October 6, 2014

Comox Valley
REGIONAL DISTRICT

Comox Valley Regional District

TRANSPORTATION ROAD NETWORK PLAN

September 2014

Boulevard
TRANSPORTATION

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Executive Summary

The Transportation Road Network Plan supplements the OCP with strategies and actions to improve transportation infrastructure and enhance travel options for rural residents. Regional land use, environmental, economic development and social objectives are central to the Transportation Road Network Plan. Identified strategies give direction to the Regional District, but also recognize opportunities for partnership with adjacent municipalities, the Ministry of Transportation and Infrastructure (MoTI), BC Transit, and other community partners.

The 2011 Regional Growth Strategy provides a framework and direction for the Transportation Plan, as do supporting documents such as the Sustainability Strategy, Parks and Greenways Strategic Plan, Cycling Plan, and Transit Future Plan. A consultation process was undertaken concurrent with the OCP update from December 2013 to October 2014. Consultations included three phases of public engagement, community surveys, and stakeholder meetings.

Rural transportation strategies are loosely organized into four categories – Modal Integration, Roads and Traffic, Active Transportation, and Public Transit.

Modal Integration

A Hierarchy of Travel Mode Priority is used as the transportation planning framework where provisions for each travel mode are considered in descending order of priority – walking, cycling, transit, commercial vehicles, shared vehicles, single-occupant vehicles.

Service centres will be identified around existing commercial areas and/or community halls that provide a focus for transportation infrastructure and services. Provision of public transit, cycling routes and trails, and park-and-ride facilities will ensure service centres are easily accessed, and are supported by complementary land use and community-oriented services.

Roads + Vehicles

Existing and future traffic volumes do not necessitate new roads or intersection upgrades to accommodate vehicle traffic. Access will be improved by addressing network gaps and challenges, such as the Regent Road bridge (at Oyster River) and secondary access to Macaulay Road through development. Neighbourhood road layout guidelines are presented so that future developments include a connected street network, transit accommodation, and walking and cycling links.

Road safety concerns are addressed by focusing on school areas and vehicle speeds. Safe Routes to Schools processes will be completed for four elementary schools (Huband Park, Miracle Beach, Royston, Arden) to identify solutions. Speed limit reductions will be pursued on priority roads within identified service centres, subject to MoTI approval. Driver behaviour will also be addressed through increased police enforcement, speed reduction driver campaign, and speed reader board installations.

Active Transportation

A long-term active transportation network is identified consisting or existing and future walking, cycling, and horseback riding facilities. The network is comprised of three routes types:

1. Roadside Greenways are within road right-of-ways and are a separated pathway (where wide enough) or widened roadside shoulders. Priority roadside greenways include Catherwood Road/Regent Road, Coleman Road/Left Road, Comox Road, Dove Creek Road/Condensory Road, Headquarters Road, Highway 19a (Merville to Oyster River), Huband Road, Little River Road/Wilkinson Road, Macaulay Road, McLeod Road, Merville Road, and Miracle Beach Road.

2. Bikeways are roads specifically designed to accommodate cyclists with a bike lane, wide shoulder, or shared vehicle lane. Priority bikeways include Coleman Road/Bates Road, Lazo Road, Piercy Road, and Royston Road.

3. Off-Road Greenways are linear parks that feature trails for walking, cycling, and/or horseback riding. Priority off-road greenways include Back Road Trail, Comox Logging Road, E+N Rail Trail, One Spot Trail, Tsolum River crossing, and Wellington Colliery Trail.

Bicycle parking requirements will be included in the Zoning Bylaw to ensure future developments include appropriate bike parking supply. Beach access will be enhanced through trail improvements, new signage, and exploring potential to open and sign eight beach accesses in 2016, consistent with the *Beach Access Management Strategy*.

Public Transit

Directions established in the Transit Future Plan (due late 2014) are supported. Anticipated outcomes include extending evening and weekend service hours, improving integration with the Nanaimo Regional and Campbell River systems, developing park-and-ride facilities at service centres, and exploring para-transit options. These directions were supported by residents in public consultations.

The Regional District will move from a flagging system to formalized bus stops. A capital and maintenance program will be established to fund bus stop installations and the Regional District will consider a development cost charge (DCC) bylaw and external grant opportunities to support the capital program. Bus stops will be located and designed per criteria in the Transportation Road Network Plan.

The Oyster River exchange will be reviewed in cooperation with the Strathcona Regional District and MoTI to improve bus circulation and reduce route travel time.

Options to support transit will be pursued. Ridesharing will be encouraged through online ridematching. Delivery services will be encouraged among local businesses by promoting businesses that offer delivery, encourage others to offer delivery, and facilitate ordering and pick-up through service centres.

1. Overview

Transportation has long been about providing extensive road networks and plentiful parking to accommodate convenient and efficient vehicle travel. Conscious planning has created primarily large-lot residential and agricultural land uses in rural areas, creating a reliance on urban areas for employment, services, and entertainment. Trip distances have become too long for many to walk or bicycle and settlement patterns too dispersed to be effectively served by public transit. This reinforcing approach to transportation and land use has grown in the Comox Valley's rural areas, as it has in many other communities.

Planning for improved rural transportation is about enhancing "mobility" – the ability for rural residents to access employment, shopping, services, and recreation. For many rural residents, mobility still speaks to vehicle travel as a reality of rural living. For others, enhancing mobility means improving alternatives to private vehicles to provide for basic access to day-to-day destinations, particularly those unable to drive because of age, physical, or financial challenges. Investments in walking, cycling, public transit, and shared vehicle options will lead to a more diverse rural population by allowing rural seniors to better access health care, rural youth to access recreation and social activities, and physically challenged rural residents to meet travel demand with greater independence. Support for alternative travel will work towards greenhouse gas emissions reduction targets in the Regional Growth Strategy (RGS) and Official Community Plan (OCP).

The following are objectives for the Transportation Road Network Plan ("Transportation Plan") and are consistent with the transportation objectives in the Rural Comox Valley Official Community Plan ("OCP"):

1. Retain **vehicle mobility** in order to support rural economies and rural lifestyles
2. Increase opportunities for rural residents to **walk**, **bicycle**, and use **public transit** and increase the proportion of trips made by non-vehicle modes
3. Minimize the negative **environmental** impacts of personal transport by reducing **greenhouse gas emissions** and improving **stormwater management**
4. Reinforce OCP **land use** and **housing** objectives by expanding transportation options in rural areas
5. Invest **equitably** in transportation services and infrastructure that is **accessible** to all segments of the population, including youth, seniors, and persons with disabilities
6. Provide for **coordinated** transportation infrastructure and services within the Electoral Areas and between adjacent jurisdictions

The Transportation Plan focuses on Baynes Sound (Area A), Lazo North (Area B), and Puntledge-Black Creek (Area C). Denman and Hornby Islands and the three CVRD municipalities are excluded from the Plan, although consideration is given to infrastructure and services across boundaries.

1.1 Purpose

The Transportation Plan presents strategies and actions for the CVRD, stakeholders, and service providers to improve rural transportation infrastructure and enhance travel options for rural residents. The Plan has three primary objectives, as follows:

1. **Improve Coordination**… Transportation is influenced by the CVRD's own community plans , as well as the planning and on-going services from collaborating agencies such as MoTI and BC Transit. *The Transportation Road Network Plan is a shared transportation planning resource and ensures consistency among existing plans and external agencies*.

2. **Specific to Rural Areas**… Transportation infrastructure and services tend to be focused in urban areas because of higher and more dense populations. *The Transportation Road Network Plan identifies actions to improve transportation infrastructure and options specifically in rural areas, recognizing that transportation needs in rural areas are unique from those in urban areas*.

3. **Support the OCP**… An OCP review was completed in 2014 that created new transportation policies. *The Transportation Road Network Plan provides additional detail and supporting actions/strategies in support of transportation policies in the OCP*.

1.2 Process

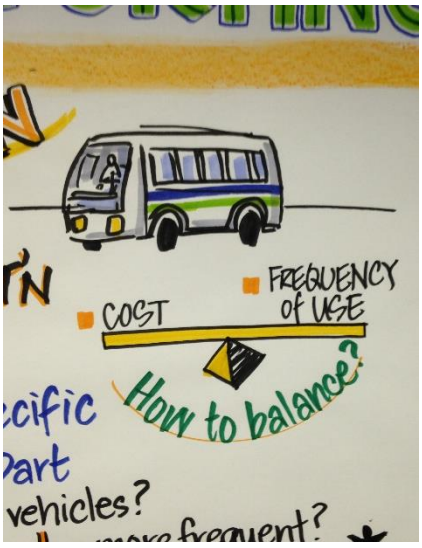
The Transportation Plan was an initiative of the Comox Valley Regional District, with funding and support from the Ministry of Transportation and Infrastructure (MoTI). The document was prepared by Boulevard Transportation (a division of Watt Consulting Group) with assistance from Island Planning Services, the consultant responsible for the Official Community Plan review.

The Transportation Plan was developed as part of the larger OCP update process carried out between December 2013 and October 2014. Three phases of public engagement were hosted in January, March, and July, and stakeholder groups were consulted throughout the process relative to their specific areas of interest. Meetings were held specifically to discuss transportation issues with MoTI, BC Transit, and representatives of local cycling groups. Discussions of transportation issues were also raised at broader OCP meetings with local area seniors, and youth representatives.

Additional information on the OCP update and Transportation Plan process is provided in the OCP.

Community members at a meeting to discuss issues specific to Union Bay, held in January 2014 at the CVRD office.

A "world café" style event was hosted with focused discussions in four topic areas – Housing, Economic Development, Environment/Sustainability and Transportation. The session was held in March 2014 at the Oyster River Fire Hall.



A graphic recorder was involved in Phase 1 consultation events to create a graphic record of the process. Results are shown above.

2. Background

The jurisdictional framework, existing community plans, and travel behaviour characteristics form the background understanding for the Transportation Plan. The following is a summary of pertinent information.

2.1 Jurisdiction

2.1.1 Comox Valley Regional District (CVRD)

The Comox Valley Regional District (CVRD) is a federation of the three municipalities of the City of Courtenay, Town of Comox, and the Village of Cumberland, and includes three electoral areas of Area A, B and C. Hornby and Denman Islands are also participating jurisdictions within the CVRD, but were not considered in this Plan because their land use and transportation planning functions are served by the Islands Trust.

