Pedestrian and Cycling Master Plan: Salt Spring Island Edition

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PREPARED BY:
Alta Planning + Design

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EXECUTIVE SUMMARY

A master plan is defined as a document 'giving comprehensive guidance or instruction'. The Pedestrian and Cycling Master Plan: Salt Spring Island Edition (PCMP-SSI Edition) builds off the 2011 CRD Pedestrian and Cycling Master Plan (PCMP) by extending the 775 km Primary Inter-Community (PIC) bikeway network to include an additional 25 km on the island. The 25 km of on-island PIC is inclusive of 'location of interest for a Proposed Regional Trail' also identified in the Regional Parks Strategic Plan (RPSP). The PCMP-SSI Edition also applies the PCMP's principles, typologies and design guidelines to the unique rural gulf island context and establishes short- and long-term visions for upgrading the cycling infrastructure to meet the safety and comfort needs of "everyday" cyclists.

The PCMP-SSI Edition process involved the harmonization of some 30 years of community visioning and cycling advocacy on the island with the broader regional approach to active transportation established in the PCMP. The PCMP-SSI Edition takes a decidedly pragmatic, practical, and realistic approach to making Salt Spring Island safer and more cycling friendly by working with existing partners to implement improvements now.

While this document provides detailed consideration of cycling improvements on Salt Spring Island, there are a number of benefits provided to pedestrians using the same roadways by providing safer places to walk and slowing traffic.

The PCMP-SSI Edition recommends a series of priority measures, which can be undertaken in partnership to significant effect. By working primarily within the existing road right-of-way, the recommendations focus on widening the shoulder way so as to meet current best practices in cycling facilities, and reducing traffic speeds so as to create a calmer, safer travel environment for all modes. In addition to these key infrastructure changes, the following areas were identified as priority focus areas:

- Upgrade of safety conditions in Fulford Village and the ferry terminal approach
- Completion of Phases 2 – 5 of the North Ganges Transportation Plan
- Upgrade of safety conditions on Ganges Hill
- Traffic calming of Ganges Village
- Wayfinding signage which links the PIC bikeway to local routes and major destinations.

In the long-term, the plan acknowledges that "ideal" cycling facilities call for multi-use trails, where pedestrians and cyclists are separated from moving vehicles to maximize user safety and comfort. Such a facility would be a significant asset, drawing visitors to the island to enjoy an exceptional and remarkable cycling environment, and would make "utility and transport" cycling trips for locals simply "irresistible."[1] It is important to articulate and record the ideal vision by way of a "shelf-ready" master planning document, in the event funding opportunities or grants become available.

The primary focus of this master plan is on cycling infrastructure improvements (engineering), but it also draws attention to the critical importance of nurturing the "soft e's" of sustainable transportation – namely

[1] Making Cycling Irresistible: Lessons from The Netherlands, Denmark and Germany, Bloustein School of Planning, Rutgers University, 2007, John Pucher, Ralph Buehler.

education, encouragement, evaluation and enforcement. A made-for-Salt Spring Island approach is articulated in the Community Compendium[2].

The underlying message of the PCMP-SSI Edition (and its parent document, the PCMP) is the crucial importance of sending the right message that cycling is valued and citizens are encouraged to take their everyday trips by bicycle. This message is reinforced through the thoughtful installation of bike facilities that focus on the rider's needs for comfort and safety as well as programming and policy support. This master plan provides leaders, policy makers, citizens, and advocates with the tools to work collaboratively towards the common goal of making cycling safe, fun and an everyday activity on Salt Spring Island.

[2] The Community Compendium focuses on programs that are supportive of engineering efforts to improve bicycling. This document, which is summarized on Page 8, was published as a companion to this report.

Contents

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Acknowledgements

The Capital Regional District (CRD) appreciates the efforts of the many individuals who contributed to the development of this master plan. Their enthusiasm, energy and commitment to the future of active transportation on Salt Spring Island comprised the driving force behind this planning effort.

Technical Advisory Committee

At the request of the CRD, a group of community volunteers came together to act as a Technical Advisory Committee (TAC) to provide feedback on the evolution of the Pedestrian and Cycling Master Plan: Salt Spring Island Edition (PCMP-SSI Edition). The following individuals were willingly recruited to the task based on their individual or organizational experience and expertise related to the cycling environment on Salt Spring Island:

- Brenda Guiled: Chair of Island Pathways and its affiliate Bicycle Working Group (BWG); organizer of the 2010 Cycling Forum; instigator of the 2011 Cycling Survey Report;
- Donald McLennan, Vice Chair, Salt Spring Island Transportation Commission
- John Wakefield, Chair, Salt Spring Island Transportation Commission
- John Rowlandson, Director of Island Pathways Velo Village Bike Festival and International Cycling Conference
- Kees Ruurs, Senior Manager, Transportation, Capital Regional District (CRD) Salt Spring
- Kristin Aasen, Planner, Islands Trust and Chris Larson, Planner, Islands Trust
- Claire Heffernen, past President of Island Pathways and longtime regional cycling advocate
- Torill Gillespie, M.Sc. (Planning) Candidate, School of Community and Regional Planning, UBC - project intern

Building on many professional studies, on many years of community activism and on many years of community consultation, the TAC met regularly with CRD and its consultants throughout the drafting phase and provided a broad community voice on all aspects of the master plan.

CRD Project Team

- Sue Hallatt, Research Planner, Regional Planning
- Sarah Webb, Active Transportation Program Manager, Regional Planning
- Corey Burger, Bicycle Count Coordinator, Regional Planning

Support

- Marg Misek-Evans, Senior Manager, Strategic and Regional Planning

Alta Planning + Design

- Gavin Davidson, Associate
- Kim Voros, Planner

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Introduction

As the Salish Sea Statements on Cycling and Rural Mobility state, rural bicycling can have a significant, positive impact on Canada's rural communities. Increased cycling activity is shown to increase well-being, improve the health of both individuals and communities, reduce carbon emissions, and contribute to vibrant communities and a sense of place. Despite the long list of associated benefits, a significant amount of work is necessary to make roadways in places like Salt Spring Island safe and comfortable for users of all ages and abilities.

In March 2012 the Capital Regional District (CRD) released its Pedestrian and Cycling Master Plan (PCMP).[3] The PCMP identified extensive regional bicycle and pedestrian networks throughout the CRD in an effort to (a) provide on-road linkages to and in support of the CRD Regional Trail network (Galloping Goose, Lochside Trail, E and N Humpback Connector); (b) produce a mutually agreeable implementation plan; (c) define clear and consistent criteria, designs, standards and protocols for municipalities to consult when upgrading the portion of the identified network that falls within each jurisdiction, and (d) achieve agreement on priority projects for the region. The purpose of this study is to refine and update Salt Spring Island's (SSI) Bicycle Network plan based on the design guidelines and best practices established through the PCMP.

Purpose of this plan

The purpose of this plan is to update Salt Spring's bicycle network plan based on best practices in CRD's 2011 Regional Pedestrian and Cycling Master Plan (PCMP).

In May 2012, CRD Regional Planning and the Salt Spring Island Transportation Commission (SSITC) contracted with Alta Planning + Design (the lead consultants on the Regional 2011 PCMP) to undertake the development of the Pedestrian and Cycling Master Plan: Salt Spring Island Edition (PCMP-SSI Edition). The SSITC was created by the Capital Regional District Board under bylaw to provide community input into

[3] The 2011 Regional PCMP adheres to the boundaries of the Growth Management Planning Area (GMPA) of the CRD which includes 13 municipalities and the Juan de Fuca Electoral Area, but does not include the Southern Gulf Islands.

the delivery of transportation services on the island. The Commission is responsible for a number of projects each year and has established priorities including cycling infrastructure, amenities, and facilities that are also recommended in this plan. A Technical Advisory Committee (TAC) was formed to help guide the process, provide critical background information, and lead the community engagement with stakeholders. Members of the TAC represented key agencies that have played an integral role in bicycle planning and advocacy on the Island. A complete list of the TAC membership can be found on the inside cover.

The PCMP-SSI Edition recognizes the area's unique character as well as current and desired level of development and is consistent with the methodology and vision used to develop the network for the Regional PCMP and previous bicycle planning efforts on Salt Spring Island.

This report is primarily focused on cycling infrastructure and identifies a network of facilities that can be improved in both the short and long-term. Short-term recommendations focus on making improvements to existing roadways and spot safety improvements, while long-term recommendations consider development of a separated multi-use trail connecting the island's ferry terminals and village centres. These engineering recommendations are representative of only one of the E's that comprises a comprehensive approach to bicycle planning. The other four E's – Education, Encouragement/Empowerment, Evaluation and Enforcement – should be considered with as much interest and care as these engineering recommendations. A review of existing efforts and recommended actions authored by Torill Gillespie, UBC School of Community and Regional Planning Masters Candidate and Project Intern, is published as a separate document entitled "PCMP-SSI Edition Community Compendium". The following is a summary of that document.

Active Transportation

The term Active Transportation describes the natural compatibility of cycling and walking and the similarities of the infrastructure needs for the more vulnerable users of the roadway.

The parent document (CRD PCMP, March 2011), on which the SSI Edition builds, addresses both cycling and pedestrian needs, however, due to the longer distances associated with most regional trips, they are typically multi and intra-modal, combining walking, transit, cycling and other modes.

The CRD PCMP and the SSI Edition consider the needs of pedestrians through the concept of *universal design* which focuses less on specific recommendations for facilities and more on consistency across the region. The goal is to provide a predictable, familiar and safe environment for pedestrians in urban and rural communities across the capital region. For more information on pedestrian design principals, one should refer to the CRD PCMP Design Guidelines.

Keeping in mind that every transit user is also a pedestrian at some point, this plan acknowledges transit's integral role in ensuring the success of an active transportation strategy. Typical considerations for integrating active transportation and transit include:

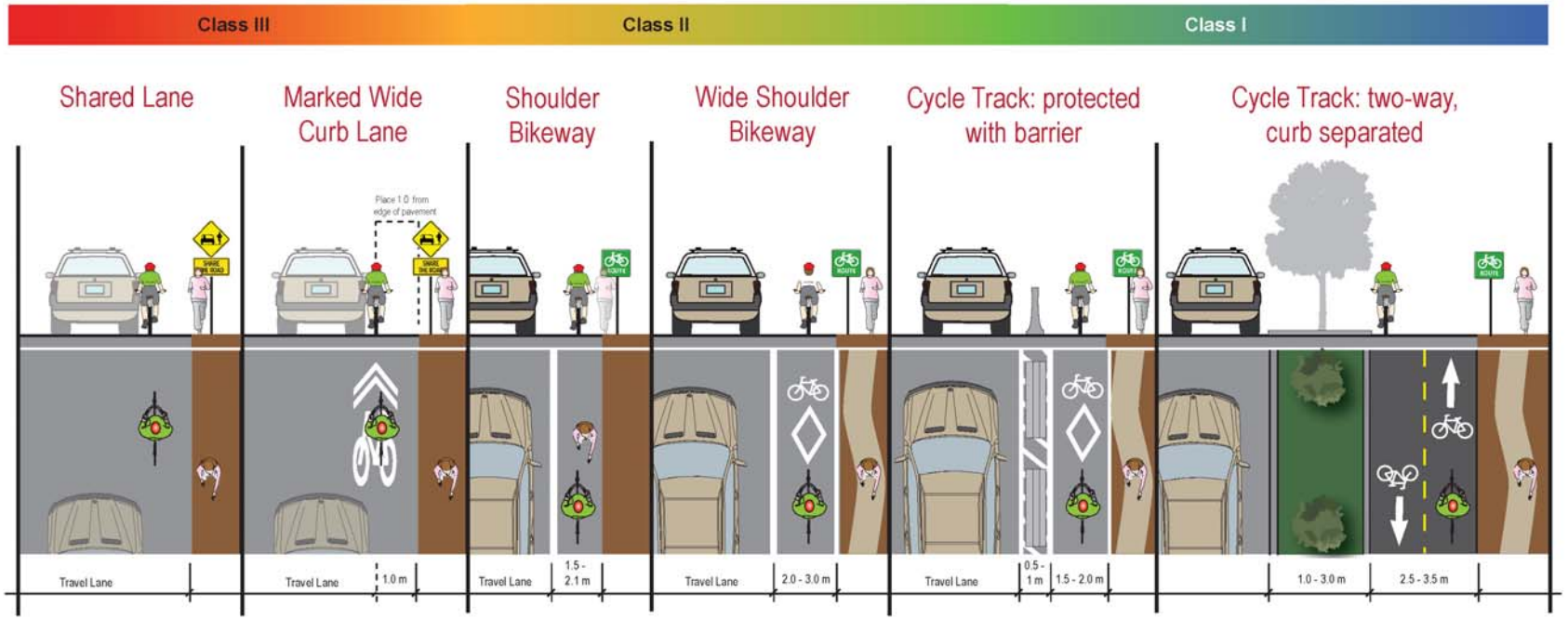
- Appropriately planning for expected demands;
- Providing connections between active transportation and transit networks;
- Providing appropriate facilities at transit destinations and stops;
- Creating convenient pedestrian and bicycle access to transit destinations and stops;
- Accommodating a wide range of pedestrians and cyclists in the physical design of transit destinations and stops.

On Salt Spring Island, the pedestrian mode share is 6.5% compared to 12.5% for the rest of region (CRD Origin and Destination Study 2012).

Pedestrian activity on SSI is similar to other rural communities in the CRD, where walking is primarily a recreational activity and when used for commuting purposes will more often be linked with other modes such as transit, cycling or driving trips (including ride-sharing). The SSI Edition endeavours to improve the walking environment through the enhancement of the cycling environment. The two modes are accommodated with a uniquely rural approach.

The typology below, illustrates the continuum developed for a rural context – a major (arterial) roadway where cyclists and pedestrians utilise the same space. The pedestrian environment is improved significantly through the separation from moving vehicles, created by the cycling corridor. The continuum illustrates the level of comfort for both cyclists and pedestrians, relative to the level of separation from traffic.

Continuum of Pedestrian and Bikeway Facilities on Major Rural Roads (no curb and gutter)



- No special accommodation for pedestrians
- "Share the Road" and /or "Bike Route" signs identify the road as a bikeway
- Not comfortable for many cyclists

- Visibly reminds motorists to expect bicyclists on the roadway
- Increases motorist shy distance from cyclists sharing a lane
- Not comfortable for many cyclists
- No specific accomodation for pedestrians

- Can be shared bicycle/ pedestrian space
- Reduces possibility that motorists will stray into bicyclists' path
- Visual reminder of bicyclists' right to the road
- Can include pavement markings and signs
- Can be used for emergency vehicle parking

- Increases motorist shy distance from cyclists more than a conventional shoulder; a buffer may be provided as well
- Enables cyclists to pass one another and avoid obstacles without encroaching into the travel lane
- Mark a shy line from the pavement end
- Can be used for emergency vehicle parking

- Can be shared bicycle/pedestrian space, ideally separated where high levels of use
- Best used on roads with long distances between intersections and driveways
- Innovative bicycle-friendly design needed at intersections to reduce conflicts between turning motorists and bicyclists
- Barrier options include extruded curb, jersey barriers, bollards, and grade separation.

