



THE CORPORATION OF THE CITY OF COURTENAY

STAFF REPORT

To: Council

File No.: 8620-21; 5335-20

From: Chief Administrative Officer

Date: September 30, 2019

Subject: Connecting Courtenay – Transportation Master Plan Adoption

PURPOSE:

The purpose of this staff report is to present the final draft of the Connecting Courtenay – Transportation Master Plan to Council for adoption. This staff report is also intended to revise the Connecting Courtenay – Cycling Network Plan adopted by Council on February 4, 2019, for consistency with the broader Transportation Master Plan.

CAO RECOMMENDATIONS:

That based on the September 30, 2019 staff report “Connecting Courtenay – Transportation Master Plan Adoption” Council approve OPTION 1 and adopt the final draft of the master plan as presented; and

That Council approve the revisions to the Connecting Courtenay – Cycling Network Plan as documented within this staff report.

Respectfully submitted,

David Allen, BES, CLGEM, SCLGM
Chief Administrative Officer

BACKGROUND:

The development of the Connecting Courtenay – Transportation Master Plan (TMP) has been a multi-year effort, and has involved many key components, including: data collection and analysis, public and stakeholder consultation, forecasting and assessment of future conditions, and development of medium and long term plans, projects, and costs for each mode of transportation. As part of the development of the TMP, the Connecting Courtenay – Cycling Network Plan (CNP) was also created, and was brought forward to Council on an accelerated timeline in early 2019 in order to meet eligibility requirements for a provincial cycling infrastructure grant opportunity through the BikeBC program. The CNP was adopted by Council on February 4, 2019, and the grant applications subsequently awarded by the Province.

The draft version of the TMP was presented to Council on July 2, 2019, and direction was received to release the draft document, along with the previously adopted CNP, for a one-month public comment period. The public comment period ran from July 8 to August 8, 2019, and documents were made available electronically on the City’s Connecting Courtenay website, as well as in hard copy at City Hall. The public

comment period was advertised on the City's social media accounts (Facebook and Twitter), with a formal media release, and through the local radio stations and newspapers. Key stakeholder groups engaged throughout the development of the TMP were contacted directly via email about the public comment period, and were offered the opportunity to discuss the documents at in-person meetings if desired.

Approximately 115 responses were received during the public comment period – through email, phone call, and in person at City Hall – and included feedback from the general public, stakeholders, and Council members. Many of these responses included multiple comments, each of the comments received was reviewed and considered in detail by the project team, and where appropriate, these comments were used to inform updates to the TMP and CNP. Details of the revisions made to the plans are provided in the 'Discussion' section of this staff report. The final draft of the TMP is now being presented to Council for adoption.

When considering implementation of the projects presented in the TMP and CNP, it should be noted that the projects and costs presented in these documents do not represent a financial plan, and are for future consideration only. The timing and selection of future cycling and transportation projects and initiatives will be determined as part of the ongoing annual budget process, and through consideration of the Asset Management Working Group, with recommendations to the CAO.

Additionally, while the TMP and CNP detail street, pedestrian, and cyclist projects as discrete projects with associated costs, opportunities may exist to complete these projects as part of other linear infrastructure asset installations/replacements, with possible cost and scheduling efficiencies. The City's Engineering and Public Works Departments have been working to identify synergies between the TMP and existing planned paving projects. As a result, in 2019, buffered bike lanes were paved and painted on the following routes:

- Lake Trail Road, from Willemar Avenue to Arden Road;
- Cumberland Road, from Willemar Avenue to 2112 Cumberland Road;
- Lerwick Road, from Mission Road to Waters Place.

These projects align with the medium-term implementation plan for the Cycling Network. The opportunity to complete the projects in conjunction with the existing Public Works grind and pave program for 2019 resulted in a cost savings over projections presented in the TMP and CNP, and the ability to complete the projects earlier than anticipated in the TMP implementation plan.

DISCUSSION:

Based on the comments received from the public, stakeholder groups, staff, and Council, a number of revisions have been made to the draft TMP. At a high level the revisions made include the following:

Streets Plan:

- Tunner Drive extension: A number of comments expressed concern over the recommendation to extend Tunner Drive from Back Road to Highway 19A as a two-lane roadway. A high-level options analysis was completed to examine the implications of the Tunner Drive extension as a 2-lane roadway versus a non-vehicular multi-use pathway. Based on this options analysis the recommendation to extend Tunner Drive as a roadway remains the same, however a note has been added recommending further investigation to better understand local impacts of this extension.
- Arden Road extension: A large proportion of the comments received expressed concern with the recommendation to create a continuous roadway connection between Embleton Crescent and the

Comox Valley Parkway along Arden Road, specifically related to safety and environmental considerations. As a result of these concerns and the environmentally sensitive nature of this corridor, the recommendation for the Arden Road extension has been removed from the Streets Plan. A possible multi-use pathway (not vehicular) along the Arden Road corridor with a pedestrian crossing of Morrison Creek has been added to the Walking and Cycling Plans for future consideration (including estimated costs), and could be completed in conjunction with future utility servicing requirements through this corridor.

- Comox Logging Road upgrades and realignment: A number of comments expressed concern over the prioritization of the proposed Comox Logging Road upgrades between the Comox Valley Parkway and the Old Island Highway. This recommendation has been moved from the medium-term to the long-term Streets Plan.
- Lake Trail Road grade-separated interchange with Highway 19: There was some concern expressed with the recommendation to support a connection to Highway 19 at Lake Trail Road. The language for this section was revised to make it clear that a connection to Highway 19 at Lake Trail Road could be a possible future interchange option, but that further examination would be required if/when a third interchange becomes necessary.

Walking Plan:

- Arden Road extension: As mentioned above, the Arden Road extension was removed from the Streets Plan, however the possibility for a multi-use pathway along the Arden Road corridor with a pedestrian crossing over Morrison Creek has been added to the Walking Plan. The necessity of working with the Arden Local Area Plan (LAP) and the Action Plan for the Western Brook Lamprey is also highlighted in this section.
- Greenway study: Numerous comments mentioned a desire for greenways in the City, the details of which were outside the scope of the TMP. However a recommendation has been added within the Walking Plan which proposes a greenway planning initiative as a short-term action item, in order to develop a City-wide approach to planning and investing in greenways.
- Rotary Trail intersections (26th Street and Comox Valley Parkway): A number of comments mentioned safety concerns with key intersections along the Rotary Trail, most notably at 26th Street and at the Comox Valley Parkway. These intersections have now been highlighted as crossings where improvements are required in the pedestrian network, and added to the medium-term implementation plan, with associated costing details.
- North Island College: All paths and sidewalks located on North Island College property and adjacent private property have been removed from pedestrian network maps, as this infrastructure is not located on City of Courtenay property.

Cycling Plan:

- Arden Road extension: As mentioned above, the Arden Road extension was removed from the Streets Plan, however the possibility for a multi-use pathway along the Arden Road corridor with a pedestrian crossing over Morrison Creek has been added to the Cycling Plan.
- 17th Street (Willemar Avenue to 17th Street bridge): Numerous comments highlighted the potential for a cycling route along 17th Street – from Willemar Avenue to the 17th Street bridge – to create an additional east-west link on the west side of the City. This route has been added as a buffered/painted bicycle lane to the full build-out for the Cycling Network, as well as to the medium-term implementation plan, with associated costing details.
- 6th Street (Hobson Avenue to Cowichan Avenue): Comments were received about adding a cycling route along 6th Street – from Hobson Avenue to Arrowsmith Avenue – in order to increase the north-south connectivity of the cycling network on the east side of the City, and provide an

alternative route to Ryan Road. This route has been added as a bike boulevard/neighbourhood bikeway to the full build-out for the Cycling Network, as well as to the long-term implementation plan.

- Muir Road: Some concern was expressed over east-west connectivity to the north of Ryan Road, specifically in the area of North Island College, the North Island Hospital Comox Valley, and Queneesh Elementary. An additional bike boulevard/neighbourhood bikeway route has been added to the full build-out for the Cycling Network, from McLaughlin Drive, along Muir Road, onto Mission Road, and up to Lerwick Road, to increase the connectivity in this area. This route has also been added to the medium-term implementation plan for the Cycling Network, with associated costing details.
- Royal Vista Way: Some comments were received requesting the Cycling Network be expanded to the north to encompass new developments in the Crown Isle area, specifically along Royal Vista Way. It is the intention of the TMP that in areas of new development pedestrian and cyclist infrastructure be considered through implementation of the Subdivision and Development Servicing Bylaw. This route has been added as a bike boulevard/neighbourhood bikeway to the full build-out for the Cycling Network, and the medium-term implementation plan, with associated costing details.
- North Island College: All paths and roads located on North Island College property and adjacent private property have been removed from the cycling network maps, as this infrastructure is not located on City of Courtenay property.
- A footnote has been added to the Long-Term Cycling Network map which highlights that in addition to the full build-out network shown on the map, any new or amended road infrastructure should be designed to support all modes of transportation.

Transit Infrastructure Plan:

- Transit Future Plan: At the request of BC Transit, additional details have been added in the Transit Infrastructure Plan section of the report, highlighting the transit future networks for the Comox Valley and associated maps.
- Downtown exchange: At the request of BC Transit, additional details on the need for a downtown transit exchange have been added to the Transit Infrastructure Plan section of the report. This includes highlighting the need for further study between the City of Courtenay, the Comox Valley Regional District, and BC Transit to determine the appropriate location and design for this exchange.

Financial Planning & Implementation Priorities:

- Maps and costing tables: The Streets Network, Pedestrian Network, and Cycling Network maps and cost estimate tables in the Financial Planning & Implementation Priorities section of the report have been updated to reflect the changes detailed above.
- Cycling Network costing tables: The Cycling Network cost estimate tables have been updated for consistency with the previously adopted Cycling Network Plan. This includes a relatively aggressive short to medium-term implementation plan as the Cycling Network Plan focuses the next ten years on developing the spines of the cycling network, connecting existing infrastructure, and connectivity in neighbourhoods.

As revisions were made to the TMP based on the comments received during the public feedback period, corresponding changes were also required to the previously adopted CNP in order to ensure alignment between the two documents. A detailed list of the changes made to the previously adopted CNP is provided below:

- Cover page: Date amended from February 4th 2019 to September 2019.
- Inside cover page:
 - Contacts amended to remove Allison Clavelle and add Dan Casey (consulting team's Vancouver Island transportation lead).
 - Date amended from February 4th 2019 to September 2019.
- Page 5, Figure 1 – Existing Bicycle Network: Existing infrastructure on Lerwick Road updated for accuracy and consistency with the broader TMP. Figure previously showed existing infrastructure on Lerwick Road between Ryan Road and Malahat Drive as “Pathway Type Unknown.” Figure has been updated to show infrastructure on Lerwick Road between Ryan Road and Malahat Drive as “Signed Bicycle Route”.
- Page 5, Figure 1 – Existing Bicycle Network: The multi-use paths (paved and unpaved) identified on North Island College property and adjacent private property have been removed from the map as this infrastructure is not located on City of Courtenay property.
- Page 21, Figure 4 – Recommended Long Term Cycling Network, Connectivity Map: Figure has been updated to include the new cycling network routes added as a result of the public feedback received:
 - 17th Street, from Willemar Avenue to the 17th Street bridge;
 - 6th Street, from Hobson Avenue to Arrowsmith Avenue;
 - Muir Road, from McLauchlin Drive to Mission Road, and along Mission Road to Lerwick Road;
 - Royal Vista Way;
 - Arden Road, from Morrison Creek to Comox Valley Parkway.
- Page 21, Figure 4 – Recommended Long Term Cycling Network, Connectivity Map: The portion of the full build-out network identified on North Island College property and adjacent private property has been removed from the map as this infrastructure is not located on City of Courtenay property.
- Page 21, Figure 4 – Recommended Long Term Cycling Network, Connectivity Map: A footnote has been added to the map indicating that any new or amended road infrastructure should be designed to support all modes of transportation.
- Page 22, Figure 5 – Recommended Short- and Medium-Term Cycling Facilities: Figure has been updated to include the implementation of the new cycling network routes added as a result of the public feedback received:
 - A buffered/painted bicycle lane along 17th Street, from Willemar Avenue to the 17th Street bridge;
 - A bike boulevard/neighbourhood bikeway on Muir Road, from McLauchlin Drive to Mission Road, and along Mission Road to Lerwick Road;
 - A bike boulevard/neighbourhood bikeway along the length of Royal Vista Way;
 - A multi-use path along Arden Road, from Morrison Creek to Comox Valley Parkway.
- Page 23, Figure 6 – Recommended Long-Term Cycling Facilities: Figure has been updated to include the implementation of the new cycling network routes added as a result of the public feedback received:
 - A bike boulevard/neighbourhood bikeway on 6th Street, from Hobson Avenue to Arrowsmith Avenue.

- Section 5.1, Page 29: The level of investment required to implement improvements and programs within the Cycling Network Program has been increased from \$21M to \$26.7M (2018 dollars) to account for the additional cycling network routes as detailed above.
- Section 5.3, Page 30: Same as previous page – the total long-term cost for the cycling projects recommended in the plan has been increased from \$21M to \$26.7M (2018 dollars) to account for the additional cycling network routes as detailed above.
- Section 5.3, Page 31: The project and program costs associated with the cycling network have been updated in this section to reflect the route changes identified above:
 - The total cost of the medium-term (five to ten years) projects and programs has been increased from \$6M to \$8.5M (2018 dollars).
 - The total cost of the long-term (ten to twenty years) projects and programs has been added to the text in this section at approximately \$13.8M (2018 dollars).
- Section A.2., Page A38: A possible multi-use pathway along the Arden Road corridor, from Morrison Creek to the Comox Valley Parkway has been added to the list of improvements for consideration in West Courtenay, based on the public feedback received.
- Section A.2., Page A38: The 17th Street project has been added to the list of improvements recommended for West Courtenay, highlighting the east-west connection from the 17th Street bridge to Willemar Avenue, with access to the Riverway Trail.
- Section A.3., Page A42: The network of bicycle boulevards has been amended to reflect the additional cycling network routes incorporated as a result of the public feedback period:
 - '6th Street East from Back Road to Hobson Avenue' has been amended to '6th Street East from Back Road to Arrowsmith Avenue.'
 - 'Crown Isle Drive from Ryan Road connecting to Norfolk Way to Idiens Way' has been amended to 'Crown Isle Drive from Ryan Road connecting to Idiens Way, including Royal Vista Way.'
- Page B50, Medium Term Cycling Improvements and Cost Estimates table: The table has been updated to include the new cycling network routes added as a result of the public feedback period:
 - The phasing of the Idiens Way/Valley View Drive route has been adjusted so that the medium term route extends from Mallard Drive to the City boundary, instead of Lerwick Road to the City boundary. The associated medium term cost has been increased from \$123,000 to \$263,000.
 - The route along Arden Road, from Morrison Creek to the Comox Valley Parkway, has been added at an estimated cost of \$1.5M.
 - The route along 17th Street, from Willemar Avenue to Comox Road, has been added at an estimated cost of \$448,000.
 - The route along Muir Road, from McLauchlin Drive to Mission Road, and along Mission Road to Lerwick Road, has been added at an estimated cost of \$52,000.
 - The route along Royal Vista way has been added at an estimated cost of \$48,000.
- Page B51, Long Term Cycling Improvements and Cost Estimates table: The table has been updated to include the new cycling network routes added as a result of the public feedback period:
 - The phasing of the Idiens Way/Valley View Drive route has been adjusted so that the long term route connects from Hobson Avenue to Mallard Drive, instead of Hobson Avenue to Lerwick Road. The associated long term cost has been decreased from \$224,000 to \$126,000.
 - The route along 6th Street, from Hobson Avenue to Arrowsmith Avenue has been added at an estimated cost of \$30,000.

Staff recommend that the above changes to the CNP are approved in order to ensure consistency between the TMP and CNP documents, and to capture feedback received from the public, stakeholder groups, staff, and Council during the public feedback period.

A spreadsheet detailing all of the comments received on the TMP and CNP during the public feedback period, and the associated document changes (if applicable), is located on the Connecting Courtenay webpage at the following link: www.courtenay.ca/connectingcourtenay .

FINANCIAL IMPLICATIONS:

The TMP is a guiding document that doesn't commit the City to the financial implications of implementation. Projects and costs presented within the TMP do not represent a financial plan, and are for consideration only. Future projects and initiatives will be addressed through one of the following methods:

- Established by Council as a strategic priority;
- Risk, asset, or infrastructure issues evaluated by the Asset Management Working Group and proposed to the CAO and then Council with other similar initiatives;
- New items or service level changes proposed to Council through the budget process.

ADMINISTRATIVE IMPLICATIONS:

The Engineering Services Department has overseen the development of the TMP since work began in 2017. In 2019, work on the TMP, CNP (and associated grant applications), and stakeholder engagement accounted for approximately 30% of the Engineering Strategy team's staff time. Staff will continue to work with Council to implement any approved recommendations.

ASSET MANAGEMENT IMPLICATIONS:

Master plans provide guidance to Council and inform the City's Asset Management Program. They are used to identify synergies between current issues and future plans in order to execute projects with maximum efficiency.

The TMP identifies short/medium and long-term priorities related to transportation infrastructure, programs, and policies, that will work towards the overall goal of asset management – achieving sustainable service delivery. The priorities identified in the TMP will help to ensure that future transportation related services and initiatives are delivered in a socially, economically, and environmentally responsible manner that does not compromise the ability of future generations to meet their own needs.

Future projects will be vetted through the Asset Management Working Group as part of the ongoing annual budget process.

STRATEGIC PRIORITIES REFERENCE:

The City of Courtenay's 2019-2022 Strategic Priorities include six themes and 28 priorities. The development of the TMP aligns with eight of these priorities as outlined below.