The CVRD is responsible for a number of regional services including public transit, parks and greenways in rural areas and the Regional Growth strategy. The CVRD also plays a coordination and advocacy role on behalf of the region when dealing with senior levels of government.

2.1.2 Municipalities

The three incorporated municipalities – City of Courtenay, Town of Comox, Village of Cumberland - have jurisdiction over roadways within municipal boundaries.

2.1.3 Ministry of Transportation + Infrastructure (MoTI)

The Ministry of Transportation and Infrastructure (MoTI) has jurisdiction for those roads in the unincorporated areas of the CVRD (outside Courtenay, Comox, Cumberland) and is responsible for planning, design and maintenance of all public roads. In addition, the Provincial Approving Officer (PAO) within MoTI is responsible for approving subdivisions, in compliance with Provincial Acts, CVRD bylaws, and the best interests of the public.

2.1.4 BC Transit

BC Transit provides planning and information for public transit in the Comox Valley Regional District. Participating jurisdictions include the City of Courtenay, Town of Comox, Village of Cumberland, Baynes Sound-Hornby Island and Denman Island. Decisions about fares, routes and service levels are made by the Regional District, with input from member municipalities (Courtenay, Comox, Cumberland) and BC Transit via a Transit Management Advisory Committee. System funding is cost shared between BC Transit and the CVRD, including member municipalities and Electoral Areas. The system is operated under a competitive contract that is currently held by a private operator – Watson + Ash Transportation.

2.2 Existing Plans

2.2.1 Comox Valley Regional Growth Strategy, 2011

The Regional Growth Strategy (RGS) was approved in March, 2011. All four Comox Valley local governments entered into a memorandum of understanding (MOU) in July 2008, which provided interim management of planning and development initiatives until the RGS was adopted.

The RGS identifies walking/cycling and public transit mode split targets. See *Table 1*. While intended for the entire Comox Valley, targets indicate a desire to increase walking, cycling, and public transit trips.

Table 1. Regional Growth Strategy Mode Split Targets for the Comox Valley

	Baseline (2006)	Short-term (2015)	Medium-term (2020)	Long-term (2030)
Walking / Cycling	9%	10%	11%	20%
Public Transit	1%	1.5%	2%	2.5%

The Regional Growth Strategy is available online at - www.comoxvalleyrd.ca/EN/main/community/regional-strategies/regional-growth-strategy.html

2.2.2 Comox Valley Sustainability Strategy, 2010

The Comox Valley Sustainability Strategy (CVSS) creates new knowledge and leading approaches to sustainability for communities in the Comox Valley. The CVSS guides the policies and plans of regional and local governments, and also recommends specific actions to be undertaken by a variety of partners, including community organizations. The CVSS is the result of collaboration between four local governments, community member input, and review by the public and government agencies.

The Sustainability Strategy is available online at – www.comoxvalleyrd.ca/EN/main/community/regional-strategies/sustainability-strategy.html

2.2.3 Rural Comox Valley Parks + Greenways Strategic Plan, 2011

The Rural Comox Valley Parks and Greenways Strategic Plan, 2011-2030 seeks to expand parks and greenways in rural Comox Valley. Specific objectives include creating a hierarchy of trails, providing greenways that reduce the need to drive, and continuous hiking, biking and horseback trails connecting community centres and green spaces. The plan includes strategies for land acquisition and park dedication, acquisition priorities, funding mechanisms and partnerships, and implementation strategy.

The Parks and Greenways Strategic Plan is available online at - www.comoxvalleyrd.ca/EN/main/community/parks-trails/comox-valley-parks.html

2.2.4 Comox Valley Cycling Plan, 2007

The Comox Valley Cycling Plan was an initiative of the Comox Valley local governments and MoTI, and identifies existing and desired bike routes and includes a strategy to coordinate, prioritize and develop cycling routes between the three municipal governments and the Regional District. Attention is given to consistent design criteria and consistency with MoTI cycling policies.

The Comox Valley Cycling Plan is available online at - www.comoxvalleyrd.ca/assets/Community/Documents/CV_Cycling_Plan_Dec2007.pdf

2.2.5 Comox Valley Transit Future Plan, 2014

At the time the Transportation Road Network Plan was developed, the CVRD and BC Transit were developing the Comox Valley Transit Future Plan (TFP) to provide a long-term vision for transit investment and support and align transit and land use planning. The TFP will prioritize future investments in service and infrastructure by identifying key transit corridors and local transit networks, and a level of certainty about future transit service to guide transit-supportive land use planning.

The Transit Future Plan is available online at - www.bctransit.com/transitfuture

2.3 Travel Characteristics

2.3.1 Mode Split

Travel mode split refers to the proportion of trips made by each travel mode, typically considering single-occupant vehicles, multi-occupant vehicles, transit, bicycle, walking, and other modes (presumably taxis, wheelchairs, skateboards, etc).

Travel mode split for trips to work is the measure used to track mode split and is based on the 2011 National Household Survey (NHS). In total, 8% of trips among rural residents are by walking (3.1%), cycling (3.4%), and public transit (1.6%), while approximately 87% of trips are made by vehicle (either driver or passenger). See *Figure 1*. Walking mode share among rural residents is nearly half the mode share for all Comox Valley residents. Vehicle (as a driver) mode share is 2.3% higher among rural residents as compared to all Comox Valley residents. Otherwise, mode split among rural residents is relatively consistent with all Comox Valley residents. See *Table 2*.

Figure 1. Mode Split for Trips to Work, 2011

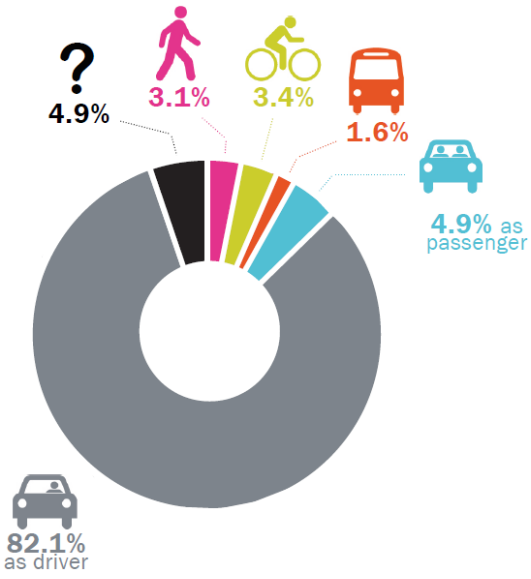


Table 2. Mode Split for Trips to Work, 2011[1]

	Comox Valley, all	Comox Valley, rural areas only	CVRD, Area A	CVRD, Area B	CVRD, Area C
Vehicle, as a driver	79.8%	82.1%	82.9%	81.8%	81.9%
Vehicle, as a passenger	5.7%	4.9%	2.6%	6.0%	5.6%
Public transit	1.8%	1.6%	1.1%	2.4%	1.3%
Walk	5.7%	3.1%	3.0%	3.7%	2.7%
Bicycle	3.4%	3.4%	3.5%	2.7%	3.9%
Other	3.6%	4.9%	6.9%	3.4%	4.6%

[1] Statistics Canada, 2011 National Household Survey

Mode split among CVRD rural residents was compared for the period 1996 to 2011 (15 years). See *Table 3*. Vehicle (as a driver) mode share increased by 3% from 1996 to 2011. Walking mode share decreased from 4.9% in 1996 to 3.1% in 2011, bicycle mode share increased from 2.4% to 3.4% during the same period, and transit mode share remained stable.

Table 3. Mode Split for Trips to Work, 1996-2011[2]

	1996	2001	2006	2011
Vehicle, as a driver	79.1%	83.1%	80%	82.1%
Vehicle, as a passenger	7.8%	5.6%	6.9%	4.9%
Public Transit	1.4%	0.3%	1.3%	1.6%
Walk	4.9%	5.2%	7.4%	3.1%
Bicycle	2.4%	n/a		3.4%
Other	4.4%	5.8%	4.4%	4.9%

Mode split among CVRD rural residents was considered relative to the mode split for rural residents in other regional districts – Cowichan Valley, Nanaimo, Sunshine Cost, South Okanagan-Similkameen, and North Okanagan. See *Table 4*. Results suggest that CVRD's cycling mode share is nearly double the cycling mode share in other areas and vehicle (as a driver) mode share is relatively low. Both walking and vehicle (as a passenger) mode shares are low. The proportion of trips assigned to "other" is higher in CVRD than in other regional districts.

Table 4. Mode Split for Trips to Work in Peer Communities, 2011[3]

	Comox Valley, rural areas only	Cowichan Valley	Nanaimo Region	Sunshine Coast	South Okanagan - Similkameen	North Okanagan
Vehicle, as a driver	82.1%	84.5%	83.2%	77.6%	83.7%	87.0%
Vehicle, as a passenger	4.9%	6.2%	5.1%	5.3%	6.0%	4.1%
Public Transit	1.6%	1.9%	1.8%	5.7%	0.4%	1.4%
Walk	3.1%	4.4%	5.1%	7.2%	5.4%	3.7%
Bicycle	3.4%	1.3%	1.9%	1.4%	1.9%	0.8%
Other	4.9%	1.7%	2.9%	2.8%	2.6%	3.0%

[2] Derived from Statistics Canada, 1996, 2001, 2006 Canadian Census and 2011 National Household Survey
[3] Statistics Canada, 2011 National Household Survey

2.3.2 Commute Duration

Commute duration refers to the length of time of the average trip to work and is based on the 2011 NHS. See *Table 5*. Average commute duration for rural residents is 24.5 minutes, and is highest in Electoral Area C (31 minutes) and lowest in Electoral Area A (15 minutes).

Table 5. Average Commute Duration, 2011[4]

	Avg. Commute Duration
Comox Valley, all	15.2 min
Comox Valley, rural areas only	24.5 min
CVRD, Area A	15.3 min
CVRD, Area B	24.7 min
CVRD, Area C	31.1 min

2.3.3 Travel Distance

Travel distance and drive time were estimated for the two OCP Settlement Nodes (Saratoga Beach, Union Bay) and popular trip destinations in the Comox Valley. See *Table 6*. Of note, Saratoga Beach is at the north end of Electoral Area C and is more than a 20-minute drive to Courtenay, Comox, or other destinations. Union Bay is at the north end of Electoral Area A and is an approximately 13 minute drive to downtown Courtenay. Drive time between Saratoga Beach and Union Bay is approximately 37 minutes.

