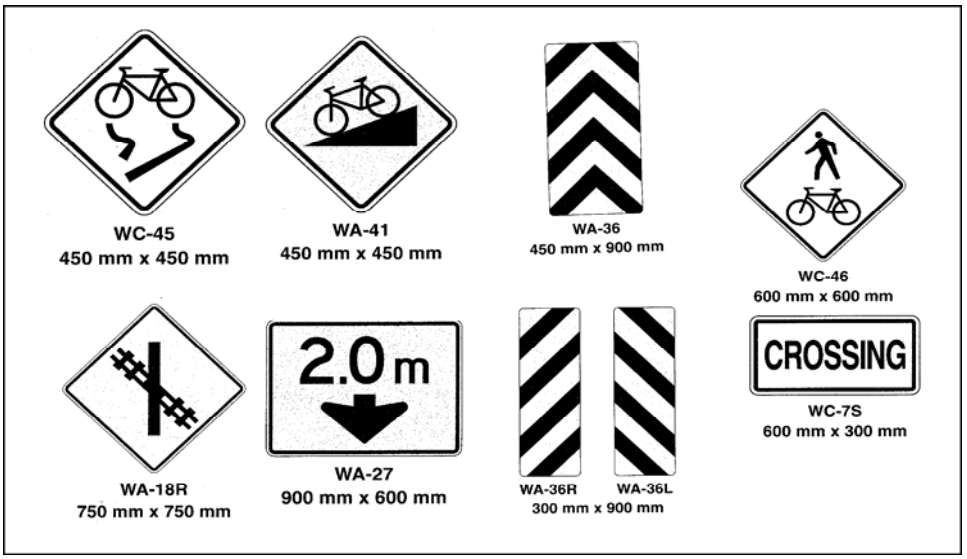


Figure 6.3 – Examples of Guide Signs

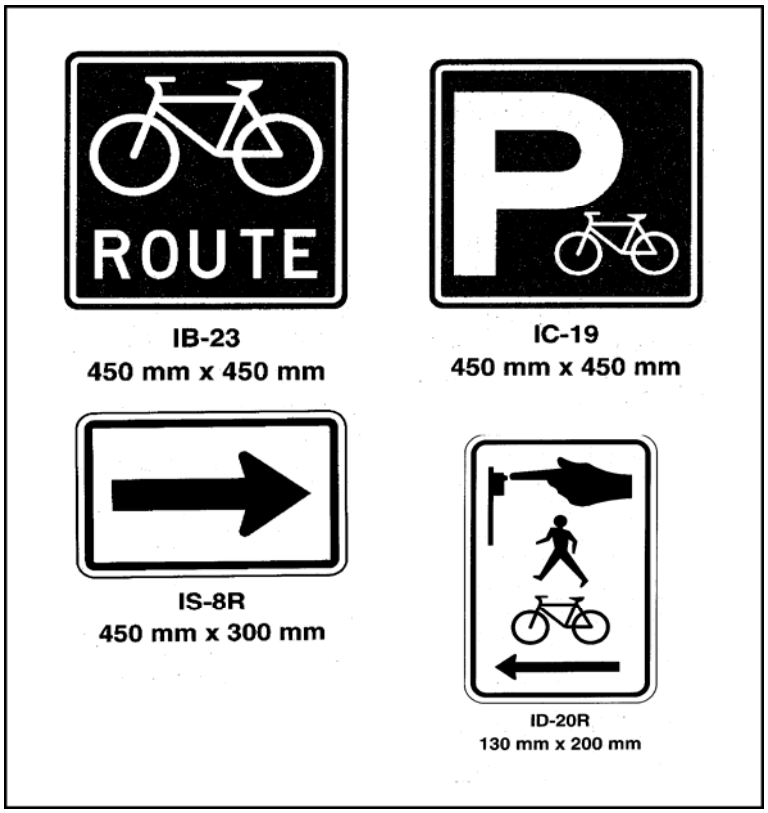
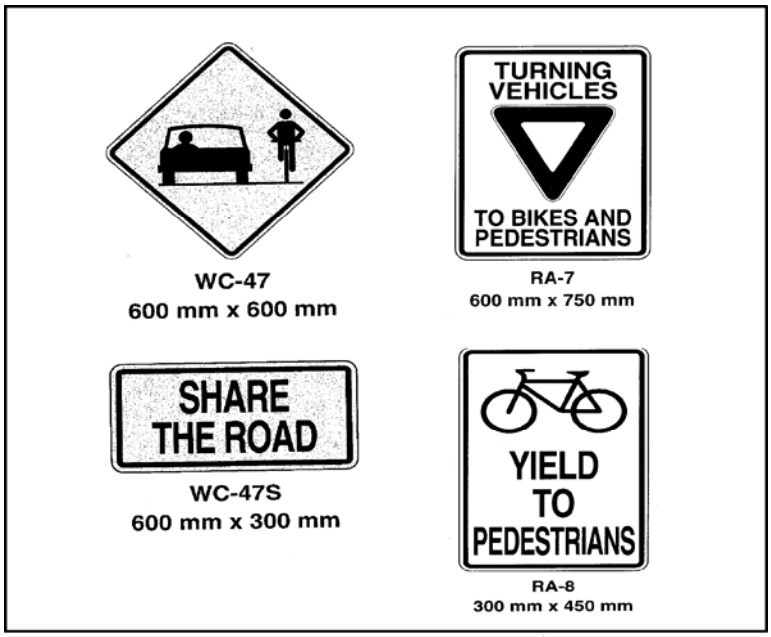


Figure 6.4 – Examples of Educational Signs



6.1.2 Placement of Signs

Regulatory, Warning and Guide and Information Signs should be located as follows:

- **Regulatory Signs** – As close as possible to the location where the regulation is in effect. In some cases, as with stop signs that are not visible due to horizontal or vertical curves, advance notice of regulatory signs may be warranted.

- **Warning Signs** – In advance of any hazard or condition to which they apply. In some cases, it is also necessary to place a sign at the point of the condition.

- **Guide and Information Signs** – Both in advance of and at locations where conditions apply. In many cases, it may be warranted that guide and information signs are also used to re-affirm that a cyclist is on the correct route or path, particularly after a confusing intersection.

Bicycle Route signage should appear along a route at least every 100-200 metres, depending on specific circumstances. For example, an urban street with commercial uses and numerous driveways would necessitate a more frequent use of route signage

than every 100 metres. However, a rural roadway with few driveways and intersections would only require a route sign every 200 metres. These intervals do not include signage placed in advance of and after intersections.

Signs should be placed near the edge of the nearest traffic lane, with the near sign edge no less than 2.0m, but no more than 4.5 m, away from the nearest traffic lane. With multi-use pathways, the minimum distance can be reduced to 1.0 m.

Figure 6.2 — Bicycle Route Sign with Destination Signing

6.2 Pavement Markings

Pavement markings are used to delineate bicycle lanes, to identify crossings on roadway surfaces, and to complement regulatory and warning signs. Relevant guidelines regarding pavement markings are provided below.

6.2.1 On-Road Bicycle Facilities

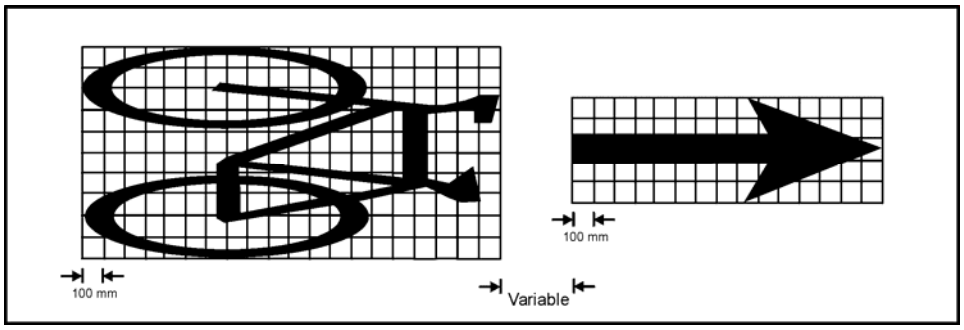
Pavement markings for on-road facilities can define bicycle lanes, separate opposing flows, designate lane usage, identify stop lines and supplement regulations or warnings of other devices such as traffic signals or signs. Overuse of pavement markings for on-

road bicycle facilities is note recommended primarily because of the slippery conditions created from wet weather. Guidelines for on-road bicycle facility pavement markings include:

- Bicycle lanes are designated with a 10 cm white strip. Bicycle lane lines should be dashed for a distance of 15m in advance of intersections. This allows a cyclist to exit from the bicycle lane to make a left turn, and allows right-turning vehicles to merge into the bicycle lane. The bicycle lane line should be discontinued through the intersection.