- Responsibly provide services at levels which the people we serve are willing to pay
- ▲ Value community safety and support our protective services
- Focus on asset management for sustainable service delivery

- ▲ Look for regional infrastructure solutions for shared services
- Move forward with implementing the City's Transportation Master Plan
- ▲■ Collaborate with regional and senior government partners to provide cost-effective transportation solutions
- ▲ Explore opportunities for Electric Vehicle Charging Stations
- ▲ Support improving accessibility to all City services

- **AREA OF CONTROL:** The policy, works and programming matters that fall within Council's jurisdictional authority to act
- ▲ **AREA OF INFLUENCE:** Matters that fall within shared or agreed jurisdiction between Council and another government or party
- **AREA OF CONCERN:** Matters of interest that are outside Council's jurisdictional authority to act

OFFICIAL COMMUNITY PLAN REFERENCE:

The development of the TMP is aligned with the goals included in Section 5.2 of the Official Community Plan:

- 5.2 Goals
1. integrate land use changes with transportation planning to coordinate changes and increases to traffic patterns.
 2. development of a transportation system that provides choices for different modes of travel including vehicle, transit, pedestrian, cycling and people with mobility impairments.
 3. protect the integrity of the road classification system to facilitate the purpose and function of the specific road types.
 4. support an integrated transportation system that works towards reducing travel distances and congestion.
 5. support a transportation system that recognizes the importance of the character and overall appearance of the City.
 6. provide an effective transportation system that facilitates the movement of vehicles throughout the community and the Comox Valley to major regional services such as the Little River Ferry System and the Comox Valley Airport.

REGIONAL GROWTH STRATEGY REFERENCE:

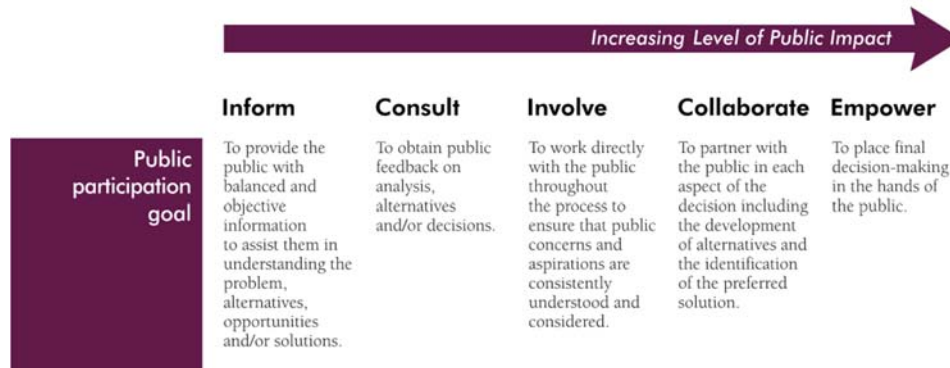
The development of the TMP is aligned with the transportation goal from the Regional Growth Strategy.

Goal 4: Transportation:

Develop an accessible, efficient and affordable multi-modal transportation network that connects Core Settlement Areas and designated Town Centres, and links the Comox Valley to neighbouring communities and regions.

CITIZEN/PUBLIC ENGAGEMENT:

Staff have **informed** and **consulted** with the community and stakeholder groups throughout the development of the TMP based on the IAP2 Spectrum of Public Participation:



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OPTIONS:

- Option 1: That Council approve the final draft of the Connecting Courtenay – Transportation Master Plan as presented.
- Option 2: That Council refer the final draft of the Connecting Courtenay – Transportation Master Plan back to staff for further consideration or consultation.

Prepared by:

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Connecting Courtenay

TRANSPORTATION MASTER PLAN

September 2019

URBAN
systems

Report for

City of Courtenay

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September 2019

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1. SETTING THE STAGE

1.1 OVERVIEW

The City of Courtenay (City) is a growing municipality on the east coast of Vancouver Island on the traditional land of the K'ómoks First Nation. With a vibrant and walkable Downtown area, it is the urban and cultural hub of the Comox Valley. The City is also home to a number of regional institutions, including the North Island Hospital Comox Valley and the Comox Valley campus of North Island College. The municipality is also located at the centre of the regional transportation network, providing important connections to the Town of Comox, the Village of Cumberland, the Comox Valley Airport, and Canadian Forces Base (CFB) Comox.

Connecting Courtenay imagines a future in 2038 with a population of 41,000 people in the City. How will the transportation challenges that exist now evolve over time? How can the City best respond to those challenges and meet the needs of residents of all ages and abilities and with diverse needs and goals? How can the City and partner agencies address larger objectives related to environmental sustainability and the local economy through transportation?

Connecting Courtenay is the Transportation Master Plan for the City. It highlights demands and needs for transportation within the community; creates a vision, goals and objectives for transportation; and identifies strategies and initiatives to move the community towards those goals over the medium- and long-terms. Overall, public and agency stakeholders expressed a desire to create a balanced, safe, and efficient transportation system that is sensitive to the local culture and the environment.



1.2 STUDY PROCESS

Connecting Courtenay was developed through a six-phase process between Fall 2017 and Spring 2019 that included both technical work and public and stakeholder consultation, as outlined below.

PHASE 1

Project start-up provided the foundation for Connecting Courtenay by ensuring integration with regional and local aspirations and plans and utilizing information on existing travel patterns and transportation conditions.

PHASE 4

Priority improvements were developed that are achievable in the medium-term, address existing issues and have the greatest impact in working towards achieving overall goals.

PHASE 2

Existing conditions assessment included a review and summary of present-day conditions - local and regional policy, travel patterns, mobility conditions, collision history, and issues and challenges communicated by the public and stakeholders.

PHASE 5

Development of long-term strategies (20+ years) captured the possibilities to explore a long-term direction for walking, cycling, transit and the road network. Large scale options for the road network were explored in addition to key corridors for walking and cycling infrastructure.

Beyond large scale initiatives, improvements to address safety and operational issues for all modes of transportation were explored.

PHASE 3

Future base conditions assessment addressed the question of "what impact would growth and development have on a transportation network that hasn't changed?" This information was used to engage the community in discussions about the transportation vision, goals, and objectives.

PHASE 6

Plan documentation provided a guide for why, what and how Courtenay should invest in transportation infrastructure.

1.3 CONSULTATION WITH THE PUBLIC + STAKEHOLDERS

Public and agency stakeholder engagement was essential to Connecting Courtenay. Two rounds of engagement were completed – the first focused on issues, challenges, and ‘Big Moves’ (i.e., significant transportation changes) and the second focused on long-term strategies and priorities. The results of the consultation which influenced the plan and central messages are incorporated throughout Connecting Courtenay. More information about the public consultation events, stakeholders, and the results of consultation are documented in separate reports.

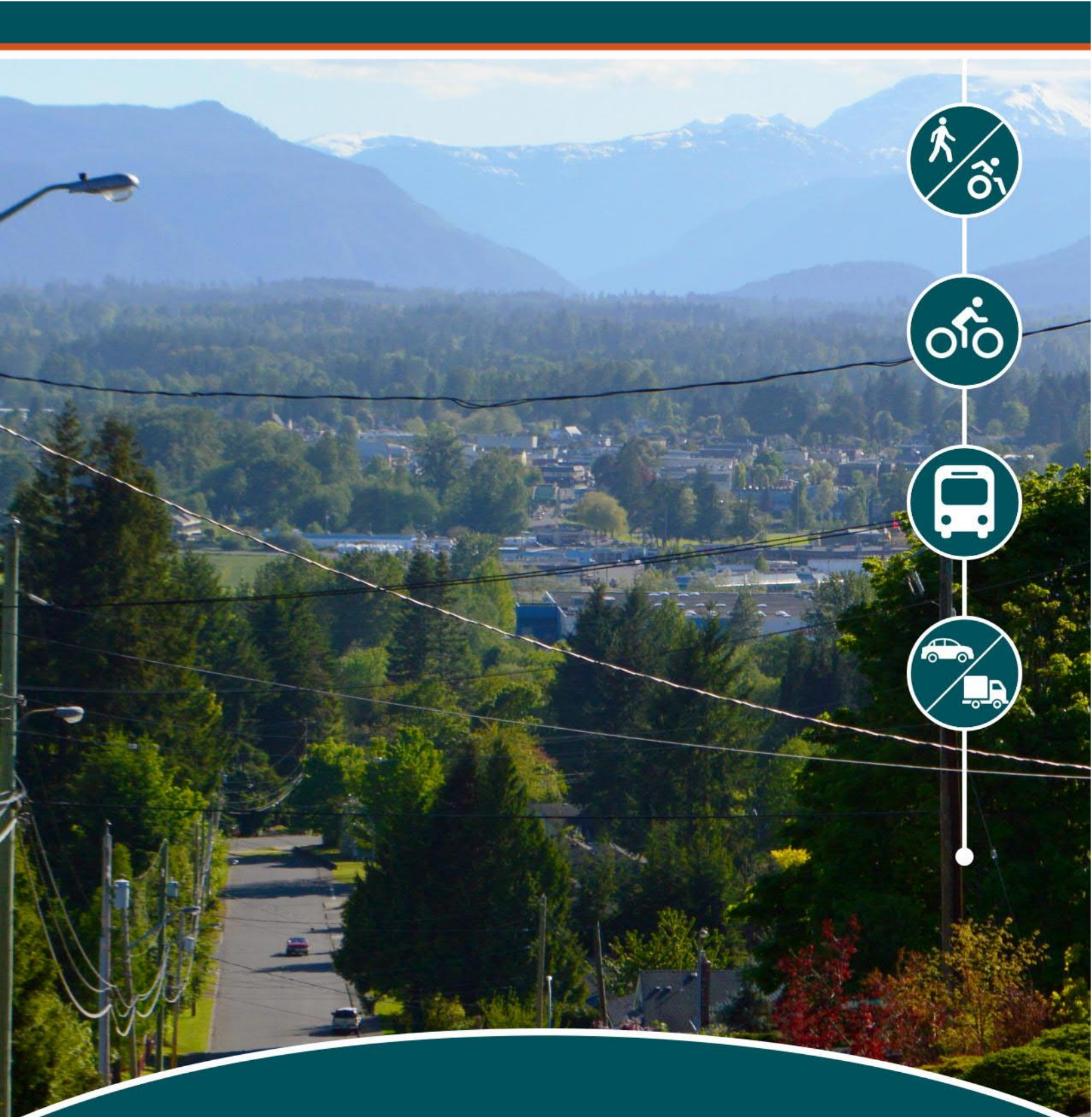
1.4 APPLYING THE PLAN

Connecting Courtenay is a guide for the development and implementation of transportation infrastructure, policies, programs, and activities. It will require funding and partnerships to be successful. Further, it looks both to the long-term – i.e. what issues should the City be prepared to address and what are the most promising solutions – as well as to the actions that should be implemented in the next ten years. This is a living document, and the actions recommended here within must be reaffirmed through funding, Council resolutions, and effective partnership action on an annual basis. This is particularly important for major infrastructure, which may be deferred if investments in non-automobile modes of transportation and changes in land use patterns are successful in limiting vehicle volume growth.

1.5 PLAN FRAMEWORK

Connecting Courtenay is separated into eight sections as highlighted below:

1. **Shaping Influences** highlight those factors that currently influence travel demands and choices within the City.
2. **Overall Directions** are based on community input and guidance when considering existing and future base conditions.
3. **Streets Plan Themes** provide a strategic approach for managed investments in the current and future road network within Courtenay that include municipal, regional and provincial interests.
4. **Walking Plan Themes** include infrastructure and programs to encourage walking or getting around Courtenay with mobility devices.
5. **Cycling Plan Themes** highlight current design standards and identify a future cycling network and support facilities.
6. **Transit Infrastructure Themes** provide guidance on the City’s responsibilities for making transit universally accessible.
7. **New Mobility Themes** address new and future transportation modes anticipated to emerge during the life of this plan.
8. **Implementation & Phasing** summarizes priorities for investment during the first 10-years of the plan based on community input and alignment with the Vision.



2. SHAPING INFLUENCES

Courtenay’s geographic location in the region, land use patterns and demographics shape daily travel to, from, within and through the City. The City is located at the centre of the Comox Valley Regional District (CVRD), and serves as the centre for commercial, employment, educational and recreational activities. The City is also surrounded and served by several key regional gateways, such as the Comox Valley Airport, as well as the Provincial highway system. This section of Connecting Courtenay explores those factors that most influence today’s travel needs and choices within Courtenay – specifically demographic and land use patterns.



Credit: Kim Stalknecht

2.1 DEMOGRAPHIC CONTEXT

Courtenay is attractive for people of all ages – youth, families and seniors. In 1996, the City’s population was approximately 18,000 people. As of the 2016 census, the City’s population has increased by 1.9% per year to approximately 25,600 people (or almost 40% of the Comox Valley Regional District) as illustrated in **Figure 2-1** below. Much of this growth occurred in the eastern areas of the City in the form of greenfield development in addition to some infill within the established areas.

Figure 2-1: Courtenay’s Historical & Projected Population



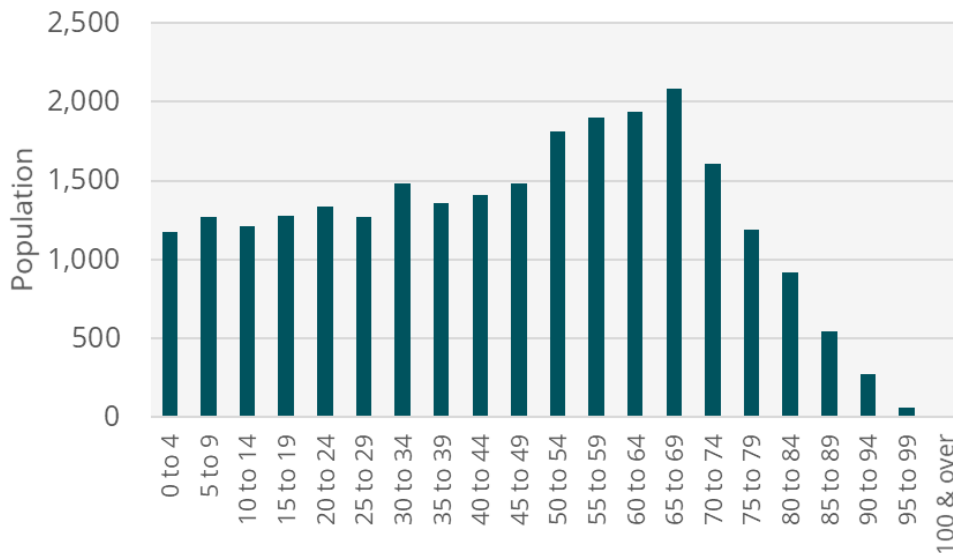
Over the next 20 years or so, the regional population is expected to grow substantially, much of which is planned for the Town of Comox and the Village of Cumberland. The City's Official Community Plan (OCP) identified a population projection range for Courtenay of between 1.5% and 3.5% compounded annual growth.

Courtenay's population is projected to grow at a rate of approximately 2% annually over the next 25 years if land use plans are achieved as predicted. The City will monitor population growth to confirm the 2% annual growth projection, as the schedule for delivery of transportation projects may need to be adjusted to align with the observed rate of growth.

Consistent with other infrastructure plans, faster rates of growth will mean that the investments included in the TMP will need to be accelerated. Conversely, slower growth rates reduce pressure on travel demands and subsequently allow for deferred investment in capital infrastructure such as walking, cycling, transit and roadway infrastructure.

Beyond the overall population growth in the City and region-wide, the age profile of Courtenay residents influences transportation choices. **Figure 2-2** illustrates the age profile of residents in 2016. The largest age cohort includes adults between 65 and 69 years. This is followed by the cohorts between 50 and 64 years, confirming Courtenay's attractiveness as a destination for retirees and active seniors. Looking ahead, it will be especially important to provide high quality, accessible, multi-modal transportation choices for residents of Courtenay to get around.

Figure 2-2: Courtenay Age Demographic Profile (2016)



2.2 LAND USE CONTEXT

Land use and transportation are fundamentally interrelated. The type, scale, mixture and form of land uses impact how much, where and how people choose to travel. Low density, single use residential or commercial land use patterns typically mean fewer trips generated to these areas during specific times of day, and longer travel distances that are not as walkable or cyclable. Providing attractive transit services can be difficult with fewer trips being generated to different areas of the City.

Today, Courtenay is comprised of established mixed-use areas within the urban core in addition to suburban scale and form of land use patterns.










Figure 2-3 illustrates the key generators of travel in the City. The general land use patterns and key destinations include:

1. **Commercial Areas.** Downtown Courtenay is an important destination for employment, shopping, and recreation. Proximity of residential areas surrounding the urban core make walking, cycling and transit possible. More suburban character commercial uses exist around Ryan Road and Lerwick Road, and these areas are generally less accessible by walking and cycling due to their location and design.
2. **Community Facilities.** Many of Courtenay's important cultural, civic and recreational facilities are located downtown, including City Hall, the library, Florence Filberg Centre and Native Sons Hall. The North Island Hospital Comox Valley and North Island College are both located north of Ryan Road and west of Lerwick Road. A number of other facilities such as, Courtenay & District Memorial Outdoor Pool, Lewis Centre, Lewis Park and LINK Youth Centre are located off of Old Island Highway.
3. **Regional Destinations.** The Comox Valley Airport is located east of the City and is primarily accessed through the City via Ryan Road, as is CFB Comox. The Comox and Cumberland communities are also both important regional destinations.
4. **Schools.** There are nine schools in Courtenay: five elementary schools, one middle school and three secondary schools. The City is also home to one of four North Island College campuses.

The existing land use designations and the City's OCP provide guidance on future growth. Over the next 20 years, the City's transportation system will need to support and accommodate more residents, jobs and services.

Additional retail growth is planned along Ryan Road east of Lerwick Road, as well as in the downtown and around Cliffe Avenue. It is also important to note that neighbouring municipalities and K'ómoks First Nation are also expected to experience population growth, and an increase in residential population in these communities is anticipated to rely on the commercial and institutional uses in Courtenay.

Figure 2-3: Community Destinations in Courtenay

-  Transit Exchange
-  Airport
-  Ferry
-  Hospital
-  College
-  School
-  Park / Greenspace
-  Destination Node
-  Regional Destination



2.3 TRAVEL PATTERNS

Where and when people travel and the transportation options available to them impacts how they choose to travel. Today, Courtenay is part of an integrated region, with 93% of Courtenay residents working within the region and 94% of people who work in Courtenay living within the region. Approximately 64% of residents both live and work in Courtenay. These relationships are illustrated in **Figure 2-4**.

Today, approximately 83% of commute trips to work or school are made by private vehicle (car, van, truck) including both drivers (77%) and passengers (6%). The use of public transit (3%), walking (8%) and cycling (4%) makes up most other commute trips, with the remainder taking some other mode (taxi, motorcycle, boat, etc.).