Table 6. Approximate Travel Distance/Drive Time between Comox Valley Destinations

	Saratoga Beach	Downtown Courtenay	College, Aquatic Centre	Downtown Comox	Cumberland	Union Bay
Saratoga Beach		26 km 24 min	25 km 23 min	31 km 30 min	37 km 29 min	40 km 37 min
Downtown Courtenay	26 km 24 min		4 km 6 min	5 km 7 min	10 km 10 min	14 km 13 min
Courtenay North Island College, Aquatic Centre	25 km 23 min	4 km 6 min		6 km 10 min	14 km 16 min	19 km 19 min
Downtown Comox	31 km 30 min	5 km 7 min	6 km 10 min		15 km 18 min	20 km 21 min
Cumberland	37 km 29 min	10 km 10 min	14 km 16 min	15 km 18 min		16 km 16 min
Union Bay	40 km 37 min	14 km 13 min	19 km 19 min	20 km 21 min	16 km 16 min	

[4] Statistics Canada, 2011 National Household Survey

3. Modal Integration

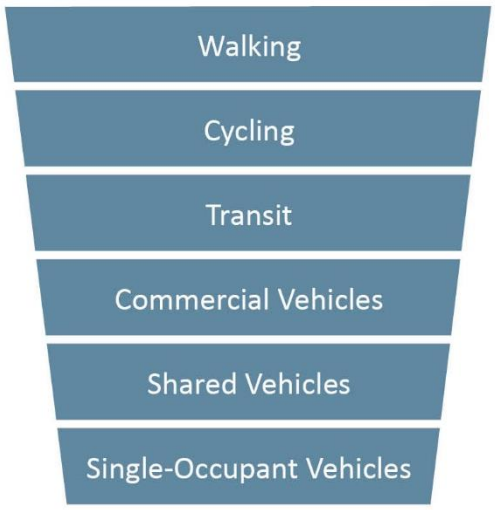
Improved modal integration presents a significant opportunity to enhance travel options for rural residents and address objectives to encourage alternative modes, reduce environmental impacts, and improve coordination. The Regional District will facilitate integration by managing travel demand to make better use of under-utilized infrastructure and services, setting clear travel mode priorities, and better linking transportation and land use.

3.1 Modal Priority

Establishing modal priorities is about recognizing the current state of each travel mode and weighing needs against regional objectives. Walking, cycling, and transit require investment to bring service levels consistent with vehicle provisions and to realize modal shift targets set by the Regional District.

The Hierarchy of Travel Mode Priority will be used as the transportation planning framework where provisions for each travel mode are considered in descending order of priority – walking, cycling, transit, commercial vehicles, shared vehicles, single-occupant vehicles. See *Figure 2*. This does not dictate that facilities are provided for each mode, but rather that consideration is given in the planning/design process and provided where appropriate.

Figure 2. Hierarchy of Travel Mode Priority



The Hierarchy of Travel Mode Priority should be used by the CVRD to help prioritize planning and design decisions, and to assess private land development applications. Service providers, such as MoTI and BC Transit, are encouraged to reference the Hierarchy as a reflection of Comox Valley rural resident values and consider modal priority in infrastructure and service planning.

3.2 Service Centres

A significant challenge with rural transportation is the low density, dispersed nature of rural settlement patterns and the high associated costs. Rather than providing transit directly to rural homes, the service centre concept focuses transit service to the service centres and strengthens the options for rural residents to access the service centre by walking, cycling, carpooling, or driving. Service centres are locations where rural transportation is concentrated around existing community facilities and/or commercial land use.

Service Centre Locations

1. Oyster River
2. Miracle Beach
3. Black Creek
4. Merville
5. Mt Washington
6. Royston
7. Union Bay
8. Fanny Bay

Service Centre Ingredients

Service centres include the following transportation elements:

1. **Public Transit** – Transit service connecting to major regional destinations (ie. Courtenay, Comox) and higher-order urban transit routes. Service centres will receive highest service frequency.
2. **Bus Stop** – Bus stops with direct access to nearby walking, cycling, and parking facilities, and passenger amenities such as seating, shelter and lighting.
3. **Road Access** – Direct vehicle and buss access, preferably at or near major intersections.
4. **Vehicle Parking** – Signed parking facilities that allow rural residents to park-and-ride transit and carpool. Passenger drop-off ("kiss-and-ride") areas will be identified.
5. **Bike Parking** – Bike parking that is secure, weather protected and located nearby the bus stop.
6. **Walking / Cycling Routes** – Walking and cycling routes leading from residential areas to service centres. Walking facilities are prioritized within walking distance of service centres (800m) and cycling routes prioritized within reasonable cycling distance (5km).
7. **Carshare / Electric Vehicles** – Carshare vehicles, electric vehicles and electric bicycle plug-in stations are located at service centres if/when they are offered in rural Comox Valley.
8. **Shuttles** – Shuttle services may connect rural residents to service centres, operated through community halls, seniors facilities, or publicly.
9. **Lighting / Security** – Adequate lighting is provided to create a safe, comfortable environment outside daylight hours (particularly in winter).

Complementary land use and community-oriented services will be focused on service centres that are easily accessed by rural residents. Services may include social events, recreation, basic medical treatments, and shopping.

4. Roads

Roads in the rural Comox Valley generally provide for efficient and safe vehicle travel. Existing roads provide little accommodation for non-vehicular modes as a result of conventional road design standards that have been applied in the past. This is consistent with conditions in many other, similar rural communities. Community consultations through the OCP update revealed concern for road safety and vehicle speeds in certain locations, as well as a lack of secondary access in case of emergency in some locations. Rural residents noted that pedestrian and cyclist accommodation are limited on rural roads and where shoulders are provided, they are too narrow to safely and comfortably walk or bicycle.

All road right-of-ways in the Electoral Areas are under MoTI jurisdiction. Successfully altering existing roads and pursuing non-traditional design to include items like bus stops, pedestrian facilities, and lower speed limits will require consultation and approval from MoTI.

4.1 Road Network

The Long-Term Road Network describes the road classification hierarchy and new road connections envisioned in future. See *Map 1*.

4.1.1 Roadway Cross Sections

The road network is comprised of Arterial, Collector, and Local Roads. See *Table 7*. Each road classification serves a unique purpose and is designed to an appropriate speed and to accommodate appropriate traffic volumes. Generally, arterial roads provide for through traffic movement, local roads provide access to adjacent properties, and collector roads connect the two.

Rural road standards are provided in the MoTI's BC Supplement to the Transportation Association of Canada Manual, which includes information on pavement width, shoulder width, slopes, and utility poles. These standards form the criteria used by MoTI for all roads and the Transportation Road Network Plan provides further design criteria specific to the Comox Valley.

Table 7. Roadway Cross Section Requirements[5]

	Local	Collector	Arterial		
Daily Volume	n/a	< 450 vph	< 200 vph	≤ 450 vph	> 450 vph
Design Speed	50-80km/h	50-80km/h	70-90km/h	70-90km/h	80-100km/h
Lane Width	3.6m	3.6m	3.6m	3.6m	3.6m
Total Vehicle Width	7.2m	7.2m	7.2m	7.2m	7.2m
Paved Shoulder	1.0m / side	1.5m* / side	1.5m / side	2.0m / side	2.5m / side
Gravel Shoulder	0.5m / side	0.5m / side	0.5m / side	0.5m / side	0.5m / side

*Minimum 1.5m for shoulder bicycle way. Increase width to 2.0m when speeds 70km/h or greater and SADT greater than 5,000 vpd. Further increase to 2.5m for 80km/h and SADT greater than 10,000.

[5] BC Supplement to TAC Geometric Design Guide 2007 Editions, BC Ministry of Transportation, Chapter 400, Table 430.A and 430.B & Figures 440.A and 440.B. Available online: www.th.gov.bc.ca/publications/eng_publications/geomet/TAC/TAC_2007_Supplement/2007BC_Supplement_to_TAC_Rev1.pdf

4.1.2 Traffic Volumes

Traffic volume data was collected from the BC MoTI traffic data website. See *Table 8*. While not a comprehensive inventory of traffic volumes, these locations give a good indication of traffic volumes on key roads. Volumes are considered appropriate for Collector and Arterial road classifications and no road upgrades are deemed necessary to accommodate vehicle traffic.

Table 8. Daily Traffic Volumes on Key Roads[6]

Location	AADT (vpd)
Highway 19a, 4km north of Oyster River Bridge	6,945 (2012)
Highway 19a, 700m south of Merville Rd	8,195 (2012)
Anderton Road, 200m south of Ryan Rd	5,295 (2005)
Comox Road, 1km south of Hwy 19a	15,792 (2005)
Comox Valley Parkway, 300m east of Comox Logging Rd	8,128 (2012)
Highway 19a, 800m north of Royston Rd	7,730 (2012)

AADT = annual average daily traffic

Future development in the Comox Valley will be contained primarily in the Core Settlement Areas with little growth in the rural areas. As such, traffic volumes are not expected to increase significantly on rural roads and no new road building or intersection improvements are anticipated to accommodate future traffic volumes.

However, large-scale development proposals will require a traffic impact assessment and road and/or intersection improvements may be required to accommodate additional traffic generated by the site. Developers should also be responsible for pedestrian, bicycle, and transit improvements, as needed.

4.1.3 Future Road Connections

Generally, the road network meets vehicle travel demand for rural residents with sufficient road connections and minimal traffic congestion. Only a small number of new road network connections are considered to improve access, as follows.

North Courtenay Connector

A feasibility study is being conducted by MoTI to review options to upgrade the North Courtenay Connector route between north Courtenay and the Inland Island Highway. MoTI is currently considering a number of options and routes that pass through Electoral Area C.

[6] MoTI, Traffic Data Program, available at https://pub-apps.th.gov.bc.ca/tsg

Oyster River Bridge (Regent Road)

The Regent Road bridge over Oyster River provides a link between Saratoga Beach and the Oyster River commercial area north of Oyster River. The bridge provides one-directional vehicle travel and lacks dedicated walking or cycling facilities. Additionally, the bridge load limit precludes buses, resulting in the no.12 transit route taking a more circuitous routing and increasing trip time (see *Section 6.2.2*).

The Regent Road bridge should be upgraded or replaced to accommodate two-way vehicle traffic, increase load limit to permit buses, and include a dedicated multi-use facility to accommodate walking and cycling.