- Can be shared bicycle/pedestrian space, or have a parallel softsurface pedestrian route
- Sufficient separation between cyclists in cycle track and vehicles in the roadway
- Where cyclists may enter or leave the cycle track, or where motorists cross at a driveway, the curb should be mountable with a small 45 degree ramp, allowing cyclist turning movements
- Provide safe transitions to bike lanes or popular destinations to reduce wrong-side riding

Pedestrian Focused Design:

Design of pedestrian facilities is important to ensure consistency in facility installation throughout Salt Spring Island and across the rest of the Capital Region. The CRD PCMP Design Guidelines use universal design principles (providing access to pedestrians of all ages and abilities) to identify sidewalk and crossing guidelines appropriate for use in pedestrian high-use areas compared to residential areas. While universal design is often considered as benefitting people with disabilities, these principles ensure that everyone, whether a child, a senior, or an adult in a wheelchair or pushing a stroller, can safely and comfortably use the provided facilities and get from one place to another.

The PCMP Design Guidelines were developed to provide a consistent and comprehensive reference for the implementation of walkway and bikeway networks throughout the Region, containing the highest quality standards of pedestrian and bicycle safety comfort and convenience. Land use and other planning initiatives impact walkability and bikeability, and should complement the techniques outlined in the Design Guidelines.

The following are key principles for these pedestrian and cycling guidelines:

The walking and cycling environments should be safe. Sidewalks, multi-use trails, crossings, and cycling routes should be designed and built to be free of hazards and to minimize conflicts with external factors such as noise, vehicular traffic and protruding architectural elements.

The pedestrian and cycling network should be accessible. Sidewalks, multi-use trails, and crosswalks should ensure the mobility of all users by accommodating the needs of people regardless of age or ability. Pedestrian facilities should be designed for with context and users in mind (for example, near schools).

The pedestrian and cycling network should connect to places people want to go. The pedestrian and cycling network should provide continuous direct routes and convenient connections between destinations, including homes, schools, shopping areas, public services, recreational opportunities and transit.

The walking and cycling environment should be clear and easy to use. Sidewalks, multi-use trails, and crossings should be designed so people, including those with limited mobility, sensory, and cognitive impairments, can easily find a direct route to a destination and delays are minimized.

The walking and cycling environment should provide good places. Good design should integrate with, and support the development of, complementary uses, and should encourage preservation and construction of art, landscaping and other items which add value to public ways. These components might include open spaces such as plazas, courtyards, and squares and amenities including street furniture, banners, art, plantings and special paving, which, along with historical elements and cultural references, should promote a sense of place.

Cycling and pedestrian improvements should be economical. Bicycle and pedestrian improvements should be designed to achieve the maximum benefit for their cost, including initial cost and maintenance cost as well as reduced reliance on more expensive modes of transportation. Where possible, improvements in the right-of-way should stimulate, reinforce and connect with adjacent private improvements.

Design guidelines are intended to be flexible and can be applied with professional judgment by designers. Specific National and Provincial guidelines are identified in this document, as well as design treatments that may exceed these guidelines. It is recognized that statutory and regulatory guidance may change. For this reason, among others, the guidance and recommendations in the PCMP Design Guidelines document are meant to complement the other resources considered during the design process.

Treatments for Pedestrian Use Areas:

Pedestrian facilities should be designed to comfortably accommodate pedestrians where high numbers of pedestrians are anticipated, such as village centres, near bus stops or schools. Universal design and accessibility should be a priority in these locations.

In pedestrian areas, the sidewalk and amenity zones should:

- Provide an unobstructed, continuous and safe circulation system that serves the same destinations as are served by the road system.
- Provide convenient access to local land uses and transit.
- Provide a buffer for pedestrians and adjacent properties from the traffic and noise from the street.
- Provide visual interest and support community interaction through open space and other public activity space.
- Safely accommodate people of all ages and abilities.
- Support environmental goals through the integration of green infrastructure.
- Along school routes, increasing the visibility of pedestrians is critical to safety for students and families. In addition, younger students may run into traffic or otherwise disobey traffic guides where they are not clear.
- Treatments specific to school routes should have high visibility crosswalks with pedestrian push buttons at signals. These can include in-pavement flashers, signage, warning beacons, and other treatments. Street corners with sidewalks should also have accessible curb ramps with detectible warnings.

Treatments for Pedestrian Priority Areas

Element	*Usage*
Corridor Treatments	
Sidewalks	Both sides of street along all routes. Minimum clear width 1.8m 2.3m preferred, furnishing zone 1.0m.
Boulevards	Recommended, particularly along major roads; 3.0m (arterial) or 2.0m (collector/local streets).
Intersection Treatments	
Marked crosswalks	Standard treatment at intersections.
Advance warnings	At marked crossings/pedestrian signals along higher-speed roads.
Raised median	At marked crossings/pedestrian signals along higher-speed roads.
In-street "yield to pedestrian" signs/flashers	At marked crossings along high pedestrian volume roads.
Curb extensions	At intersections with streets that have high motor vehicle speeds and/or volumes or poor visibility.
Median refuge islands	At intersections with streets that have high motor vehicle speeds and/or volumes.
Minimizing curb radii	Locations with high percentage of right-turning motor vehicle traffic and through-pedestrian traffic.
Parking control	At high-use locations, where on-street parking is allowed.
Advance stop bars	At high-use locations, where on-street parking is allowed.
Accessible curb ramps	At all intersections. Use with detectible warnings.
Bicycle/pedestrian traffic signals	At unsignalized locations where high numbers of pedestrians cross a major road, such as by a school or along a trail.
Pedestrian push-buttons	At all signalized intersections.
Countdown signal	At all signalized intersections.
Audible pedestrian signal	At major intersections or where vulnerable pedestrian groups (young or elderly) are likely to cross.
Leading pedestrian interval	At major intersections or where vulnerable pedestrian groups (young or elderly) are likely to cross.
Pedestrian Elements	
Pedestrian scale lighting	Along all routes.
Pedestrian amenities	Along commercial corridors.

Community Compendium Summary

The Community Compendium is an overview of the ways in which the Salt Spring community helps to

- Educate cyclists and other road users
- Empower those people who already choose to cycle, or would like to get started
- Enforce best practices with respect to cycling infrastructure and the prioritization of active transportation through policies, guidelines, and other mechanisms
- Evaluate the current state of cycling on the island.

The 5 E's of Sustainable Transportation

This master plan focuses on needed cycling infrastructure improvements while taking a comprehensive approach to bicycle planning by following the themes of: Engineering:, Education, Encouragement, Evaluation and Enforcement.

The current status of each of these topics is summarized and recommendations for future actions are also included. The recommendations included in the Community Compendium are based on those made in the PCMP, but have been tailored to fit the unique context and conditions on Salt Spring Island.

There are, broadly, two groups of cyclists on Salt Spring Island – residents and visitors. These groups have differing needs and expectations with respect to cycling on the Island. The Community Compendium is designed to address these differences and encourage support for both groups, as well as a wide range of cyclists with differing needs within these groups.

On the shoulders of giants

The range of accomplishments with respect to cycling promotion and education on Salt Spring Island is already remarkable, and can only get better as more and more people support cycling, get out on their bikes and work together as a community to make cycling safe and fun.

There are a great many dedicated and creative people and organizations on Salt Spring Island who contribute to making the island a safer and more enjoyable place to cycle by educating, empowering, enforcing norms and rules, and evaluating cycling conditions and programs. The Community Compendium is intended to celebrate the amazing work that has been done by people and organizations from across the community, inspire and enable these and similar efforts to continue, and draw in new people and new ideas too. The range of accomplishments with respect to cycling education, empowerment, enforcement, and evaluation on Salt Spring Island is already remarkable, and can only get better as more and more people support cycling, get out on their bikes, and work together as a community to make cycling safe and fun.

Summary of Existing Conditions on Salt Spring Island

Salt Spring Island, the most populous of the Gulf Islands, is home to about 10,500 people. Salt Spring Island's rural character makes it well known as a centre for arts, farming, and outdoor recreation activities that include cycling, boating, hiking, and scuba diving. The island is served by nearly 120 kilometres of paved roadways[4] and posted speed limits range from 30 km/h to 80 km/h. Cyclists are permitted to use all roadways on the island, yet much of the bicycle traffic on the island is concentrated on the Primary Inter-Community (PIC) bikeway network, shown on Map 1, and linking the ferry terminals and main activity centres on the Island.

> "Cycling is a viable alternative to the car on Salt Spring but the route is less well used because of real safety risks involved in using the present substandard roads."
>
> *1999 Salt Spring Island Cycle Route Inventory Study, R. James & Assoc.*

Some roadways on the PIC have shoulders that can be used for cycling and walking. Though shoulders exist, they are often narrow (less that 1.2 metres) and intermittent, which restricts their function as safe active travel facilities. Because of these conditions, keeping the shoulders well maintained is particularly important. To this end, Map 2 and Appendix A outline road maintenance classifications and requirements and identify how road users can report deficiencies, hazards, and other concerns for redress.

In the last several years there have been several reported crashes that involved pedestrians or cyclists, including one pedestrian fatality. In addition, Vancouver Island Health Authority (VIHA) hospital admission/discharge data shows that between April 2007 and March 2011, eighteen Salt Spring Island residents were treated at regional facilities following bicycle accidents.

Primary Inter-community Network (PIC)

This plan has a regional focus and therefore identifies a primary bikeway (PIC) network that connects the island with its neighbouring jurisdictions by way of the three ferry terminals and Ganges Village.

Island Pathways

Island Pathways (IP) was established in 1988; became a non-profit society in 1997; and received charitable status in 2008. Their mission is "Working in our community for a safe, healthy, non-motorized environment." The goal of IP is to collaboratively develop pathways that provide safe, environmentally friendly, healthy, and community-orientated transportation options for Salt Spring residents and guests, especially seniors and students, to walk, jog, cycle, and wheelchair to the services, community activities, and amenities they need and want.

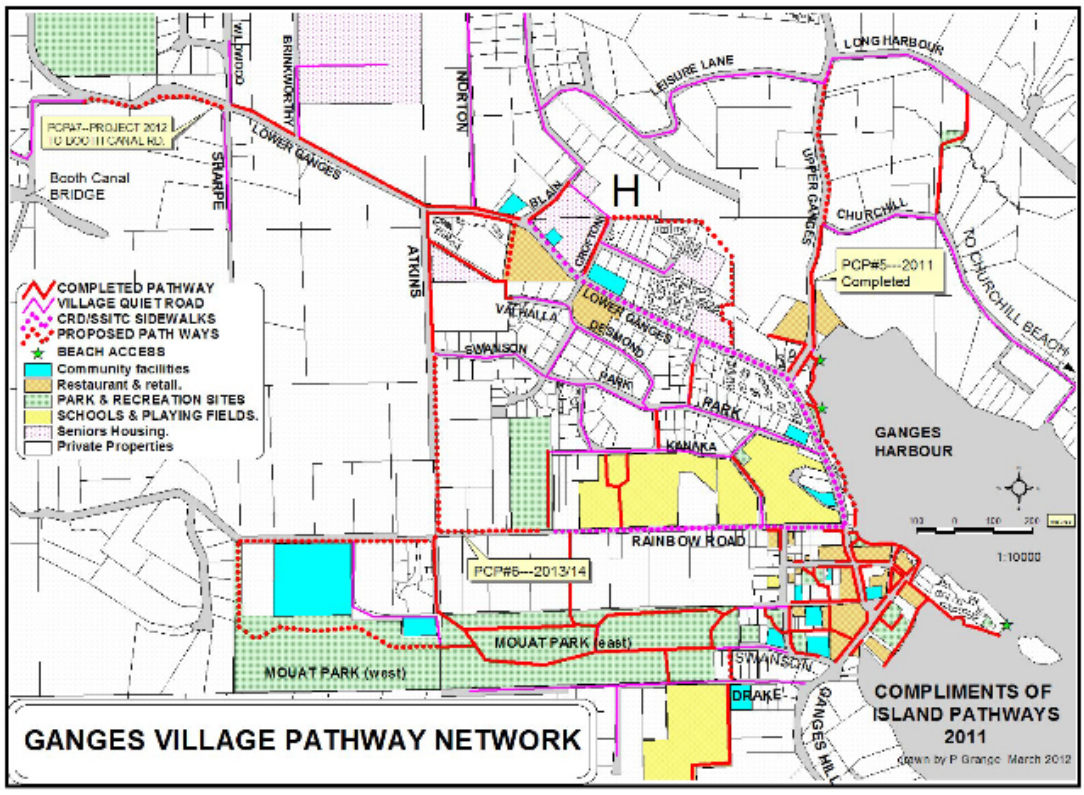
Island Pathways has contributed significantly to improving transportation infrastructure on SSI. In the past 5 years, Island Pathways and the PCP coalition have initiated, managed and funded 75% of their $475,000 pathway network in the periphery of Ganges with their army of community volunteers and with huge leveraging of tax-payer dollars. Generally speaking one new pathway is added to the network each year. Two new projects are slated for construction in 2014.

[4] This excludes local roadways not shown on OCP Map 3.