Figure 2-4: Where Courtenay Residents & Workers Travel

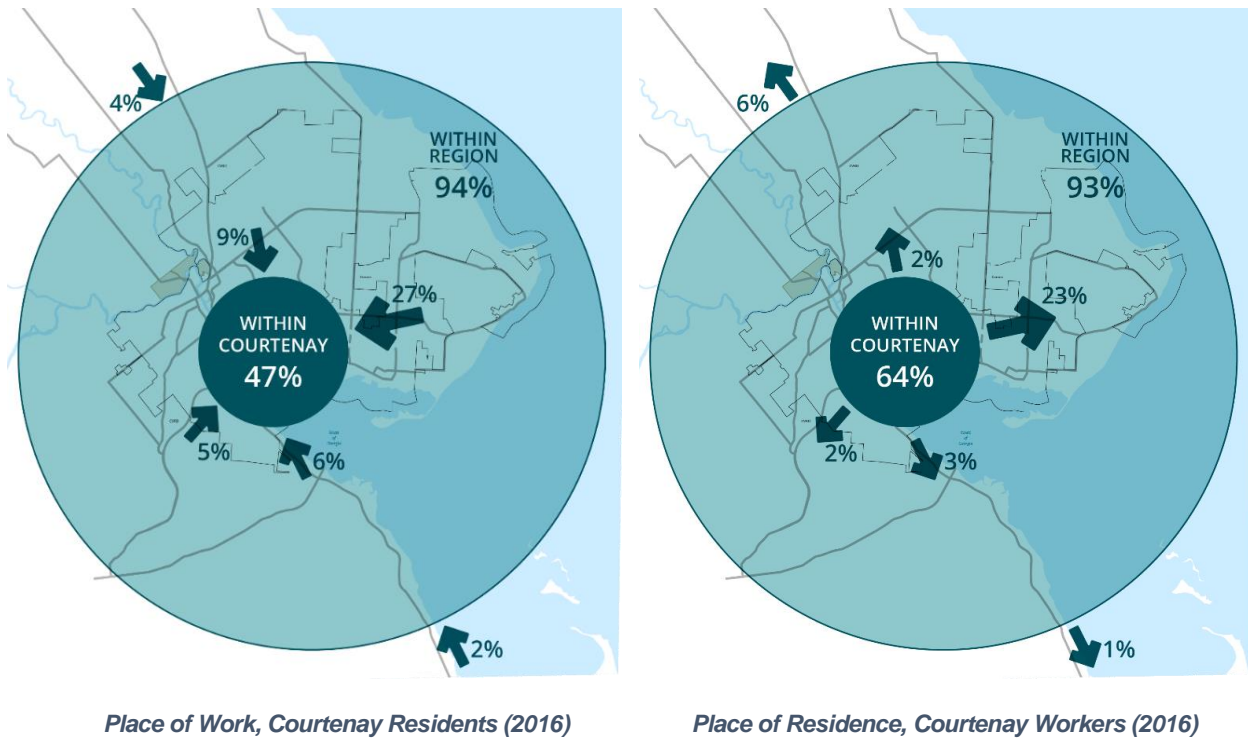


Figure 2-5 illustrates how residents of Courtenay choose to travel each day – or “mode split” – in comparison to other communities. Across British Columbia, approximately 75% use their car for work travel in comparison to 85% in Courtenay.

The time of day that people travel also influences how they choose to travel and provides insights on the worst-case periods of the day. In many cities, morning and afternoon peak period travel makes up a significant portion of daily trips by car and transit, while goods movement is more prominent during the midday period.

Although travel data and surveys are limited in Courtenay, traffic patterns on Highway 19A provide insight on the overall profile of travel demands in Courtenay’s core areas, as illustrated in **Figure 2-6**.

Figure 2-5: Mode Split to Work (2016)

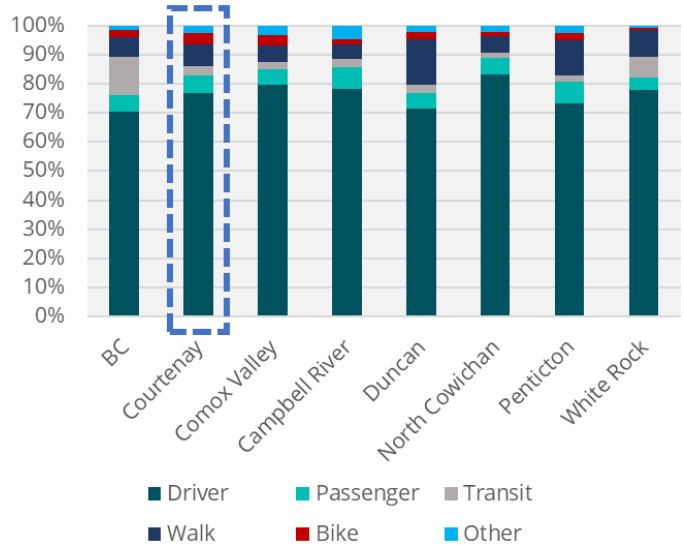
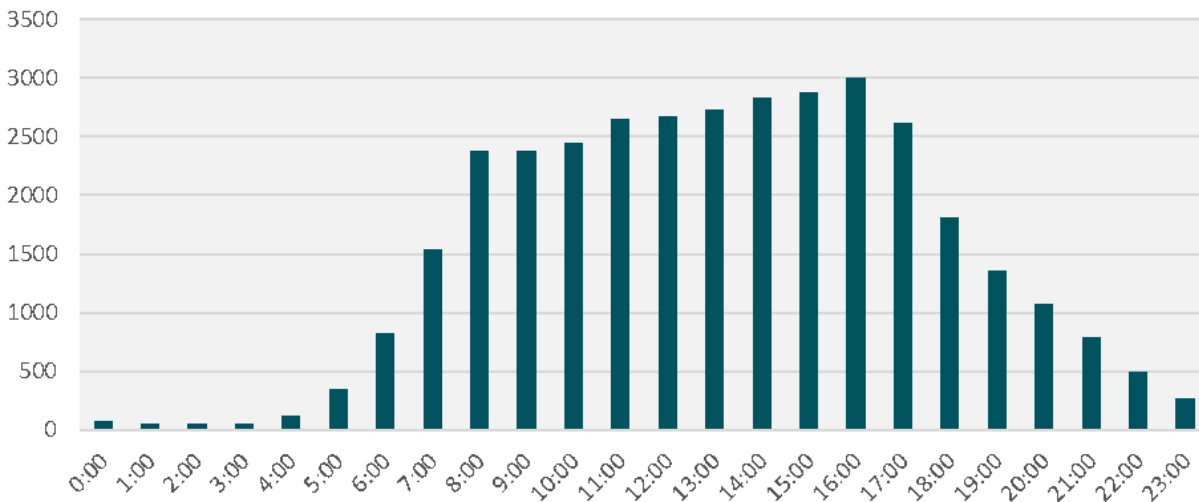


Figure 2-6: Weekday Hourly Traffic Distribution, Highway 19A at the 17th Street Bridge

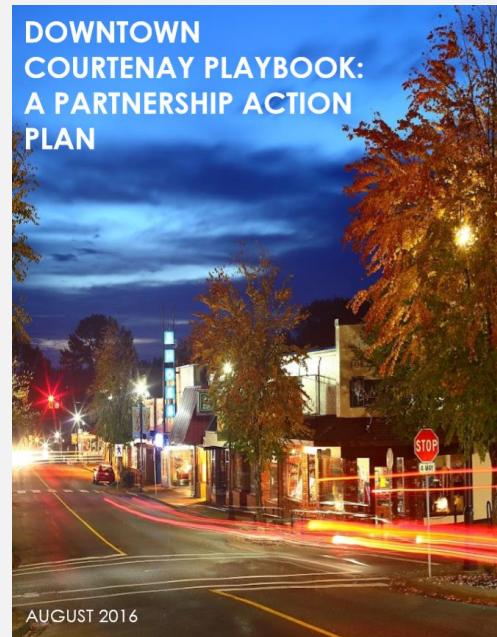


Consistent with an older demographic community, these patterns clearly indicate that travel demands are relatively consistent throughout the day. This means that the most effective travel options for people to shift modes in future must be available during daytime and peak periods. Further, these patterns also mean that any congestion levels within the core area and across bridges are also evident during morning, afternoon, as well as midday periods.

Recognizing the scale and patterns of growth in the City and region-wide, travel demand is expected to increase along major corridors and across key screenlines between areas within the City (a screenline is a point on a key corridor across which traffic volumes are measured).

Figure 2-7 illustrates the expected growth in afternoon peak period travel across screenlines over the next 20 years assuming no significant changes in walking, cycling and transit facilities and services.

As illustrated, peak vehicle travel demands are projected to increase substantially across key screenlines such as the river and major corridors without significant investments in transit, walking and cycling. Demands for crossing the river between the eastern and western areas of the City are expected to increase by approximately 20%, contributing to increased congestion and reduced mobility for car and truck travel.



DOWNTOWN COURTENAY PLAYBOOK: A Partnership Action Plan

August 2016

The Playbook is a product of the 2015 Downtown Forum and the 2016 Design Charrette. It summarizes the community vision for Downtown Courtenay created through the engagement process and the planning directions and actions for downtown revitalization.

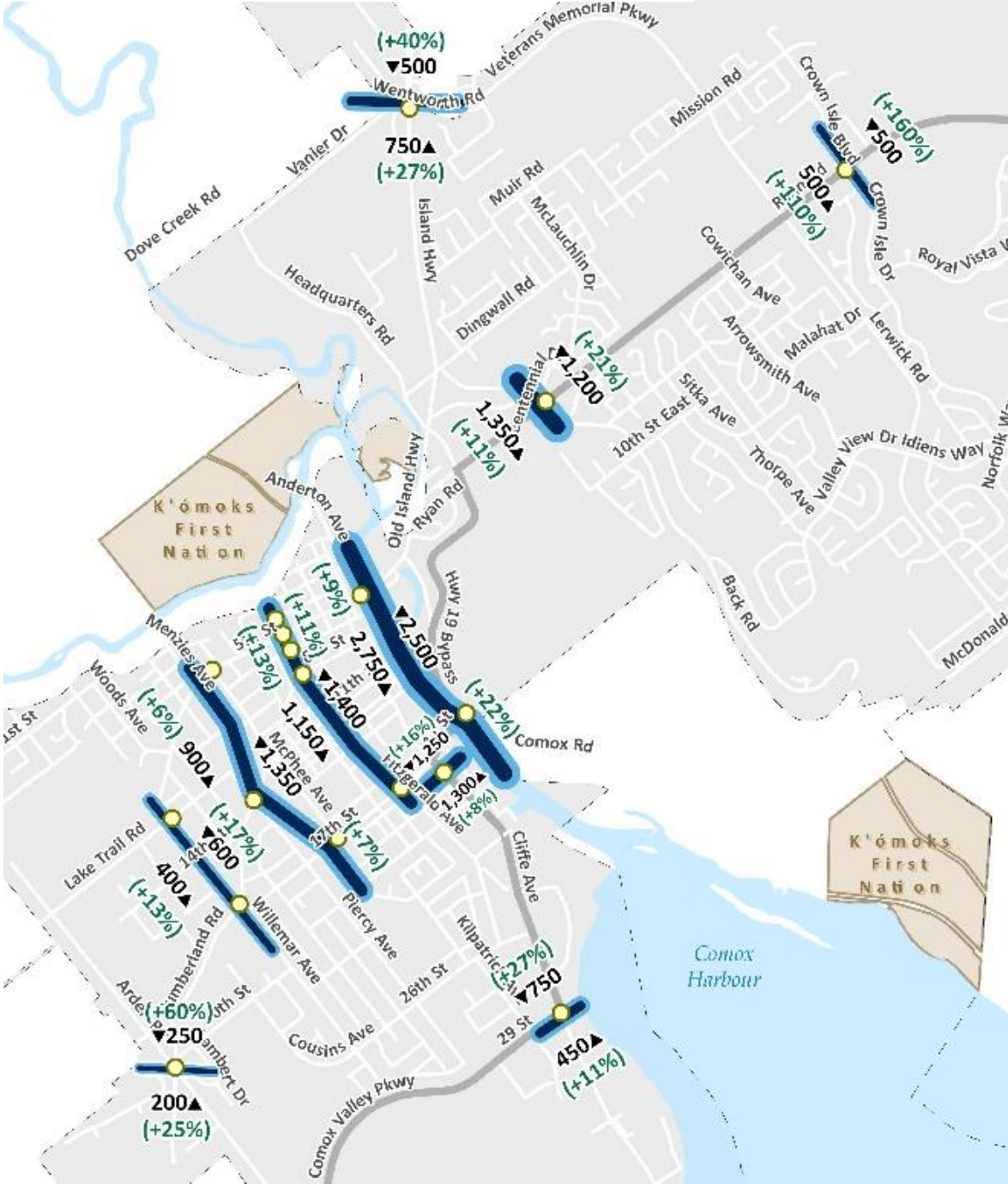
The Playbook contains five strategic planning goals, one of which is specific to transportation:

Make It Easier to Get to and Be Downtown

All modes of transportation are conveniently able to access, circulate, and park within downtown.

Connecting Courtenay's overall directions have been developed to align with the strategic planning goals of the Playbook.

Figure 2-7: Existing & Forecast Afternoon Peak Hour Traffic



- Count Location
- Screenline
- 123▲** Existing PM Peak Hour Volume By Direction
- (xxx)** Projected % PM Peak Hour Volume Growth (20 year)



3. OVERALL DIRECTIONS

Connecting Courtenay presents a long-term vision for how people and goods get around based on input and guidance from the community. This section of Connecting Courtenay provides the foundational themes and direction that guide this document, including the vision for the City’s transportation system and guiding principles to shape travel choices and support a land use vision.

3.1 VISION & VALUES

The City has worked with the community on various aspects of the transportation system over the past five years. Connecting Courtenay gave residents the opportunity to confirm their vision for the City’s transportation systems, identified at right. The vision is supported by six shared values (or objectives) that further guide the direction of Connecting Courtenay and the priorities and levels of investment.

VISION

“The City of Courtenay supports a transportation network that prioritizes connectivity and access to daily destinations and, through a balanced approach to transportation planning, provides all road users safe choices in their mode of transportation.”

1. Sustainability, Livability & Health

The transportation system is balanced and environmental impacts and GHG emissions are minimized. There is high quality cycling infrastructure, walking is convenient for users of all abilities, and transit is attractive and accessible, while vehicle trips are managed.

2. Safety + Efficiency

Transportation infrastructure is designed and built to be safe for users of all ages and abilities, and especially for the most vulnerable users. At the same time, traffic movements are efficient and reliable, and congestion is minimized. This is achieved first through optimization of existing infrastructure and then through the development of additional capacity, where warranted.

3. Economic Prosperity

Transportation attracts businesses and investment through efficient and reliable mobility for employees, goods, and services. Downtown Courtenay is a vibrant destination.

4. Connectivity

The transportation network has a high degree of connectivity for all modes of transportation. The modes of transportation are integrated to facilitate trips using multiple modes. This multi-modal network is also integrated at a regional level, supporting seamless transportation throughout the Comox Valley.

5. Affordability

The transportation system is affordable and financially sustainable. Individuals and families of all income levels can access transportation. At the same time, infrastructure budgets allow the City to continue to fund other programs and services. Investment in alternative modes has been prioritized, allowing the City to defer some major infrastructure projects.

6. Sustainable Land Use

Development patterns have become more compact and urban, resulting in a more livable community supporting varied travel modes.

City of Courtenay STRATEGIC PRIORITIES 2019 -2022

Council's Strategic Priorities, 2019-2022 were confirmed in early 2019 and consist of priorities organized into six broad topic areas that include organizational excellence, economic development, land use, and partnerships. One of the six focus areas is multi-modal transportation, which clarifies that **"we [the City] plan & invest in methods of multi-modal transportation"**.

The document clarifies Council's intent to pursue the following specifically related to multi-modal transportation:

1. Move forward with implementing the City's Transportation Master Plan (i.e., Connecting Courtenay)
2. Collaborate with regional and senior government partners to provide cost-effective transportation solutions
3. Explore opportunities for electric vehicle charging stations

The intent to implement Connecting Courtenay and partner with other levels of government to enhance multi-modal transportation, as well as to support new mobility options such as electric vehicles, are reflected throughout this document and help determine where priority investments are made in the medium- and long-term as part of the implementation of this Plan.



3.2 GUIDING PRINCIPLES

Beyond the Vision and Values described above, the recommendations of Connecting Courtenay are shaped by guiding principles and supporting technical assessments of issues and opportunities. The guiding principles were presented to the public and stakeholders during consultation and received a high level of support, ***with almost 75% of survey respondents agreeing or somewhat agreeing with the principles.***

The following guiding principles were used to shape Connecting Courtenay:

1. **Design streets to be complete & support all modes.** This includes new roadways built as a part of development, as well as new connections and improvements to existing roadways.
2. **Make walking, cycling & transit safer and more attractive.** Recommendations should focus on infrastructure, policies, and programs that will make walking, cycling, and transit safer and more attractive and accessible for people of all ages and abilities.
3. **Increase accessibility for people of all ages & abilities.** This includes more accessible walking infrastructure and support programs for people with mobility and vision challenges and cycling infrastructure for all ages and abilities.
4. **Support planned growth & increasing travel demands.** Community livability and a strong economy both rely on the ability for people and goods to travel safely, efficiently, and reliably by their chosen mode of transportation.
5. **Recognize safety, mobility, accessibility & affordability in identifying transportation improvements & evaluating alternatives.** Connecting Courtenay takes a balanced approach to improving safety and mobility in a way that is affordable for individuals, families, and the municipality as a whole.
6. **Defer the need for major infrastructure through land use, investment in non-automobile modes of transportation, & maximization of existing infrastructure.** The demands for major investments can be deferred through maximizing the effectiveness of existing assets and managing growth through strong land use planning and investments in sustainable modes.
7. **Ensure that the transportation system is planned and designed to support other community goals including, but not limited to, land use, recreation, social, environment, & economy.** Much like other communities, Courtenay’s transportation goals are interdependent with the land use, social, environmental, and economic contexts all influencing – and being influenced by – transportation choices. Connecting Courtenay will support these other community goals.

3.3 MODE SHARE TARGET

Today, approximately 85% of all trips made by Courtenay residents are by car (as driver or passenger). Sustainable travel modes – walking, cycling and transit – account for approximately 15% of all weekday trips. Without significant investments in walking, cycling and transit infrastructure and services, these patterns have not significantly changed over the last 20 years.

With population expected to grow by approximately 60% over the next 20 years, Courtenay residents want to shift travel choices toward more sustainable modes through land use plans and investments in non-automobile travel modes.