Secondary Accesses

The community consultations revealed issues where road access is limited to one road in/out and residents have been unable to access their homes when the road is blocked. This issue was experienced in 2012 when Macaulay Road was blocked for three days. A protocol has since been established to provide for access through private properties in case of another blockage on Macaulay Road.

The Regional District's preferred approach to address secondary access issues is twofold. First, all future multi-lot residential and commercial development will be required to provide at least two road accesses as part of the site design and road layout criteria. See *Section 4.2*. Secondly, in partnership with MoTI, efforts will be made to create a second access in areas such as Macaulay Road where only a single access currently exists in conjunction with new development.

4.1.4 Roadside Greenways

A network of greenway routes are recommended to improve facilities for pedestrians, cyclists, and other non-motorized users along arterial and collector roads. Recommended routes focus on connecting rural residents to service centres and urban areas, and are generally consistent with the Cycling Plan and Parks and Greenways Strategic Plan. Each roadside greenway route should be designed in consideration of the cross section options presented on the following page.

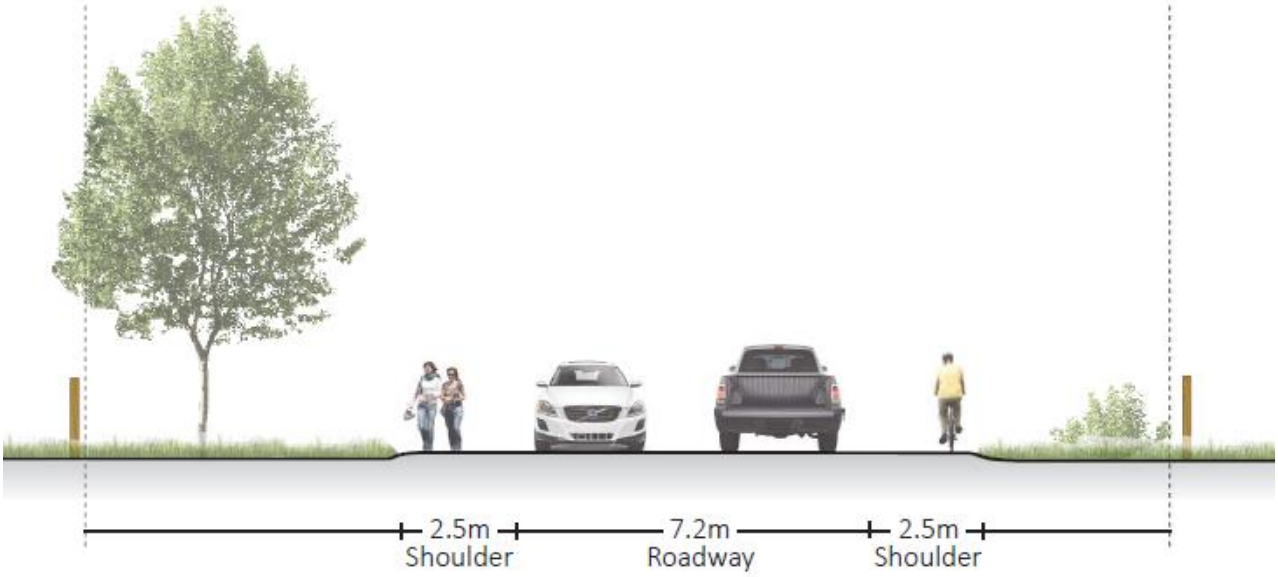
Roadside greenways are described further in *Long-Term Active Transportation Network, Section 5.1* including priority improvements and design standards.

Roadside Greenway Option 1

Separated Pathway

Roadside Greenway Option 2

Wide Shoulder



4.2 Street Layout

The street network is one of the major elements that define a neighbourhood. Conventional rural residential street networks are typified by rural residences located along major rural roads or on one-road-in, one-road-out routes that share duties as both a residential road and regional travel route. The CVRD will encourage future rural residential neighbourhoods with connected street networks that minimize travel distances, provide a choice of routes, maximize access to facilities and services, help spread traffic congestion, and aid motorist orientation.

The Regional District and MoTI should ensure that street layout in any future development is consistent with the guidelines in *Section 4.2.1*.

4.2.1 Neighbourhood Street Network Guidelines

The following are guidelines for successful neighbourhood street network design to be considered in all future development in rural areas.

1. Provide **multiple connection** between major roadways and residential neighbourhoods to increase route options, better distribute vehicle traffic, and permit emergency access
2. **Connect new streets** with the existing street system in adjacent areas to provide continuity between neighbourhoods and reduce reliance on highways and major roadways
3. **Avoid cul-de-sacs** wherever possible and, when use22d, a walkway/trail should be located at the terminating end, length should be limited to no more than 500m, and should provide access to no more than ten homes
4. Facilitate **walking and cycling** by providing additional walkways, trails, and cycling routes to reduce travel distance and provide direct connections to service centres and other key destinations
5. Accommodate **public transit** vehicles (existing and future) by providing continuous routing, avoiding circuitous roads and dead-ends, and potential for bus pull-outs (see *Section 6.2.1*)
6. Respond to existing **natural features** such as steep topography, wetlands and forested areas
7. Construct **smooth road surfaces** on priority cycling routes for comfortable cycling and consider opportunities to use **permeable surfaces** that reduce stormwater run-off

4.3 Road Safety

A series of potential road safety issues were identified through public consultations, including school zone safety, vehicles speeding, and locations with collision potential. For all locations where road safety is identified as a potential issue a road safety audit / safety study should be undertaken to confirm the nature of the issue(s). Data should be collected to determine traffic volumes, speeds, road geometrics, and collision history (including type and number). Once the type of issue(s) has been confirmed, mitigation options can be identified to target the issue(s). Since road safety issues can involve a number of factors and can vary from site to site, identification of improvements shouldn't be generalized.

The Regional District will take three steps to address road safety concerns, as follows.

1. Focus on areas surrounding schools by supporting "safe routes to schools" projects through the School District and parent associations, using the Huband Park Elementary as an example. More information in *Section 5.5.1*.

2. Address vehicle speeds by pursuing speed limit reductions where appropriate and undertake driver behaviour approaches to encourage safe and appropriate vehicle speeds. Speed limits are discussed further in *Section 4.4.1* and driver behaviour in *Section 4.4.2*.

3. Work with ICBC to determine high collision locations and undertake road safety audits of problem locations to confirm type of issue(s) and contributing factors, and to identify appropriate counter-measures to improve safety.

4.4 Vehicle Speeds

Community consultations revealed a strong desire to address vehicular speeds in rural areas to encourage safe driving and increase safety and comfort for non-motorized road users. Residents indicated a number of locations where vehicle speeding is an issue[7]. Two opportunities are presented to address vehicle speeds – lower speed limits and change driver behaviour.

4.4.1 Speed Limits

The Motor Vehicle Act states that unless otherwise posted, the basic speed limit for all roads is 80 km/h in non-municipal areas. If speed limits other than basic speeds are required, MoTI is responsible for setting or adjusting speed limits following guidance from the Transportation Association of Canada[8].

The Regional District will work with MoTI to reduce speed limits on priority roads in Service Centres – Oyster River, Miracle Beach, Black Creek, Merville, Mt Washington, Royston, Union Bay, Fanny Bay.

[7] Vehicle speed data may be collected to confirm locations of vehicle speeding identified by residents

[8] Suitable speed limits are determined using the Technical Circular T-10/00 and the Transportation Association of Canada (TAC) manual *Canadian Guidelines for Establishing Posted Speed Limits*

4.4.2 Driver Behaviour

Speed limits are only effective if they are adhered to. Recognizing rural residents concern for high vehicle speeds, the Regional District will pursue opportunities to alter driver behaviour to encourage safe driving and appropriate speed for the surrounding context, as follows:

1. Work with the RCMP to increase speed enforcement. Both increased enforcement and the presence of police officers will work to reduce speeds.

2. Obtain a "speed reader board" and install it in locations with a high incidence of speeding, work zones, entrances to communities and school zones. A single reader may be purchased and moved between different locations. The speed limit should be posted close to the speed reader board. The ministry can monitor the impact of speed reader boards on drivers by using boards that store data, so average speeds can be tracked over time. Over 70% of drivers travelling 10km/h over the speed limit slow down when they see a speed reader board.

3. Undertake speed reduction driver education campaign to encourage compliant driving speed through a series of public service announcements and/or roadside signage. The campaign can be posted within the community and given to local media. Example campaigns include High Risk Driver Behaviour campaign, Cone Zone campaign, and Safe Driving campaign. These campaigns are typically implemented by ICBC and RCMP collaboratively.

4. Use community groups to undertake Speed Watch programs (ICBC and RCMP partnership program). Speed Watch is an educational program aimed at reducing incidents of speeding. The program not only provides awareness to drivers who are speeding, but it also provides valuable data to the RCMP and ICBC on areas where speeding is a significant problem. Speed Watch checks are operated by dedicated volunteers who have been trained by police as qualified operators. Using portable radar equipment and an electronic digital board, volunteers monitor speeds in school and playground zones, high crash zones, and neighbourhood streets. Volunteers record the speed of vehicles and forward these reports to police and ICBC. Areas with high incidents of speeding will be considered for future RCMP enforcement.

Example of a speed reader board installed in a school zone

5. Active Transportation

Active transportation refers to all human-powered forms of transportation, in particular walking and cycling, but also mobility aids such as wheelchairs, winter activities (i.e. skiing), and options to combine active travel with public transit. Walking and cycling specifically, but also other modes, are flexible travel modes suitable for short and medium length trips that benefit individuals and the broader community by facilitating healthy lifestyles, increased recreation/tourism, and reduced environmental impacts.

Encouraging walking and cycling requires facilities that provide for a convenient, safe, and comfortable experience. Rural areas are challenged by longer trip distances and broader areas with increased costs to provide appropriate infrastructure. Off-road facilities are desirable, but are costly and require available right-of-ways or rely on opportunities through subdivision or rezoning. Roadside facilities often provide for more direct routes, but road right-of-ways are under MoTI jurisdiction and they typically do not provide specific walking or cycling accommodations on roads in rural areas. Developing a basic pedestrian network will become increasingly important as the population ages and an increasing number of rural seniors cannot or choose not to operate a vehicle.