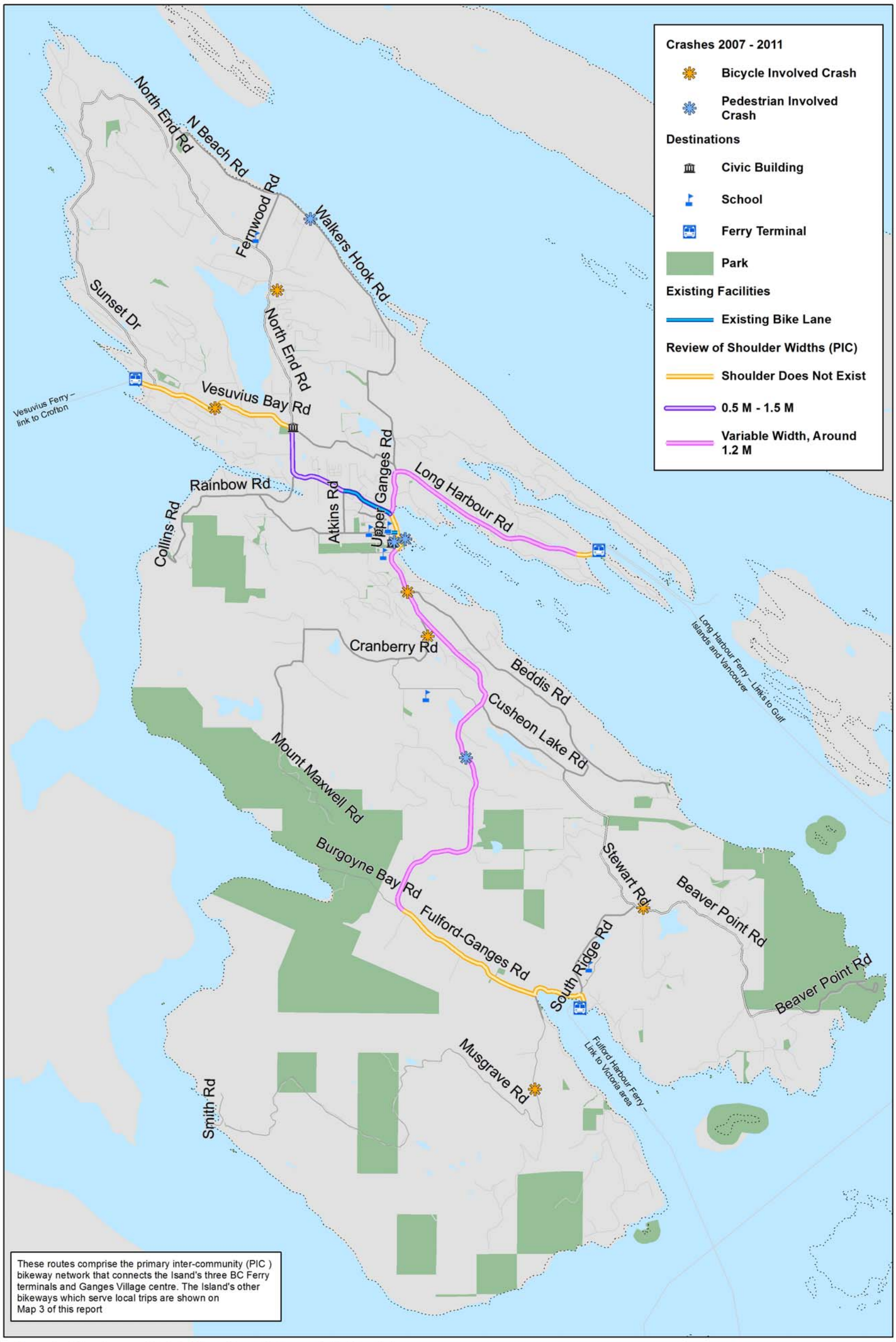
Partners Creating Pathways

Formed in 1988, Partners Creating Pathways (PCP) is a partnership between the CRD, the Salt Spring Island Transportation Commission (SSITC), Island Pathways (IP), CRD Park and Recreation Commission (PARC) and the SSI Trail and Nature Club. This partnership was formed to construct pathways on Salt Spring Island for pedestrians and cyclists with an ultimate goal of developing a comprehensive Ganges Pathways Network. Regular activities include:

- Fundraising to design and construct multi-purpose trails and paved shoulder bikeway
- Raising awareness of the health, environmental and economic benefits of non-motorized transportation
- Supporting initiatives to make SSI safe for all road users
- Organizing education programs



The North Ganges Transportation Plan aims to improve safety and security for vulnerable road users in Ganges by adding bike lanes and pathways in the village



Map 1. Review of Existing Conditions (PIC Only)

Capital Regional District
Pedestrian and Cycling Master Plan: Salt Spring Island Edition

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The Need for Cycling Improvements

In the summer of 2010, Island Pathway's Bicycle Working Group conducted a survey of cycling on Salt Spring Island that was funded by the Salt Spring Island Transportation Commission, to determine how best to help local, regional, and provincial authorities increase cycling safety and participation on Salt Spring Island. 292 Salt Spring Island residents who had cycled at least once on the island completed the residents' version of the survey and 140 visitors to Salt Spring who had cycled while on the island completed a second version of the survey, for 432 surveys completed. The survey results highlight many concerns regarding cycling conditions on Salt Spring, and it shows a preference for the main bikeway route to follow Fulford-Ganges Road. The final report includes a "Brief History of Cycling Initiatives on Salt Spring Island, 1985 to Present," which is updated periodically and available online through Island Pathways' Bicycle Working Group blog: http://www.ssi-bicycleworkinggroup.blogspot.ca/.

Scan of Existing Policy and Planning Framework

Residents of Salt Spring Island have been working to improve bicycling conditions for more than 30 years. Led by efforts of Island Pathways, the community, the Islands Trust, the Ministry of Transportation and Infrastructure (MOTI), and the CRD, planning on the island has produced several key documents over the years that establish a framework for ongoing bicycle and pedestrian planning:

Ministry of Transportation and Islands Trust Agreement (1992): This agreement between MOTI and the Islands Trust outlined a framework of roadway functional classifications and bikeway facility types. Based on this agreement, roadways classified as Minor Rural, Main Rural, or Major Rural require bicycle facilities when a roadway upgrade occurs. Width requirements are shown in Table 1[5] and road maintenance requirements are described in Appendix B. Minimum bicycle facility widths described in this Letter of Agreement are lower than bicycle facility widths recommended by the Transportation Association of Canada (TAC) and current best practices. This agreement also seeks to establish a regular consultative process to facilitate ongoing communication on roadway standards that accommodate motor vehicles, bicycle routes, and Scenic/Heritage route designations.

A community priority

A 1999 Parks and Recreation Commission Public Survey ranked bikeways #1 in terms of needed amenities on Salt Spring

Road Maintenance Standards

Just as proper bicycle maintenance is an important key to safe cycling, so too is proper road maintenance. Private contractors who enter into performance-based agreements for, at present, ten-year terms, maintain British Columbia roads. Maintenance standards are spelled out in MOTI's "Schedule '21' Highway Maintenance Specifications, 2003-2004 Maintenance Contracts." Map 2 shows the road classifications used by MOTI's privately contracted road maintenance companies, based on average daily traffic counts in summer and winter, using a number-letter system. Appendix A explains the number-letter system and gives details of maintenance specifications relevant to cyclists, although of value to all road users.

[5] Bicycle facilities are only required on minor rural roadways when they are designated as part of an official bike plan.

Table 1. Salt Spring Island Roadway Classification Standards

MOTI Roadway Functional Classification	R/W Width (M)	Design Speed km/h	Cleared Width (M)	Driving Lanes (M)	Constructed (Top) Width	Surfaced Shoulder Standard (M)	Gravel Shoulder (M)	Bicycle Facility Type	Bike Facility Width (M)	Notes
Residential Rural/ Local	20	50	13.9	5.5	6.7	not required	0.6	Not Required	-	
Minor Rural	20	50	14.5	6.1	7.3	not required	0.6	Shoulder bikeway (Not Required)	0 - 1.2	Constructed top width for each bicycle shoulder lane can range from 0 - 1.2 meters on both sides for each section as designated in an Island Specific Cycle Route Plan.
Main Rural	20	60	15.6	6.7	9.1	0.6	0.6	Shoulder bikeway	0.6 - 1.2	Constructed top width for each bicycle shoulder lane can range from 0.6 - 1.2 meters on both sides for each section as designated in an Island Specific Cycle Route Plan.
Major Rural	25	80	18.1	6.7	10.3	1.2	0.6	Shoulder bikeway	1.2	

Salt Spring Island Cycle Route Inventory (1999): Authored by Richard James & Associates, this report describes roadway upgrades for the Vesuvius Bay/Fulford Ganges Road corridor, which connects Salt Spring Island to Vancouver Island via ferry boat service at Crofton and Schwartz Bay. This route inventory was updated in 2005 by consultant John Luton and provides photo documentation of inconsistent roadway conditions between Fulford and Ganges as well as recommended short- and long-term improvements. Short term recommendations include bicycle and pedestrian access at ferry terminals, bike lanes on Lower Ganges Road, intersection improvements, installation of driveway aprons to prevent migration of debris onto roadway shoulders and cyclist wayfinding kiosks across the Island.

Official Community Plan Update (2008): The 2008 update to the Official Community Plan (OCP) recognizes bicycle and pedestrian travel as important transportation options on Salt Spring Island. It states that bicycle and pedestrian connections are important throughout the island, but stresses that facilities in and around population centres be prioritized. The OCP reiterates the need to liaise between MOTI and the Salt Spring Island Transportation Commission and recommends MOTI develop a pathway system that is part of an Inter-Regional Trail Network informally called the Salish Sea Trail.

North Ganges Village Transportation Management Plan (2007): This report was initiated by the CRD to confirm the feasibility of constructing bicycle and pedestrian facilities on Lower Ganges Road and Rainbow Road north and west of downtown Ganges in response to a 2004 pedestrian fatality. The study confirmed the feasibility of bicycle and pedestrian facilities on both roadway sections, generally within the existing right-of-way. The report recommends bike lanes on Lower Ganges Road and Rainbow Road in combination with sidewalks and crossing improvements at major intersections.

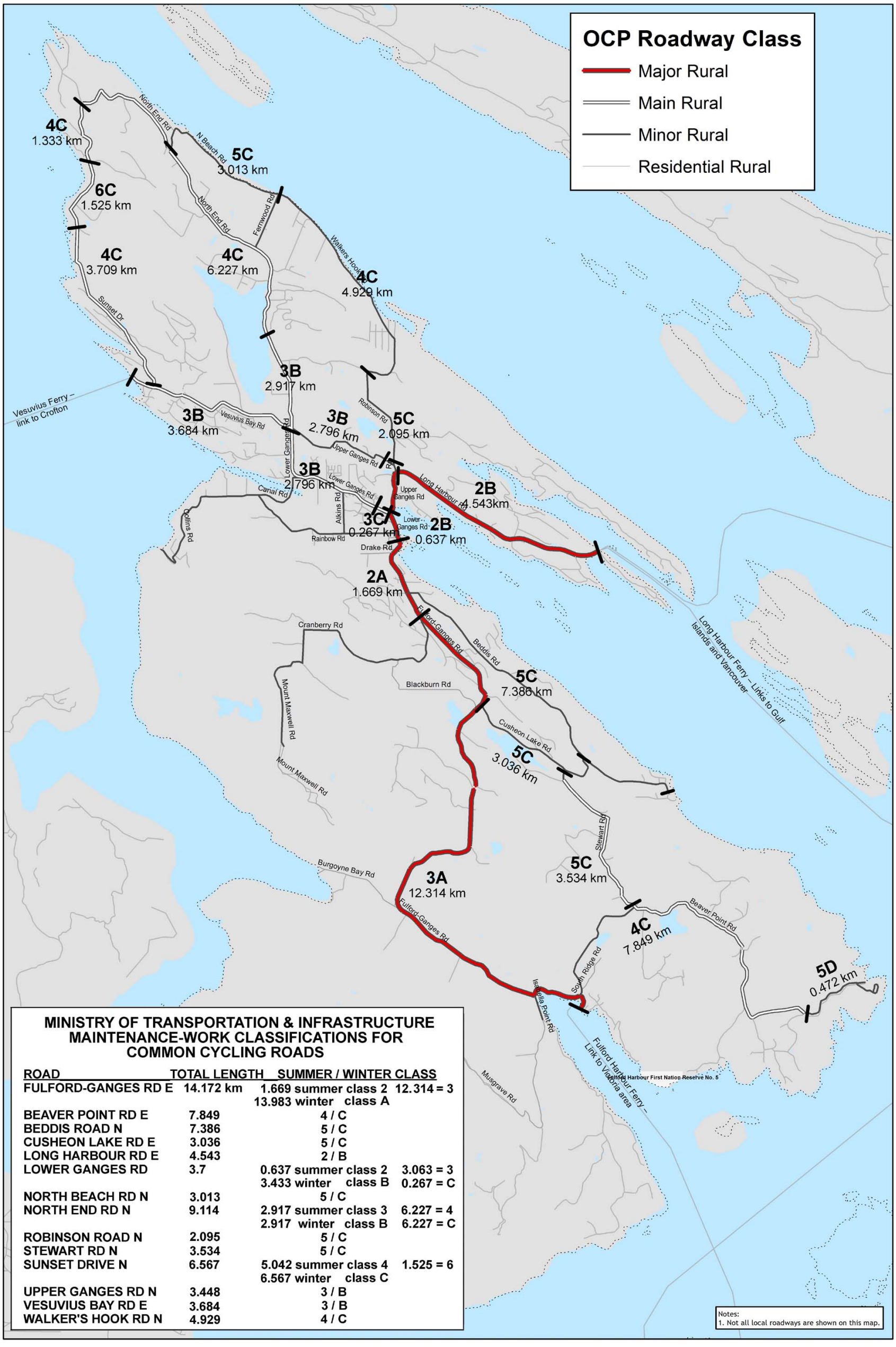
CRD Regional Transportation Plan (anticipated 2014): The CRD Regional Transportation Plan (RTP) is currently under development and is expected to be completed in early 2014. The RTP aims to identify immediate priorities and long term strategies to guide development of a multi-modal regional transportation system throughout the region that meets future growth demands and is focused on sustainability. Actions and strategies were identified through an extensive stakeholder engagement process that included consultation with the Salt Spring Island Transportation Commission. The RTP builds on existing plans, including the Pedestrian and Cycling Master Plan, and identifies the Primary Inter-Community Network (PIC) as part of the Regional Multi-Modal Network. The report is expected to recommend prioritising the rapid implementation of recommended cycling facilities and conducting a service review of transportation needs in the Southern Gulf Islands (including the identification of alternate water based links and associated infrastructure requirements), as well as identifying, developing, and marketing circle routes to increase cycle tourism.

JE Anderson & Associates Detailed Design for Transportation Upgrade, North Ganges Village (2012): This report further developed the concept-level designs proposed for Ganges Village and provided final detailed design intended to facilitate construction. The upgrades included in this design brief comprise Phase One of five implementation phases outlined in the North Ganges Village Transportation Management Plan. Key features of Phase One include bike lanes on Lower Ganges and Rainbow Road.

Between 2005 and 2008, Salt Spring's CRD Director and CRD Parks Manager spearheaded meetings with local groups and individuals interested in forwarding a trail/bikeway on Salt Spring, to link to the Cowichan Valley Regional District's trails from Crofton to Lake Cowichan to the Kinsol Trestle and on to Shawnigan Lake. With further trail development an Inter-Regional Trail Network will create a circle route. See www.islandpathways.ca and click on the link to the Bicycle Working Group blog.

In 2008, the CRD Board set aside funds for work, to be determined, forwarding some aspect of the Salt Spring portion of the CRD Regional Trail (see inset below). Island Pathways continues, in various ways, to promote the Inter-Regional Trail Network, with an eye to completing the Salt Spring portion.