The City's OCP provides targets to double the percentage of trips by walking, cycling and transit. This direction aligns with the City's goals to reduce GHG emissions. That means transportation investments must be directed toward sustainable modes of travel to support an increase from 15% today – *transit (3%), walking (8%) and cycling (4%)* – to 30% of all trips. See **Figure 3-1**. Achieving these targets requires integrated land use and transportation decisions and prioritizing investments in sustainable travel modes.

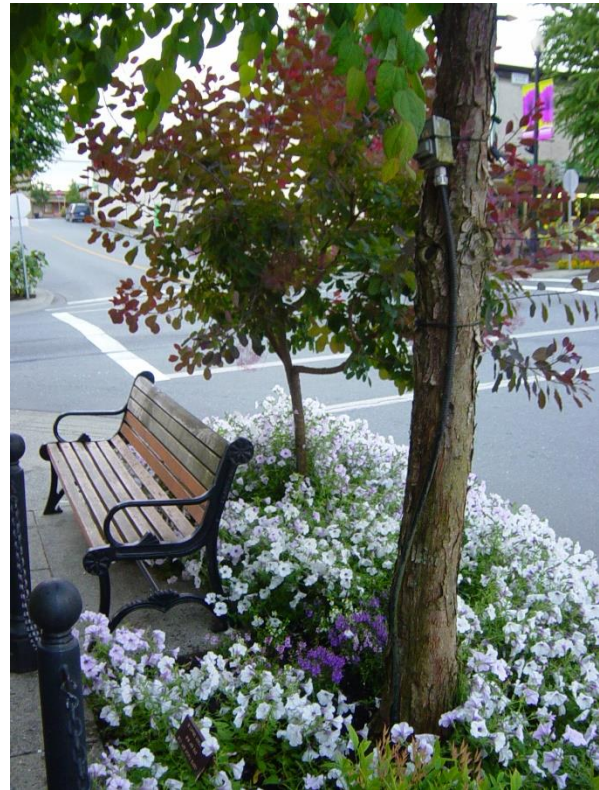
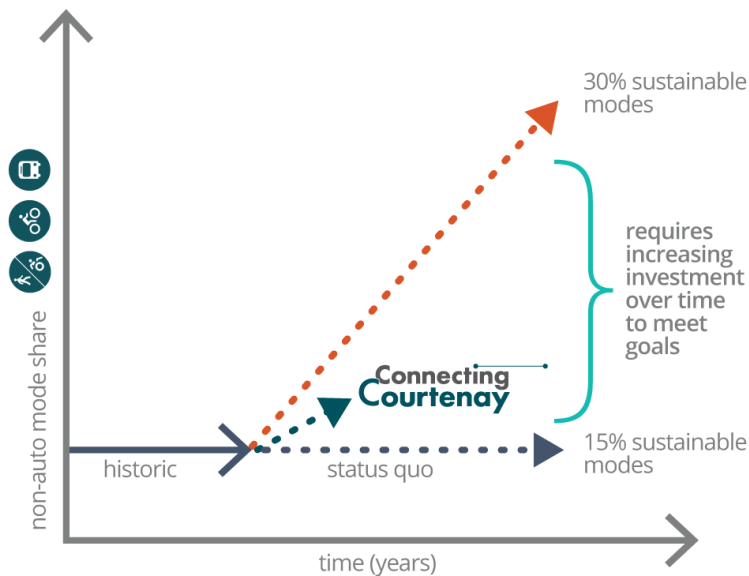
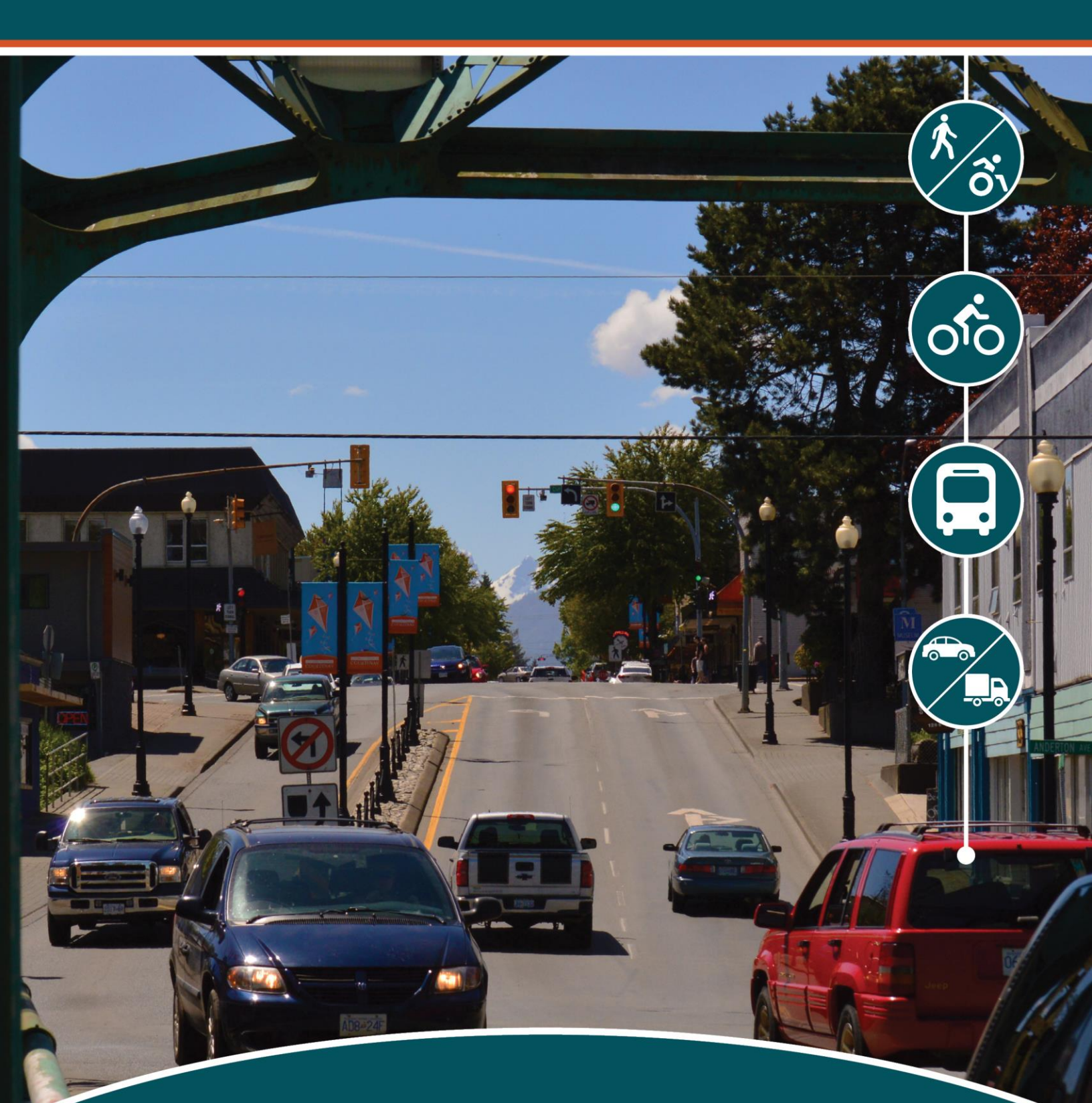


Figure 3-1: Sustainable Mode Share Target





4. STREETS PLAN

Streets are the “conduits” of the transportation network. They facilitate the movement of goods and services between provincial, regional and local destinations, and provide access to local properties. Streets are designed to support vehicular, walking, cycling and transit trips.

The historical challenge that remains in Courtenay (and many other communities) is that vehicles are often given preferential treatment in the allocation of space and roadway operations. Planning, designing, and building roads with consideration for walking, cycling and transit has the potential to positively impact the urban character on major corridors.

The Streets Plan highlights the key issues and concerns with the road network and outlines a long-term plan that includes improvements at major intersections and corridors, new connections and major road widenings.

4.1 ISSUES & OPPORTUNITIES

The existing street system in Courtenay serves local, regional and provincial travel demand for walking, cycling, transit, driving and goods movement. Because of this, the key issues and opportunities for streets – concerning connectivity, mobility, safety, access – typically impact conditions across modes.

Through the technical review and engagement with the community and agency stakeholders, key issues for streets in Courtenay were identified as follows:

- **The network for all modes is constrained** by natural barriers such as Comox Harbour, the Courtenay River, and the Tsolum River.
- **Congestion on key routes that serve provincial regional, and local travel**, including river crossings, Ryan Road and the Highway 19A bypass. **Figure 4-1** illustrates the long-term levels of service or congestion hotspots in the City projected with planned growth and without network improvements.
- **Most traffic uses roads in the core area and the lack of a bypass limits resiliency to incidents and construction.** The North Courtenay Connector opened in 2017 and provides a level of network resiliency and improved river crossing capacity.
- **Planned local and regional growth will put pressure on existing corridors**, including on river crossings, the Highway 19A Bypass, Ryan Road and major intersections. **Figure 2-7** indicated that forecast demand across core area bridges could increase by up to 25% without significant investment in alternative modes and/or new routes across the City.
- **Collision hot spots at high volume intersections on corridors with multiple accesses and high left turn volumes.** Collision frequency for the top ten collision locations are illustrated in **Figure 4-2**. High collision locations include Lerwick Road and Ryan Road; Old Island Highway and Ryan Road; 17th Street and Cliffe Avenue; and Island Highway and Ryan Road.

Figure 4-1: Forecast Base (2038) PM Peak Hour Intersection Level of Service (LOS)

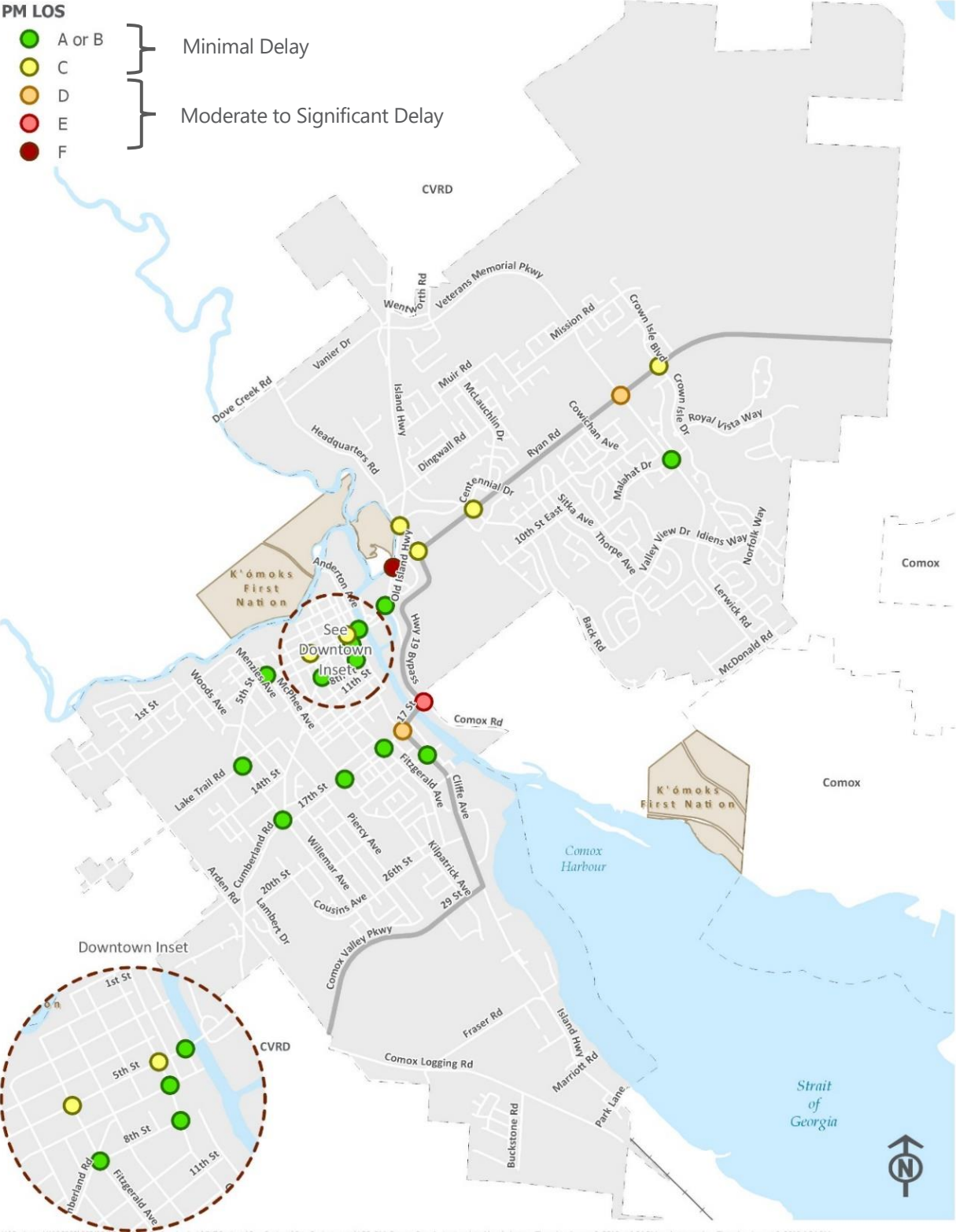
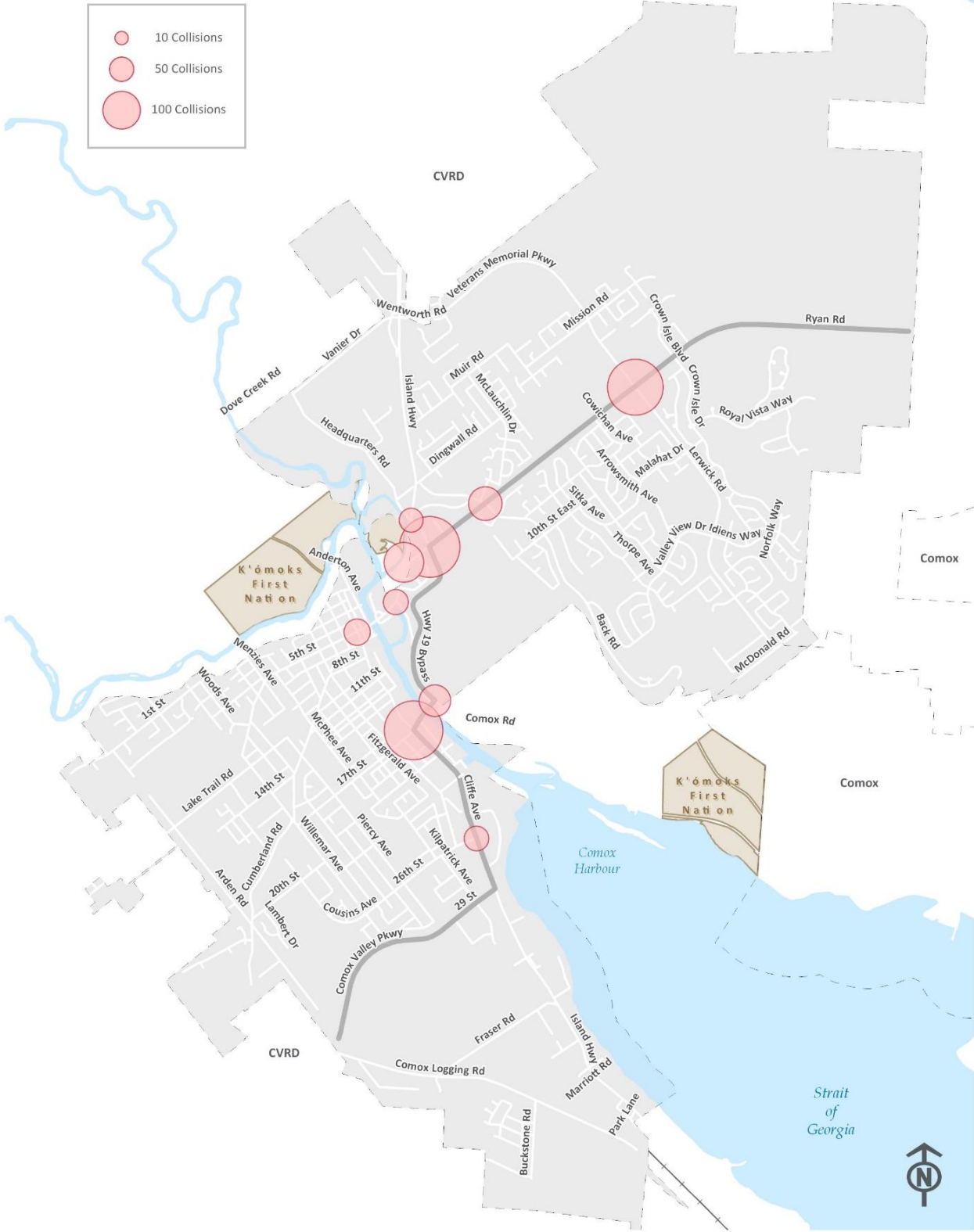


Figure 4-2: Top-10 Collision Locations (2011 to 2015)

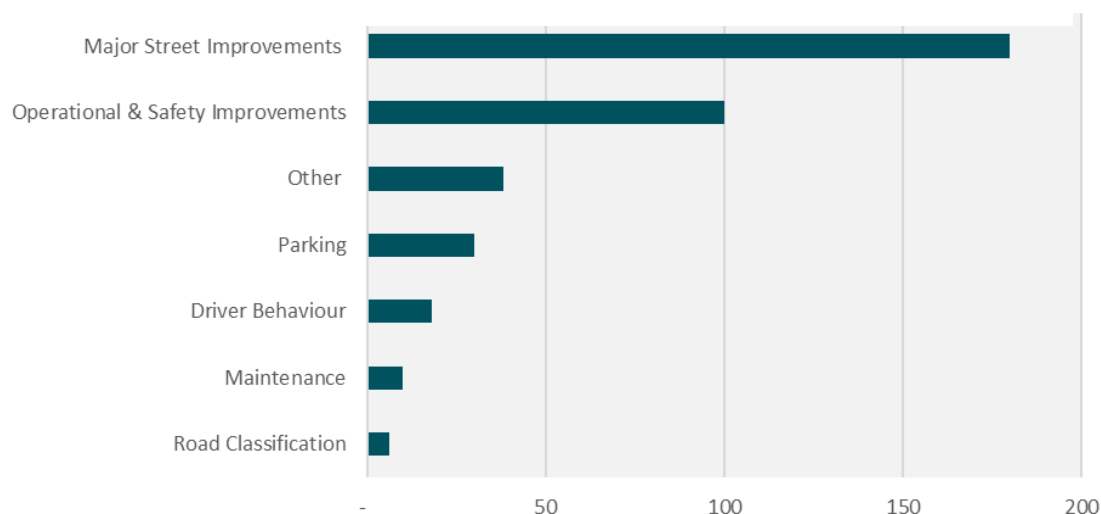


There are several opportunities to address the key issues and to enhance the mobility, safety, and operation of streets for all modes of transportation.