The CVRD wishes to encourage rural residents to walk and bicycle by developing walking and cycling routes that are safe, convenient, and comfortable. Consideration is also given to connecting pedestrians and cyclists to public transit and park-and-ride facilities to facilitate multi-modal trips for longer distance travel. Investments in walking and cycling facilities support environmental, health, economic, and tourism objectives, while furthering basic transportation options for rural residents. OCP policies and supporting actions are developed in consideration of other community plans that outline actions to facilitate walking and cycling, including the Rural Comox Valley Parks and Greenway Strategic Plan, Comox Valley Cycling Plan, and transportation-related objectives in the Regional Growth Strategy and Comox Valley Sustainability Strategy.

5.1 Active Transportation Network

The Long-Term Active Transportation Network identifies greenways and bikeways, both existing and future. See *Map 2*. The network reflects the Parks and Greenways Strategic Plan and Cycling Plan, as well as discussion with residents and stakeholder groups through the OCP update process. The network includes three route types[9] – Roadside Greenways, Bikeways, Off-Road Greenways. See *Table 9*.

Table 9. Active Transportation Route Types

	Description	Alternate Terminology
Roadside Greenway	Multi-use routes contained within a maintained road right-of-way either with a separated pathway or widened road shoulders	Commuter Route, Roadside Trail, Pedestrian/Bicycle Route, Multi-Use Trail
Bikeway	Maintained roads designed to accommodate cyclists, which may include a bike lane, shared lane, shoulder and/or bike signs	Bicycle Route, Bicycle Greenway, Shoulder Bikeway
Off-Road Greenway	Linear parks that are not within a maintained road right-of-way that feature trails for walking, cycling, and/or horseback riding	Regional Trail, Walking Trail, Wilderness Trail, Linear Park, Multi-Use Trail

[9] Route types are based on the Cycling Plan (Section 2.5, p5) and Parks + Greenways Strategic Plan (Section 4, p15).

5.2 Network Improvements

Priority Roadside Greenway, Bikeway, and Off-Road Greenway improvements are identified in the following sections. Routes have been selected that best meet the following priority criteria:

- Connect rural residents to service centres or urban areas
- Address existing problem locations
- Provide direct routing rather than recreational opportunity
- May realistically be constructed in future

Priority improvements reflect resident and stakeholder feedback, as well as the recommendations of the Cycling Plan and Parks and Greenways Strategic Plan. Other routes in the Long-Term Active Transportation Network (or Cycling Plan or Parks and Greenways Strategic Plan) are of a lesser priority at this time, but should be pursued incrementally as opportunities arise (ie. development, infrastructure projects, etc).

5.2.1 Roadside Greenway Improvements

Roadside greenway improvements have been identified consistent with key corridors from the Cycling Plan and Parks and Greenways Strategic Plan. See *Table 10*.

Table 10. Priority Roadside Greenway Routes

Route	Length	Description
Cameron Rd / Baden Rd	0.9km	Develop greenway on Cameron Rd and Baden Rd to connect Royston Cumberland Railway Trail with Royston Rd
Coleman Rd / Left Rd	3.7km	Develop greenway on Coleman Rd and Left Rd between Highway 19a and Eagles Dr (waterfront)
Comox Rd	3.6km	Develop greenway on Comox Rd between 17th St bridge (Courtenay) and Town of Comox boundary
Dove Creek Rd / Condensory Rd	10.3km	Develop greenway on Dove Creek Rd / Condensory Rd between Inland Island Hwy and Courtenay boundary; may be coordinated with One Spot Trail development
Headquarters Rd	9.2km	Develop greenway on Headquarters Rd between Courtenay boundary and Merville Rd - provides connection to Vanier Secondary and urban areas
Highway 19a (Merville-Oyster River)	13.1km	Develop greenway on Highway 19a between Coleman Rd (Merville) and Oyster River bridge, improve roadside conditions and/or consider roadside trail
Huband Rd	1.8km	Develop greenway on Huband Rd between Highway 19a and Mitchell Rd
Little River Rd / Wilkinson Rd	3.5km	Develop greenway on Little River Rd and Wilkinson Rd between Ellenor Rd (Little River ferry) and East Ryan Rd (Comox boundary)
Macaulay Rd	9.8km	Develop greenway on Macaulay Rd between Highway 19a and Macaulay Heights Park; potential to expand to include Doyle Rd (additional 2.5-km)
McLeod Rd	1.9km	Develop greenway on McLeod Rd between Highway 19a and top of McLeod Rd hill, and continuing west as future development occurs
Merville Rd / Headquarters Rd	4.0km	Develop greenway on Merville Rd and Headquarters Rd between Highway 19a and Fitzgerald Rd - provides connection to Merville service centre
Miracle Beach Dr	2.2km	Develop greenway on Miracle Beach Dr between Highway 19a and Clarkson Ave
Oakes Rd / Catherwood Rd / Regent Rd	2.1km	Develop greenway on Oakes Rd, Catherwood Rd and Regent Rd between Tammy Rd and Oyster River bridge (Regent Rd)

5.2.2 Bikeway Improvements

Bikeway improvements are identified consistent with key corridors from the Cycling Plan. See *Table 11*. Many of the Roadside greenway routes could be developed as bikeways if they are not developed as roadside greenways.

Table 11. Priority Bikeway Improvements

Location	Length	Description
Coleman Rd / Bates Rd / Waveland Rd	6.8km	Install cycling facilities on Coleman Rd and Bates Rd; tie-in with existing shoulder facility on Waveland Rd and future Coleman Rd greenway
Lazo Road	4.5km	Install cycling facilities on Lazo Rd between Kye Bay Rd and Torrence Rd
Piercy Road	4.2km	Install cycling facilities on Piercy Rd between Inland Island Hwy and Headquarters Rd at Vanier Secondary; may be pursued as part of the North Courtenay Connector being studied by MoTI
Royston Road	4.4km	Install cycling facilities on Royston Rd between Highway 19a and Cumberland boundary

5.2.3 Off-Road Greenway Improvements

Off-road greenway improvements are identified based on the Parks and Greenways Strategic Plan "active" priorities (ie. highest priority) and "reserve" priority (ie. secondary priority). See *Table 12*. Identified priority greenways inform the trail/ greenway improvements for the Transportation Road Network Plan.

Table 12. Priority Off-Road Greenway Improvements

Location	Description
Back Road Trail	Greenway connection between Comox Rd and Back Rd
Comox Logging Road	Work with City of Courteany to improve link between Lake Trail Rd and Cumberland Rd
E+N Rail Trail	Long-term development of greenway/trail along the E+N railway corridor from Deep Bay to Courtenay
One Spot Trail - North	Extend existing One Spot Trail from Tsolum Spirit Park to Macaulay Heights Park to the Oyster River with connection to Bear Creek at Macaulay Rd
One Spot Trail - South	Extend existing One Spot Trail from Todd Rd to Puntledge River at Anderton Ave bridge (City of Courtenay boundary)
Tsolum River Crossing	Connection across the Tsolum River from end of Todd Rd to Tsolum Spirit Park
Wellington Colliery Trail	Greenway connection to Village of Cumberland trail system

5.3 Network Design Standards

A summary of key active transportation facility design criteria is provided below. All future routes should be designed in accordance with the TAC *Manual for Uniform Traffic Control Devices* (MUTCD), *Bikeway Traffic Control Guidelines for Canada*, and consistent with the *Comox Valley Cycling Plan*.

5.3.1 Roadside Greenway

Two roadside greenway standards are recommended that meet basic MoTI road design criteria, but with enhanced accommodation for pedestrians, cycling, and other non-motorized users. Design criteria for each are summarized in *Table 13* and illustrated on *Page 14*.

Separated Pathway (option 1)

The separated pathway option provides a 2.5m or 3.0m trail on one side of the road, with separation from the roadway. Right-of-way widths of 25m are generally required to accommodate the separated pathway and agricultural buffer; however, if the road is significantly offset in a 20m right-of-way, a separated pathway may be possible. This option is the preferred roadside greenway option because of the greater level of separation and improved non-vehicular experience, but is more costly. Varied surface treatments may be used, depending on context, adjacent land use, and intended user groups.

Where the separated pathway should be used:

- 25.0m right-of-way (or wider) or narrower if road surface is off-set to one side
- Limited development on one or both sides of the road
- High traffic volumes and/or high vehicle speeds on adjacent road

Wide Shoulder (option 2)

The wide shoulder option provides 1.5 to 2.5m shoulders to better accommodate roadside walking, cycling, and horseback riding. Paved shoulder widths should not exceed 2.5m as wider pavement width may encourage on-street parking or vehicle use of the shoulder. The separated pathway option is preferred, but the wide shoulder option may be used where separated pathways are cost prohibitive or where insufficient right-of-way width exists. Situations where the wide shoulder should be used include:

- Less than 25.0m right-of-way
- Even distribution of development on both sides of the road
- Low traffic volumes and low vehicle speeds on adjacent road

Table 13. Recommended Roadside Greenway Standards

	Option 1. **Separated Pathway**	Option 2. **Wide Shoulders**
Right-of-Way	25m	20m / 25m
Lane Width	3.6m x 2 lanes = 7.2m	3.6m x 2 lanes = 7.2m
Paved Shoulder Width	1.5m per side	Up to 2.5m per side
Total Asphalt Width	10.2m	12.2m
Path Separation	2.0m min.	n/a
Multi-use Path Width	2.5m min. gravel / 3.0m min. paved	n/a
Buffer to Property Line*	3.0m min (agricultural buffer) on path side, 6.8m on non-path side	3.9m / 6.4m per side

*Buffer to property line are based on roadway centred in the right-of-way, buffer may vary if road is not centred in right-of-way

5.3.2 Bikeway

Bikeways are intended to provide safe, comfortable, and continuous on-road cycling facilities. Various facility types may be used on bikeways (in order of preference) – Bicycle Lane, Shoulder Bikeway, Shared Lane (wide), Shared Lane (normal). Each facility type is described below.

Bicycle Lane

A bicycle lane is an on-road route with a dedicated portion of the roadway for cyclists with a lane marking separating the vehicle and bicycle travel areas. Bike lanes may also have additional shoulder width in rural areas and are the preferred bikeway facility where there is sufficient road width.

- **Width** – Bike lanes should be 1.5m wide (minimum), increasing up to 2.0m where sufficient width and/or further separation from traffic is desirable
- **Signs** - The reserved bike lane sign (TAC, RB-91)indicates that a lane is reserved for exclusive use by bicycles. These signs should be provided at the beginning, end, and mid-way along a bicycle lane. Alternatively, a Bike Route sign may be used in place of bike lane signs.
- **Markings** - Reserved bike lane markings should be used in all bike lanes. Markings include both a bicycle stencil and diamond, which indicates that the lane is reserved for bicycles.