Proposed Inter-Regional trail network (conceptual)



MINISTRY OF TRANSPORTATION & INFRASTRUCTURE MAINTENANCE-WORK CLASSIFICATIONS FOR COMMON CYCLING ROADS

ROAD	TOTAL LENGTH	SUMMER / WINTER CLASS	
FULFORD-GANGES RD E	14.172 km	1.669 summer class 2	12.314 = 3
		13.983 winter class A	
BEAVER POINT RD E	7.849	4 / C	
BEDDIS ROAD N	7.386	5 / C	
CUSHEON LAKE RD E	3.036	5 / C	
LONG HARBOUR RD E	4.543	2 / B	
LOWER GANGES RD	3.7	0.637 summer class 2	3.063 = 3
		3.433 winter class B	0.267 = C
NORTH BEACH RD N	3.013	5 / C	
NORTH END RD N	9.114	2.917 summer class 3	6.227 = 4
		2.917 winter class B	6.227 = C
ROBINSON ROAD N	2.095	5 / C	
STEWART RD N	3.534	5 / C	
SUNSET DRIVE N	6.567	5.042 summer class 4	1.525 = 6
		6.567 winter class C	
UPPER GANGES RD N	3.448	3 / B	
VESUVIUS BAY RD E	3.684	3 / B	
WALKER'S HOOK RD N	4.929	4 / C	

Map 2. Salt Spring Island OCP and MOTI Road Classifications

Capital Regional District
Pedestrian and Cycling Master Plan: Salt Spring Island Edition

0 0.75 1.5 Kilometers

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Development and Refining of the Salt Spring Island Bicycling Network

Cycling Network Development

The PCMP-SSI Edition identifies a continuous Primary Inter-Community (PIC) bikeway network that, when fully constructed, will meet the needs of cyclists of all ages and abilities (Map 3). The PIC network provides connections between the island's three major ferry terminals and Ganges Village centre. Other roadways are designated as major and minor local bikeways. These routes provide important links on and around Salt Spring Island, and connect into the PIC.

Salt Spring OCP

The cycling routes proposed in this master plan are in compliance with, and complimentary to, Salt Spring's Official Community Plan.

The proposed routes are a subset of bicycle routes proposed in the OCP and do not replace the OCP recommendations; rather, they prioritize routes that enhance regional travel opportunities and serve schools as well as other local destinations that are important to both residents and visitors.

To identify whether routes were of regional or local importance, the project team used criteria similar to those used to designate PCMP routes, refined to reflect the island's more rural character. Criteria used to identify routes of local and regional significance for transportation, recreation, and touring on Salt Spring Island are presented in Table 2. These routes were selected and vetted in consultation with the SSI Technical Advisory Committee.

Table 2. Network Selection and Classification Criteria

Criterion	Consideration
Identified in a previous planning process	Roadway is designated as a bicycle facility on OCP Map 4.
Closes a critical gap	To what degree does the corridor fill a missing gap in the bicycle network?
Serves an immediate safety need	Can the project improve bicycling and walking at locations with perceived or documented safety issues? Are roadways designated as either freight or transit routes?
Services key origins and destinations	How many user generators and attractors does the corridor connect within reasonable bicycling distance, such as schools, village centres, etc.
Right-of-way available	Is the corridor currently in public jurisdiction or private ownership?
Serves tourism	Does the corridor serve an existing or potential tourist destination?

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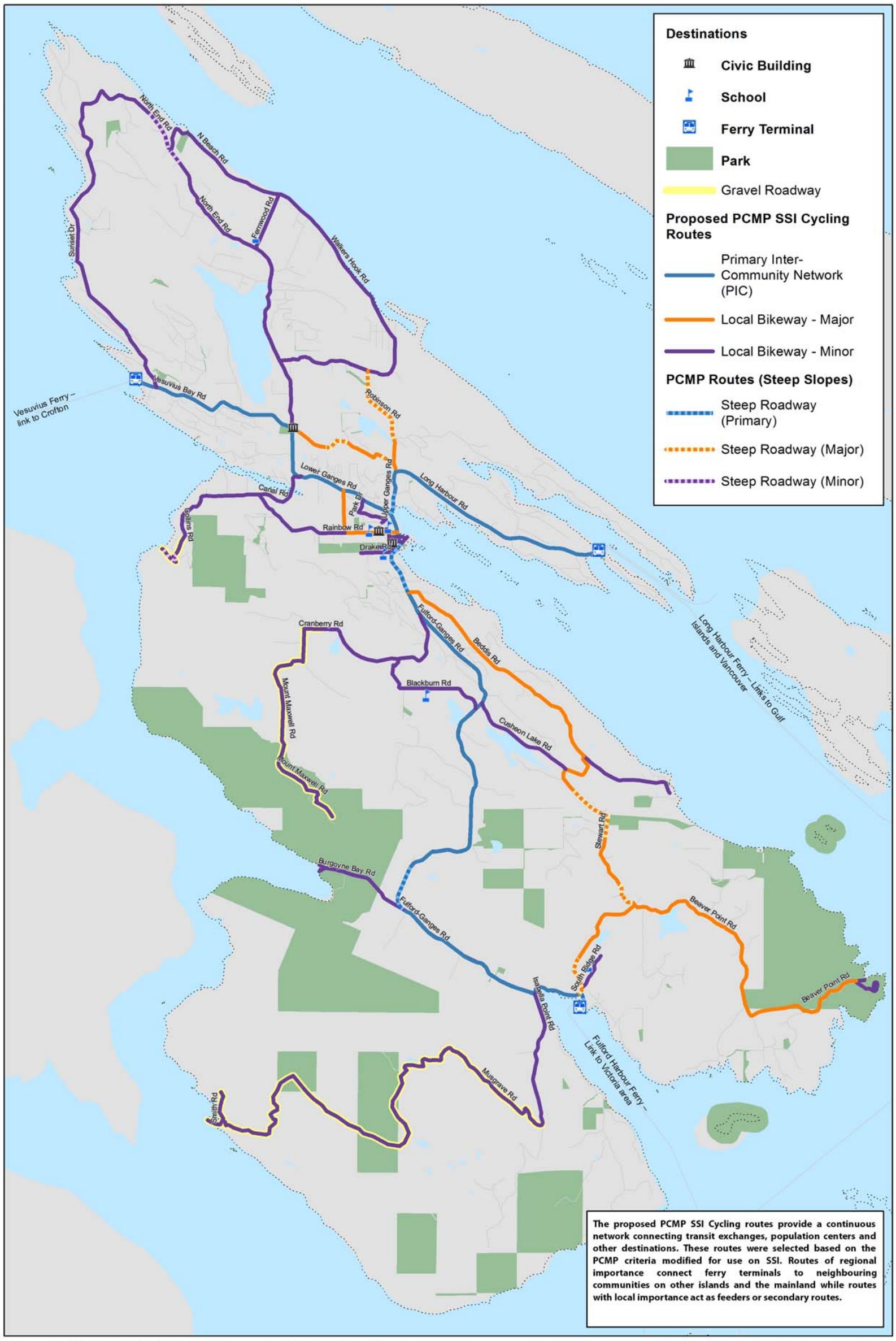

Map 3. PCMP - SSI Edition: Proposed Cycling Routes

Capital Regional District
Pedestrian and Cycling Master Plan: Salt Spring Island Edition

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Recommended Facility Types

The recommended facility types are a subset of the full range of facilities recommended by the PCMP. The recommendations shown in Table 3 are consistent with Salt Spring Island's desired level of development. Additional design details are available in the PCMP design guidelines[6].

Table 3. Recommended Bicycle Facility Types

Facility Description	Example
Shoulder Bikeways Shoulder bikeways, or paved shoulders, include roadways that provide adequate shoulder width for safe bicycling. Located on streets without curb and gutters, shoulder bikeways include signing and striping, but do not always include bicycle stencils. Shoulders are typically used for bicyclists and pedestrians and may serve as a break down lane for motor vehicles. Regular motor vehicle parking should be discouraged to allow unimpeded bicycle and pedestrian use.	
Bicycle Lanes Bicycle lanes provide separated designated roadway space for bicyclists. Bicycle lane treatments include conventional bicycle lanes and coloured bicycle lanes. Bicycle lanes always include pavement markings to denote that they are for the exclusive use of bicyclists.	
Signed Routes/Neighbourhood Bikeways Neighbourhood bikeways include a range of treatments for bikeways, from relatively basic facilities consisting of signage and pavement markings to bikeways with varying degrees of traffic calming implemented to improve safety for cyclists and other road users. The signed route terminology may be used to describe basic treatments and the term neighbourhood bikeway to describe more intense treatments involving added pavement markings and traffic calming.	

[6] http://www.crd.bc.ca/transportation/plans/pedcyc-plan.htm

Facility Description	Example
Multi-use Trails Multi-use trails are physically separated from motor vehicles and provide sufficient width and supporting facilities to be used by cyclists, pedestrians, and other non-motorized users. The Galloping Goose Trail, E&N Rail Trail, and Lochside Trail are regional multi-use trails.	
Advisory Lanes Advisory lanes include a single bi-directional travel lane for motor vehicles bordered by shoulders or bike lanes. The shoulders are separated from the vehicle travel lanes by dashed lane lines. This facility type better accommodates active transportation users within constrained roadways. No examples of such facilities exist in the Capital Regional District and installation would require education efforts for both cyclists and motorists to encourage proper use. Education would be the responsibility of the implementing agency. Examples of such facilities exist elsewhere in North America and Europe.	

While many roadway factors impact the experience of cycling and contribute to the context of a bikeway – automobile speeds and volumes, presence of heavy vehicles, trucks, or transit vehicles, roadway width, visibility, adjacent land uses, and urban or rural setting – the major context indicators are automobile speed and volume. In addition, urban or rural context affects engineering treatments appropriate on a particular roadway. Roadway classification, from local to arterial, indicates many of these context issues and provides guidance for what types of bikeway facilities are appropriate.

Proposed bicycle facility types were assigned to all proposed cycling network links based on roadway classification and posted speed. As posted speeds increase so does the recommended shoulder width. These recommended widths are greater than the minimums outlined in the MOTI/Island Trust agreement and are more consistent with current state of the practice. A summary of recommended bicycle facility types and their relationship to the current roadway classification scheme is shown in Table 4. Additional information on the relationship between roadway classification and user type is included in Appendix C.

Low stress bikeways

The greater the speed and volume of vehicles on a roadway, the greater the level of separation an 'everyday cyclist' needs to feel safe and comfortable on a bikeway.

Table 4. Relationship of PCMP Bikeway and SSI Roadway Classification

Reconciliation of PCMP Bikeway Type and SSI Functional Classification			
Bikeway Type	**Use MOTI Functional Classification**	**PCMP-SSI Edition Rec.**	**Previous/Other Recommendations & Notes**
Standard Bike Lane	Major Rural/Main Rural (When curb and gutter is present)	1.5 m minimum Additional width as speeds, truck or overall motor vehicle volume increases	MOTI 0.6m PCMP 1.2 m PCMP 1.5 m if speed, trucks or overall traffic increases TAC 1.2m; 1.5 if speed truck or overall traffic increases
Shoulder Bikeway	Main Rural/Major Rural/Minor Rural	1.5 m minimum Additional width as speeds, truck or overall motor vehicle volume increases	MOTI 0.6m PCMP 1.2 m PCMP 1.5 m if speed, trucks or overall traffic increases TAC 1.2m; 1.5 if speed truck or overall traffic increases Shoulder bikeway if curb/gutter not present.
Shared Roadway	Residential Rural	4 m or less	MOTI 2.75 Pavement markings indicate the likely presence and positioning of bicycles on the roadway.
Neighbourhood Bikeway	Residential Rural	4 m or less	MOTI 2.75 The PCMP assumes roadside parking is permitted and no centreline is present. Posted maximum speed recommendations - MOTI 50 km/h, PCMP 30 km/h.

Notes

1. MOTI standards recommend bicycle shoulder lanes for all functional classifications

2. Bikeway facility recommendations in the PCMP do not always include travel lane width, posted speed, or associated ADT recommendations

3. MOTI standards do not include a standard for on-street parking.

4. MOTI standards do not reference a maximum design ADT.

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Infrastructure Recommendations

This report recommends short- and long-term bicycle network improvements and makes system-wide recommendations that would improve safety and comfort for roadway users.

System-wide Recommendations

Speed reduction on Main Rural and Major Rural Roadways

Several roadways on Salt Spring Island could accommodate bicycle travel on shared roadways if the speed limit were reduced. Speed is a significant factor in determining whether a pedestrian or cyclist will survive a crash. As illustrated in Figure 1, studies show that cyclists and pedestrian crash fatalities increase with speed.[7] Reductions in speed limits are thus justified as a means to save lives, and reduce serious injuries. The following speed reductions are recommended:

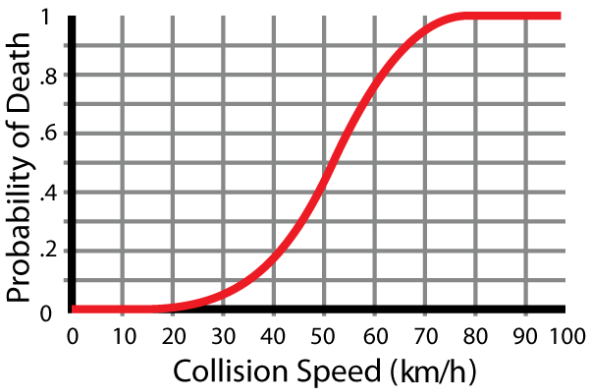

Figure 1: Probability of Increasing pedestrian fatality with speed

- Major Rural roadways signed at 80 km/h should be posted in the range of 60 km/h – 80 km/h while maintaining minimum sight distances[8].
- Residential Rural roadways with neighbourhood bikeways, still to be determined, currently signed at 50 km/h should be reduced to 30 km/h. Neighbourhood bikeways may only be designated on Residential Rural roadways.
- All corners with sight restrictions should be signed at a lower speed limit in accordance with accepted stopping sight distance limits[9].

If roadway speed limits are reduced and traffic speeds remain at above the posted limit, traffic calming should be considered as a means to encourage motorists to drive at the posted speed.

Speed and Safety

80 km/h to 60 km/h = 20% chance of survival from a crash

60 km/h to 50 km/h = 60% chance of survival from a crash

50 km/ h to 30 km/h = 95% chance of survival from a crash

[7] SafetyNet (2009) Pedestrians & Cyclists. Originally in Pasanen, E. (1991) Alonopeudet la jalankulkijan turvallisuus[Driving speeds and pedestrian safety]. Dissertation, Helsinki University of Technology, Teknillnen Korkeakoulu, 752.