- Connect land use and transportation planning, invest in all modes of transportation, and support emerging technologies and new mobility to improve mode choice and reduce reliance on driving as the primary mode of transportation and address GHG reduction targets.
- Ensure all new streets and major widenings accommodate all modes of transportation.
- Manage existing infrastructure to ensure it is operating as safely and efficiently as possible.
- Consider long-term opportunities for east-west connections across Courtenay to increase network resiliency and reliability, reduce conflict on existing routes that are serving multiple roles, and accommodate growth.
- Maximize use of existing arterial roads by planning for widening in the long-term and beyond and monitoring operations to determine if and when widening is required.
- Seek opportunities for street trees in new roadway projects, consistent with the City's Urban Forest Strategy.
- Continue to enhance Downtown Courtenay streets as a livable and vibrant destination with streets that accommodate all modes, understanding that this may result in lower speeds and increased travel times for vehicular traffic.

When asked what ideas should be explored as part of the TMP process, residents provided a range of answers from the provision of new and widened major streets to operational and safety improvements. **Figure 4-3** below summarizes the possibilities identified by residents that were used to guide the development of the TMP.

Figure 4-3: Community "Ideas"
(What could we do to make it easier to drive or carpool in Courtenay?)



4.2 LONG-TERM STREETS PLAN

The long-term Streets Plan provides the foundation for the City’s transportation system, and captures directions for walking, cycling and transit in Courtenay. Consistent with the vision to increase sustainable travel in Courtenay, the Streets Plan supports a philosophy on managing existing infrastructure before investing in major road network improvements. As illustrated in **Figure 4-4** this approach is designed to both manage investments in the City’s road network and allow for increased walking, cycling and transit facilities.

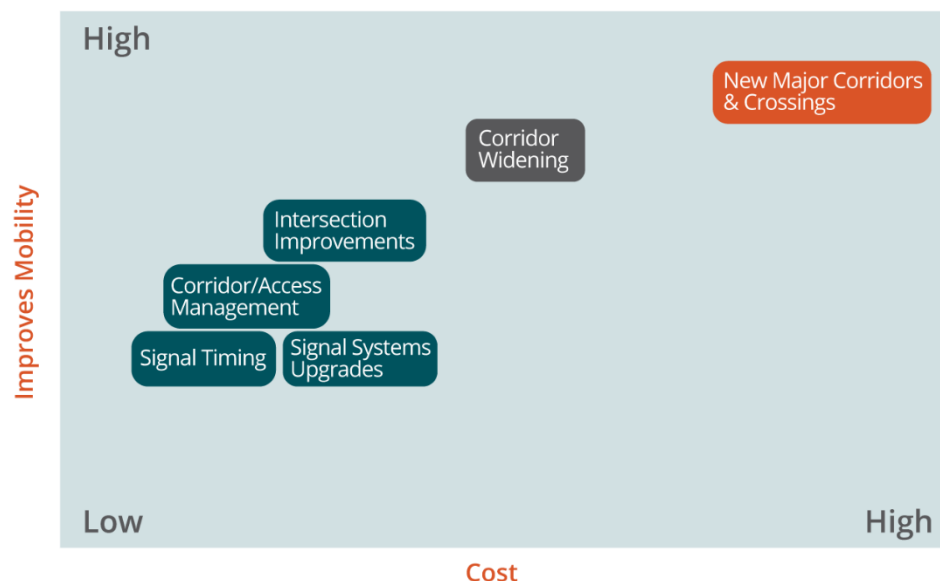
Within all urban areas, major intersections are often the primary source of congestion. The long-term plan begins with strategies to manage the existing road network – **Safety and Operational Improvements** - through enhancements to signal systems and intersections. In this regard, corridor and access changes along major roadways also help to increase performance and address safety issues.

The next level of improvements highlighted in the Streets Plan include **Corridor Widening** where intersection and corridor management improvements should be considered to extend the life of the asset or where a road may be redesigned to better address multi-modal needs.

The final aspect of the long-term Streets Plan includes **New Corridors and Crossings** of the City. In some expanding areas of the City’s built environment, new communities need to be served by major roadways that connect with the existing road network. In some cases, alternative east-west corridors have been explored as a means of addressing growing regional and City travel demands. Although some of these improvements are not considered a high priority in the next 10 to 15 years of planned growth within the Comox Valley, improvements being made in the medium-term should be planning for possibilities beyond the next 20 to 25 years.

The following sections describe the recommendations in more detail for each of these themes contained in the Streets Plan.

Figure 4-4: Types of Street Improvements



4.2.1 Safety & Operational Improvements

Major intersection and corridor safety and operational improvements include moderate-scale projects that are part of managing and investing in existing infrastructure. They can mitigate existing and anticipated future issues and extend the life of infrastructure, helping to delay larger, more expensive improvements.

In addition to addressing mobility and safety, these investments improve efficiency and performance for transit through the provision of priority lanes, as well as reduce conflicts with pedestrians and cyclists.

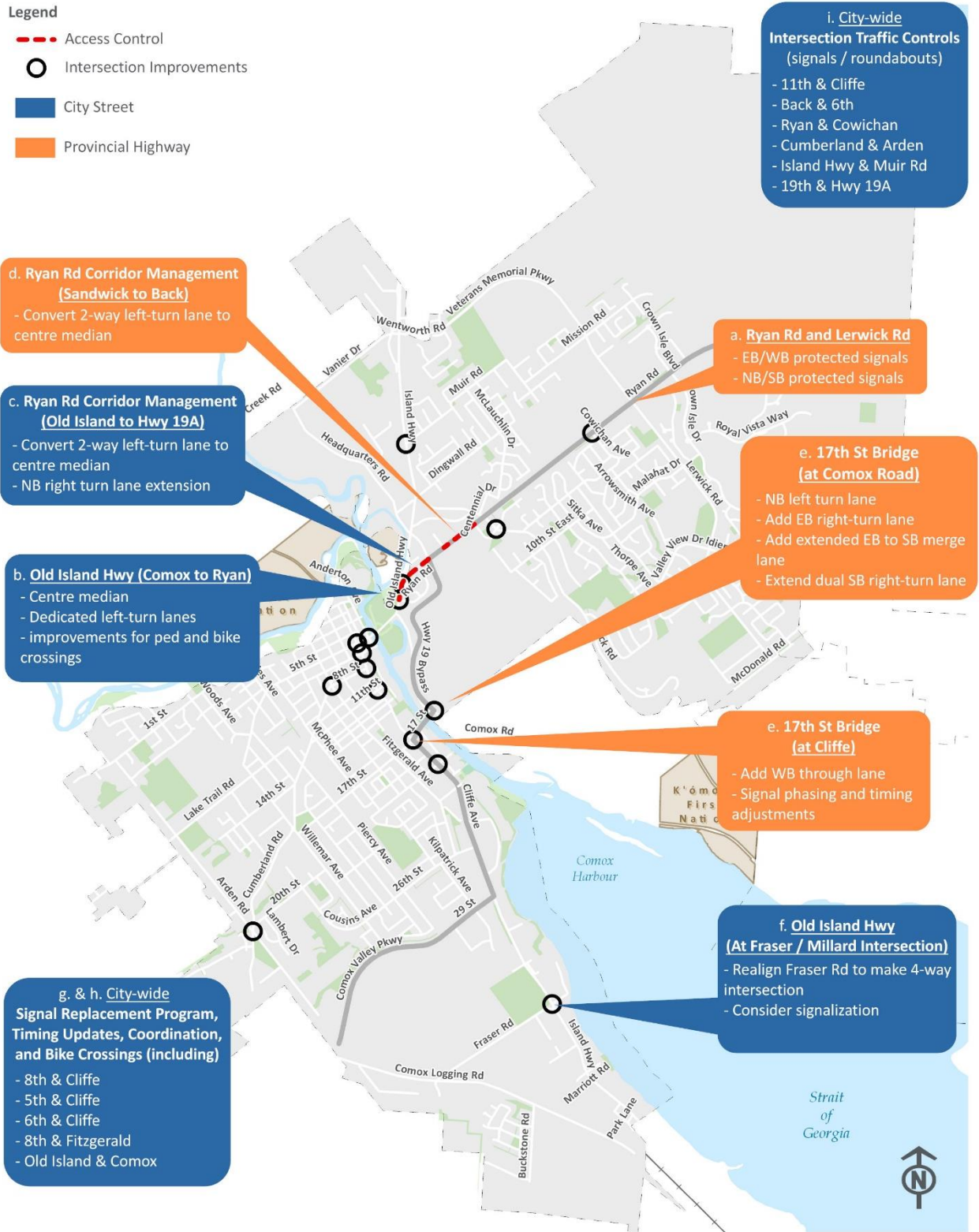
Specific safety and operational improvements are identified on **Figure 4-5** and include:

- a. **Ryan Road and Lerwick Road** protected left-turn movements and changes in signal phasing.
- b. **Old Island Highway corridor improvements** (Comox Road to Ryan Road) focus on maximizing effectiveness of existing lanes and improving safety. The recommended improvements include a centre median with dedicated left turn lanes, improving access, and new pedestrian and cyclist crossings.
- c. **Ryan Road corridor management** (MoTI, Old Island Highway to Highway 19A Bypass) to address safety and mobility issues. This includes strategies to better manage the corridor such as: a centre median island to direct turning vehicles to key intersections and alter site access to right-in/right-out; extension of the northbound right-turn lane from Old Island Highway to Ryan Road to beyond the northbound through queue; and eastbound transit bypass lane to reduce transit delays.
- d. **Ryan Road corridor management** (MoTI, Sandwick Road to Back Road). Convert the two-way left turn lane to a median island along the corridor to reduce delays and exposure to collisions.
- e. **17th Street Bridge (Highway 19A) area network and intersections** (MoTI Jurisdiction). Intersection improvements on both sides of the bridge will serve to maximize capacity of the existing crossing and approaches.
- f. **Old Island Hwy / Fraser Road / Millard Road** intersection geometry improvements to address off-set configuration and possible signalization.
- g. **Signal timing updates at City-owned intersections.** Update existing signal timings and clearances to be the most efficient possible.
- h. **Signal replacement program.** Signal system upgrades to support improved signal coordination and bicycle crossing objectives. Changes to accommodate bicycle push buttons are documented in the Long-Term Cycling Plan.
- i. **Traffic control upgrades, including new signals and / or roundabouts.** In the long-term, it is recommended that the City monitor traffic growth and operations at unsignalized intersections to determine where and when new signals or roundabouts are needed.

Figure 4-5: Safety and Operational Improvements

Legend

- Access Control
- Intersection Improvements
- City Street
- Provincial Highway



4.2.2 New & Widened Major Corridors & Connections

Intersection safety and capacity improvements will maximize Courtenay’s existing infrastructure and allow for opportunities to increase investments in other modes. Over the next 20 years however, further investments in widening existing corridors and creating new major roadways in growth areas is required to support planned growth and development.

Community input through the Connecting Courtenay process confirmed that existing traffic delay is a significant issue and many expressed interest in major road improvements. When asked, major street improvements were among the most common themes identified in the public survey. At the same time, public input called for investment in walking, cycling, and transit – as well as innovative solutions – to reduce traffic demand.

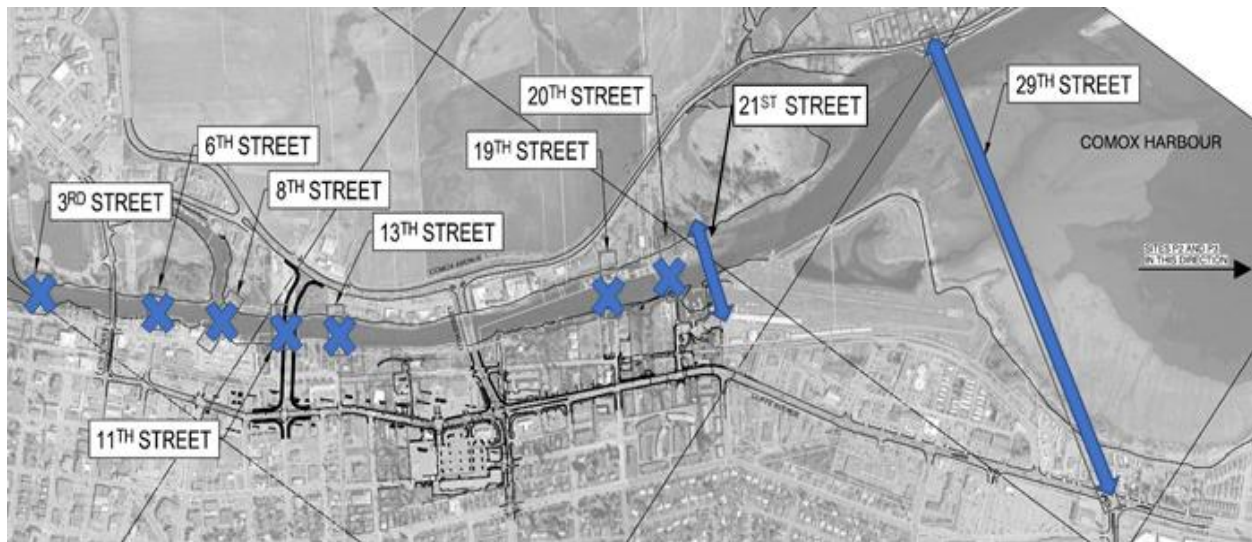
Using background plans and additional input from the community, the Connecting Courtenay process explored a wide variety of potential major roadway widenings and new connections, as well as improving existing or creating new river crossings.

In some cases, select widenings were considered as a means of maximizing use of existing rights-of-way, and new connections provided access to growing areas of the City and redundancy to the City’s major roadways.

As part of the process, improvements to existing river crossings and new river crossings were considered as part of the long-term plan. Beyond the intersection improvements previously described for the 17th Street Bridge, historical crossing options illustrated in **Figure 4-6** were all considered in the process with input and feedback from the community and Council.

In general, the rights-of-way for each of the historical crossing options are no longer available. In most cases, buildings have been constructed along or near the alignment and right-of-way that would be required. In a few cases – such as 21st Street – existing active uses prevent advancing any planning and design, and in other cases – such as 29th Street – cost would be prohibitive in addition to other significant impacts.

Figure 4-6: Historical Crossing Options



For the 21st Street and 29th Street crossing options, bridges and connections for either alignment would be complex, costly and potentially impact existing uses and environments. As such, Council passed a motion in mid-2018 to 'abandon' further investigation of the 21st Street crossing during the Connecting Courtenay process.

Rather than focus on planning for the potential of a new crossing on the south side of Courtenay, Connecting Courtenay highlights other roadway widenings and new connections that will help with local area network redundancy as well as enhance mobility and connectivity across the City and region. The proposed improvements described below include both municipal roadways and provincial highways and are illustrated on **Figure 4-7**.

- a. **Hwy 19A Widening (MoTI, 17th St to Ryan Rd).** Traffic volumes on this roadway are projected to increase by 20% over the next 20 years. Widening to four lanes will increase capacity and serve as an important connection for vehicles and transit. At the same time, the widening can also preserve for walking and cycling connections along the east side of the Courtenay River.
 - b. **Ryan Rd Widening (MoTI, Back Rd to Cowichan Rd).** With traffic volumes expected to grow by 10% to 20%, the volumes on this three-lane section of Ryan Road will exceed capacity within 20 years. The widening will support growth in this area of the City as well as mobility for transit. Improvements to the corridor will also recognize the need for safe and attractive cycling and walking facilities.
 - c. **Ryan Rd Widening (MoTI, Crown Isle Dr to Anderton Rd).** The future volumes on this roadway will depend on the scale, density, and internal road networks of the planned development area on the north side of Ryan Road. It is recommended that consideration be given to eventually widening this corridor over the next 20 years.
 - d. **Lerwick Road Widening (Malahat Dr to Valley View Dr / Idiens Way and from Blue Jay Place to McDonald Rd).** Although growth along this corridor will depend on development in Courtenay and externally, the Connecting Courtenay process identified the potential need for an eventual widening from two to four lanes.
 - e. **Back Road Widening (Ryan Rd to 10th St East).** Current volumes and forecast growth in this area of the City suggest that the widening of Back Road from two to four-lanes should be preserved as a long-term improvement.
- Beyond widening of existing roadways, two key new roadway connections are recommended to provide redundancy in the City's overall major road network and to enhance overall access and circulation for all modes of travel.

f. Northern Corridor (Piercy, Vanier, Veterans Connection to Anderton). Today, the majority of east-west regional travel through the City is across the 5th Street or 17th Street bridges. In 2017, the Ministry invested in a new Piercy Road crossing of the river to improve overall east-west connectivity between Highway 19 and the Comox Airport and ferry terminal. In a further effort to improve east-west connectivity, it is recommended the City work with other regional and provincial partners on a northern corridor that includes an extension of the Veterans Memorial Parkway through to Anderton Road. The specific alignment of this corridor should be designed to support inter-municipal travel for all modes and be planned with developments anticipated for the area. As traffic increases in the very long-term, the City and other regional partners will want to explore other improvements that may be required to Piercy Road to provide attractive connections to Highway 19. Highway signage notifying drivers of a northern corridor to access the ferry and airport would also potentially increase use of a northern corridor.

g. Tunner Dr Extension (Back Road to Hwy 19A). A very limited network of continuous east-west roadways in Courtenay means that Ryan Road is concurrently serving provincial, regional, City-wide and local functions. Although a northern route as previously described would help, local area network redundancy would also support improved mobility along Ryan Road and for local residential areas. The extension of Tunner Drive to connect with Highway 19A is recommended to provide an alternative route for local area travel for residents between Back Road and Lerwick Road, south of Ryan Road. It will also form the spine of the pedestrian and cycling route between this area and downtown. Further study is recommended to clarify the street configuration and understand local impacts.

h. Comox Logging Road Upgrades & Re-alignment.