Examples of reserved bike lane paint markings (left) and the reserved bike lane sign (right)

Shoulder Bikeway

Shoulder bikeways are used on rural roads without curb and gutter. Pedestrians and equestrian users may share the space, but parking is not permitted.

- **Width** – Shoulders should be no less than 1.5m (consistent with bike lane width) and should increase to 2.5m on roads with 70 km/h speed limit or high traffic volumes. Identified "Roadside Greenway" routes should be 2.5m (consistent with Roadside Greenway standards, *Section 5.3.1*)
- **Surface** – Shoulders should only be considered bikeways where paved surface. Gravel shoulders are not shoulder bikeways.
- **Signs** – May include green "bike route" sign (TAC, IB-23) and/or Share the Road sign (TAC, WC-19). No Parking signs may also be needed to indicate that parking is prohibited on the shoulder.
- **Markings** – Paint markings are optional. Bicycle stencils or custom wayfinding icons have been used elsewhere.

Shared Lane, wide

Shared lanes are wide enough to allow vehicles and bicycles to travel side-by-side but space is not demarcated with lane markings. Wide shared lanes are preferable to an unmarked cycling route where road width cannot accommodate a bike lane or full shoulder, but demarcated facilities are preferred where there is sufficient road width.

- **Width** – Shared vehicle lanes should be no less than 4.3m and no wider than the width needed to meet the vehicle lane and bike lane width requirement (typically 5.0m). Additional width may be needed adjacent on-street parking to avoid door swing.
- **Markings** – The bicycle stencil with two chevrons (ie. "sharrow") is used to indicate where the cyclist should position themselves, typically 1.0m from the road edge.
- **Signs** – Green "bike route" signs are used along the route (TAC, IB-23). The Share the Road sign (TAC, WC-19) may also be used.

Example of a "sharrow" paint marking on a rural road (left) and shoulder bikeway in a rural area (right)

Shared Lane, normal

Shared vehicle lanes (normal) are not wide enough to allow vehicles and bicycles to travel side-by-side and require that vehicles use the on-coming lane to overtake cyclists. Shared lanes should only be used on low volume roads with ability for vehicle passing or for short distances in constrained locations, such as a narrow bridge crossing.

- **Width** – Shared vehicle lanes should be no less than 3.5m and no greater than 4.3m. Wider lanes should use the wide shared lane application with "sharrow" paint marking.
- **Signs** – Green "bike route" sign are used along the route (TAC, IB-23). The Share Use Single File sign (TAC, WC-20) and shared use pavement markings may also be used.

5.3.3 Off-Road Greenway

An Off-Road Greenway is a linear park that features trails intended for walking, cycling, and/or horseback riding. These routes are designed by the CVRD Parks department to reflect the intended function and user groups of each route, but without specific standards/guidelines. Planning and design of Off-Road Greenway routes is by CVRD Parks department per the *Parks and Greenways Strategic Plan*.

- **Width** – Consider 2.0m the minimum width in order to accommodate walking side-by-side. Increase widths where high pedestrian traffic, horseback riding, and/or cycling is anticipated.
- **Surface** – Surface type should be considered on a case-by-case basis. Asphalt surface is appropriate where cyclists and/or pedestrians are the primary user group, while gravel or chip surfaces are preferred where horseback riding will be prevalent.
- **Signs** – CVRD trail signage may be used. Shared Pathway sign (TAC, RB-93) may also be used to indicate shared trail facilities.

Cycling/Trail Design Resources

The following documents should be referenced for further guidance on bicycle facility and trail design:

Transportation Association of Canada (TAC), **Bikeway Traffic Control Guidelines for Canada**

BCRPA / MoTI, **Bicycle Facilities Design Course Manual**
www.cite7.org/resources/documents/BFCD_ConsolidatedManual.pdf

Ministry of Transportation Ontario (MTO), **Ontario Traffic Manual, Book 18: Cycling Facilities**
www.mto.gov.on.ca/english/transrd

National Association of City Transportation Officials (NACTO), **Urban Bikeway Guide**
http://nacto.org/cities-for-cycling/design-guide

5.4 Bike Parking

Bicycle parking may be provided as either short-term or long-term parking. **Short-term** bicycle parking is intended for customers and visitors and is typically a six-space rack in close proximity to a building entrance that includes natural surveillance. High-traffic locations may warrant more than six spaces. Racks should permit the locking of bicycle frame and at least one wheel to the rack and support the bicycle in a stable position without damage to wheels, frame or components. **Long-term** bicycle parking facilities are intended for residents and employees and may consist of attended facilities, racks in an enclosed and lockable room, indoor or outdoor bicycle lockers, or restricted access parking facilities. Facilities should protect against inclement weather.


Examples of an enclosed bike parking cage at the CVRD office (left) and a bike rack at the Backstreet Pub in Royston (right)

5.4.1 Bike Parking at CVRD Facilities

The Regional District should conduct an audit of CVRD-owned facilities to determine availability of long-term and short-term bike parking. Sites that lack appropriate bicycle parking should be addressed. Consideration should also be given to providing showers and change facilities at suitable sites.

5.4.2 Bike Parking Funding

The Regional District should look for opportunities to encourage businesses to provide bicycle parking, potentially through a Regional District subsidy program and developing a bike rack design(s) that are arranged through a supplier.

> Kelowna Bike Rack Program
>
> The City of Kelowna's "Bike Rack Program" offers a subsidy of up to 50% of the cost to purchase and install bike racks at eligible businesses. More information on Kelowna's program at - www.kelowna.ca/CM/Page4166.aspx

5.4.3 Bike Parking in Zoning

Minimum bicycle parking requirements should be established in the Zoning Bylaw for multi-family residential, office, retail, and restaurant land uses. Recommended bike parking supply rates are identified in *Table 14*.

Table 14. Recommended Minimum Bicycle Parking Requirements

Land Use	**Long-Term Bike Parking** (residents, employees)	**Short-term Bike Parking** (customers, visitors)
Multi-family Residential	0.5 per dwelling unit	One 6-space rack at building entrance
Commercial, Office	1 per 750 m^2 GFA	One 6-space rack at building entrance (sites 400 m^2 GFA or more only)
Commercial, Retail	1 per 500 m^2 GFA	One rack at building entrance (sites 200 m^2 GFA or more only)
Restaurant	1 per 250 m^2 GFA	One 6-space rack at building entrance

Bicycle Parking Design

The following documents may be referenced for more information on bike parking layout and design:

Bicycle Parking Guidelines, Association of Pedestrian + Bicycle Professionals
http://c.ymcdn.com/sites/www.apbp.org/resource/resmgr/publications/bicycle_parking_guidelines.pdf

Bicycle End-of-Trip Facilities, Transport Canada
www.fcm.ca/Documents/tools/GMF/Transport_Canada/BikeEndofTrip_EN.pdf

Bicycle Parking Guidelines, City of Victoria
www.victoria.ca/EN/main/departments/engineering/parking/bicycle.html

Bicycle at Rest, Capital Bike + Walk Society
www.bicycleparkingonline.org

5.5 Other Improvements

5.5.1 Safe Routes to Schools

An Active and Safe Routes to School plan identifies preferred walking/cycling routes and school bus routes, as well as recommended infrastructure investments to enhance safety. They are typically undertaken by the School District, school staff, and/or parent groups, and involve the local/regional government and/or MoTI as partners.

School District 71, in cooperation with the Hub for Active School Travel (HASTe)[10], has been developing an "Active & Safe Routes to School" plan for Huband Park Elementary School. The Huband Park study was in draft form at the time the Transportation Road Network Plan was developed.

The Regional District should support and encourage School District 71 and parent groups to develop safe routes to school plans. The Huband Park Elementary study should be a template in creating similar plans for Miracle Beach, Royston, and Arden Elementary Schools. Additionally, the Regional District should assist the School District in coordinating infrastructure improvements that require MoTI approval.

5.5.2 Road Maintenance and Sweeping Priority

Road maintenance and sweeping are important on key cycling routes to ensure conditions are safe and comfortable for cyclists of varying abilities. MoTI had previous worked with the Comox Valley Cycling Task Force to identify priority sweeping routes. The Regional District supports increased sweeping frequency as part of the next road maintenance contract on priority cycling corridors determined in consultation with the Cycling Task Force.

Consideration should be given to increasing maintenance on cyclist routes, including a more frequent response rate for road surface maintenance to ensure road edge erosion and potholes are addressed and increasing scheduled maintenance as possible (i.e. line painting, brush clearing, etc). Prioritized cycling routes should be identified by the Regional District and Cycling Task Force.

[10] More on the HASTe program available online at - www.hastebc.org

5.5.3 Beach Accesses

Beaches are public spaces that play an important role in providing healthy recreation and connecting with nature. The *Land Titles Act* requires that public access is provided at regular intervals (typically 200-400m) when waterfront properties are subdivided. The resulting beach accesses are owned by MoTI. Some beach accesses are developed into roads, others have informal walking trails on them – often put in by local residents – and yet others remain undeveloped. In some locations, neighbours have encroached into beach accesses with their backyards or fences effectively closing off access to the public.

MoTI does not actively manage its beach accesses and the CVRD has limited financial and staff resources. CVRD and MoTI have a signed memorandum of understanding (MOU) to protect public access based on directions established in the CVRD's 2011 *Beach Access Management Strategy*. The MOU confirms that beach access will continue to be sought through subdivision and the MoTI will not unreasonably deny the CVRD permits over key accesses in particular need of trail development, signage and management. Priorities were established through consultations with the public in 2011/2012. See *Table 15*.