8 The following minimum decision sight distances are recommended for rural roadways. For stopping on rural roads 60 km/h is 95m and 80km/h is 155m. For speed/path/direction change on rural roads the minimum distance for 60 km/h is 175m and for 80 km/h is 230m (AASHTO Green Book).

[9] US Department of Transportation: Federal Highway Administration, "Speed Concept Informational Guide", September 2009 (http://safety.fhwa.dot.gov/speedmgt/ref_mats/fhwasa10001/#app)

Modifications to recommended shoulder bikeway standards

The current minimum width recommended for roadway shoulders in the 1992 MOTI Islands Trust Agreement is 1.2 metres or less. Since these standards were set, best practices have changed. It is now recommended that 1.5 metres be used as a minimum, with further width added to improve user comfort and increase usage. This plan recommends establishing a practice of building shoulders wider than the minimums identified in the 1992 MOTI / Island Trust agreement. The recommended shoulder widths are:

- Roads posted at 80 km/h (1.8m – 2.1m shoulder)
- Roads posted at 60 km/h (1.6m – 1.8m shoulder)
- Roads posted at 50 km/h (1.5m – 1.6m shoulder)

Wayfinding

Bicycle wayfinding signs help users identify the best cycling routes to key destinations. They also visually cue motorists that they are driving along a bicycle route. The PCMP Design Guidelines provide an overview of signage requirements based on TAC and the Canadian Manual on Uniform Traffic Control Devices (MUTCD-C), as well as recommendations based on best practices for sign colour, placement, frequency, and content. On Salt Spring Island, key locations for wayfinding signs and information kiosks include all ferry terminals, Ganges Village, and key decision points along recommended routes. Salt Spring Island may choose to use the wayfinding signage proposed by the PCMP or develop a unique standard. If a unique design is selected it should include elements that make it recognizable as part of the regional cycling network (see Figure 2).

Figure 2: Wayfinding signage proposed by the PCMP

Traffic Calming

The Islands Trust and residents of Salt Spring Island have indicated a desire to maintain the rural character of their roads by retaining narrow traffic lanes, and by allowing island roadways to meander. Yet, some motor vehicles tend to travel faster than the posted speed limit, and even those that travel at or below the posted speed can intimidate, particularly if those vehicles are trucks and other large motor vehicles.

Traffic calming

Physical measures to slow traffic should be utilized if compliance to reduced posted speeds is not achieved.

Traffic calming measures that reduce the speed and volume of motor vehicle traffic can result in a substantial reduction in collisions. The highest reductions recorded have been those involving motorists and vulnerable road users[10]. Traffic calming measures are thus justified in order to make roads safer and more attractive to cyclists and pedestrians. A list of traffic calming devices that are appropriate in a village setting are included in Appendix C.

[10] 2009 US Federal Highway Administration (FHWA) publication Traffic *Calming on Main Roads Through Rural Communities*

Goals of Speed Transition in Rural Areas

Over time, development on Salt Spring Island has grown around major roads. As a result, the "main street" of communities like Ganges form part of the highway network. Within these developed areas, the road needs to accommodate local circulation and access in addition to higher volumes of through traffic. These competing needs present potential conflicts for residents, drivers, and visitors.

Rural context

The cycling facilities proposed in this master plan are consistent with the rural nature of Salt Spring Island.

High speed travel creates conditions incompatible with the demands of communities and developed areas. As speeds increase, a driver's area of focus is significantly decreased, resulting in a smaller area of awareness and reduced ability to react to the surrounding environment.

High-to-low speed transition tools exist to help roadway users adjust their travel speed and attention in advance of a developed area. Slower travel speeds are typically more appropriate within the small communities where pedestrian and bicycle activity is expected. These tools have been applied and evaluated extensively in the United States and Canada in urban areas, particularly on low-speed local streets, although their application is still relatively new in some areas. Rural roads serve higher-volume, higher speed traffic, and guidelines on appropriate traffic calming tools and speed reduction is an emerging area of research and practice. Much of the content in this memo is guided by the 2009 U.S. Federal Highway Administration (FHWA) publication *Traffic Calming on Main Roads Through Rural Communities*, and the 2011 NCHRP Synthesis 412 *Speed Reduction Techniques for Rural High-to-Low Speed Transitions.*

High-to-Low Speed Transition Tools

The toolkit presents techniques and tools, and discusses the general considerations for appropriate implementation on Salt Spring Island. The selection of appropriate techniques and tools should be accomplished in consultation with MOTI and the community, and installation will require additional engineering study.

Appendix C describes the expected speed, volume, and maintenance impacts of various tools, as determined by use in other communities. Tools are also classified as appropriate for use in one or more of the transition areas, illustrated in Figure 3 – the approach zone, the transition zone, the entrance, or the developed area within the community.

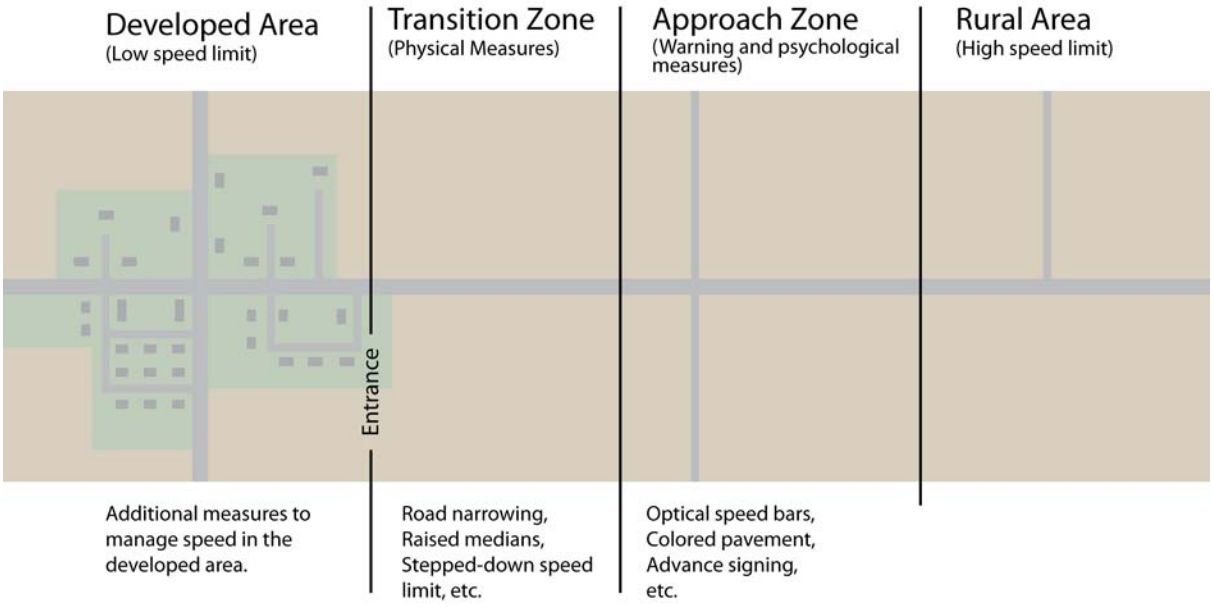

Figure 3: Transition area concepts

Speed Limit Reduction in Transition Zones

In order to allow motorists to successfully slow down when entering a developed area, consider measures that are appropriate to the Approach and Transition zones. Speed limit signs should not abruptly jump from highway speed to village speed, but should be reduced gradually, potentially in combination with other speed transition tools. Consider the use of speed reduction warning signs to alert users of upcoming changes. Do not transition too early, however, or drivers may not recognize the need to slow down. Upon leaving the developed area, speed limits and design details should gradually transition back to higher speed conditions.

Speed limit lowering alone is often not enough to influence driver behaviour, and is not an adequate technique to address perceived speeding problems. Incorrectly set speed limits may lead to disregard of posted speeds and animosity toward law enforcement.

Transition Zones

SSI conditions are optimal for high to low speed transition tools – as a way to help alert drivers they are entering a village.

Horizontal deflection measures, such as neighbourhood traffic circles, median islands, or curb extensions, are effective at speed reduction and may be necessary to achieve the speed environment that rural communities often desire.

Traffic Calming Recommendations: Traffic calming is recommended for Ganges Village transition areas and the village centre, as well as ferry terminal approaches. Examples of traffic calming that could be implemented in Ganges Village include:

- Curb extensions at key intersections and crosswalks
- A raised and landscaped median island located in front of the Visitor Centre/Chamber of Commerce
- A roundabout at the intersection of Upper and Lower Ganges as recommended in the 2010 JE Anderson & Associates design brief to upgrade transportation infrastructure in Ganges Village

- A reduced speed limit in the Village to 30 km/h on all residential rural roads which have neighbourhood bikeways
- A reduced speed limit of 30 km/h within the Ganges Village centre

Traffic calming measures in Ganges Village should be developed in close consultation with MOTI. Both Lower Ganges Road and Fulford Ganges Road are classified as Major Rural Roads, which are considered highways, and current MOTI policy may not be supportive of some traffic calming techniques on highways.

Bicycle Network Recommendations

Bicycle facility recommendations for each roadway in the designated bicycle network were developed to consider both a short-term solution that can be implemented immediately with minimal expense or controversy, as well as a highest quality or 'world class' recommendation that can be implemented in the longer term. This phasing strategy provides maximum flexibility in achieving safer and more comfortable facilities in the short term and the safest and most comfortable facilities in the long run. Short term recommendations are shown on Map 4 and long-term recommendations are shown on Map 5.

Recommendations for Major and Minor Local Bikeways

The network of Major and Minor Local Bikeways is comprised primarily of Main Rural, Minor Rural and Rural Residential roads. These proposed recommendations call for signed shared roadway, neighbourhood bikeway, or designated shoulder bikeways. General descriptions of these facility types are found in Tables 3 and 4 and additional design guidance is found in the 2011 Regional PCMP Design Guideline document.

Priority actions - infrastructure

Priority recommendations include:

- speed reductions on main arterial roads,
- modified shoulder bikeway standard ,
- wayfinding signage for cyclists.

Long-term recommendations call for shoulder bikeways on all Main Rural routes and Minor Rural routes where room in the right-of-way exists, roadway curvature suggests restricted sightlines exist or highly rural land use indicates that motorists may be more inclined to speed because of minimal traffic on the roadway. The current MOTI standards are:

- Major Rural signed at 80km/h 1.2m
- Main Rural signed at 60 km/h 0.6m – 1.2m
- Minor Rural signed at 50 km/h 0m – 1.2m

Recognizing that reduced speeds and greater separation help to better accommodate pedestrians and cyclists, this plan recommends wider shoulders be constructed and that MOTI consider reductions in posted speeds, as follows:

- Major Rural signed at 60km/h 1.6m – 1.8m
- Main Rural signed at 50 km/h 1.5m – 1.6m
- Minor Rural signed at 30 km/h 1.2m – 1.5m

If reductions in speeds are not achieved, the following shoulder widths are proposed:

- Major Rural signed at 80km/h 1.8m – 2.1m
- Major Rural signed at 60km/h 1.6m – 1.8m

- Main Rural signed at 60km/h 1.6m – 1.8m
- Minor Rural signed at 50 km/h 1.5m – 1.6m.

These recommended shoulder widths are consistent with current best practices and will provide increased comfort for cyclists of varying ages and ability.

Recommendations for the Primary Inter-Community Bikeway Network

Network recommendations for the PIC bikeway are based on the previously published Salt Spring Island Cycle Route Inventory conducted by Richard James & Associates, which considers the feasibility of adding a shoulder bikeway to the route connecting Fulford Harbour and the Vesuvius Ferry. The short term recommendations in this report are largely consistent with the recommendation to add or improve existing shoulder bikeways to the route and build to a higher standard to increase cyclist comfort. Recommended changes or updates include the following:

- Addressing the need to safely accommodate cyclists and pedestrians at the Fulford Harbour Ferry Terminal by installing traffic calming measures, wayfinding signage and pavement markings on the approach to the terminal. A range of options was presented to BC Ferries in November 2012 (updated in May 2013). These options may be viewed in detail at www.crd.bc.ca/saltspring/transportation. This project is prioritized because construction on Fulford Ganges Road is imminent. The other ferry terminals were surveyed and circulation recommendations are presented here that can be developed to a higher level of detail.

- Increasing the width of shoulders on roadways with restricted sightlines in conjunction with signs to slow motor vehicles to 30 km/h.

- **Short term:** Adding shared roadway markings and designations on Vesuvius Bay Road near the ferry terminal where the roadway is signed at 50 km/h and right-of-way acquisition would likely be required to add shoulders, as the existing right-of-way is only 12 metres. Right-of-way acquisition is the recommended **long term** solution.

Priority actions - network

Priority recommendations include:

- Upgrade of safety conditions in Fulford Village and the ferry terminal approach
- Bike lane on Ganges Hill

- Installing shoulder bikeways on Long Harbour Road and extension of the shoulder westbound from Long Harbour Ferry Terminal to the shoulder that starts approximately 300 metres west of the terminal

- Improving the intersection of Fulford-Ganges Road and Seaview Road to provide improved sightlines toward the south for those travelling westbound on Seaview through the intersection, and a wider shoulder on the east side of Fulford-Ganges at that intersection to better accommodate cyclists and other vulnerable road users.

- Long-term recommendations for the PIC network include constructing a shared use path completely separated from the roadway, where feasible. A preliminary review conducted for the corridor suggests that that a two-way three metre multi-use trail may be feasible where the right-of-way is 20 metres wide and land is not developed directly

Priority actions –traffic calming

Ganges Village was identified as a priority location for traffic calming measures to be installed on Salt Spring Island.

adjacent to the roadway on both sides. This review is preliminary in nature and would likely require property acquisition or easements in several locations, realignment of the roadway at spot locations so that the path can be continuous on one side of the road, and relocation of power poles. Development of this trail would be most important in areas with a history of collisions, restricted sightlines, heavy bicycle and pedestrian traffic, or highest speeds. If construction of this pathway is to move ahead, a more comprehensive feasibility study would need to be conducted to provide a better understanding of potential costs, opportunities, and constraints. Table 5 describes the proposed short and long-term improvements for the PIC network in greater detail and retains detail added by the 1999 Salt Spring Island Cycle Route Inventory. These recommendations are the basis for more detailed engineering studies.

Recommended Improvement Phasing

The improvements recommended by this plan are comprehensive in nature but can be phased in order to help construct facilities in a rational way that will provide immediate benefits in terms of safety, activity, and connectivity. While a recommended phasing scheme exists, it is necessary to remember that network development is opportunistic and subject to change based on many factors (e.g., roadway reconstruction projects, changes in community priorities) and should be considered only as an implementation guide. Map 6 shows three levels or tiers of priority projects, while Table 5 summarizes PIC bikeway phasing recommendations. Phase One projects make immediate safety improvements, while Phase Two and Phase Three represent improvements that may provide a smaller benefit or may be costly to implement. This strategy reflects the following principles:

Short term vision

Recommendations in this report endeavour to increase the comfort and safety for the everyday cyclist by calling for a bikeway that is built to a higher standard. This extraordinary vision can be achieved through ordinary means – by focusing on the addition or improvement of existing shoulder ways.