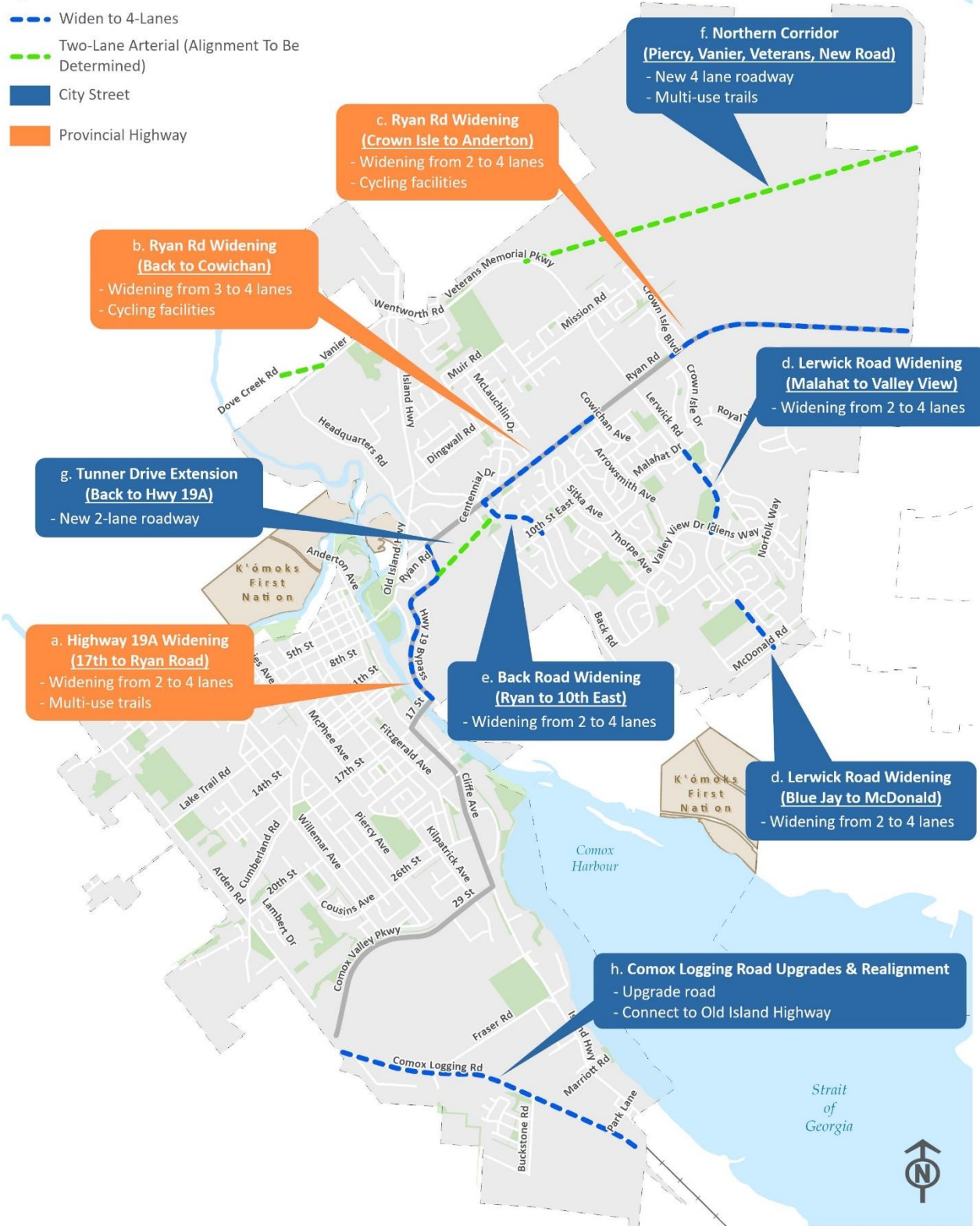
The Comox Logging Road between the Comox Valley Parkway and Old Island Highway represents a new connection to address planned growth in South Courtenay and an alternative to north-south travel on the Old Island Highway. Upgrades are required along the entire length of Comox Valley Logging Road between Comox Valley Parkway and Old Island Highway to bring it up to collector standard, with specific consideration for the ultimate alignment and intersection configuration at the north and south ends.

This corridor could ultimately connect to Arden Road to provide a continuous north-south corridor at the west edge of the City.

Figure 4-7: New & Widened Major Corridors

Legend

- - - Widen to 4-Lanes
- - - Two-Lane Arterial (Alignment To Be Determined)
- City Street
- Provincial Highway



4.2.3 Roadway Classification

The City's street classification system guides everything from specific design standards and features through to interaction with surrounding uses. In 2018, the City updated the Subdivision & Development Servicing Bylaw (SDS) to balance the needs of all modes of transportation. The SDS identifies the minimum recommended widths for each roadway element for different classifications of roadways. Wider roads can be designed depending on the context, available property, and other factors.

The existing SDS road classifications have been updated here to simplify the approach to classifying existing roadways and to capture the planned network changes of Connecting Courtenay.

The updated classification system presented in **Figure 4-8** illustrates the proposed network classification map for the City.



Figure 4-8: Recommended Road Classification Scheme



Future collector and local road network to be determined through neighbourhood plans.



4.2.4 Beyond the Next 20 Years & City Boundaries

The City and the surrounding region will continue to grow and expand beyond the next 20 years. In addition to those network improvements and new or widened roadways already recommended, the City will want to preserve or even acquire other rights-of-way for possible new connections. At this time, these new connections and further widenings are largely intended to support and provide a grid system of streets in the long-term where there are many opportunities to get around Courtenay.

Figure 4-9 illustrates those roadway connections that are recommended for long-term planning within City boundaries. They include:

1. **Willemar Avenue Extension (between 26th St & Comox Valley Parkway).** As infill growth and development occur in the established areas of the City, adding to the grid of north-south streets can serve to address mobility challenges along existing corridor such as Cliffe Avenue and will provide connectivity for all modes of travel. As development occurs in the area, the City may wish to consider extending and connecting Willemar Avenue south of 26th Street through to Comox Valley Parkway.
2. **Old Island Highway Widening from 2 to 4 lanes to accommodate growth in South Courtenay.** As growth occurs in South Courtenay and in areas south of Courtenay, consideration should be given to protecting future opportunities to widen the Old Island Highway beyond the Connecting Courtenay planning horizon.
3. **Crown Isle Collector Roadways.** Although the Local Area Plan will be used to identify the local collector and arterial road system, the City will want to ensure a grid street network that provides multiple connections to Ryan Road and Lerwick Road, as well as support the extension of Veterans Memorial Parkway.



Figure 4-9: Protecting Possibilities Beyond the TMP

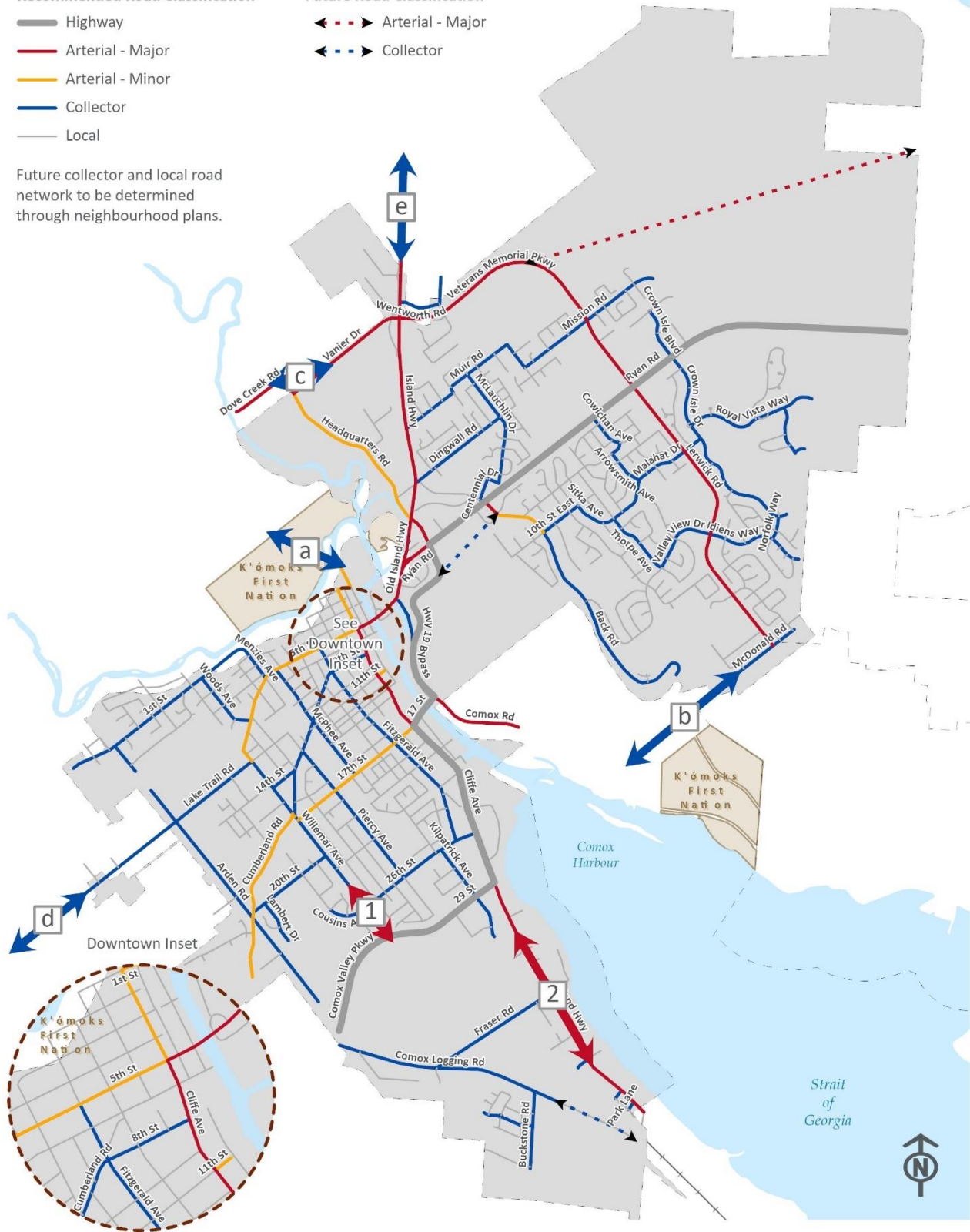
Recommended Road Classification

- Highway
- Arterial - Major
- Arterial - Minor
- Collector
- Local

Future Road Classification

- Arterial - Major
- Collector

Future collector and local road network to be determined through neighbourhood plans.



Outside City boundaries, there are new and improved connections that should be preserved for the long-term in order to enhance overall regional connectivity and planned growth. Some improved connections may be examined within the planning horizon of the TMP to identify alignments and preserve rights-of-way, and others may be considered and preserved beyond the next 20 years. These external improvements would require collaborative partnerships and discussions between the province, region and area municipalities in the Comox Valley as well as local First Nations. **Figure 4-9** illustrates those possible long-term external network connections and improvements.

a. Condensory Road Improvements (north of Puntledge River)

On the north end of the downtown area, Condensory Road bridge crosses the Puntledge River, providing alternative connections to Piercy Road and then west to Highway 19 or east to Highway 19A. It is recommended that Courtenay work with K'ómoks First Nation as well as the province and regional agencies on the possibility of providing enhanced alternatives to support improved connectivity that may support growth and connectivity north of the City and outside the region. Improvements to Condensory Road could include replacement of the bridge over the Puntledge River and upgrades to the two lane cross-section and alignment with shoulders.

b. McDonald Road Extension between Back Road & Comox Road

As noted in Section 4.2.2, the east-west network of roadways is limited on the east side of the City. It is recommended that the City work with K'ómoks First Nation, the Regional District (and/or Electoral Areas) and neighbouring municipalities on the potential to extend McDonald Road to Comox Road. This connection enhances access for transit and cycling as well as supports long-term mobility.

c. Headquarters Road Reconfiguration & Realignment (between Vanier Dr & the North Courtenay Connector)

As part of efforts to provide an east-west route across the northern end of the City, it is recommended that consideration is given to reconfiguring the connection between Vanier Drive and the new northern crossing along Piercy Road.

d. Lake Trail Road Grade-Separated Interchange with Highway 19

The existing connections to Highway 19 are at Piercy Road in the north and Comox Valley Parkway in the south, over 9-km apart from one another. An extension of Lake Trail Road to Highway 19 would be the preferred location if/when a third interchange is necessary. This initiative would require the City to work with the province, region and local municipalities to confirm the ultimate timing and location.

e. Highway 19A (north of Veterans Memorial Parkway)

Although it is not anticipated that travel demand over the next 20 years will require further upgrades to Highway 19A north of the Veterans Memorial Parkway, it is recommended that the City work with the province and region to monitor plans for growth and preserve for longer-term improvements beyond the planning horizon.



5. WALKING PLAN

Walking, including using a mobility device, is the most fundamental form of transportation. Walking is a part of every trip, whether made by car, transit or bicycle. If suitable conditions exist – such as having a complete, connected sidewalk network and destinations nearby where residents live – walking can also be a convenient alternative to vehicles for almost all short trips. Promoting walking can help reduce vehicle dependence and GHG emissions, improve public health outcomes and help to create a more liveable and vibrant community.

Walking accounts for 8% of all commute trips within Courtenay. Based on feedback received from residents and stakeholders, Courtenay residents are walking for a variety of trip purposes, including to school and work, and to access shopping, groceries and restaurants. Approximately 72% of survey respondents indicated they walk at least once per week and 41% walk at least once per day.

The City has an extensive walking network, which includes sidewalks on many streets as well as off-street trails and pathways, traffic signals, and crosswalks. Still, there are existing barriers to walking, including gaps in the sidewalk network and major roadway crossings that are difficult for people of different abilities. Continued investment in walking is important as Courtenay continues to grow and evolve. Because of changing demographics, the needs of a wide variety of users must be considered when providing for walking in Courtenay. Providing connected and comfortable walking encourages more people to walk across all demographics.



Credit: Ron Pogue



Credit: Craig Carson

5.1 ISSUES & OPPORTUNITIES

Courtenay’s OCP highlights importance of walking as a desirable mode of transportation, particularly within the downtown area. The OCP also notes that the City will pursue the development of a continuous pedestrian system and will ensure that walkways and pedestrian linkages are provided in all new developments, particularly for major destination points.

Today, there are approximately 173 km of sidewalks in Courtenay and approximately 65% of all streets have sidewalks on at least one side.

Table 5-1 outlines the sidewalk requirements for new development areas based on roadway classifications in the City’s 2018 SDS Bylaw. Sidewalks are currently required on both sides of arterials and collectors in urban and residential areas and one side of local roads (but are not required on collector roads in rural areas). The Bylaw also provides guidance on sidewalk width dependent on road classification and land use context.

Although sidewalk coverage in established areas of the community are not expected to meet the same requirements of new neighbourhoods, a large portion of major roadways in the City do not have sidewalks on both sides as summarized in **Table 5-2**.

Table 5-1: Sidewalk Requirements for New Development by Road Classification

Road Class	Sidewalk Requirements	Width (m)
Arterial	2 sides	2.0
Collector Urban	2 sides	1.8
Collector Residential	2 sides	1.5
Collector Road Rural	N/A	-
Local Road	1 side	1.5
Cul-de-sac	1 side	Unspecified

Table 5-2: Existing Sidewalk Coverage

Road Class	No Sidewalk	One Side	Two Side
Arterial	48%	16%	36%
Collector	26%	26%	48%
Local	32%	39%	29%
Provincial	45%	23%	32%

Through the consultation process, the community showed strong support for investments in making walking more attractive in Courtenay. Some of the more significant issues highlighted include:

- **Gaps in the sidewalk network make walking unsafe and uncomfortable.** This challenge is highlighted on major roads where traffic speeds and volumes are high, and along transit routes where passengers rely on sidewalks or other walkways to access bus stops.
- **Lack of safe crossings of some major roads can be barriers to walking.** These conditions can be particularly challenging when combined with low light or low visibility and for pedestrians with slower travel speeds.
- **Accessibility challenges along existing sidewalks and crossings making those with mobility aids travel longer distances to cross or not travel at all.** Contributing factors include sidewalks in disrepair, landscaping encroaching on sidewalk, poorly located push-buttons, and poorly designed curb let-downs.

Figure 5-1 highlights some of the more notable gaps identified by the community.

Addressing these issues in the City's walking network through infrastructure improvements, policies and programs will enhance the walking environment and encourage more people to walk. When the community was asked about ideas to make walking more attractive in Courtenay, there were several key themes as summarized in **Figure 5-2** that have been captured in this plan.

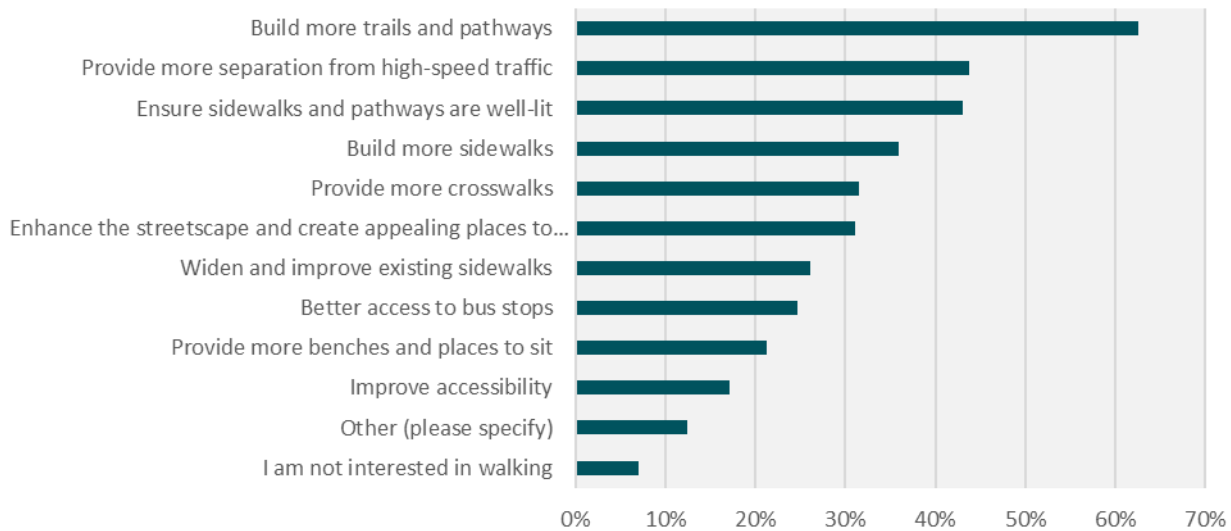


5.2 LONG-TERM WALKING PLAN

The long-term Walking Plan addresses barriers and gaps to provide more safe, convenient and comfortable walking areas in Courtenay. Within the four strategy areas, actions have been identified to support the goal of increasing walking trips to key pedestrian areas in the City and supporting connections to transit.