- Bicycle lanes should be identified with a painted bicycle symbol and may include an arrow indicating the direction of travel (see **Figure 6.5**). Bicycle lane symbols should be spaced at approximately 350 m intervals for roadways with a posted speed limit of 50 km/h. Additional symbols should be located immediately after intersections with major roads, to alert drivers and cyclists turning onto the road of the existence of the bicycle lane.

Figure 6.5 – Bicycle Lane Pavement Symbol and Arrow



- For marked wide curb lanes, bicycle symbols should be placed approximately every 200m along the road, as well as in advance of all intersections and major driveways. In cases where marked wide curb lanes are provided and on-street parking is not permitted, the bicycle stencils should be placed on the pavement next to the gutter. Where on-street parking is provided, the bicycle stencils should be placed on the right side of the travel lane, adjacent the parking lane. **Figure 6.6** illustrates the placement of bicycle symbols in marked wide curb lanes.

- The Transportation Association of Canada is proposing to introduce a new pavement marking symbol to be used for marked wide curb lanes, as illustrated in **Figure 6.7**.

Figure 6.6 — Placement of Bicycle Symbols for Marked Wide Curb Lanes

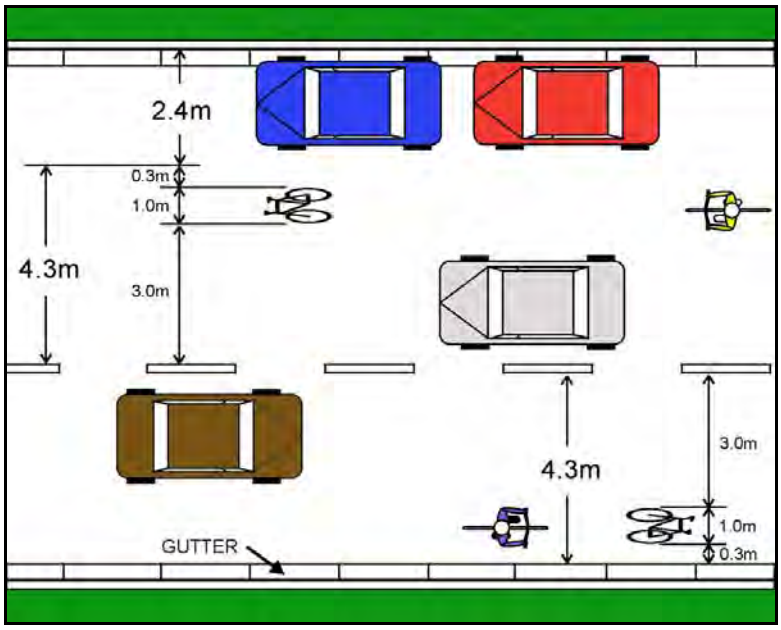
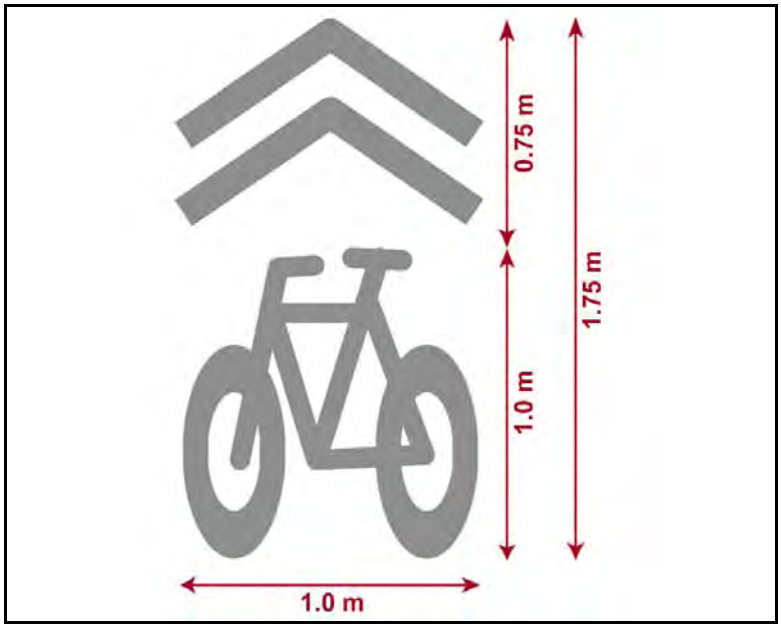


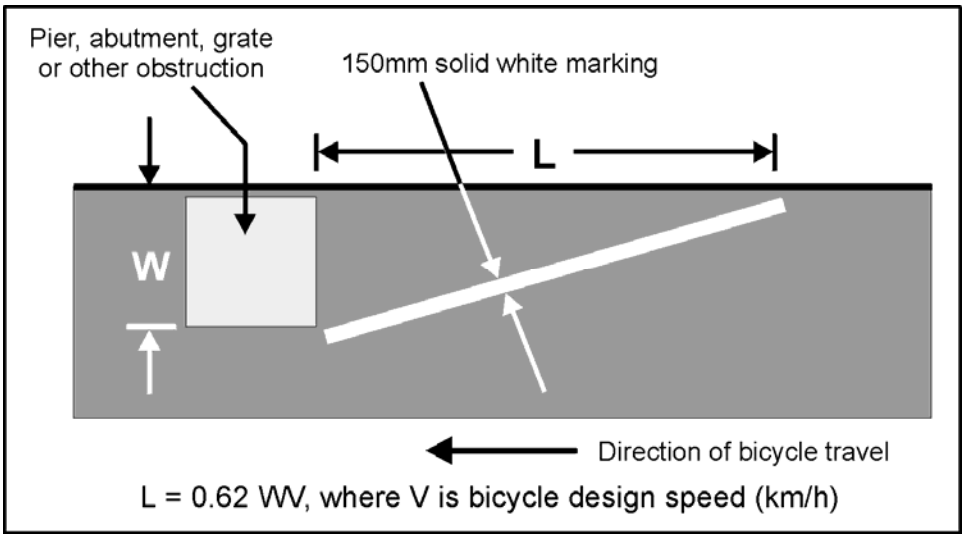
Figure 6.7 — Marked Wide Curb Lane Symbol



6.2.2 Hazard Markings

Surface irregularities and obstructions should be clearly marked to gain the attention of approaching cyclists, as illustrated in **Figure 6.8**. Signs, reflectors, object markers (WA-36) or other treatments may be appropriate to alert cyclists to potential obstructions.

Figure 6.8 – Hazard Pavement Marking



6.2.3 Multi-Use Pathways

Pavement markings for multi-use pathways are not as commonly used as with on-street bicycle facilities. Attempts to separate pedestrians from cyclists with a painted line have proven unsuccessful and are not recommended. Centreline stripes used to separate directional flows of traffic on multi-use pathways are only recommended where curves create poor sight distance, as discussed in Section.4.0 Pavement symbols or words may be used to alert pathway users of upcoming stop signs, railroad crossings, barrier or other potential hazards.

APPENDIX C

BICYCLE & PEDESTRIAN NETWORK

District of Coldstream

BICYCLE & PEDESTRIAN ROUTE NETWORK

LEGEND

EXISTING PROPOSED

- SIDEWALK
- PAVED SHOULDER
- MULTI-USE PATHWAY
- SHARED BICYCLE ROUTE
- MARKED WIDE CURB LANE
- NEW OR UPGRADED CROSSING
- (S) SUBJECT TO DEVELOPMENT/ OWNER ENDORSEMENT
- (R) SUBJECT TO RAILWAY APPROVAL

- MAJOR ROAD NETWORK
- PROVINCIAL HIGHWAY
- DISTRICT BOUNDARY
- CANADIAN NATIONAL RAILWAY
- BOAT LAUNCH
- BEACH ACCESS
- PARK
- SCHOOL
- PROPOSED SCHOOL

Client/Project

DISTRICT OF COLDSTREAM
BICYCLE & PEDESTRIAN MASTER PLAN

Scale	Date	Figure
NTS	2007-01-23	APPENDIX C
1164.0096.01		Title

BICYCLE & PEDESTRIAN ROUTE NETWORK

URBANSYSTEMS.
#500 - 1708 DOLPHIN AVENUE
KELOWNA, BC, CANADA V1Y 9S4
Tel. 250.762.2517
Fax. 250.763.5266
www.urban-systems.com