Table 15. Priority Beach Access Improvements

Timing	Description
On-Going	Recruit residents and provide support for adopt-a-beach access program
2012	Vivian Way stair replacement; install signs in Little River neighbourhood (6 locations)
2013	Amber Way stepped path; install signs in Miracle Beach and Driftwood neighbourhood (10 locations)
2014	Seabird Road trail improvements; Cloudcroft stepped path; install signs in Balmoral Beach, Spence Road and Union Bay north neighbourhoods (6 locations)
2015	Install signs in Ships Point, Fanny Bay and Mud Bay neighbourhoods (7 locations)
2016	Explore opening up and signing 8 beach accesses

The CVRD Beach Access Management Strategy is available online at - www.comoxvalleyrd.ca/assets/Community/Documents/Beach_Acceess_Management_Strategy.pdf

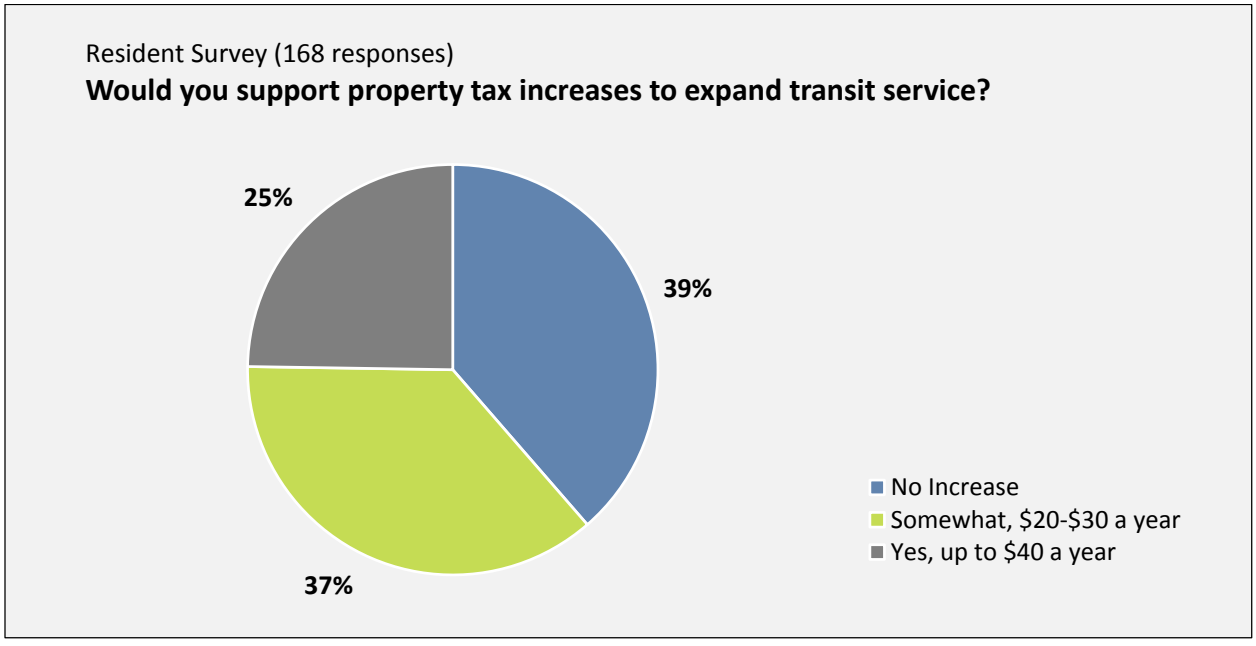
6. Public Transit

Public transit is an inexpensive alternative to vehicle travel with the ability to connect rural residents to destinations over long distances. It is also an important public service for community members unable to travel by vehicle or other modes because of age, physical, or financial challenges.

Providing efficient, cost-effective public transit is challenging in the rural areas. By nature, rural areas are dispersed and low density, resulting in longer routes and operating hours required to provide basic service levels. The aging population will change transit needs; more seniors will have a higher reliance on public transit. An effective transit service that reflects the needs of seniors will support rural residents seeking to "age in place". Rural youth also rely heavily on public transit to access school and social/recreational activities independently. Focusing growth and activity in service centres served by transit and providing facilities for multi-modal integration will also support increased transit ridership.

The existing system consists of three routes that primarily serve rural areas – no.10 – Royston-Buckley Bay, no.11 - Little River, and no.12 – North Valley Connector. A community bus also operates in the Cape Lazo / Point Holmes and Huband Road / Seal Bay areas providing door-to-door service three times per day (Monday to Friday)[11].

The CVRD wishes to increase transit ridership among rural residents by providing more service that reflects demand in rural areas and enhanced transit facilities that improve the experience and create opportunities for multi-modal trips. The *Comox Valley Transit Future Plan* was completed in 2014 to envision the public transit system for the Comox Valley over the next 25 years and the transit policies in the OCP are consistent with directions in the Transit Future Plan.



[11] More information on the community bus service available at - www.busonline.ca/regions/com/schedules/community_bus.cfm

6.1 Transit Future Plan

At the time the Transportation Road Network Plan was developed, the CVRD and BC Transit were developing the *Comox Valley Transit Future Plan* to envision the public transit system over the next 25 years. The preliminary directions of the Transit Future Plan are consistent with this Plan, although certain details about future transit service and routing have been omitted.

The following key directions are included in the Transit Future Plan related to rural areas and were supported through the OCP consultation process:

- The Local Transit Network (LTN) connects neighbourhoods and rural residents to employment, education, shopping and services, as well as transfer to more frequent transit routes in the core urban areas. The LTN extends from Saratoga Beach to Courtenay/Comox and from Fanny Bay to Courtenay/Comox.
- Improve service levels on the LTN on weekday evenings, weekends, and holidays.
- Examine construction of park-and-ride stations at Saratoga Beach, Black Creek, Merville, Union Bay, and Fanny Bay, and kiss-and-rides elsewhere in rural areas.
- Extend service south from Fanny Bay to Bowser to provide access into the Nanaimo system.
- Realign bus routing and facilities at the Oyster River exchange to better accommodate passengers and simplify bus maneuvering.
- Consider paratransit and flexible routing options in place of conventional transit service in rural areas.

The completed Comox Valley Transit Future Plan will be available to the public at: www.bctransit.com/transitfuture

> *"Seniors feel cut off from society because of a lack of public transit in evening and weekends"*
>
> *- Seniors Workshop Attendee*

6.2 Bus Stops

The transit system currently operates on a "flag" based system in the rural areas. Loading passengers must wave to an approaching bus to indicate they would like to board and disembarking passengers must communicate directly to the driver to describe where they wish to unload. Flexibility is the primary advantage of the flagging system over a formal bus stop system, but the flagging system results in potential for unsafe loading/disembarking and uncertainty among unfamiliar or potential new passengers.

It is recommended that the Regional District move to a bus stop based system in the rural areas. An estimated 120 bus stops will be required in future. A Regional District program should be created to fund bus stop installation, as follows:

1. Establish an annual capital and maintenance budget
2. Develop a development cost charge (DCC) bylaw (similar to existing park and water DCCs)
3. Develop a service area in the Electoral Areas to fund transit and active transportation facilities
4. Pursue external grant opportunities[12]

Example of a bus shelter recently installed in Black Creek (Credit: Mike Zbarsky)

[12] Possible grant programs include Municipal Rural Infrastructure Fund (federal), Gas Tax Fund (federal), Green Municipal Fund (federal), and Community Works Fund (provincial).

6.2.1 Bus Stop Guidelines

Bus stops should be designed for safe, convenient bus loading and unloading, and facilitate access for all residents, including those with mobility challenges. The following guidelines should be used in the planning and design of bus stops in rural Comox Valley. Guidelines are generally consistent with MoTI design requirements and BC Transit guidelines.

Location:

- The most important factor in bus stop placement is safety and avoiding conflicts that could impede traffic flows, whether buses, other vehicles, cyclists or pedestrians.
- Preferred bus stop spacing is every 400m. Spacing may vary depending on surrounding land use and proximity to trip origins/destinations. Spacing should not exceed 800m where possible.
- Bus stop location should provide for direct pedestrian routes to adjacent land use and facilitate transfer to other travel modes, particularly at service centre locations.
- Bus stops should be placed at the far side of an intersection where possible to minimize buses limiting visibility of intersection traffic control. Near-side bus stops may be installed to facilitate passenger transfers between bus stops or where adjacent land use necessitates it.
- Slopes in excess of 6% grade should be avoided to permit access by wheelchair and adequately accommodate accessibility needs.

Layout/Design:

- Bus bays are preferred that allow buses to exit the vehicle lane while loading/unloading. Bus bays may be paved or gravel and should not be used on roads/highways in excess of 90 km/h. Roadside bus stops may be used only on low speed, low volume roads.
- A concrete pad may be installed with curb ramps at either end to aid passenger loading/unloading. Pads should be 2.0m wide and only be installed where accessible routes are provided to/from the bus stop.
- Passenger amenities are desirable at high usage bus stops. These can include shelters, benches, and garbage bins. MoTI requirements allow these amenities where bus stops are permitted.
- Bus stop lighting levels should be no less than lighting requirements for the adjacent roadway. Solar panels may be used in locations without access to the electricity supply grid.
- An ID sign should be provided at all permanent bus stop locations. Signs are generally placed 3.0m from the edge of the vehicle lane and no lower than 1.5m vertically from the road surface.
- Pedestrian access may be enhanced through traffic measures such as marked cross walks, pathways and warning signage that are subject to additional MoTI approval.

Bus Stop Design Resources

The following BC Transit documents may be referenced for further guidance on bus stop design

Infrastructure Design Guidelines, www.bctransit.com/corporate/resources/pdf/res-urban-64.pdf

Design Guidelines for Accessible Bus Stops, www.bctransit.com/corporate/resources/pdf/res-urban-21.pdf

6.2.2 Oyster River Exchange

The Oyster River Exchange is located in the Strathcona Regional District immediately north of the Oyster River, and is the northern-most point in the Comox Valley system and the southern-most point in the Campbell River system. The exchange provides for passenger transfers between the two systems. Bus routing to the exchange is circuitous due to the weight restriction on the Regent Road bridge and turn restrictions on Highway 19a. The exchange also lacks quality passenger amenities and is poorly integrated with adjacent commercial land uses.

The CVRD should pursue opportunities to improve the Oyster River Exchange in partnership with the Strathcona Regional District, BC Transit, and MoTI. A conceptual planning exercise should be undertaken to assess opportunities to relocate the exchange and stops to improve circulation and better integrate with adjacent land uses, as well as potential to alter turn restrictions and road closures to accommodate bus turning at Glenmore Road and Croydon Road. Upgrades to the Regent Road bridge over Oyster River to accommodate buses may be addressed as a long-term item to shorten the no.12 route, and providing a secondary benefit of improving pedestrian and cyclist accommodation.

6.3 Transit Alternatives

Travel options may be provided to supplement the formal public transit system, including shuttles, ridesharing, and delivery services. Each is explored below.

6.3.1 Shuttle

Private shuttle services are often operated through retirement homes, service clubs, and community halls. The Regional District may pursue opportunities to expand existing shuttles to provide service to other community members where public transit does not exist or outside transit operating hours. Similarly, consideration may be given to operating such a service to respond to seasonal variations (ie. Saratoga Beach).