- All PIC recommended bikeways are Phase One or Two.
- Within the PIC bikeway network, areas designated as Phase One have restricted sightlines, steep hills, are within the Ganges Village core, have posted speeds greater than 50 km/h, or have a history of bicycle-related crashes.
- Minor and Local bikeways are Phase Two or Three, but these improvements can be implemented at any time as desired or opportunities arise.
- Minor and Local Bikeways within the Ganges Village area are Phase Two.

Long term vision

Recommendations in this report envision the construction of a shared use path, completely separated from the roadway, where feasible.

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Table 5 . Recommended PIC Facility Improvements and Recommended Phasing

Priority (Short Term)	Length (m)	Roadway Name	From	To	Short Term Rec.	Cost (Short Term)*	Long Term Rec.	Existing Shoulders Condition	Alta Comment	Road Class.	Section Num**	Pipe Required**	Rock Blasting Required**	Cut / Fill Required**	Clearing / Grubbing Required**	Notes**
1	301	Fulford-Ganges Rd	Fulford Terminal	W of intersection with Beaver Pt Road	6.7 m wide bi-directional roadway, 3m vehicle holding lane in SB direct-ion and a paved shoulder of up to 2.5m but no less than 1.5 m.	$211,000 added costs to accom-modate the shoulder widening	Further widen roadway to accommodate a 1.5m bike lane SB and a 2.5 m shoulder NB	Less than 1 m	Reduce speed limit through this section of roadway to 20km/h and add traffic calming (such as speed humps) should drivers fail to comply	Major Rural	1a	Poss/Yes	No/No	C/F	Yes/Yes	Landscaping
1	148	Fulford-Ganges Rd	Seaview	Lower Ganges Rd	Bike Lane	$2,960	Bike Lane	Do not exist	Traffic calming recommended. Assumes restriping only, if parking or left turn bays removed.	Major Rural	18a	N/A	N/A	N/A	N/A	Crosswalk, Gas Stn Entrance
1	1477	Fulford-Ganges Rd	Cranberry Ave.	Seaview	Shoulder Bikeway	$620,340	Shared Use Path	Variable width, around 1.2 m	Traffic calming recommended	Major Rural	11b	No/Yes	No/No	F/Unk	Some/Yes	Ravine and creek/watermain in shoulder
1	819	Fulford-Ganges Rd	Cusheon lake	Saltspring Way	Shoulder Bikeway (1.6 - 1.8 m)	$343,980	Shared Use Path	Variable width, around 1.2 m	Treat curves with sightline restrictions	Major Rural	10	No/Yes	No/No	F/Unk	Unk/Yes	None
1	923	Fulford-Ganges Rd	Burgoyne Bay Road	Lee Road (lop of hill)	Shoulder Bikeway (1.6 - 1.8 m)	$387,660	Shared Use Path	Variable width, around 1.2 m	Treat curves with sightline restrictions	Major Rural	5	Unk/Poss	No/No	F/Unk	Yes/Unk	Hill Section
1	27	Long Harbour Rd	Scott Pt	Terminal	Shoulder Bikeway (1.6 - 1.8 m)	$14,580	Shoulder Bikeway (1.6 - 1.8 m)	Do not exist		Residential		N/A	N/A	N/A	N/A	Not surveyed as part of 1999 / 2005 Survey
1	466	Long Harbour Rd	Welbury	Scott Pt	Shoulder Bikeway (1.6 - 1.8 m)	$9,320	Shared Use Path	Do not exist		Major Rural		N/A	N/A	N/A	N/A	Not surveyed as part of 1999 / 2005 Survey
1	406	Lower Ganges Rd	Upper Ganges	Rainbow	Bike Lane	$300,440	Bike Lane	Do not exist	Traffic calming recommended. Assumes shoulder construction	Major Rural	18 f/g					
1	57	Lower Ganges Rd	Fulford-Ganges Rd.	McPhillips	Bike Lane	$1,140	Bike Lane	Do not exist	Traffic calming recommended. Assumes restriping only, if parking or left turn bays removed.	Major Rural	18c	N/A	N/A	N/A	N/A	remove parking S/B
1	96	Lower Ganges Rd	McPhillips	Hereford (NIB)	Bike Lane	$1,920	Bike Lane	Do not exist	Traffic calming recommended. Assumes restriping only, if parking or left turn bays removed.	Major Rural	18d	N/A	N/A	N/A	N/A	Reduce pavement width
1	97	Lower Ganges Rd	Hereford	Rainbow	Bike Lane	$1,940	Bike Lane	Do not exist	Traffic calming recommended. Assumes restriping only, if parking or left turn bays removed.	Major Rural	18e	N/A	N/A	N/A	N/A	

Priority (Short Term)	Length (m)	Roadway Name	From	To	Short Term Rec.	Cost (Short Term)*	Long Term Rec.	Existing Shoulders Condition	Alta Comment	Road Class.	Section Num**	Pipe Required**	Rock Blasting Required**	Cut / Fill Required**	Clearing / Grubbing Required**	Notes**
1	807	Upper Ganges Rd	Lower Ganges	Leisure	Shoulder Bikeway (1.6 - 1.8 m)	$338,940	Shared Use Path	Variable width, around 1.2 m	Traffic calming recommended	Major Rural		N/A	N/A	N/A	N/A	Not surveyed as part of 1999 / 2005 Survey
1	425	Vesuvius Bay Rd	Bayview	Ferry Terminal	Shared Roadway	$4,250	Shared Roadway	Do not exist		Main Rural	17b	Yes/Unk	Unk/Unk	Unk/C&F	Yes/Yes	1 only at 100m north of Bayview to Terminal
1	776	Vesuvius Bay Rd	150m S ofTripp Rd	Mobray	Shoulder Bikeway (1.5 - 1.6 m)	$325,920	Shared Use Path	Do not exist	Treat curves with sightline restrictions	Main Rural	16a	Unk/Yes	No/Poss	F/C	Yes/Yes	Major Fill/B2 at S curves, B3 remaining
1	846	Vesuvius Bay Rd	Mobray	Chu-an Drive	Shoulder Bikeway (1.5 - 1.6 m)	$355,320	Shared Use Path	Do not exist	Treat curves with sightline restrictions	Main Rural	16b	Unk/Yes	No/Poss	F/C	Yes/Yes	Major Fill/B2 at S curves, B3 remaining
2	148	Fulford-Ganges Rd	Fulford Creek	Start 80kph	Shoulder Bikeway (1.6 - 1.8 m)	$79,920	Shoulder Bikeway (1.6 - 1.8 m)	Do not exist		Main Rural	3	Unk/Yes	No/No	Unk/Unk	No/No	NB Mailbox, Creek crossing
2	894	Fulford-Ganges Rd	100m N of Beaver F	Fulford Creek Bridge	Shoulder Bikeway (1.6 - 1.8 m)	$482,760	Shoulder Bikeway (1.6 - 1.8 m)	Do not exist		Major Rural	2	Yes/Unk	Yes/No	C/F	Some/Yes	SB Mailbox
2	520	Fulford-Ganges Rd	Fulford Creek	Start 80kph	Shoulder Bikeway (1.5 - 1.6 m)	$218,400	Shared Use Path	Do not exist		Main Rural	3	Unk/Yes	No/No	Unk/Unk	No/No	NB Mailbox, Creek crossing
2	489	Fulford-Ganges Rd	Saltspring Way	Cranberry Ave.	Shoulder Bikeway (1.6 - 1.8 m)	$205,380	Shared Use Path	Variable width, around 1.2 m		Major Rural	11a	No/Yes	No/No	F/Unk	Some/yes	Ravine and Creek/watermain on shoulder
2	1021	Fulford-Ganges Rd	Saltspring Way	Cranberry Ave.	Shoulder Bikeway (1.6 - 1.8 m)	$428,820	Shared Use Path	Variable width, around 1.2 m		Major Rural	11a	No/Yes	No/No	F/Unk	Some/Yes	Ravine and Creek/watermain on shoulder
2	2698	Fulford-Ganges Rd	Start 80kph	Burgoyne Bay Road	Shoulder Bikeway (1.6 - 1.8 m)	$1,133,160	Shared Use Path	Do not exist		Major Rural	4	Unk/Yes	No/No	F/Unk	No/Yes	Creek Crossing
2	1368	Fulford-Ganges Rd	Lee Road	Mereside	Shoulder Bikeway (1.6 - 1.8 m)	$574,560	Shared Use Path	Variable width, around 1.2 m		Major Rural	6	No/Yes	Yes/No	F(35m)/Unk	Yes/Yes	Curves, grades, SD problems
2	1222	Fulford-Ganges Rd	Merside	Kitchen	Shoulder Bikeway (1.6 - 1.8 m)	$513,240	Shared Use Path	Variable width, around 1.2 m		Major Rural	7	Unk/Yes	Some/Yes	F/F	Unk/Unk	Culvert at Kitchen
2	1369	Fulford-Ganges Rd	Kitchen	Mitchell Lake	Shoulder Bikeway (1.6 - 1.8 m)	$574,980	Shared Use Path	Variable width, around 1.2 m		Major Rural	8	Minor/Poss	Yes/No	C&F/F	Unk/Unk	Ford Creek drainage
2	555	Fulford-Ganges Rd	Mitchel Lake	Cusheon Lake Rd	Shoulder Bikeway (1.6 - 1.8 m)	$233,100	Shared Use Path	Variable width, around 1.2 m		Major Rural	9	Unk/Poss	No/No	F/F	Unk/Unk	
2	4071	Long Harbour Rd	Upper Ganges	Welbury	Shoulder Bikeway (1.6 - 1.8 m)	$1,709,820	Shared Use Path	Variable width, around 1.2 m		Major Rural		N/A	N/A	N/A	N/A	Not surveyed as part of 1999 / 2005 Survey
2	568	Lower Ganges Rd	Blain Road	Wildwood Cres	Shoulder Bikeway (1.5 - 1.6 m)	$238,560	Shared Use Path	0.5 - 1.5 m	Traffic calming recommended	Main Rural	13	Yes/Some	Unk/Unk	No/No	Yes/Unk	

Priority (Short Term)	Length (m)	Roadway Name	From	To	Short Term Rec.	Cost (Short Term)*	Long Term Rec.	Existing Shoulders Condition	Alta Comment	Road Class.	Section Num**	Pipe Required**	Rock Blasting Required**	Cut / Fill Required**	Clearing / Grubbing Required**	Notes**
2	560	Lower Ganges Rd	Wildwood Crest	200m N of Canal	Shoulder Bikeway (1.5 - 1.6 m)	$235,200	Shared Use Path	0.5 - 1.5 m		Main Rural	14a	40m/Maybe	Yes/No	C/F	Unk/Yes	
2	872	Lower Ganges Rd	200m N of Canal	"Central"	Shoulder Bikeway (1.5 - 1.6 m)	$366,240	Shared Use Path	0.5 - 1.5 m		Main Rural	14b	40m/Maybe	Yes/No	C/F	Unk/Yes	
2	67	Upper Ganges Rd	Leisure	Long Harbour	Shoulder Bikeway (1.6 - 1.8 m)	$28,140	Shared Use Path	Variable width, around 1.2 m		Major Rural		N/A	N/A	N/A	N/A	Not surveyed as part of 1999 / 2005 Survey
2	56	Vesuvius Bay Rd	Chu-an Drive	Bayview	Shared Roadway	$560	Shared Roadway	Do not exist		Main Rural	17a	Yes/Unk	Unk/Unk	Unk/C&F	Yes/Yes	1 only at 100m north of Bayview to Terminal
2	848	Vesuvius Bay Rd	"Central"	150m S of Tripp	Shoulder Bikeway (1.5 - 1.6 m)	$356,160	Shared Use Path	Do not exist		Main Rural	15	Yes/Yes	No/No	Unk/Unk	Yes/Yes	Mailbox
2	557	Vesuvius Bay Rd	Chu-an Drive	Bayview	Shoulder Bikeway (1.5 - 1.6 m)	$233,940	Shared Use Path	Do not exist		Main Rural	17a	Yes/Unk	Unk/Unk	Unk/C&F	Yes/Yes	1 only at 100m north of Bayview to Terminal

* Short term costs were estimated using per metre costs supplied for the PCMP, which estimate shoulder construction at $420 metres per linear foot. Cost estimates developed for the 1999 Salt Spring Island Cycle Route Inventory by Richard James are lower and typically do not exceed $300 per linear metre. Costs are shown in PCMP units for consistency, but the Richard James study should be consulted for additional detail.
** James, 1999
*** Abbreviations are defined as follows
Unk = unknown
Yes/unk = Indicates condition is true on a given side of the roadway when traveling along the study corridor
C=Cut
F=Fill
Poss=Possible