HIGHWAY 97
HIGHWAY 6
COLDSTREAM VALLEY
MIDDLETON MOUNTAIN
POTENTIAL FUTURE REGIONAL PARK
KALAMALKA LAKE
KALAMALKA LAKE PROVINCAL PARK
DEEP LAKE
TO POLSON PARK (VERNON)
LINK TO ALLAN BROOKS NATURE CENTRE
PUMPHOUSE BEACH
TO OLD OKANAGAN HIGHWAY
CREEKSIDE PARK
WESTSIDE PARK
WATER TOWER ENTRANCE
RED GATE
PARK ENTRANCE
COSENS BAY GATE (YELLOW GATE)
COSENS BAY TRAIL
COMIN' ROUND THE MOUNTAIN TRAIL
THE PARABOLA TRAIL
KIDSTON TRAIL
LOOKOUT TRAIL
TIDE TRAIL
GRASSLAND TRAIL
CREST TRAIL
COLDSTREAM CREEK
TO LAVINGTON (SEE INSET 1)
TO NOBLE CANYON ROAD (SEE INSET 2)
TO BUCHANAN RD
TO WHISPER RIDGE TRAILS

MARKED WIDE CURB LANE WITH SIDEWALK ON NORTH SIDE AS PER MAJOR ROADWAY NETWORK PLAN

CONSIDER MULTI-USE PATHWAY ADJACENT TO COLDSTREAM CREEK ROAD IF PAVED SHOULDERS NOT FEASIBLE

PEDESTRIAN/BICYCLE FACILITIES TO BE CONFIRMED THROUGH TOWN CENTRE PRE-DESIGN STUDY

WIDEN/NEW PAVED SHOULDERS ON HWY 6 WITH WARNING SIGNAGE, POSSIBLE OFF-ROAD TRAIL

PAVE KIDSTON TRAIL OR WIDEN KIDSTON ROAD TO PROVIDE PAVED SHOULDER

ACCESS TO DEEP LAKE PENDING POSSIBLE EXPANSION OF KALAMALKA PROVINCIAL PARK

INSET 2

POSSIBLE PATH THROUGH OLD WATER WORKS FACILITY

INSET 1

LAVINGTON

U:\Projects_KEL\1164\0096\01\D-Drafting-Design-Analysis\CADD\dwgs\DES-11640096.dwg, FIG 1, 2007/01/26 08:38 am jcrosman

APPENDIX D

BICYCLE AND PEDESTRIAN ROUTE LISTS, SCREENING RESULTS AND EVALUATION CRITERIA

BICYCLE/PEDESTRIAN ROUTE LIST
Preliminary Evaluation

HIGH PRIORITY ROUTES

ROUTE	FACILITY TYPE	RATING			OVERALL RATING	PROJECT SIZE
		DEMAND	*NETWORK FUNTION*	*IMPLEMENTATION FEASIBILITY*		
Coldstream Creek Road (Kalamalka Rd to Kidston Rd)	Paved Shoulders or Multi-Use Pathway	MED	HIGH	HIGH	**HIGH**	LARGE
College Way/Kickwillie Loop Rd (Hwy 97 to Westkal Rd)	Paved Shoulders	HIGH	HIGH	MED	**HIGH**	LARGE
Husband Road (Middleton Way to Kalamalka Lake Rd)	Paved Shoulder and Sidewalk	HIGH	HIGH	MED	**HIGH**	LARGE
Kalamalka Road (Aberdeen Rd to Hwy 6)	Paved Shoulders	HIGH	HIGH	HIGH	**HIGH**	LARGE
Kidston Road (Coldstream Creek Rd to Kal Park)	Paved Shoulders or Multi-Use Pathway	HIGH	HIGH	MED	**HIGH**	LARGE
Middleton Drive	Paved Shoulders	HIGH	HIGH	MED	**HIGH**	LARGE
Railway (Westkal Rd to Vernon)	Multi-Use Pathway	HIGH	HIGH	MED	**HIGH**	LARGE
Westkal Road	Sidewalk and Marked Wide Curb Lanes	HIGH	HIGH	MED	**HIGH**	LARGE
Aberdeen Road (Middleton Dr to Hwy 6)	Paved Shoulders	HIGH	HIGH	HIGH	**HIGH**	MEDIUM
Buchanan Road (Aberdeen Rd to Uplands Drive)	Paved Shoulders	MED	HIGH	HIGH	**HIGH**	MEDIUM
Kalamalka Beach (Kidston Rd to Westkal Rd)	Multi-use Pathway	HIGH	HIGH	MED	**HIGH**	MEDIUM
Kalamalka Road (Town Centre Area)	Sidewalks	MED	HIGH	HIGH	**HIGH**	MEDIUM
Kidston Road (Kalamalka Rd to Coldstream Creek Rd)	Paved Shoulders	HIGH	HIGH	HIGH	**HIGH**	MEDIUM
McClounie Road (Coldstream Creek Rd to Kalamalka Rd)	Paved Shoulder (east side)	MED	MED	HIGH	**HIGH**	MEDIUM
School Road (Learmouth Rd to Hwy 6)	Paved Shoulder (west side only)	MED	HIGH	HIGH	**HIGH**	MEDIUM
Uplands Drive (Buchanan Rd to Upper Crestview Drive)	Paved Shoulders	MED	HIGH	HIGH	**HIGH**	MEDIUM
College Way (Kickwillie Loop Rd to Reservoir Rd)	Multi-Use Pathway	HIGH	HIGH	MED	**HIGH**	MEDIUM
Connections from Middleton Mountain to Kalamalka Road	Multi-Use Pathways and Shared Route	HIGH	HIGH	MED	**HIGH**	SMALL
Husband Road (off-road connection)	Shared Route and Multi-Use Pathway	MED	HIGH	HIGH	**HIGH**	SMALL
Middleton Way	Marked Wide Curb Lanes	HIGH	HIGH	HIGH	**HIGH**	SMALL
Okanagan College to College Way (Off-Road Conenction)	Multi-Use Pathway	HIGH	HIGH	MED	**HIGH**	SMALL
Uplands Drive (Upper Crestview Drive to Cypress)	Shared Route	MED	HIGH	HIGH	**HIGH**	SMALL

MEDIUM PRIORITY ROUTES

ROUTE	FACILITY TYPE	RATING			OVERALL RATING	PROJECT SIZE
		DEMAND	*NETWORK FUNTION*	*IMPLEMENTATION FEASIBILITY*		
Railway (Westkal to Aberdeen Rd)	Multi-Use Pathway	HIGH	MED	MED	**MED**	LARGE
Railway (Westkal to Oyama)	Multi-Use Pathway	LOW	MED	MED	**MED**	LARGE
Aberdeen Road to West End of Town Centre Area	Multi-Use Pathway	MED	LOW	MED	**MED**	MEDIUM
Coldstream Valley Estates Power Line	Multi-Use Pathway	MED	MED	MED	**MED**	MEDIUM
Connection to Vernon Along Hillside (Off-Road Connection)	Multi-Use Pathway	MED	LOW	LOW	**MED**	MEDIUM
Cunliffe Road (Coldstream Creek Road to Kidston Road)	Sidewalk (east side)	MED	MED	HIGH	**MED**	MEDIUM
Cunliffe Road (Coldstream Creek Road to Palfrey Drive)	Marked wide curb lanes	MED	MED	HIGH	**MED**	MEDIUM
Highway 6 (Coldstream Ranch)	Paved Shouders or Multi-Use Pathway	MED	HIGH	MED	**MED**	MEDIUM
Hydro Easement (Middleton Mountain)	Multi-Use Pathway	MED	LOW	MED	**MED**	MEDIUM
Kidston Road (Kalamalka Rd to Cunliffe Road)	Sidewalk (one side only)	MED	MED	HIGH	**MED**	MEDIUM
Learmouth Road (Learmouth Rd to School Rd)	Paved Shoulders	LOW	HIGH	HIGH	**MED**	MEDIUM
Old Grid Road Alignment	Multi-Use Pathway	MED	MED	MED	**MED**	MEDIUM
WestKal Road to Coldstream Boundary (Off Road Connection)	Multi-Use Pathway	MED	LOW	LOW	**MED**	MEDIUM
Westkal Road to Grid Road (Off-road connection)	Multi-Use Pathway	MED	MED	MED	**MED**	MEDIUM
Backonyi to Hofer Drive (Off-Road Connection)	Multi-Use Pathway	MED	LOW	MED	**MED**	SMALL
Besset Road to Highway 6	Shared Route	LOW	MED	HIGH	**MED**	SMALL
Buchanan Road (Uplands Drive to Lavington)	Shared Route	LOW	HIGH	HIGH	**MED**	SMALL
Cosens Bay Road	Shared Route	LOW	HIGH	HIGH	**MED**	SMALL
Cunliffe Road (Palfrey Drive to Water Tower Entrance)	Multi-Use Pathway	LOW	MED	MED	**MED**	SMALL
Cypress Road (Gray Canal to Vernon)	Shared Route	LOW	MED	HIGH	**MED**	SMALL
Grey Road (Highway 6 to Buchanan)	Shared Route	LOW	HIGH	HIGH	**MED**	SMALL
Juniper Drive Staircase	Multi-Use Pathway	LOW	MED	HIGH	**MED**	SMALL
Kickwillie Loop Road (College Way to Lakeview Drive)	Shared Route	MED	MED	HIGH	**MED**	SMALL
Lakeview Drive/Varsity Drive (OC to Old Okanagan Hwy)	Multi-Use Pathway and Shared Route	MED	MED	HIGH	**MED**	SMALL
Learmouth Road (Highway 6 to Learmouth)	Shared Route	LOW	HIGH	HIGH	**MED**	SMALL
McClounie Road (Kalamalka Park to Coldstream Creek Road)	Multi-Use Pathway	LOW	MED	MED	**MED**	SMALL
Middleton Way to Orchard Ridge Rd (Off Road Connection)	Multi-Use Pathway	MED	MED	MED	**MED**	SMALL
Mount Thor Drive (Husband to McCergow Meadows)	Shared Route	LOW	MED	HIGH	**MED**	SMALL
Mount Thor Drive (Husband to Middleton Way with connection to Future school)	Shared Route and Multi-Use Pathway	MED	MED	HIGH	**MED**	SMALL
Sarsons Road (Middleton Dr to Vernon)	Shared Route	MED	MED	HIGH	**MED**	SMALL
The Highlands Phase 10 Connection to Open Space	Multi-Use Pathway	LOW	MED	MED	**MED**	SMALL
Various beach access locations	Multi-Use Pathway	MED	LOW	MED	**MED**	SMALL
Watson Drive (Lakeview Drive to Westkal Rd)	Multi-use pathway and Shared Route	MED	MED	MED	**MED**	SMALL
Pope Drive to Westkal Road	Multi-use pathway	MED	MED	MED	**MED**	SMALL