The Walking Plan themes begin with the provision of new pedestrian network connections to fill notable gaps identified by the community. Beyond that, provisions are made for improved crossing treatments to enhance access for people of all ages and abilities.

Figure 5-2: Community “Ideas”
(What could we do to make it easier to be a pedestrian in Courtenay?)



5.2.1 Long-Term Pedestrian Network

Pedestrian network improvements were identified on highways, arterial and collector roads, focusing on areas around schools, commercial areas, and connections to transit. Recommended network improvements are identified in **Figure 5-3**, including:

- **New Sidewalks.** New sidewalks are recommended on urban area highways, arterial roads, and collector roads that currently have one or no sidewalks and are in areas around schools, in commercial areas, and along transit routes. Pedestrian facilities along highways will need to be coordinated and implemented in partnership with MoTI.
- **New Multi-use Pathways.** In some cases, it is more effective to provide for both bicycles and pedestrians in a multi-use pathway running alongside the roadway. Recommended multi-use pathways reflect parallel recommendations from the Long-Term Cycling Plan.
- **Improvements to Multi-use Trails.** The Parks and Recreation Master Plan recommends improvements to multi-use trails that also support walking for transportation. These are reflected in Connecting Courtenay.
- **New Trails & Connections.** Beyond what is shown on the network map, it is recommended that the City seek opportunities to provide trails that connect to transit routes and key destinations to shorten trip distances and improve access to transit. These should be considered as development and property acquisition opportunities arise and in conjunction with parks planning activities.
- **Pedestrian Crossings.** New pedestrian crossings of Cliffe Avenue, Back Road, and Ryan Road are recommended. Each identified location should be studied in detail to ensure they meet basic crossing warrants and can be designed to facilitate safe pedestrian crossing with appropriate sightlines.
- **New & Improved River Crossings.** Widening the sidewalks on both the north and south sides of the 5th Street Bridge in conjunction with other maintenance and rehabilitation work would better accommodate all active transportation modes. In the long-term, the Parks and Recreation Master Plan recommends a pedestrian crossing on the 6th Street alignment, which will provide a more direct recreational connection between downtown and Simms Millennium Park.

A potential multi-use pathway along the Arden Road corridor could be considered to increase pedestrian and cyclist connectivity in this area. As part of this multi-use pathway, a pedestrian crossing of Morrison Creek could be considered in conjunction with utility upgrades. Any further study of a potential pathway in this area would require consideration of the Arden Local Area Plan (2013) and the Action Plan for the Western Brook Lamprey – Morrison Creek Population.
- **Enhanced Intersections & Improved Accessibility.** Intersections and crossings are barriers to walking for many people of all ages and abilities. Improvements to intersections can include new and improved crossings in locations where there are existing gaps, geometric improvements for universal access (particularly in high demand areas), standards for intersections with new roadways, and improvements that can be implemented during on-going maintenance and rehabilitation projects.

Figure 5-3: Recommended Pedestrian Network Plan

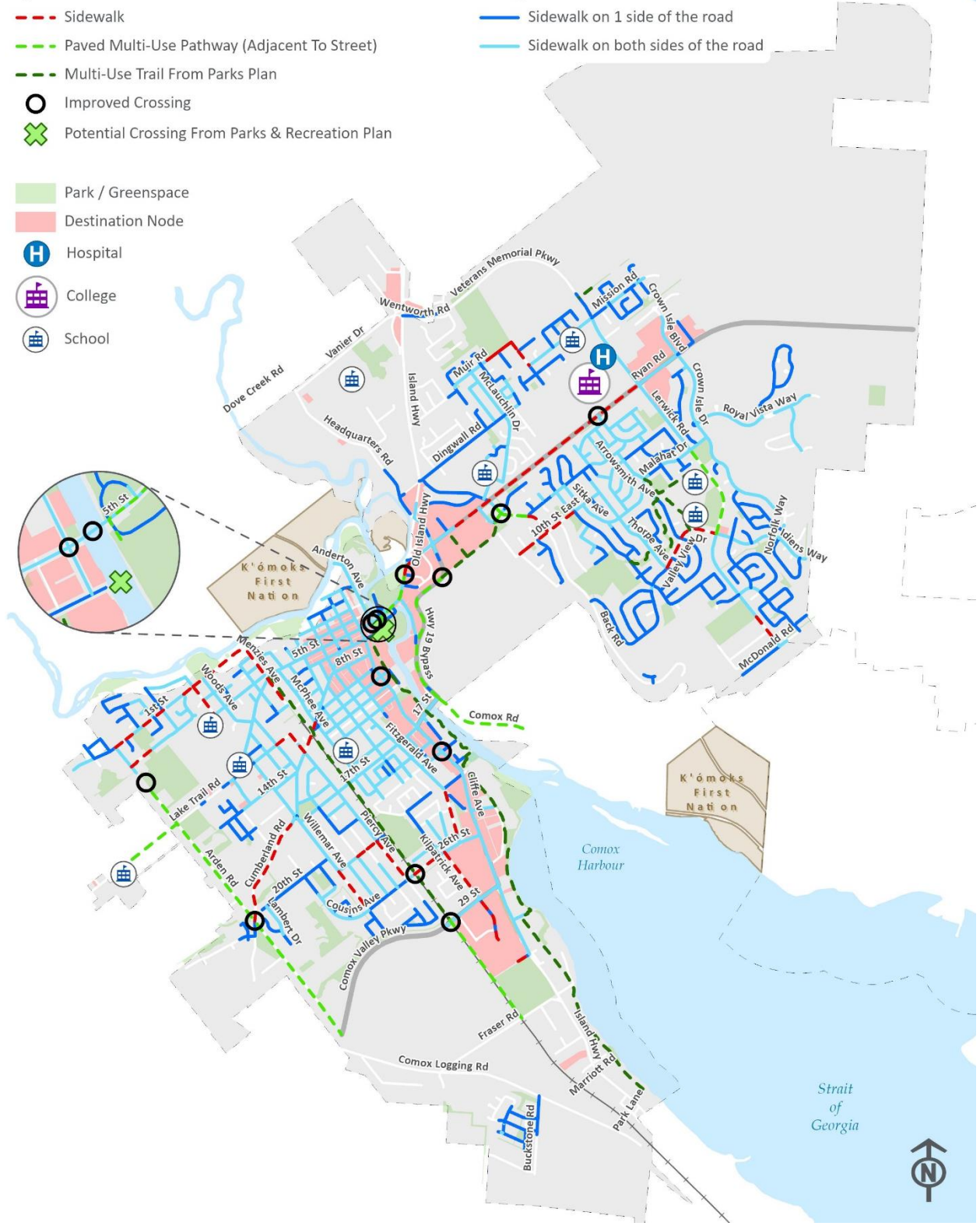
Legend

- Sidewalk
- Paved Multi-Use Pathway (Adjacent To Street)
- Multi-Use Trail From Parks Plan
- Improved Crossing
- ✕ Potential Crossing From Parks & Recreation Plan

- Park / Greenspace
- Destination Node
- H Hospital
- 🏫 College
- 🏫 School

Existing Sidewalks

- Sidewalk on 1 side of the road
- Sidewalk on both sides of the road



Beyond the provision of new crossings, it is recommended that all crossings in Courtenay are examined for accessibility treatments during signal replacement programs, on-going road rehabilitation and new construction. A “toolbox” of accessibility treatments that are recommended for consideration include, but are not limited to, the following:

- **Pedestrian countdown timers** indicate to people walking how much time they have to cross the street at a signalized intersection.
- **Lighting** ensures people walking are clearly visible at night to drivers.
- **Pedestrian activated pushbuttons** must be located where they can be accessed by people using various mobility aids and of differing heights.
- **Marked crossings** with enhanced visibility and safety.
- **Reduced crossing distances through minimum radius curbs, curb-extensions, and median islands** can help reduce pedestrian crossing distances while providing additional space for pedestrian amenities.
- **Audible pedestrian signals** are used to communicate when to walk in non-visual formats, including audible tones, speech messages, or vibrating surfaces.
- **Accessible curb letdowns** should be aligned with the crosswalk and should include directional guidance for those with visual impairments. Tactile surfaces can also be installed at curb letdowns to provide indicators to pedestrians who are visually impaired that they are approaching the intersection.
- **Pedestrian crossing time and clearance intervals** can be lengthened to allow people more time to safely cross the street.



5.2.2 Theme

A comfortable and pleasant pedestrian realm on streets is an essential component of a vibrant and livable community, especially in commercial cores. Enhanced street treatments can help create destinations in and of themselves and produce lively, vibrant, pedestrian-oriented streetscapes.

In Courtenay, the most significant key destination is the downtown. Other high pedestrian generators include the areas around schools, parks and recreation facilities, and commercial and community centres that may emerge in new neighbourhoods.

Potential enhancements include, but are not limited to, the following treatments:

- **Wider sidewalks** than the minimum standard, particularly in high activity areas and on commercial streets. Wider sidewalks create more space for individuals with mobility aids, buggies, or carts. They also provide more room for additional pedestrian amenities.
- **Boulevards and curb extensions** are buffers that separate people walking from vehicle traffic. These spaces create a more comfortable walking experience and provide space for street trees and other amenities.
- **Street trees** play an important role in increasing the comfort and safety of people walking and – consistent with the City’s Urban Forest Strategy – should be incorporated into boulevards wherever possible. Street trees also help to provide shade in the summer, improve air quality, create wildlife habitat, reduce the urban heat island effect, and act as carbon sinks, absorbing and storing greenhouse gases.
- **Pedestrian amenities** such as planters, litter and recycling bins, water fountains, and benches help to improve the attractiveness and comfort of the pedestrian environment.
- **Public art**, including artistic benches, community art projects, and community-based design initiatives can also help to improve spaces for people walking. There may be opportunities to partner with local artists or with K’omoks First Nation on public art initiatives.
- **Weather protection** can create more inviting and useable outdoor spaces year-round.
- **Wayfinding** creates a navigable pedestrian environment by identifying pedestrian routes, key destinations, and access to public transit.

The need to develop a City-wide approach to planning and investing in greenways was identified during the Plan process. A greenway planning initiative is recommended as a short-term action item to define the City’s approach to greenways and identify greenway corridors, with England Avenue being given consideration as a candidate greenway corridor and/or pilot location.

5.2.3 Pedestrian Support Programs

Education and social marketing initiatives encourage and educate people on the benefits of walking. In many cases, coordination with non-profit organizations, community groups, and other agencies (e.g. ICBC, Island Health, police, school districts) can help improve the effectiveness of these programs, and should be encouraged and supported by the City. Support programs to encourage walking include:

- **Safe Routes to School program** historically operated by School District 71 could be restarted as a partnership with the City. These programs promote walking and cycling among school-aged children.
- **Walking clubs** can help get people active while encouraging social interaction (i.e. Seniors Walking Group).
- **Neighbourhood walking maps (digital and hard copies)** provide information about local walking routes for transportation and recreation.
- **Pedestrian wayfinding** information can support pedestrian-friendly design for people using the City's sidewalks, trails, and multi-use pathways. Kiosks for pedestrians can display key information such as transit routes, community facilities, and businesses. Maps that show "you are here" information, and a five-minute walking distance can also help give people a sense of scale. Wayfinding signage and kiosks are especially important at the intersection of major pedestrian routes, such as two different multi-use trails.

Beyond education and awareness programs, it is recommended that the City engage with partner agencies and stakeholder groups on a regular basis to confirm directions and priorities and to seek to understand new issues as they arise. These groups should also be consulted in the development of projects from planning through to detailed design.



6. CYCLING PLAN

Cycling can be an attractive transportation option as it is convenient, relatively low cost and for shorter trips can be a practical alternative to vehicle travel. The benefits of cycling to individuals, the community and the environment are vast – it is enjoyable, efficient, affordable, healthy, sociable and a sustainable form of transportation.

Cycling is already a popular recreational activity in Courtenay, due to the City’s natural beauty and great climate. Cycling accounts for 4% of all trips to/from work and school within Courtenay.

Residents and stakeholders are cycling in Courtenay for a variety of trip purposes including cycling to school and work but also when they are going shopping, to restaurants, for groceries and other daily needs. The most common trips are to work and for daily errands.

Developing a safe and comprehensive bicycle network along with supporting education and promotional programs is important to encourage cycling as a viable and attractive mode of transportation. With appropriate facilities, cycling can be time-competitive with both automobiles and transit, particularly over short-to-moderate distances during peak travel periods. A variety of factors influence an individual’s decision to bicycle, such as network connectivity, quality of facilities, and the distance between destinations.



6.1 ISSUES & OPPORTUNITIES

Courtenay’s OCP outlines the importance of cycling as a form of transportation with a target that by 2020 10% of trips in Courtenay will be made by bicycle. The OCP also states that the City will continue to pursue the development of a continuous, integrated bicycle network to promote and encourage cycling as a commuting alternative to personal vehicles and as a means of active recreation.

The SDS Bylaw identifies the recommended bicycle facility types by street network classification and land use context for new developments in the City of Courtenay.

As summarized in **Table 6-1** below, the City has approximately 30km of existing bicycle facilities, as well as bicycle parking and other support infrastructure. Courtenay’s existing bicycle network is limited and largely on-street. Multi-use pathways, such as the Courtenay Riverway, the Rotary Trail, and other connections provide key connectivity, but face special challenges due to narrow widths, popularity with a wide variety of trail users, and uncontrolled intersection crossings.

Existing cycling facilities are illustrated in **Figure 6-1**.

Table 6-1: Length of Existing Bicycle Facilities

Bicycle Facility	Km	%
Off Street Pathway (Paved)	12.7 km	44%
Off Street Pathway (Unpaved)	11.5 km	40%
Protected Bicycle Lanes	500m	0.5%
Bicycle Lane	1.3 km	4%
Signed Bicycle Route	3.5 km	11.5%
Total	29.5 km	100%

Figure 6-1: Existing Cycling Facilities

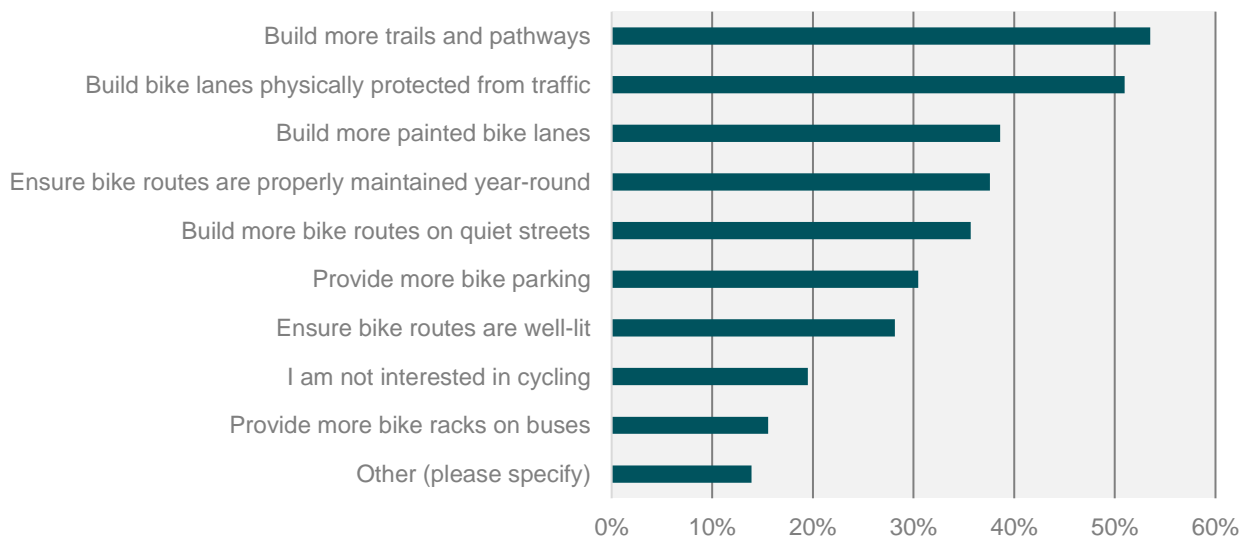


The community engagement process identified strong resident interest in improved cycling facilities for trips across the City and in key areas. Some of the more significant issues to be addressed include:

- Limited network of designated routes.** Courtenay has very few protected and off-street cycling routes that connect to key destinations and 54% of survey respondents indicated that they do not feel safe riding in traffic.
- Without a more cycling-friendly river crossing option, cycling is less likely to be an attractive option for trips that involve crossing the river.** Although popular off-street pathway facilities act as the spine to the current network, there are inherent barriers in some locations. When the pathway is busy, cycling can be a challenge and intersections can be difficult to safely navigate.
- Many neighbourhood routes that are comfortable to ride on are unsigned.** Cyclists currently use local roads to make many trips, however, they can be hard to locate and are not communicated with potential cyclists and drivers.
- Lack of secure bicycle parking** results in many cyclists not having a safe and secure place to store their bicycles at the end of their trip. Almost 30% of survey respondents indicated that having no safe place to park their bicycle discouraged them from cycling more often.

Addressing these issues through infrastructure improvements, policies, and programs will enhance the cycling in Courtenay and encourage more people to bike for all trip purposes. When asked about what the City should consider in Connecting Courtenay to improve cycling, most respondents requested more trails and pathways in addition to on-street bike lanes protected from traffic as summarized in **Figure 6-2** below.

Figure 6-2: Community “Ideas”
(What could we do to make it easier to be a cyclist in Courtenay?)



6.2 LONG-TERM CYCLING PLAN

The Long-Term Cycling Plan addresses key issues by identifying where, when, and how the City can invest in the development of a comfortable cycling network, support programs, and facilities. Like the other long-term plans, the recommendations are intended to be advanced by the City and its partners over a number of years. The City will also need to work with partners and stakeholders to refine and further develop the recommendations outlined in the Plan.