Similarly, future large-scale developments may be encouraged to provide a resident shuttle service. Such a service could mimic public transit and demonstrate ridership demand until it is determined feasible to provide transit service to the area.

6.3.2 Ridesharing

Ridesharing makes more efficient use of private vehicles by encouraging individuals with vacant seats in their vehicle to carpool with those needing a ride. Ridesharing may occur casually among co-worker or friends, or may be encouraged more formally through a ridematching service.

Rural residents should be encouraged to use the Island RideShare[13] website to coordinate carpools. The Regional District can facilitate this by promoting the service through various medias and encourage park-and-ride carpool arrangements by utilizing public parking provided at service centres (described in *Section 3.2.2*).

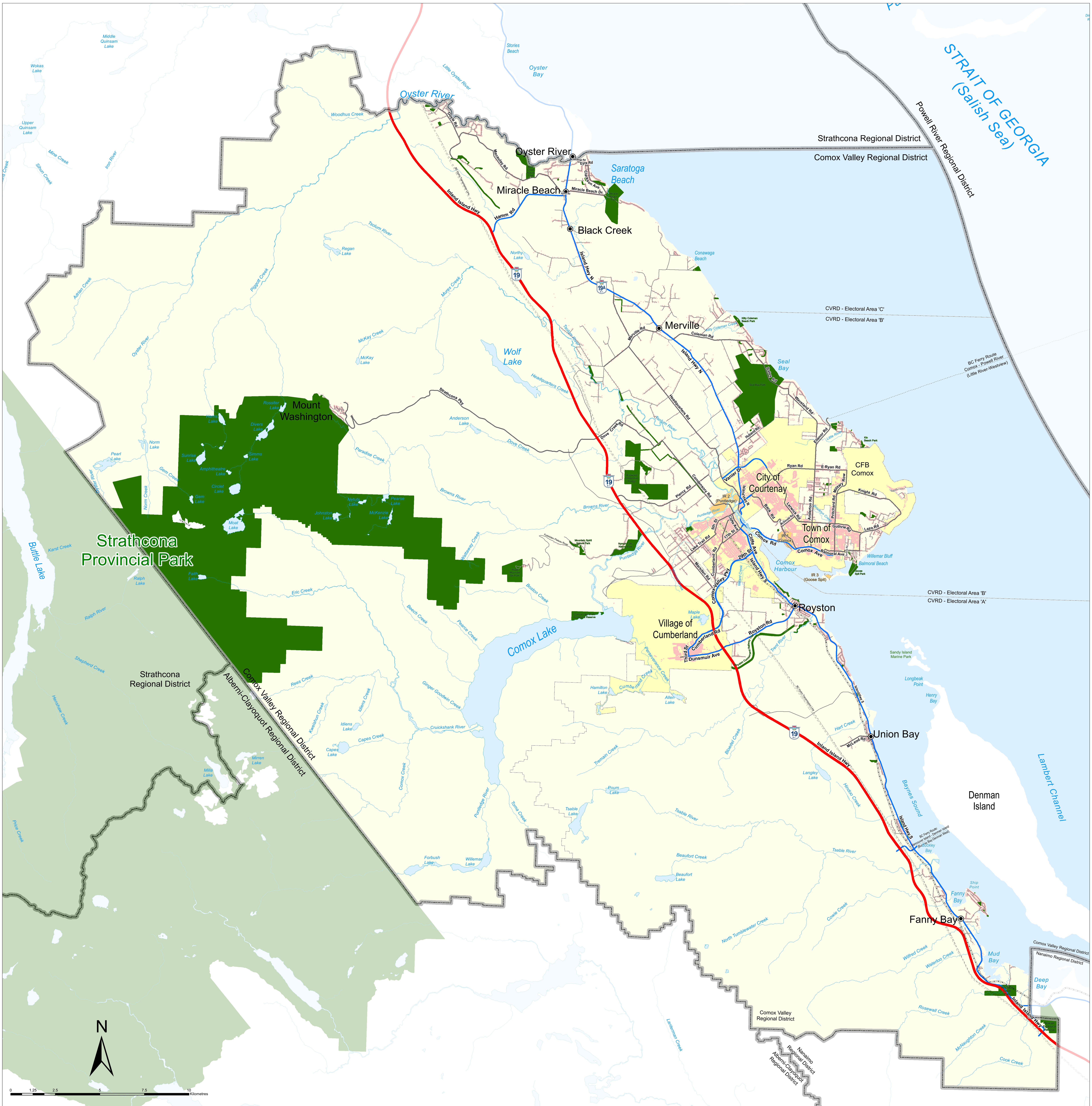
[13] More information at www.islandrideshare.com

6.3.3 Delivery Service

Delivery services provide rural residents access to businesses that they are unable to physically access themselves. These services support seniors “aging-in-place” and mobility challenged residents to retain independence. Many Comox Valley businesses offer delivery services to rural residents, including grocery stores (4), pharmacies (3), florists (3), and other general purpose and specialty businesses.

The Regional District should seek to expand the number of businesses that provide product delivery, as follows:

1. Promote businesses that offer delivery to rural residents to reward them and encourage others.
2. Actively seek to increase the number of businesses that offer delivery.
3. Encourage delivery service providers to accept orders at community halls and/or service centres to allow residents uncomfortable with online- or telephone-based ordering to access the service.



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Transportation Road Network Plan

- Highway
- Arterial
- Collector
- Local
- Building with an address
- E&N Railway
- Ferry Route
- BC Hydro Transmission Line
- Park
- Regional District Boundary
- Electoral Area Boundary
- Comox Valley Regional District (portion in OCP)
- Municipality
- K'ómoks First Nation

Comox Valley
REGIONAL DISTRICT

Map 1
Comox Valley Regional District Transportation Road Network Plan

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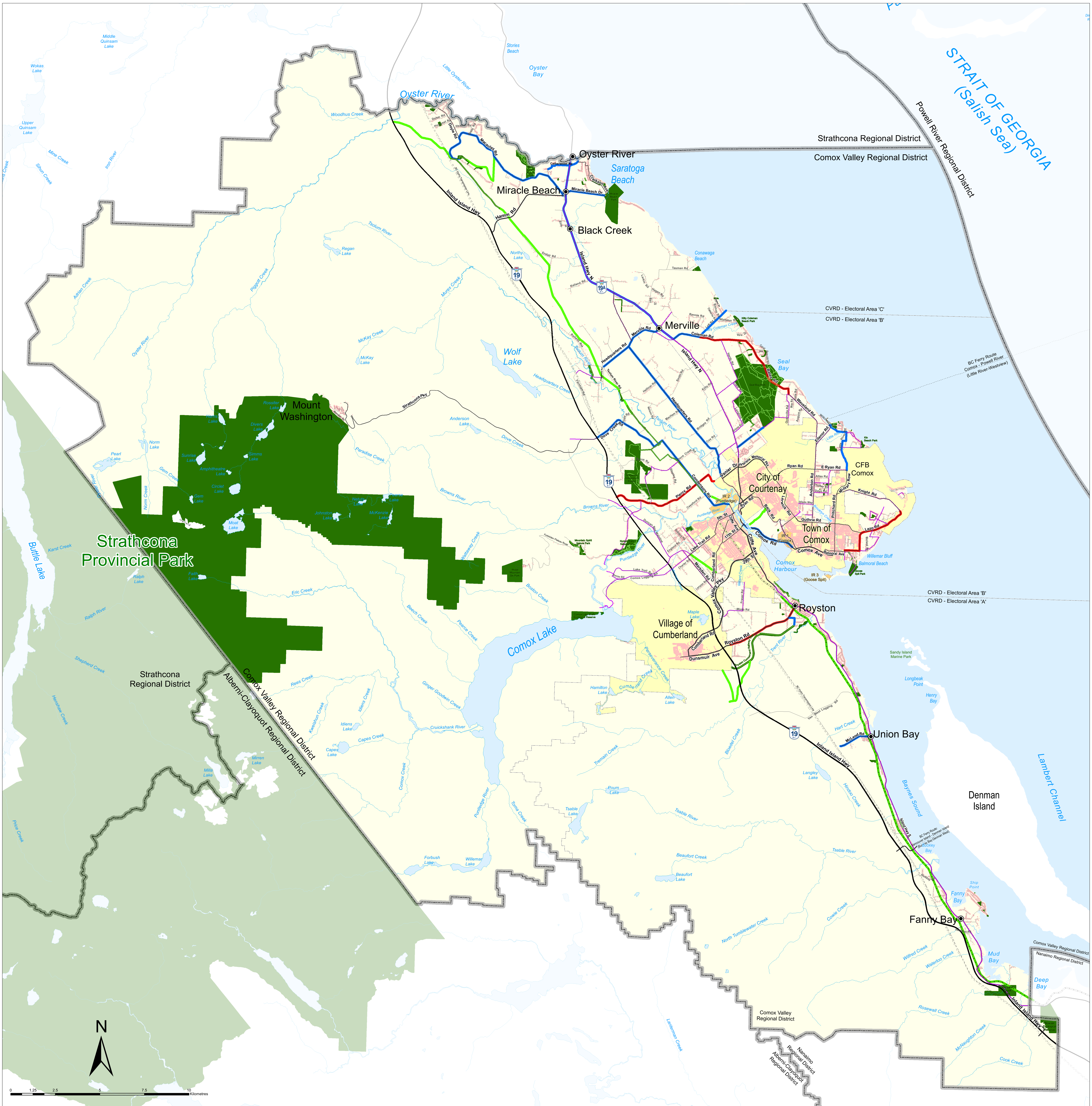

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Active Transportation Network

Building with an address
Service Centre

Proposed Routes

Roadside Greenway
Bikeway
Off-Road Greenway

Existing Routes

Cycling Route
CVRD Regional Park Trail

Other

Highway
Arterial
Collector
Local Road
E&N Railway
Ferry Route
BC Hydro Transmission Line

Park
Regional District Boundary
Electoral Area Boundary
Comox Valley Regional District (portion in OCP)
Municipality
K'ómoks First Nation

Comox Valley REGIONAL DISTRICT

Map 2
Comox Valley Regional District Transportation Road Network Plan

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Comox Valley
REGIONAL DISTRICT

Comox Valley Regional District

TRANSPORTATION ROAD NETWORK PLAN