LOW PRIORITY ROUTES

ROUTE	FACILITY TYPE	RATING			OVERALL RATING	PROJECT SIZE
		DEMAND	*NETWORK FUNTION*	*IMPLEMENTATION FEASIBILITY*		
Coldstream Valley Ranch/Gray Canal	Multi-Use Pathway	LOW	LOW	LOW	**LOW**	LARGE
Middleton Mountain Regional Park Ring Trail	Multi-Use Pathway	LOW	LOW	MED	**LOW**	LARGE
Coldstream Valley to Crown Lands	Multi-Use Pathway	LOW	LOW	LOW	**LOW**	MEDIUM
Grid Road to Reservoir Road (Off-Road Connection)	Multi-Use Pathway	LOW	LOW	MED	**LOW**	MEDIUM
Railway/Kalamalka Road to Reservoir Road (Off-Road Connection)	Multi-Use Pathway	LOW	LOW	MED	**LOW**	MEDIUM
Ravine Drive Extension	Multi-Use Pathway	LOW	LOW	MED	**LOW**	MEDIUM
Whisper Ridge trails	Multi-Use Pathway	LOW	LOW	LOW	**LOW**	MEDIUM
Along waterfront north of Kidston Road (Off-Road Connection)	Multi-Use Pathway	LOW	LOW	LOW	**LOW**	SMALL
Brewer Road to Learmouth Road (Off-Road Connection)	Multi-Use Pathway	LOW	LOW	LOW	**LOW**	SMALL
Coldstream Creek Road to Coldstream Park (Off-Road Connection)	Multi-Use Pathway	LOW	MED	LOW	**LOW**	SMALL
De Jong Drive/Connection through Park	Shared Route and Multi-Use Pathway	LOW	LOW	HIGH	**LOW**	SMALL
Husband Road to residential area to North (Off Road Connection)	Multi-Use Pathway	LOW	LOW	LOW	**LOW**	SMALL
Kalavista Drive to Kidston Road (Off Road Connection)	Multi-Use Pathway	LOW	LOW	LOW	**LOW**	SMALL
Lavington Off Road Connection (to Lavington Way)	Multi-Use Pathway	LOW	LOW	MED	**LOW**	SMALL
McClounie Road to Park (Off-Road Connection along Coldstream Creek)	Multi-Use Pathway	LOW	LOW	LOW	**LOW**	SMALL
Noble Canyon Road	Shared Route	LOW	LOW	HIGH	**LOW**	SMALL
Railway (Aberdeen Rd to Lumby)	Multi-Use Pathway	LOW	LOW	MED	**LOW**	SMALL
West Brewer Road	Shared Route	LOW	LOW	HIGH	**LOW**	SMALL

RATING:

HIGH = A route was rated as 'High' if it had a rating of high in all three categories, or a rating of high in two of the three categories, with the third being a medium.

LOW = A route was rated as 'Low' if it had a rating of low in all three categories, a rating of low in both Demand and Network Function, or a rating of low in Implementation Feasibility with no high rankings.

MED = All other pathways were rate as 'Medium'

PROJECT SIZE:

LARGE = A route was identified as 'Large' if it is expected to cost greater than $400,000

MEDIUM = A route was identified as 'Medium' if it is expected to cost in the order of $100,000 to $400,000

SMALL = A route was identified as 'Small' if it is expected to cost less than $100,000

Note: *Cost estimates have not been produced for each route improvement. The project size is based on professional judgement only and may change*

BICYCLE AND PEDESTRIAN ROUTE
Evaluation Criteria

SAFETY
(weighting = 3)

RATING	COMMENTS
1	Negligible safety improvement
2	Minor improvement (route is on a local or low volume collector road, negligible crossings)
3	Notable improvement (route is mostly on a low volume collector/arterial, some crossings)
4	Significant improvement (route is at least partially on high volume roadway with no existing facilities)
5	Major improvement (route is at least partially on high volume arterial with no existing facilities, and significant crossings)

DEMAND
(weighting = 2)

RATING	COMMENTS
1	No expected usage
2	Minor demand (probably no latent demand, generators are negligible)
3	Notable demand (possibly some latent demand, links generators such as neighbourhood parks, elementary schools)
4	Significant demand (there is a latent demand, links generators such as schools, community centres, large parks)
5	Major demand (a significant latent demand exists, links large generators such as shopping centres, recreation centres, colleges and neighbourhoods)

NETWORK FUNCTION
(weighting = 2)

RATING	COMMENTS
1	No importance in bicycle network
2	Minor network importance (no impact to overall network, a local link, small amount of time savings)
3	Notable importance (overall impact to network minimal, more localized link on a neighbourhood level, provides some travel time savings)
4	Significant importance (provides an important, but not critical link in network, some time savings, there may be an alternative route)
5	Major importance (provides a critical link in the network, provides a significant time savings, no alternative route, or alternative route is unattractive)

APPEAL:
(weighting = 1)

RATING	COMMENTS
1	No appeal
2	Minor appeal (very challenging, skilled cyclists only, steep grades, adjacent to high volume roadway)
3	Notable appeal (appeals to mostly skilled cyclists, significant grades, aesthetics ok, adjacent to high volume roadway)
4	Significant appeal (would appeal to most cyclists, slight grades acceptable, mostly aesthetically pleasing, adjacent to lower volume roadway)
5	Major appeal (appeals to all cyclists, low grade, very aesthetically pleasing, adjacent to low volume froadway)

IMPLEMENTATION FEASIBILITY
(weighting = 2)

RATING	COMMENTS
1	Impossible to implement
2	Somewhat feasible (there will most probably be significant issues that may hinder implementation)
3	Mostly feasible (there may be issues in implementation)
4	Fully feasible (property acquisition, phasing, environmental implications, construction implications etc. may exist but they are minor and should not hinder implementation)
5	Very feasible (there are no issues currently known that could potentially hinder implementation)

APPENDIX E

COST ESTIMATES

DISTRICT OF COLDSTREAM BICYCLE AND PEDESTRIAN PLAN
High Priority Routes - Cost Estimate Summary