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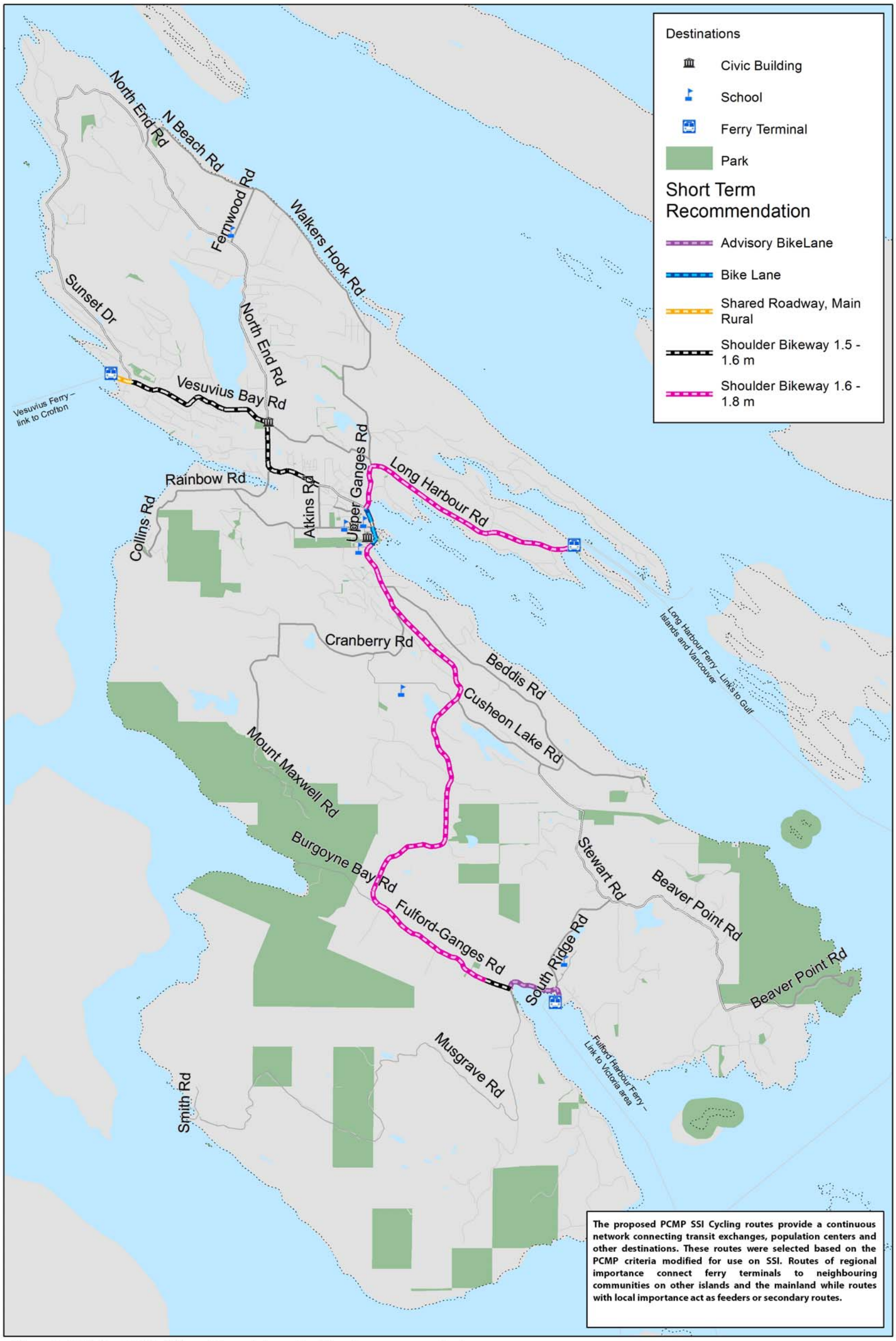

Map 4. PCMP - SSI Edition: Short Term Facility Recommendations

Capital Regional District
Pedestrian and Cycling Master Plan: Salt Spring Island Edition

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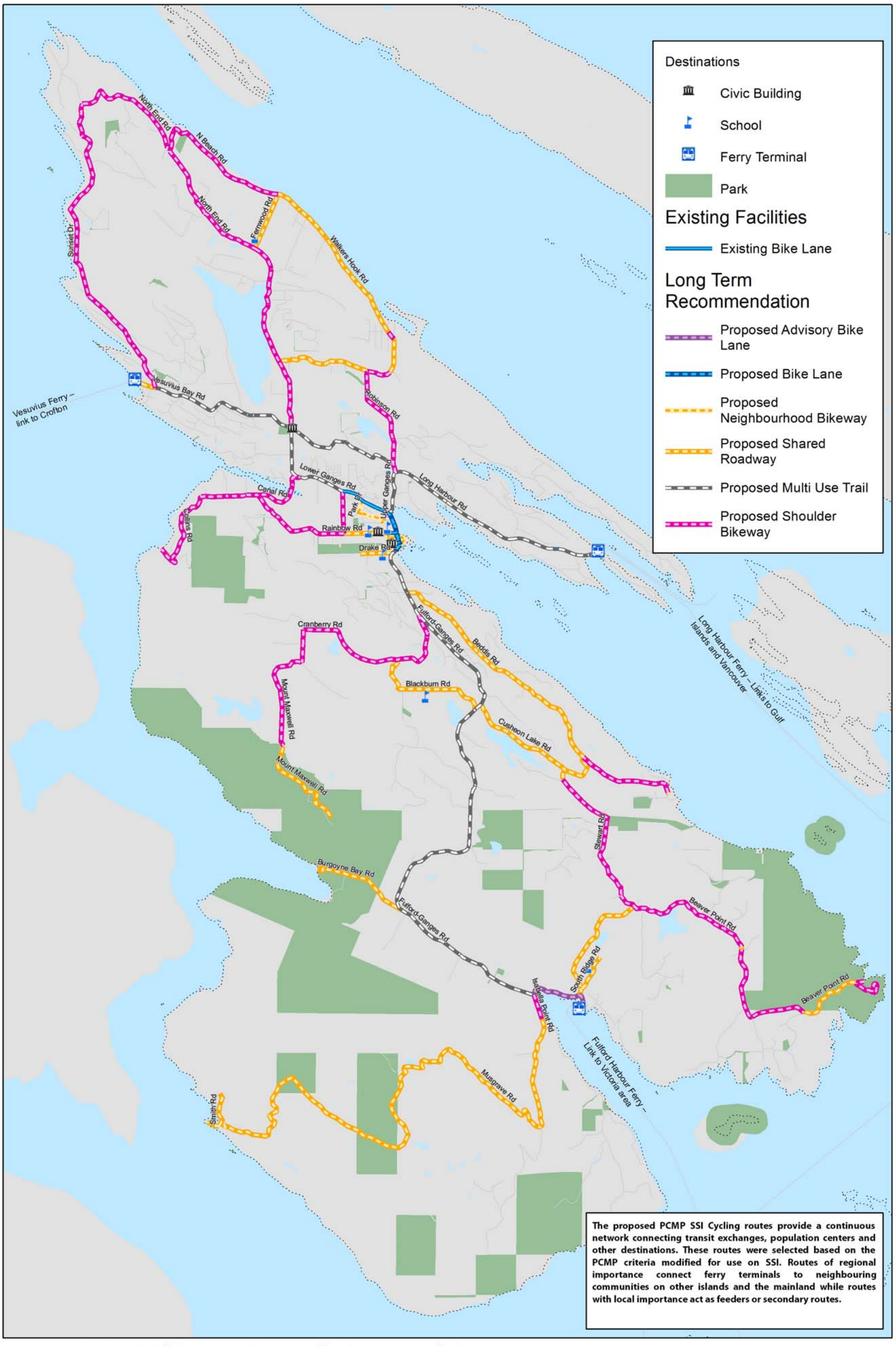

Map 5. PCMP - SSI Edition: Long Term Facility Recommendations

Capital Regional District
Pedestrian and Cycling Master Plan: Salt Spring Island Edition

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Map 6. PCMP - SSI Edition: Recommended Project Phasing

Capital Regional District
Pedestrian and Cycling Master Plan: Salt Spring Island Edition

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APPENDIX A. Ministry of Transportation & Infrastructure Road Maintenance Specifications – Basics Relevant to Cycling

This appendix supports Map 2: Salt Spring Island Road Classifications, p. 9, and "Road Maintenance", pp. 69-70. It provides links to web documents, background information, and selected tables of road maintenance specifications of interest to cyclists.

To access maintenance contractors' agreements with MoT, either web search "bc mot maintenance agreements" or go to
http://www.th.gov.bc.ca/BCHighways/contracts/contract.htm

To access maintenance contractors' specifications for road maintenance; either web search "bc mot schedule 21" or go to
http://www.th.gov.bc.ca/BCHighways/contracts/maintenance/Schedule_21_Maintenance_Specifications.pdf.

This is an overview document. Other schedules spell out specification requirements in detail.

Roads are classified according to their average daily traffic (ADT) count. Maintenance contractors use these classifications to monitor and service roads in summer and winter seasons. Roadway deficiencies are to be fixed within specified times, depending on road class and season.

SUMMER CLASSIFICATION	WINTER CLASSIFICATION
[1] over 10,000	**[A]** 2,500 – 5,000+
[2] 5,000–10,000	**[B]** 1,000-2,500; all truck & main routes not in A
[3] 1,000–5,000	**[C]** all school bus routes not in Classes A & B
[4] 500–1,000	**[D]** all other regularly maintained routes
[5] 100–500	
[6] 10–100	
[7] 1–10	

The majority of respondents in the 2010 SSI Cycling Survey preferred a bikeway route following Salt Spring's main roads connecting the ferry terminals. This is also practical in terms of road maintenance to minimum specifications of pavement and shoulder ways used by cyclists. Quieter arterial routes have lower maintenance standards, where problems can persist for longer.

Contractors follow a monitoring schedule, and they rely on reports of road problems from the public. Contractors must have 24/7 toll free telephone service to receive and respond to reports and requests regarding deficiencies, hazards, and other concerns. Contractors are to act on these inputs according to the times given in the maintenance specifications. They are to submit, on a regular basis, all reports and requests received to MoT's quality assurance office. If reported problems aren't addressed in the required ways and times, and if second and third reports meet

with continuing inaction, the public may contact MoT's quality assurance office to see if the record of reports and requests was duly passed on.

The "Schedule '21' table of contents is given below, showing the scope of maintenance requirements. Highlighted sections indicate that tables from them are given in this appendix.

Chapter
1-100: Pavement Patching & Crack Sealing
1-110: Highway Surface Treatment
1-130: Gravel Surface Grading and Re-Shaping
1-140: Dust Control and Base Stabilization
1-150: Highway Surface & Shoulder Gravelling
1-160: Highway Shoulder Maintenance
1-170: Road Base Maintenance
1-180: Pavement Surface Cleaning
1-190: Debris Removal
1-200: Highway Structures Maintenance
1-220: Curb, Island, and Barrier Maintenance
1-230: Railway Crossing Maintenance
2-250: Ditch and Watercourse Maintenance
2-260: Drainage Appliance Maintenance
2-270: Shore, Bank & Watercourse Maintenance
2-280: Engineered Wetland & Water Quality Pond
3-300: Highway Snow Removal
3-310: Winter Abrasive, Chemical Snow/Ice Control
3-320: Roadside Snow and Ice Control
Chapter
3-340: Highway Condition Reporting
4-350: Roadside Vegetation Control
4-370: Litter Collection and Graffiti Removal
4-380: Rest Area and Roadside Facility Maintenance
4-400: Roadside Fence Maintenance
5-440: Sign System Maintenance
5-450: Temporary Line Marking and Eradication
5-470: Highway Traffic Control
6: bridge and other structures maintenance
Of interest to cyclists:
6-660: Retaining Structure Maintenance
6-740: Debris Torrent Structure Maintenance
7: responses to floods, slides, vandalism, avalanches, structural damage, etc.
8-830: Highway Inspection
8-840: Highway Patrol
8-850: Bridge and Structure Inspection
Definitions
Quantified Maintenance Services

These tables show the maximum times, from the time the deficiency was detected by or reported to the contractor, within which the contractor must complete repairs of the listed deficiencies to specified standards.

Note: min = minutes; h = hours; d = days; m = months.

Chapter 1–100: Highway Pavement Patching and Crack Sealing

To ensure paved Highway surfaces are safe, smooth, stable, and sealed; and, to prevent moisture from penetrating the pavement surface.

3.1.1 Performance Time Frames

[Page16/223 in "Schedule '21'"]

		Summer Highway Classification				
Pavement Deficiency	**Severity**	**1 & 2**	**3**	**4**	**5**	**6 & 7**
Pot-hole on Travelled Lane or inner Shoulder of curved Highway sections	high	24 h	2 d	3 d	7 d	14 d
Pot-hole on outside Shoulder of curved Highway sections and tangents	high	3 d	7 d	10 d	21 d	45 d
Pot-hole on right edge of divided Highway in the direction of travel	high	24 h	2 d	3 d	7 d	14 d
Pot-hole on left edge of divided Highway in the direction of travel	high	3 d	7 d	10 d	21 d	45 d
Bleeding on Travelled Lane, or inside Shoulder of curved Highway sections	high	24 h	2 d	3 d	7 d	14 d
Distortions presenting a safety hazard	high	24 h	2 d	3 d	7 d	14 d

3.2.1 Quantified Maintenance Services

[Page 17/223 in "Schedule '21'"]

			Summer Highway Classification				
Pavement Deficiency	**Severity**	**Density**	**1 & 2**	**3**	**4**	**5**	**6**
Shoving	high	frequent	21 d	21 d	21 d	21 d	1 m
Distortion	high	frequent	21 d	21 d	1 m	3 m	6 m
Aligatored areas without Distortion	moderate	frequent	21 d	1 m	3 m	6 m	1 y
Aligatored areas with Distortion, broken or missing materials	high	frequent	21 d	21 d	1 m	3 m	6 m
Pot-holes	low	through out	21 d	21 d	1 m	3 m	6 m
Bleeding	moderate	frequent	21 d	21 d	1 m	3 m	6 m
Ravelling	high	extensive	21 d	1 m	3 m	6 m	1 y
Rutting	moderate	extensive	21 d	21 d	1 m	3 m	6 m
all Longitudinal Cracking	moderate	frequent	1 y	1 y	1 y	1 y	1 y
Pavement Edge Cracking	moderate	frequent	1 y	1 y	1 y	1 y	1 y
Transverse Cracking	moderate	any	1 y	1 y	1 y	1 y	1 y

Chapter 1–130: Gravel Surface Grading and Re-Shaping

[Page 23/223 in "Schedule '21'"]

To maintain Dirt and Gravel Highway surfaces in a safe and stable condition and to promote efficient drainage.

Gravel Surface Deficiencies	Summer Highway Classification			
	3 & 4	5	6	7
i) Pot-hole (average more than 1 per 25 metres of road), Rutting, Ponding and Wash-boarding (exceeding 30 mm depth)	2 d	3 d	6 d	15 d
ii) loss of aggregates (needs reclaimed material)	4 d	5 d	15 d	30 d
iii) 1) lack of uniform Shoulder edge 2) loose material (exceeding 50 mm depth)	5 d	15 d	1 m	2 m

Chapter 1–150: Highway Surface and Shoulder Gravelling

[Page 31/223 in "Schedule '21'"]

To provide a uniform, smooth gravel surface to protect Highway Users from unsafe conditions and to strengthen roads.

Gravel Surface Deficiency	Summer Highway Classification				
	3	4	5	6	7
i) Pot-holes	2 d	2 d	3 d	6 d	15 d
ii) surface soft and/or muddy	24 h	2 d	3 d	6 d	15 d
iii) loss of traction	24 h	2 d	3 d	6 d	15 d
iv) surface softening when wetted	30 d	2 m	6 m	9 m	1 y
v) insufficient surfacing aggregate	30 d	2 m	6 m	9 m	1 y

Shoulder Surface Deficiency	Summer Highway Classification				
	1 & 2	3	4	5	6 & 7
i) loose or soft Shoulders	14 d	30 d	45 d	3 m	6 m
ii) loss of line, grade, and crossfall	3 m	6 m	9 m	1 y	1 y

Chapter 1–160: Highway Shoulder Maintenance

[Page 35/223 in "Schedule '21'"]

To provide a smooth and safe stopping rea with free-flowing drainage off the Travelled Lanes and through the Road Base.