ROUTE	FACILTY TYPE	OVERALL RANKING	COST ESTIMATE	PROJECT SIZE
Aberdeen Road (Middleton Dr to Hwy 6)	Paved Shoulders	1	$195,000	MEDIUM
College Way/Kickwillie Loop Rd (Hwy 97 to Westkal Rd)	Paved Shoulders	2	$302,000	LARGE
Kalamalka Beach (Kidston Rd to Westkal Rd)	Multi-use Pathway	3	$179,000	MEDIUM
Westkal Road	Sidewalk and Marked Wide Curb Lanes	4	$1,485,000	LARGE
Husband Road (Middleton Way to Kalamalka Lake Rd)	Paved Shoulder and Sidewalk	5	$403,000	LARGE
Husband Road (off-road connection)	Shared Route and Multi-Use Pathway	6	$56,000	SMALL
Okanagan College to College Way (off-road connection)	Multi-use Pathway	7	$91,000	SMALL
Coldstream Creek Road (Kalamalka Rd to Kidston Rd)	Paved Shoulders or Multi-Use Pathway	8	$1,517,000 (shoulders) $714,000 (path)	LARGE
Kidston Road (Kalamalka Rd to Coldstream Creek Rd)	Paved Shoulders	9	$332,000	LARGE
Kidston Road (Coldstream Creek Rd to Kal Park)	Multi-Use Pathway	10	$475,000	LARGE
Buchanan Road (Aberdeen Rd to Uplands Drive)	Paved Shoulders	11	$502,000	LARGE
Kalamalka Road (Aberdeen Rd to Hwy 6)	Paved Shoulders	12	$602,000	LARGE
Middleton Drive	Paved Shoulders	13	$314,000	LARGE
TOTAL			**$6,453,000**	

* As per Major Roadway Network Plan, 2004

DISTRICT OF COLDSTREAM BICYCLE AND PEDESTRIAN PLAN
Aberdeen Road (Middleton to Highway 6)
Paved Shoulders, Both Sides (560m long)

PRELIMINARY COST ESTIMATE

ITEM	DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE	AMOUNT ($)
SECTION 02070 - Sitework, Demolition & Removals					
2070.1		each			$ -
SECTION 02111 - Clearing and Grubbing					
2111.1	Stripping of existing overburden waste material	LS	1	$ 2,000.00	$ 2,000.00
SECTION 02550 - Asphalt Removal					
2550.1	Sawcut, remove and dispose of asphalt	sq. m.	560	$ 10.00	$ 5,600.00
SECTION 02224 - Roadway Excavation, Embankment and Compaction					
2224.1	Common excavation, off-site disposal	cu. m.	1120	$ 15.00	$ 16,800.00
2224.4	Subgrade finishing and compaction	sq. m.	2240	$ 2.00	$ 4,480.00
SECTION 02233 - Granular Base					
2233.1	Granular base, 25mm minus crushed gravel - 150mm thick	sq. m.	1680	$ 7.00	$ 11,760.00
2233.2	Shoulder gravel, 200mm thick (net)	sq. m.	560	$ 8.00	$ 4,480.00
SECTION 02234 - Granular Subbase					
2234.1	Granular Subbase, 75mm minus crushed gravel - 300mm thick	sq. m.	1680	$ 10.00	$ 16,800.00
SECTION 02512 - Hot-Mix Asphalt Concrete Paving					
2512.1	Hot-Mix Ashphalt Paving, 50mm	sq. m.	1680	$ 15.00	$ 25,200.00
SECTION 02580 - Painted Pavement Markings					
2580.1	100mm white edge line	LS	1	$ 2,000.00	$ 2,000.00
SECTION 02921 - Topsoil and Finish Grading					
2921.1	Site restoration including topsoil and seeding	L.S	1	$ 2,000.00	$ 2,000.00
SPECIAL CONSIDERATIONS					
.1	Relocate Hydro Poles	each	9	$ 5,000.00	$ 45,000.00
.2	Route Signs (1 per 200,)	each	6	$ 500.00	$ 3,000.00
	SUBTOTAL 1				$ 139,120.00
	CONTINGENCY (40%)				$ 55,648.00
	TOTAL				**$ 194,768.00**

Notes: Assume that no property acquisition would be required

hydro poles on east side most likely need to be moved.

Estimate does not include drainage ditches

1.5m paved shoulders with 0.5 m gravel adjacent

DISTRICT OF COLDSTREAM BICYCLE AND PEDESTRIAN PLAN
College Way/Kickwillie Loop Road (Highway 97 to WestKal Road)
Paved Shoulders, Both Sides (1450m long)

PRELIMINARY COST ESIMATE

ITEM	DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE	AMOUNT ($)
SECTION 02070 - Sitework, Demolition & Removals					
2070.1	Sign Relocation - "Welcome to Coldstream"	each	1	$ 1,000.00	$ 1,000.00
SECTION 02111 - Clearing and Grubbing					
2111.1	Stripping of existing overburden waste material	LS	1	$ 1,000.00	$ 1,000.00
SECTION 02550 - Asphalt Removal					
2550.1	Sawcut, remove and dispose of asphalt	sq. m.	767.5	$ 10.00	$ 7,675.00
SECTION 02224 - Roadway Excavation, Embankment and Compaction					
2224.2	Common excavation, off-site disposal	cu. m.	2086.25	$ 15.00	$ 31,293.75
2224.2	Imported Embankment Fill	cu. m.	1450	$ 32.00	$ 46,400.00
2224.3	Subgrade finishing and compaction	sq. m.	4172.5	$ 2.00	$ 8,345.00
					$ -
SECTION 02233 - Granular Base					
2233.1	Granular base, 25mm minus crushed gravel - 150mm thick	sq. m.	3182.5	$ 7.00	$ 22,277.50
2233.2	Shoulder gravel, 200mm thick (net)	sq. m.	990	$ 8.00	$ 7,920.00
SECTION 02234 - Granular Subbase					
2234.1	Granular Subbase, 75mm minus crushed gravel - 300mm thick	sq. m.	3182.5	$ 10.00	$ 31,825.00
SECTION 02512 - Hot-Mix Asphalt Concrete Paving					
2512.1	Hot-Mix Ashphalt Paving, 50mm	sq. m.	3182.5	$ 15.00	$ 47,737.50
SECTION 02580 - Painted Pavement Markings					
2580.1	100mm white edge line and bicycle stencils	LS	1	$ 2,000.00	$ 2,000.00
SECTION 02921 - Topsoil and Finish Grading					
2921.1	Site restoration including topsoil and seeding	L.S	1	$ 2,000.00	$ 2,000.00
SPECIAL CONSIDERATIONS					
.1	Light Standards relocation	each	3	$ 2,000.00	$ 6,000.00
.2	Bus Bench relocation	each	1	$ 500.00	$ 500.00
	SUBTOTAL 1				$ 215,973.75
	CONTINGENCY (40%)				$ 86,389.50
	TOTAL				**$ 302,364.00**

Notes:
Assume widening to west side only on College Way, both sides on Kickwillie Loop Rd
Assume no retaining walls needed
Assume no proprty acquisition required
no power poles will need to be relocated if additions made to opposite side of road
Estimate does not include drainage ditches
1.5m bike lanes, 0.5m gravel shoulder assumed
Paved shoulders to be added over gas pipeline right of way, permit likely required
Construction over railway crossing

DISTRICT OF COLDSTREAM BICYCLE AND PEDESTRIAN PLAN

Kalamalka Beach Area

Multi-Use Pathway (4m), Kalavista Dr to Westkal Rd (430m), and Crossing Upgrades

PRELIMINARY COST ESIMATE

ITEM	DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE	AMOUNT ($)
SECTION 02070 - Sitework, Demolition & Removals					
2070.1					$ -
SECTION 02111 - Clearing and Grubbing					
2111.1	Stripping of existing overburden waste material	LS	1	$ 5,000.00	$ 5,000.00
SECTION 02224 - Roadway Excavation, Embankment and Compaction					
2224.2	Common excavation, off-site disposal	cu. m.	1120	$ 15.00	$ 16,800.00
2224.4	Subgrade finishing and compaction	sq. m.	2240	$ 2.00	$ 4,480.00
SECTION 02233 - Granular Base					
2233.1	Granular base, 25mm minus crushed gravel - 150mm thick	sq. m.	2240	$ 7.00	$ 15,680.00
2233.2	Shoulder gravel, 200mm thick (net)	sq. m.		$ 8.00	$ -
SECTION 02234 - Granular Subbase					
2234.1	Granular Subbase, 75mm minus crushed gravel - 300mm thick	sq. m.	2240	$ 10.00	$ 22,400.00
SECTION 02512 - Hot-Mix Asphalt Concrete Paving					
2512.1	Hot-Mix Ashphalt Paving, 50mm	sq. m.	2240	$ 15.00	$ 33,600.00
SECTION 02580 - Painted Pavement Markings					
2580.1	Stencils, arrows etc.	LS	1	$ 2,000.00	$ 2,000.00
SECTION 02921 - Topsoil and Finish Grading					
2921.1	Site restoration	L.S	1	$ 2,000.00	$ 2,000.00
SPECIAL CONSIDERATIONS					
.1	Remove and replace Chain link fence	L.S	1	$ 2,000.00	$ 2,000.00
.2	Warning Flashers at Crosswalk	each	1	$ 10,000.00	$ 10,000.00
.3	Relocate zebra crossing	L.S	1	$ 1,000.00	$ 1,000.00
.4	Warning signs at crosswalks	each	6	$ 500.00	$ 3,000.00
.5	Upgrade parking entrance	L.S.	1	$ 10,000.00	$ 10,000.00
	SUBTOTAL 1				$ 127,960.00
	CONTINGENCY (40%)				$ 51,184.00
	TOTAL				**$ 179,144.00**

Notes: Estimate does not include property acquisition
Assumed asphalt path (can be substituted for unit paving, etc)
Assumed 4m wide path

DISTRICT OF COLDSTREAM BICYCLE AND PEDESTRIAN PLAN
Husband Road (Middleton Way to Kalamalka Beach Parking Access)
Paved Shoulder and sidewalk (1060m)

PRELIMINARY COST ESIMATE

ITEM	DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE	AMOUNT ($)
SECTION 02070 - Sitework, Demolition & Removals					
2070.1					$ -
SECTION 02111 - Clearing and Grubbing					
2111.1	Stripping of existing overburden waste material	LS	1	$ 5,000.00	$ 5,000.00
SECTION 02550 - Asphalt Removal					
2550.1	Sawcut, remove and dispose of asphalt	sq. m.	400	$ 10.00	$ 4,000.00
SECTION 02224 - Roadway Excavation, Embankment and Compaction					
2224.2	Common excavation, off-site disposal	cu. m.	1860	$ 15.00	$ 27,900.00
2224.3	Imported Embankment Fill	cu. m.		$ 32.00	$ -
2224.4	Subgrade finishing and compaction	sq. m.	3720	$ 2.00	$ 7,440.00
					$ -
SECTION 02233 - Granular Base					
2233.1	Granular base, 25mm minus crushed gravel - 150mm thick	sq. m.	3720	$ 7.00	$ 26,040.00
2233.2	Shoulder gravel, 200mm thick (net)	sq. m.		$ 8.00	$ -
SECTION 02234 - Granular Subbase					
2234.1	Granular Subbase, 75mm minus crushed gravel - 300mm thick	sq. m.	1600	$ 10.00	$ 16,000.00
SECTION 02512 - Hot-Mix Asphalt Concrete Paving					
2512.1	Hot-Mix Ashphalt Paving, 50mm	sq. m.	1200	$ 15.00	$ 18,000.00
SECTION 02523 - Concrete Walks, Curbs and Gutters					
2523.1	Concrete Curb removal and disposal	l.m.	800	$ 15.00	$ 12,000.00
2523.2	Rollover Curb and Gutter	l.m.	800	$ 60.00	$ 48,000.00
2523.3	Concrete Sidwewalk	sq.m.	1908	$ 60.00	$ 114,480.00
SECTION 02580 - Painted Pavement Markings					
2580.1	100mm white edge line and bicycle stencils	LS	1	$ 2,000.00	$ 2,000.00
SECTION 02921 - Topsoil and Finish Grading					
2921.1	Site restoration including topsoil and seeding	L.S	1	$ 2,000.00	$ 2,000.00
SPECIAL CONSIDERATIONS					
.1	Route Signs (1 per 200m)	each	10	$ 500.00	$ 5,000.00
	SUBTOTAL 1				$ 287,860.00
	CONTINGENCY (40%)				$ 115,144.00
	TOTAL				**$ 403,004.00**

Notes: Assume no property acquisition is required - may be some clearing of landscaping

hydro poles appear to be far enough on property to not have to be moved

Assumed Curb and Gutter replaced on one side of road, stays on other

Clearing and grubbing of grass and plants

DISTRICT OF COLDSTREAM BICYCLE AND PEDESTRIAN PLAN
Hisband Road (Middleton Way to Husband Road)
Shared Bike Route and Multi-use Pathway (670m)

PRELIMINARY COST ESIMATE

ITEM	DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE	AMOUNT ($)
SECTION 02070 - Sitework, Demolition & Removals					
2070.1	Remove existing stairwell	LS	1	$ 5,000.00	$ 5,000.00
SECTION 02111 - Clearing and Grubbing					
2111.1	Stripping of existing overburden waste material	LS	1	$ 1,000.00	$ 1,000.00
SECTION 02550 - Asphalt Removal					
2550.1	Sawcut, remove and dispose of asphalt	sq. m.	100	$ 10.00	$ 1,000.00
SECTION 02224 - Roadway Excavation, Embankment and Compaction					
2224.1	Common excavation, off-site disposal	cu. m.	100	$ 15.00	$ 1,500.00
2224.2	Imported Embankment Fill	cu. m.		$ 32.00	$ -
2224.3	Subgrade finishing and compaction	sq. m.	200	$ 2.00	$ 400.00
					$ -
SECTION 02233 - Granular Base					
2233.1	Granular base, 25mm minus crushed gravel - 150mm thick	sq. m.	200	$ 7.00	$ 1,400.00
SECTION 02234 - Granular Subbase					
2234.1	Granular Subbase, 75mm minus crushed gravel - 300mm thick	sq. m.	200	$ 10.00	$ 2,000.00
SECTION 02512 - Hot-Mix Asphalt Concrete Paving					
2512.1	Hot-Mix Ashphalt Paving, 50mm	sq. m.	200	$ 15.00	$ 3,000.00
SECTION 02921 - Topsoil and Finish Grading					
2921.1	Site restoration including topsoil and seeding	L.S	1	$ 2,000.00	$ 2,000.00
SPECIAL CONSIDERATIONS					
.1	Bike route signage	each	6	$ 500.00	$ 3,000.00
.2	New stairwell	L.S.	1	$ 20,000.00	$ 20,000.00
	SUBTOTAL 1				$ 40,300.00
	CONTINGENCY (40%)				$ 16,120.00
	TOTAL				**$ 56,420.00**

Notes: No need for property acquisition (ROW = 15 m)

Shared bike routes only require signage

Existing staircase (wood and asphalt) - this estimate considers ripping out of existing staircase and placement of new staircase with ramp

Assumed asphalt paths to be 4 m wide

Clearing and grubbing of grass and plants

Manholes and utility boxes within area but can be averted

DISTRICT OF COLDSTREAM BICYCLE AND PEDESTRIAN PLAN
Okanagan College to College Way
Multi-Use Pathway (250m)

PRELIMINARY COST ESIMATE

ITEM	DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE	AMOUNT ($)
SECTION 02070 - Sitework, Demolition & Removals					
2070.1		each			$ -
SECTION 02111 - Clearing and Grubbing					
2111.1	Stripping of existing overburden waste material	LS	1	$ 5,000.00	$ 5,000.00
SECTION 02224 - Roadway Excavation, Embankment and Compaction					
2224.1	Common excavation, off-site disposal	cu. m.	500	$ 15.00	$ 7,500.00
2224.4	Subgrade finishing and compaction	sq. m.	1000	$ 2.00	$ 2,000.00
					$ -
SECTION 02233 - Granular Base					
2233.1	Gravel paving - crusher chips, reject screening	sq. m.	1000	$ 20.00	$ 20,000.00
SECTION 02234 - Granular Subbase					
2234.1	Granular Subbase, 75mm minus crushed gravel - 300mm thick	sq. m.	1000	$ 10.00	$ 10,000.00
SECTION 02512 - Hot-Mix Asphalt Concrete Paving					
2512.1	Hot-Mix Ashphalt Paving, 50mm	sq. m.	1000	$ 15.00	$ 15,000.00
SECTION 02921 - Topsoil and Finish Grading					
2921.1	Site restoration including topsoil and seeding	L.S	1	$ 5,000.00	$ 5,000.00
SPECIAL CONSIDERATIONS					
.1	Signs and pavement markings	l.m.	250	$ 2.00	$ 500.00
	SUBTOTAL 1				$ 65,000.00
	CONTINGENCY (40%)				$ 26,000.00
	TOTAL				**$ 91,000.00**

Notes: Estimate does not include property acquisition - land aq will be needed on east side due to steep grades

hydro poles should not be affected

Big costs will be property acquisition and clearing and grubbing

Assumed path width of 4m, asphalt surface

Steep up/down grades to some driveways

Estimate does not include any retaining structures, if required

DISTRICT OF COLDSTREAM BICYCLE AND PEDESTRIAN PLAN

Coldstream Creek Road

Multi-Use Pathway (3500m)