Shoulder Surface Deficiency	Summer Highway Classification				
	1&2	3	4	5	6&7
i) pavement edge drop-off 5 cm or more in depth on the inside edge of curving Highways	24 h	24 h	3 d	7 d	14 d
ii) pavement edge drop-off 5 cm or more in depth other than a) above	3 d	3 d	6 d	14 d	14 d
iii) settled and eroded sections more than 5 cm in depth presenting a safety hazard	3 d	3 d	6 d	14 d	14 d
iv) loose or soft Shoulders presenting a safety hazard	3 d	3 d	6 d	14 d	14 d
v) loss of line, grade, and crossfall presenting a safety hazard	3 d	3 d	6 d	14 d	14 d
vi) removal of vegetation presenting a safety hazard	3 d	3 d	6 d	14 d	14 d
vii) loss of line, grade and crossfall not presenting a safety hazard but requiring gravelling	3 m	3 m	9 m	1 y	1 y
viii) removal of turf, Sod and other vegetation	6 m	6 m	6 m	1 y	1 y
ix) prevent vegetation growth	1 y	1 y	---	---	---

Chapter 1-180: Pavement Surface Cleaning

[Page 40/223 in "Schedule '21'"]

To protect Highway Users from unsafe pavement surface conditions and to facilitate drainage.

Routine Maintenance Services
The Contractor must:
a. clean Hard Surfaced Highways by removing accumulations of dirt, Debris, sand and/or gravel from the Travelled Lanes, centrelines, Shoulders, curbs, intersections traffic islands and along Medians and/or Roadside barriers throughout the year to provide a safe, clean, free-draining condition;
b) clean paved bicycle and pedestrian paths; and
c) ensure that traffic control is implemented in accordance with the Manual for Traffic Control and Work on Roadways during pavement cleaning operations so that hazardous conditions are not created for Highway Users.

The Contractor must:
a) clean Hard Surfaced Highways [on the following schedule]:

Routes and Highway Classification	Minimum Pavement Surface Cleaning Frequency
(i) all four lane and Urban Highways	every 120 days
(ii) all other Hard Surfaced Highways	once annually

b) program for major pavement marking, for which the Province will provide a general painting schedule in the spring of each year and a detailed schedule at least one week in advance of line marking;
c) complete spring surface leaning of Hard Surfaced Highways within 1 month of the last winter abrasive application or when the application of Winter Abrasives is no longer anticiplated;
d) notwithstanding the above, within 7 days from the time the accumulation was detected by or rreported to the Contractor, clean Hard Surfaced Highways where dirt, Debris, sand and/or gravel have accumulated and:

i) obscures line visibility, or;
ii) creates a visibility problem for Highway Users, or;
iii) creates an air quality problem that conflicts with local by-laws;

e) notwithstanding the above, perform cleaning work where sand and silt have accumulated adjacent to curbing or barriers which impairs the free flow of drainage paths in accordance with the Performance Time Frames in the Mainenance Specification for Curb, Island and Barrier Maienance, with no credit for such work under the Maintance Specificiation for Curb, Island and Barrier Maintenance;
f) nowithstanding the above, immediately, upon detection by or notification to the Contractor, remove any dirt, Debris, sand and/or gravel on paved surfaces which pose a hazard to Highway Users; and
g) clean paved bicycle and pedestrian paths in accordance with the Performance Time Frames and other applicable conditions as per the adjacent or nearest HIghway.

Chapter 1-190: Debris Removal

[Page 43/223 in “Schedule ‘21’”]

To protect Highway Users from situations that are unsafe or have the potential to become unsafe.

The following table establishes the maximum time, from the time the Debris was detected by or reported to the Contractor, within which the Contractor must start removal of Debris:

Obstruction	Summer Highway Classification				
	1&2	3	4	5	6&7
a) Debris or spilled material over 1000 cc on the Travelled Lanes and sidewalks	60 min	60 min	3 h	5 h	24 h
b) Debris or spilled material equal to or less than 1000 cc on the Travelled Lanes and sidewalks	60 min	3 h	5 h	24 h	2 d
c) dead animals on the Shoulders and sidewalks	60 min	3 h	5 h	24 h	2 d
d) dead animals on the Right-of-way, excluding Travelled Lanes, Shoulders and sidewalks	3 h	5 h	24 h	2 d	3 d
e) Debris or spilled material more than 1000 cc on the Shoulders	5 h	24 h	2 d	3 d	7 d
f) Debris or spilled material equal to or less than 1000 cc on the Shoulders	24 h	2 d	3 d	7 d	14 d

Chapter 2–250: Ditch and Watercourse Maintenance

[Page 56/223 in "Schedule '21'"]

To provide safe, unobstructed drainage for all Highway surface runoff, natural Roadside runoffs and ditches, and to create a collection area for Debris and ice and snow.

	Summer Highway Classification				
	1&2	3	4	5	6&7
during high water flow	60 min	90 min	2 h	3 h	4 h
other times	2 m	3 m	4 m	6 m	6 m

Chapter 3–300: Highway Snow Removal

[Page 71/223 in "Schedule '21'"]

To remove loose snow, slush and compact snow; to protect Highway Users from situations that are unsafe, to ensure the safe and efficient movement of traffic and to ensure that the Contractor utilizes and deploys, those resources that are required to comply with this Specification, in a manner which anticiplates and responds in advance of a snowfall.

Winter Highway Classification	Maximum Allowable Accumulation		
	One Lane Each Direction	Second Lanes	All Other Lanes
A	4.0 cm	8.0 cm	12.0 cm
B	6.0 cm	10.0 cm	16.0 cm
C	10.0 cm	n/a	20.0 cm
D	15.0 cm	n/a	n/a
E	25.0 cm	n/a	n/a

The

Winter Highway Classification			
A	B	C	D
90 min	2 hours	6 hours	n/a

following two tables establish, respectively, (a) the time from end of the last measurable snowfall and snow removal operations on the Travelled Lanes have been completed, within which the Contractor must remove compacted snow or ice from all Travelled Lanes with paved Highway surfaces and (b) the time from end of the last measurable snowfall within which the Contractor must push snow and ice beyond the Shoulder edge. [p.72/223 in "Schedule '21'"]:

Winter Highway Classification			
A	B	C	D
2 d	3 d	7 d	21 d

Winter Highway Classification			
A	B	C	D
4 d	6 d	10 d	24 d

Map 2 showing the Salt Spring Island road classifications used for road maintenance purposes were taken from the following list. These, in turn, were copied from the B.C. Ministry of Transportation & Infrastructure's classification scheme for all SSI roads, now available to the public by a Freedom of Information request by Island Pathways.

Winter Class, by RFI Description+Direction

	Length	A	B	C	D	E	F	A-F	A-E	
BEAVER POINT RD E	8.321		0	0	7.849	0.472	0	0	8.321	8.321
BEDDIS ROAD N	7.386		0	0	7.386	0	0	0	7.386	7.386
CUSHEON LAKE RD E		3.036		0	0	3.036	0	0	0	3.036	3.036
FULFORD-GANGES RD E	–14.172	13.983		0.189	0	0	0	0	14.172	14.172	
LONG HARBOUR RD E		4.543		0	4.543	0	0	0	0	4.543	4.543
LOWER GANGES RD E		3.7		0	3.433	0.267	0	0	0	3.7	3.7
NORTH BEACH RD N		3.013		0	0	3.013	0	0	0	3.013	3.013
NORTH END RD N	9.144		0	2.917	6.227	0	0	0	9.144	9.144	
ROBINSON ROAD N	2.095		0	0	2.095	0	0	0	2.095	2.095	
STEWART RD N		3.534		0	0	3.534	0	0	0	3.534	3.534
SUNSET DRIVE N	6.567		0	0	6.567	0	0	0	6.567	6.567	
UPPER GANGES RD N		3.448		0	3.448	0	0	0	0	3.448	3.448
VESUVIUS BAY RD E		3.684		0	3.684	0	0	0	0	3.684	3.684
WALKER'S HOOK RD N	4.929			0	0	4.929	0	0	0	4.929	4.929

Summer Class – by RFI Description+Direction

	Length	1	2	3	4	5	6	7	Cl	Cl 1-7	
BEAVER POINT RD E		8.321	0	0	0	7.849	0.472	0	0	0	8.321	8.321	
BEDDIS RD N		7.386	0	0	0	0	7.386	0	0	0	7.386	7.386
CUSHEON LK RD E	3.036	0	0	0	0	3.036	0	0	0	3.036	3.036	
FULFORD-GANGES E	14.172	0	1.669	12.503	0	0	0	0	0	14.172	14.172	
LONG HARBOUR RD E		4.543	0	4.543	0	0	0	0	0	0	4.543	4.543
LOWER GANGES RD E		3.7	0	0.637	3.063	0	0	0	0	0	3.7	3.7
NORTH BEACH RD N	3.013	0	0	0	0	3.013	0	0	0	3.013	3.013	
NORTH END RD N	9.144	0	0	2.917	6.227	0	0	0	0	9.144	9.144	
ROBINSON ROAD N	2.095		0	0	0	2.095	0	0	0	2.095	2.095	
STEWART RD N		3.534	0	0	0	0	3.534	0	0	0	3.534	3.534
SUNSET DRIVE N	6.567	0	0	0	5.042	0	1.525	0	0	6.567	6.567	
UPPER GANGES RD N		3.448	0	0	3.448	0	0	0	0	0	3.448	3.448
VESUVIUS BAY RD E		3.684	0	0	3.684	0	0	0	0	0	3.684	3.684
WALKER'S HOOK RD N	4.929		0	0	0	4.929	0	0	0	0	4.929	4.929

APPENDIX B. Bicycle Facility Selection Class and Context

Facility Class and Context

The PCMP uses the following typology for assigning on-street bikeway facilities to specific roads:

1. **User Classification:** Bikeway class indicates what types of users might feel comfortable on a particular bikeway facility.

2. **Levels of Facility Separation:** Bikeway facilities are designated by Canadian guidelines and best practices for cycle tracks, bicycle lanes, shared lanes, and other facilities.

3. **Roadway Context:** The volume and speed of motor vehicle traffic, as well as presence of trucks, transit, on-street parking, and large numbers of turning vehicles impact the user experience of different types of bikeway facilities.

In combination, these elements can provide guidance for bikeway facility selection as shown in http://cyclingincities.spph.ubc.ca/opinion-survey/

User Type Classification

Bikeway class indicates what types of users might feel comfortable on a particular bikeway facility. The Cycling in Cities Program at the University of British Columbia found that the most significant factors influencing bicycle use are motor vehicle traffic volumes and speeds.[11] The study also found that most cyclists have a preference for facilities that are separated from motor vehicle traffic or that are located on local roads with low motor vehicle traffic speeds and volumes.

Levels of Facility Separation

Standards for classifying bikeway types are provided in the Transportation Association of Canada (TAC) *Bikeway Traffic Control Guidelines for Canada* (2012), *Geometric Design Guide for Canadian Roads*, and *MUTCD-Canada*. Bicycle facility types available for use in the CRD and member municipalities are listed in Table 2.

The classifications identified in Table 2 are common regional classifications that describe bicycle facilities by engineering treatment. This classification system integrates the various municipal classifications and does not preclude the municipalities from continuing to use existing user classification systems. Facility type information is useful at the planning and engineering level and is helpful in identifying appropriate dimensions and design treatments. System users, on the other hand, are more concerned about finding a route that serves their travel needs and on which they feel comfortable riding. It is therefore recommended that municipalities use the terms defined in the PCMP at the engineering and planning level to be clear and precise about bicycle facility planning, while user designations can be used for mapping and sharing the network with the public

[11] http://www.cher.ubc.ca/cyclingincities/survey.html

USER TYPE CLASSIFICATION

- Class 1: suitable for all users
- Class 2: suitable for most users
- Class 3: suitable for few users

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LEVELS OF FACILITY SEPARATION

- Separated On-Street:
  - buffered bicycle lane
  - cycle track/Multi Use Trail
- Bicycle Lanes/ Shoulders
- Shared Roadways
  - marked wide curb lane
  - neighbourhood bikeway
  - shared lane

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ROADWAY CONTEXT

- Major Rural
- Main Rural
- Minor Rural
- Residential Rural

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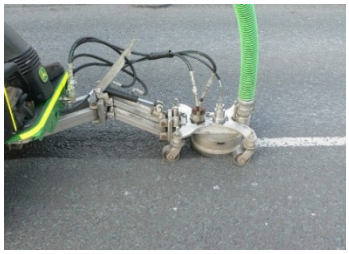
PRIMARY BIKEWAY TYPOLOGY

APPENDIX C. Summary of Traffic Calming Treatments

The following is a list of traffic calming measures that are appropriate for use on rural roads. The analysis considers their potential impact on travel behaviour, ongoing maintenance needs, appropriate locations for their application, and design details that should be considered, particularly with regard to their impact on vulnerable road users.

	Treatment	Change in 85th percentile speed (km/h) and volume	Maintenance	Application	Appropriate for Salt Spring
	Low cost measures – under $2,500				
	Standard signage (information, regulatory, warning)	Varies, minimal	Minimal	Everywhere	Yes
	Pavement markings - Lane narrowing using painted centre island and edge marking	+ to -5, minimal	Regular painting	Entrance or within community	In village areas
	Pavement markings - "Slow" pavement legend	+ to -3, minimal	Regular painting	Within community	At entrance or within community

	Pavement markings - "35 mph" pavement legend w/ red background	0 to -14, minimal	Accelerated painting cycle	Entrance or within community	As needed
	Medium cost measures - $2,500 to $5,000				
	Removal of all signage and pavement markings	Varies, minor	Significant cost reduction	Along a specified roadway or in a particular area	Minimal
	Surface treatment (those that produce a sound or vibration or both)	Varies, minimal	Minimal maintenance depending on material used	At the approach to an area of caution	Some potential - consultation is needed
	Surface treatment - Speed hump	-6 to -8, minor	Regular painting	Within community	Within village, near schools, parks or in residential areas
	Higher cost measures - $5,000 to $12,000				
	Electronic speed feedback sign	Up to -11	Troubleshooting electronics	Entrance or within community	Within village, near schools, parks or in residential areas

	Gateways	-8 average minimal impact on volume	Gateway features can be struck, causing injury and requiring repairs to gateway	Entrance to a village or residential area	Strong potential
	Road narrowing (chicanes, central islands, curb build outs, reduced pavement width)	Up to -19, minimal, significant reduction in collisions	Dependent upon design elements	Most effective in areas with higher levels of active travel	Strong potential
	Access restrictions (gated roads, physical closures)	High impact on volume, varying impact on speed	Prone to vandalism	Access to a neighbourhood or special management area such as a park	Minimal

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