PRELIMINARY COST ESIMATE

ITEM	DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE	AMOUNT ($)
SECTION 02070 - Sitework, Demolition & Removals					
2070.1		each			$ -
SECTION 02111 - Clearing and Grubbing					
2111.1	Stripping of existing overburden waste material	LS	1	$ 15,000.00	$ 15,000.00
SECTION 02224 - Roadway Excavation, Embankment and Compaction					
2224.1	Common excavation, off-site disposal	cu. m.	7000	$ 15.00	$ 105,000.00
2224.4	Subgrade finishing and compaction	sq. m.	14000	$ 2.00	$ 28,000.00
					$ -
SECTION 02233 - Granular Base					
2233.1	Gravel paving - crusher chips, reject screening	sq. m.		$ 20.00	$ -
SECTION 02234 - Granular Subbase					
2234.1	Granular Subbase, 75mm minus crushed gravel - 300mm thick	sq. m.	14000	$ 10.00	$ 140,000.00
SECTION 02512 - Hot-Mix Asphalt Concrete Paving					
2512.1	Hot-Mix Ashphalt Paving, 50mm	sq. m.	14000	$ 15.00	$ 210,000.00
SECTION 02921 - Topsoil and Finish Grading					
2921.1	Site restoration including topsoil and seeding	L.S	1	$ 5,000.00	$ 5,000.00
SPECIAL CONSIDERATIONS					
.1	Signs and pavement markings	l.m.	3500	$ 2.00	$ 7,000.00
	SUBTOTAL 1				$ 510,000.00
	CONTINGENCY (40%)				$ 204,000.00
	TOTAL				**$ 714,000.00**

Notes: Estimate does not include property acquisition - land aq will be needed on east side due to steep grades

hydro poles should not be affected

Big costs will be property acquisition and clearing and grubbing

Assumed path width of 4m, asphalt surface

Steep up/down grades to some driveways

Estimate does not include any retaining structures, if required

DISTRICT OF COLDSTREAM BICYCLE AND PEDESTRIAN PLAN
Coldstream Creek Road (Kalamalka Lake Road to Kidston)
Paved Shoulders, Both Sides (3500m)

PRELIMINARY COST ESIMATE

ITEM	DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE	AMOUNT ($)
SECTION 02070 - Sitework, Demolition & Removals					
2070.1		each			$ -
SECTION 02111 - Clearing and Grubbing					
2111.1	Stripping of existing overburden waste material	LS	1	$ 5,000.00	$ 5,000.00
SECTION 02550 - Asphalt Removal					
2550.1	Sawcut, remove and dispose of asphalt	sq. m.	3500	$ 10.00	$ 35,000.00
SECTION 02224 - Roadway Excavation, Embankment and Compaction					
2224.1	Common excavation, off-site disposal	cu. m.	13160	$ 15.00	$ 197,400.00
2224.2	Subgrade finishing and compaction	sq. m.	14000	$ 2.00	$ 28,000.00
SECTION 02233 - Granular Base					
2233.1	Granular base, 25mm minus crushed gravel - 150mm thick	sq. m.	14000	$ 7.00	$ 98,000.00
2233.2	Shoulder gravel, 200mm thick (net)	sq. m.	3080	$ 8.00	$ 24,640.00
SECTION 02234 - Granular Subbase					
2234.1	Granular Subbase, 75mm minus crushed gravel - 300mm thick	sq. m.	14000	$ 10.00	$ 140,000.00
SECTION 02512 - Hot-Mix Asphalt Concrete Paving					
2512.1	Hot-Mix Ashphalt Paving, 50mm	sq. m.	10500	$ 15.00	$ 157,500.00
SECTION 02523 - Concrete Walks, Curbs and Gutters					
2523.1	Concrete Curb removal and disposal	l.m.	840	$ 15.00	$ 12,600.00
2523.1	Rollover Curb and Gutter	l.m.	840	$ 60.00	$ 50,400.00
SECTION 02580 - Painted Pavement Markings					
2580.1	100mm white edge line	LS	1	$ 5,000.00	$ 5,000.00
SECTION 02921 - Topsoil and Finish Grading					
2921.1	Site restoration including topsoil and seeding	L.S	1	$ 5,000.00	$ 5,000.00
SPECIAL CONSIDERATIONS					
.1	Relocate Hydro Poles	each	65	$ 5,000.00	$ 325,000.00
.2	Bridge widening/construction				
	SUBTOTAL 1				$ 1,083,540.00
	CONTINGENCY (40%)				$ 433,416.00
	TOTAL				**$ 1,516,956.00**

Notes: Estimate does not include property acquisition - acq of 1m may be required in areas where ROW is 11.7 and 11.5; other ROW are 12.5, 15 m, etc

hydro poles need to be moved (number in table not exact)

Clearing and grubbing of grass and plants on personal property

Curb and gutter replaced where currently exists

~ 300 metre area with steep grades and bridge, may need retaining walls

Cost estimate does not include bridge widening, if required

DISTRICT OF COLDSTREAM BICYCLE AND PEDESTRIAN PLAN
Kidston Road (Kalamalka Lake Road to Coldstream Creek Road)
Paved Shoulders, Both Sides (1200m)

PRELIMINARY COST ESIMATE

ITEM	DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE	AMOUNT ($)
SECTION 02070 - Sitework, Demolition & Removals					
2070.1		each			$ -
SECTION 02111 - Clearing and Grubbing					
2111.1	Stripping of existing overburden waste material	LS	1	$ 2,000.00	$ 2,000.00
SECTION 02550 - Asphalt Removal					
2550.1	Sawcut, remove and dispose of asphalt	sq. m.	860	$ 10.00	$ 8,600.00
SECTION 02224 - Roadway Excavation, Embankment and Compaction					
2224.1	Common excavation, off-site disposal	cu. m.	3440	$ 15.00	$ 51,600.00
2224.2	Subgrade finishing and compaction	sq. m.	3440	$ 2.00	$ 6,880.00
					$ -
SECTION 02233 - Granular Base					
2233.1	Granular base, 25mm minus crushed gravel - 150mm thick	sq. m.	3440	$ 7.00	$ 24,080.00
2233.2	Shoulder gravel, 200mm thick (net)	sq. m.	860	$ 8.00	$ 6,880.00
SECTION 02234 - Granular Subbase					
2234.1	Granular Subbase, 75mm minus crushed gravel - 300mm thick	sq. m.	3440	$ 10.00	$ 34,400.00
SECTION 02512 - Hot-Mix Asphalt Concrete Paving					
2512.1	Hot-Mix Ashphalt Paving, 50mm	sq. m.	2580	$ 15.00	$ 38,700.00
SECTION 02580 - Painted Pavement Markings					
2580.1	100mm white edge line	LS	1	$ 2,000.00	$ 2,000.00
SECTION 02921 - Topsoil and Finish Grading					
2921.1	Site restoration including topsoil and seeding	L.S	1	$ 2,000.00	$ 2,000.00
SPECIAL CONSIDERATIONS					
.1	Relocate Hydro Poles	each	12	$ 5,000.00	$ 60,000.00
	SUBTOTAL 1				$ 237,140.00
	CONTINGENCY (40%)				$ 94,856.00
	TOTAL				**$ 331,996.00**

Notes: Estimate does not include property acquisition, may need additional ROW at school

hydro poles relocation due to close proximity to existing edge, number in table is estimated

Clearing and grubbing of grass and shrubs on property

Assumed no Curb and Gutter in existing state

DISTRICT OF COLDSTREAM BICYCLE AND PEDESTRIAN PLAN
Kidston Road (Coldstream Creek Road to Kal Park Red Gate Entrance)
Multi-Use Pathway on East Side (1450m)

PRELIMINARY COST ESIMATE

ITEM	DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE	AMOUNT ($)
SECTION 02070 - Sitework, Demolition & Removals					
2070.1		each			$ -
SECTION 02111 - Clearing and Grubbing					
2111.1	Stripping of existing overburden waste material	LS	1	$ 15,000.00	$ 15,000.00
SECTION 02224 - Roadway Excavation, Embankment and Compaction					
2224.1	Common excavation, off-site disposal	cu. m.	2900	$ 15.00	$ 43,500.00
2224.4	Subgrade finishing and compaction	sq. m.	5800	$ 2.00	$ 11,600.00
					$ -
SECTION 02233 - Granular Base					
2233.1	Gravel paving - crusher chips, reject screening	sq. m.	5800	$ 20.00	$ 116,000.00
SECTION 02234 - Granular Subbase					
2234.1	Granular Subbase, 75mm minus crushed gravel - 300mm thick	sq. m.	5800	$ 10.00	$ 58,000.00
SECTION 02512 - Hot-Mix Asphalt Concrete Paving					
2512.1	Hot-Mix Ashphalt Paving, 50mm	sq. m.	5800	$ 15.00	$ 87,000.00
SECTION 02921 - Topsoil and Finish Grading					
2921.1	Site restoration including topsoil and seeding	L.S	1	$ 5,000.00	$ 5,000.00
SPECIAL CONSIDERATIONS					
.1	Signs and pavement markings	l.m.	1450	$ 2.00	$ 2,900.00
	SUBTOTAL 1				$ 339,000.00
	CONTINGENCY (40%)				$ 135,600.00
	TOTAL				**$ 474,600.00**

Notes: Estimate does not include property acquisition - land aq will be needed on east side due to steep grades

hydro poles should not be affected

Big costs will be property acquisition and clearing and grubbing

Assumed path width of 4m, asphalt surface

Steep up/down grades to some driveways

Estimate does not include any retaining structures, if required

DISTRICT OF COLDSTREAM BICYCLE AND PEDESTRIAN PLAN
Buchanan Road (Aberdeen to Uplands Drive)
Paved Shoulders, Both Sides (1100m)

PRELIMINARY COST ESIMATE

ITEM	DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE	AMOUNT ($)
SECTION 02070 - Sitework, Demolition & Removals					
2070.1		each			$ -
SECTION 02111 - Clearing and Grubbing					
2111.1	Stripping of existing overburden waste material	LS	1	$ 2,000.00	$ 2,000.00
SECTION 02550 - Asphalt Removal					
2550.1	Sawcut, remove and dispose of asphalt	sq. m.	1100	$ 10.00	$ 11,000.00
SECTION 02224 - Roadway Excavation, Embankment and Compaction					
2224.1	Common excavation, off-site disposal	cu. m.	5500	$ 15.00	$ 82,500.00
2224.2	Imported Embankment Fill	cu. m.	3300	$ 32.00	$ 105,600.00
2224.3	Subgrade finishing and compaction	sq. m.	4400	$ 2.00	$ 8,800.00
					$ -
SECTION 02233 - Granular Base					
2233.1	Granular base, 25mm minus crushed gravel - 150mm thick	sq. m.	3300	$ 7.00	$ 23,100.00
2233.2	Shoulder gravel, 200mm thick (net)	sq. m.	1100	$ 8.00	$ 8,800.00
SECTION 02234 - Granular Subbase					
2234.1	Granular Subbase, 75mm minus crushed gravel - 300mm thick	sq. m.	3300	$ 10.00	$ 33,000.00
SECTION 02512 - Hot-Mix Asphalt Concrete Paving					
2512.1	Hot-Mix Ashphalt Paving, 50mm	sq. m.	3300	$ 15.00	$ 49,500.00
SECTION 02580 - Painted Pavement Markings					
2580.1	100mm white edge line	LS	1	$ 2,000.00	$ 2,000.00
SECTION 02921 - Topsoil and Finish Grading					
2921.1	Site restoration including topsoil and seeding	L.S	1	$ 2,000.00	$ 2,000.00
SPECIAL CONSIDERATIONS					
.1	Hydro Pole relocation	each	6	$ 5,000.00	$ 30,000.00
	SUBTOTAL 1				$ 358,300.00
	CONTINGENCY (40%)				$ 143,320.00
	TOTAL				**$ 501,620.00**

Notes: Estimate does not include property acquisition - ROW is 11.9m, 21. so in parts will need 1m on side of road (for about 450 m)
some hydro poles close to road so must be moved, number in table is an estimate
Terasen?BC gas line nearby (yellow)
ditches (assumed a depth of 1.5 m)
clear/grub - bushes, etc close to roads edge

DISTRICT OF COLDSTREAM BICYCLE AND PEDESTRIAN PLAN
Kalamalka Road (Aberdeen to Highway 6)
Paved Shoulders, Both Sides (2330m)

PRELIMINARY COST ESIMATE

ITEM	DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE	AMOUNT ($)
SECTION 02070 - Sitework, Demolition & Removals					
2070.1		each			$ -
SECTION 02111 - Clearing and Grubbing					
2111.1	Stripping of existing overburden waste material	LS	1	$ 2,000.00	$ 2,000.00
SECTION 02550 - Asphalt Removal					
2550.1	Sawcut, remove and dispose of asphalt	sq. m.	2130	$ 10.00	$ 21,300.00
SECTION 02224 - Roadway Excavation, Embankment and Compaction					
2224.1	Common excavation, off-site disposal	cu. m.	8520	$ 15.00	$ 127,800.00
2224.3	Subgrade finishing and compaction	sq. m.	8520	$ 2.00	$ 17,040.00
					$ -
SECTION 02233 - Granular Base					
2233.1	Granular base, 25mm minus crushed gravel - 150mm thick	sq. m.	8520	$ 7.00	$ 59,640.00
2233.2	Shoulder gravel, 200mm thick (net)	sq. m.	2130	$ 8.00	$ 17,040.00
SECTION 02234 - Granular Subbase					
2234.1	Granular Subbase, 75mm minus crushed gravel - 300mm thick	sq. m.	8520	$ 10.00	$ 85,200.00
SECTION 02512 - Hot-Mix Asphalt Concrete Paving					
2512.1	Hot-Mix Ashphalt Paving, 50mm	sq. m.	6390	$ 15.00	$ 95,850.00
SECTION 02580 - Painted Pavement Markings					
2580.1	100mm white edge line	LS	1	$ 2,000.00	$ 2,000.00
SECTION 02921 - Topsoil and Finish Grading					
2921.1	Site restoration including topsoil and seeding	L.S	1	$ 2,000.00	$ 2,000.00
SPECIAL CONSIDERATIONS					
	SUBTOTAL 1				$ 429,870.00
	CONTINGENCY (40%)				$ 171,948.00
	TOTAL				**$ 601,818.00**

Notes: Estimate does not include property acquisition - none should be required as ROW = 20.1 m

hydro poles appear to be far enough on property to not have to be moved

Estimate does not include drainage ditches

1.5m paved shoulders, .5 gravel shoulders

DISTRICT OF COLDSTREAM BICYCLE AND PEDESTRIAN PLAN
Middleton Drive (Aberdeen to Middleton Way)
Paved Shoulders, Both Sides (830m)

PRELIMINARY COST ESIMATE

ITEM	DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE	AMOUNT ($)
SECTION 02070 - Sitework, Demolition & Removals					
2070.1		each			$ -
SECTION 02111 - Clearing and Grubbing					
2111.1	Stripping of existing overburden waste material	LS	1	$ 2,000.00	$ 2,000.00
SECTION 02550 - Asphalt Removal					
2550.1	Sawcut, remove and dispose of asphalt	sq. m.	830	$ 10.00	$ 8,300.00
SECTION 02224 - Roadway Excavation, Embankment and Compaction					
2224.1	Common excavation, off-site disposal	cu. m.	3320	$ 15.00	$ 49,800.00
2224.2	Imported Embankment Fill	cu. m.	1660	$ 32.00	$ 53,120.00
2224.3	Subgrade finishing and compaction	sq. m.	3320	$ 2.00	$ 6,640.00
					$ -
SECTION 02233 - Granular Base					
2233.1	Granular base, 25mm minus crushed gravel - 150mm thick	sq. m.	3320	$ 7.00	$ 23,240.00
2233.2	Shoulder gravel, 200mm thick (net)	sq. m.	830	$ 8.00	$ 6,640.00
SECTION 02234 - Granular Subbase					
2234.1	Granular Subbase, 75mm minus crushed gravel - 300mm thick	sq. m.	3320	$ 10.00	$ 33,200.00
SECTION 02512 - Hot-Mix Asphalt Concrete Paving					
2512.1	Hot-Mix Ashphalt Paving, 50mm	sq. m.	2490	$ 15.00	$ 37,350.00
SECTION 02580 - Painted Pavement Markings					
2580.1	100mm white edge line	LS	1	$ 2,000.00	$ 2,000.00
SECTION 02921 - Topsoil and Finish Grading					
2921.1	Site restoration including topsoil and seeding	L.S	1	$ 2,000.00	$ 2,000.00
SPECIAL CONSIDERATIONS					
	SUBTOTAL 1				$ 224,290.00
	CONTINGENCY (40%)				$ 89,716.00
	TOTAL				**$ 314,006.00**

Notes: Estimate does not include property acquisition - none should be required

hydro poles appear to be far enough on property to not have to be moved