The Long-term Cycling Plan begins with a toolbox of **bicycle facilities and intersection treatments** that are recommended for use to guide planning and design as Connecting Courtenay is implemented. The Plan also includes a recommended **cycling network** that encourages all ages and abilities to maximize potential for cycling in Courtenay. In an effort to further bolster the Plan, **supporting bicycle facilities and programs** are also outlined.



6.2.1 Cycling Facility Treatments

To develop a more comfortable and effective network of bicycle facilities across a wide range of conditions, the City can apply a toolbox of cycling facility types. Refer to **Figure 6-3**. This toolbox is recommended based on the recently updated Transportation Association of Canada *Design Guide for Canadian Roads*.

The facilities identified have varying levels of appeal for different users and respond to different contexts and constraints. Bicycle facilities that are physically separated from motor vehicle traffic, such as off-street pathways and cycle tracks, are generally the most comfortable for the widest range of users. Facility types are divided into two overall categories:

1. **All Ages and Abilities (AAA) facilities** to encourage more bicycle ridership and increase perceived and actual safety within the City's bicycle network.
2. **Supporting facilities** which are typically less expensive and are useful for expanding and connecting the overall bicycle network and can often provide interim solutions when long-term facilities require greater investment than is currently available.

The Cycling Network Plan approved by Council in February 2019 provides details on the facility treatments, including intersections.

6.2.2 Long-Term Cycling Network

The Long-term Cycling Network was developed to address the gaps noted in the inventory and assessment and the issues summarized earlier. The Plan focuses on a spine network of comfortable facilities that builds on recent improvements and connects to key destinations. This spine is supplemented with a network that uses bicycle boulevards and existing and planned multi-use trails, which are recommended in the Draft Courtenay Parks and Recreation Master Plan.

The recommended Cycling Network is illustrated in **Figure 6-4**, the long-term cycling network map.

Figure 6-3: Cycling Facility Types

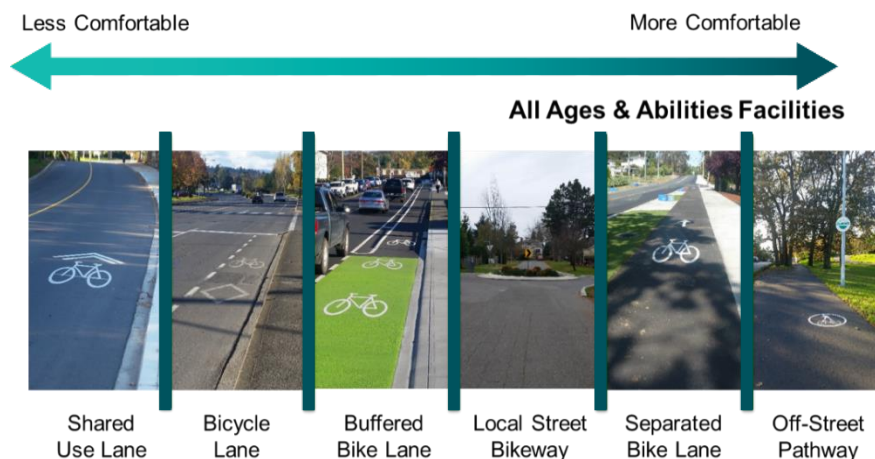






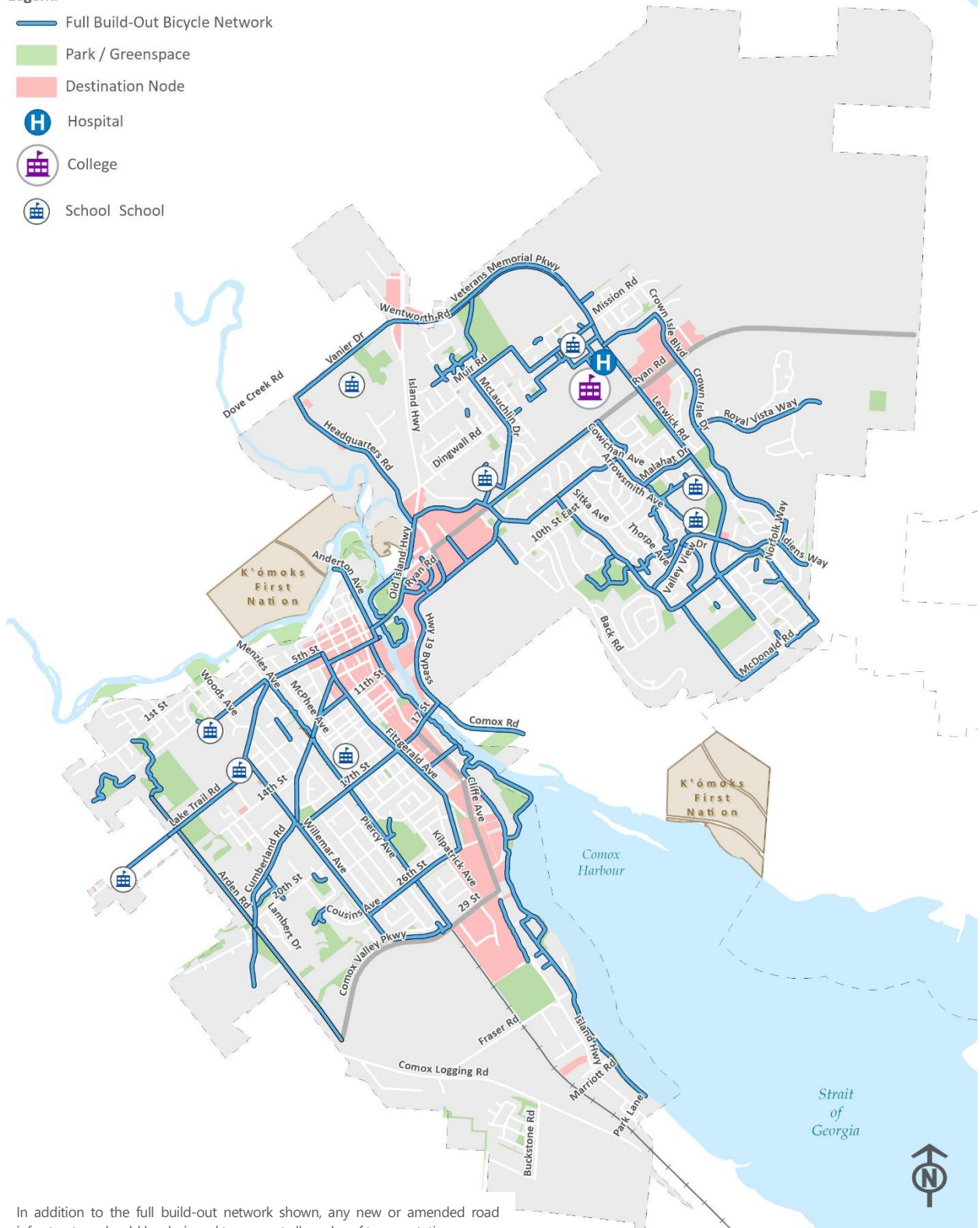


Figure 6-4: Long-Term Cycling Network

Legend

-  Full Build-Out Bicycle Network
-  Park / Greenspace
-  Destination Node
-  Hospital
-  College
-  School



In addition to the full build-out network shown, any new or amended road infrastructure should be designed to support all modes of transportation

6.2.3 Cycling Support Facilities

In addition to on-street and off-street network connections, there are other bicycle infrastructure improvements that make cycling a more attractive and convenient transportation choice. The key support facilities include:

Bicycle Parking

Safe, secure parking deters bicycle theft and addresses a common barrier to cycling. There are many types of bicycle parking that can be tailored to specific situations, and is typically categorized as either short- or long-term. Consideration may also be given to access to an electrical outlet to facilitate electric bicycle charging.

Recommendations to improve bicycle parking in Courtenay include:

1. End-of-Trip Facilities

End-of-trip facilities such as showers and clothing lockers should be included where possible at workplaces to make cycling more practical, particularly for commuting. Many bicycle commuters make have long commutes and require a place to shower / change.

2. Bicycle-Transit Integration

Transit integration allows cyclists to make trips that make farther trips and transit riders to reach destinations that are not within comfortable walking distance of transit. The City can work with BC Transit to ensure that buses have bicycle racks and that bicycle parking is available at transit exchanges and major transit stops.

3. Facility Maintenance

Once installed, it is important that bicycle infrastructure is regularly maintained year-round.

4. Cycling Amenities

It is also recommended that the City identify opportunities to provide cycling amenities throughout the City. Cycling amenities include drinking fountains with bottle fill stations and bicycle maintenance stations at key locations.

Wayfinding

While most residents know how to travel through the City by car, it may not be obvious which routes are the best by bicycle. Bicycle route signage and pavement markings can also highlight for drivers and other road users where they should expect to see greater concentrations of cyclists, which can help to educate drivers and cyclists and to improve cycling safety.



6.2.4 Cycling Support Programs

Education, awareness campaigns, events and other incentive and information programs can help bolster cycling activity in addition to infrastructure improvements. There are a number of non-profits, agencies, and other organizations within the City and the Comox Valley that already work to provide some of these programs and events, and it is recommended that the City partner with these organizations and with other nearby communities to gain support for those programs described below to help make them more effective.

Cycling Education Programs

It is recommended that the City work with partner agencies to provide cycling skills and information to residents. Examples of programs include Share the Road safety campaigns, School Travel Planning programs, and bike skills courses for both adults and school-aged children.

Promotional Events

Promotional events help to raise awareness and showcase the benefits of cycling as a healthy sustainable transportation option. These events can be mixed in with other active transportation events such as Bike to Work Week.

Bicycle Network Maps

Bike maps enable users to identify designated cycling routes that match their cycling ability and comfort level. The City could build on the regional base map to develop updated maps as new infrastructure is delivered. Digital and hard-copy bike maps should identify bicycle facility types and include important local destinations and amenities.





7. TRANSIT INFRASTRUCTURE PLAN

Public transit is the primary alternative to driving for longer trips and can often be the only option for people who do not drive. An accessible and equitable public transit system supports overall community health and connectivity for all residents. Frequent, accessible and direct public transit can attract riders, reduce the negative environmental impacts of transportation and delay investment in new and widened roadways. At the same time, public transit trips by bus are subject to the same delays and congestion as vehicle traffic.

The CVRD partners with BC Transit and Watson and Ash Transportation to plan and deliver transit service in the Comox Valley. Service types include conventional bus service and HandyDART for people with mobility challenges. Public transit accounts for approximately 3% of commute trips in Courtenay.

The central document that details existing conditions and future plans for transit service is the *Comox Valley Transit Future Plan (2014)*. This plan assesses existing service levels and outlines the vision, goals, targets, network, and implementation strategy for conventional and custom transit for the next 25 years. It identifies the transit future network for the Comox Valley consisting of the frequent and local transit networks, as well as four transit exchange locations (three within Courtenay). Refer to **Figure 7-1**.

Connecting Courtenay supports the Transit Future Plan with the build-out of a transportation system that includes everything from improved access to bus stops and exchanges through to transit priority treatments to reduce impacts of delays to transit customers and operations. These improvements align with current and planned transit services in Courtenay as presented in the Transit Future Plan.

Figure 7-1: Transit Future Network (Comox Valley Core)



7.1 ISSUES & OPPORTUNITIES

The Comox Valley transit system has 14 routes providing service to the City of Courtenay, Town of Comox, Village of Cumberland, and smaller communities in the Comox Valley, including Royston, Oyster River, and Merville. Refer to **Figure 7-2**. The City is at the centre of many routes, with exchanges located in Downtown Courtenay, at Driftwood Mall, at North Island College and the Comox Valley Aquatics Centre. Service is provided on all routes Monday through Friday, with most routes beginning operation between 6:00 a.m. and 8:00 a.m. and ending between 6:00 p.m. and 10:00 p.m. All routes, with the exception of the VMP connector, offer Saturday service. Select routes operate infrequent Sunday service (1, 2, 4, 6, 8, 10) with between 2 and 8 trips over the day.

Results of the community survey for Connecting Courtenay identified transit as the least attractive travel mode, with almost 60% of respondents reporting that it was not effective. Today, only 3% of commute trips occur on transit in the City and more than 75% of respondents to the public survey had never used transit in the Comox Valley.



Figure 7-2: Existing Transit Services

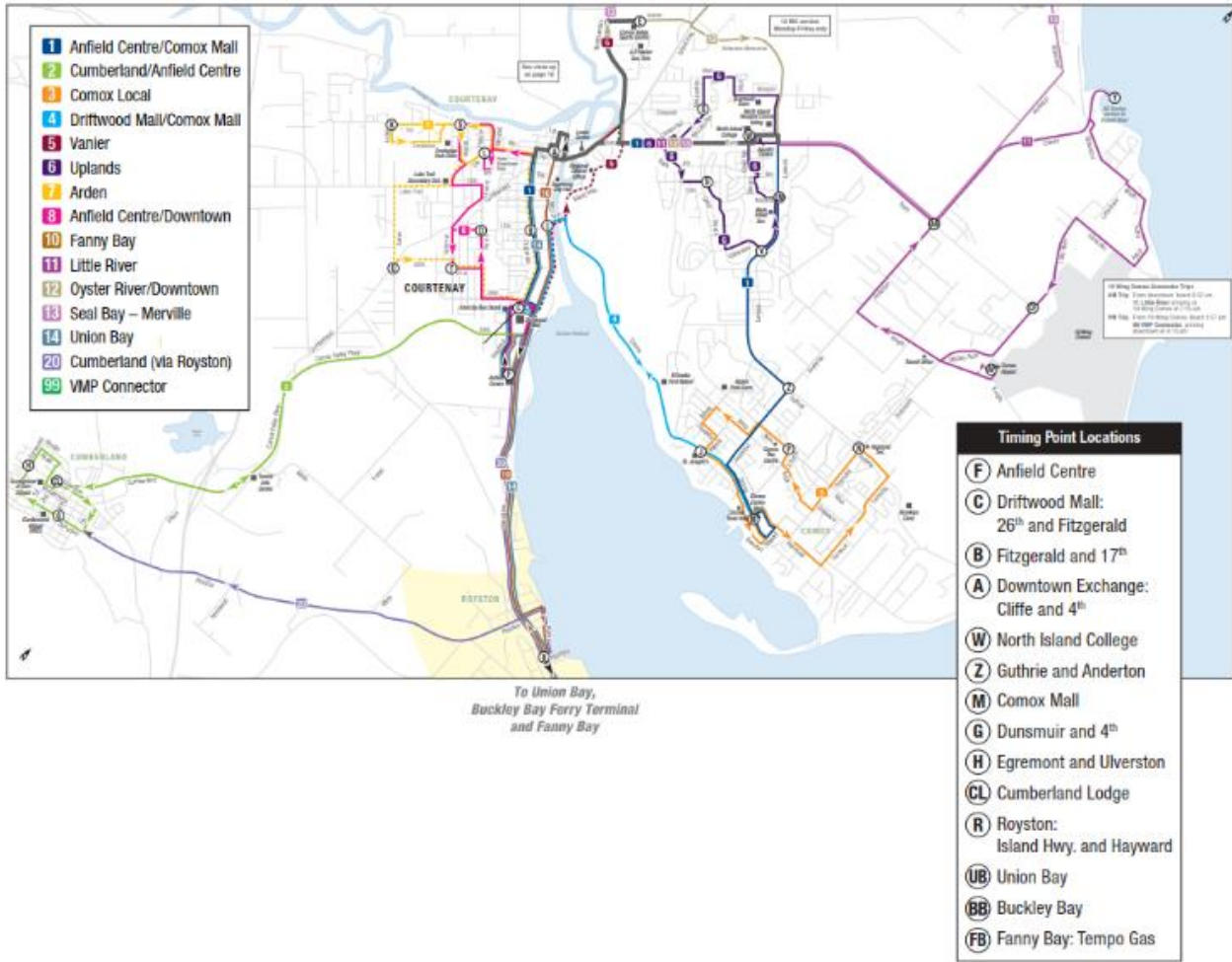
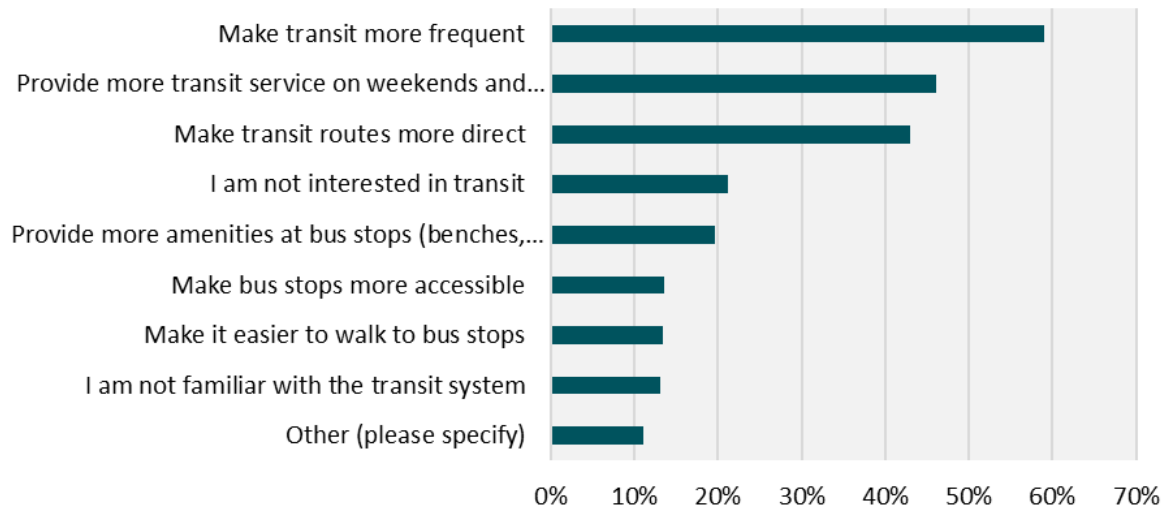


Figure 7-3: Community “Ideas”
(What could be done to make it easier to take transit in Courtenay?)



Although transit service improvements are generally being addressed in the Transit Future Plan, residents provided input on key issues and challenges associated with current day service (before changes in Fall 2018). The key themes relating to service are summarized in **Figure 7-3** (above) and include the following:

- **Transit service is infrequent.** Before Fall 2018, most routes in Courtenay operated with one-hour frequencies, even during peak hours. Starting in Fall of 2018, BC Transit introduced a Frequent Transit Network (FTN) and Route 1 now has 20-minute frequency in the peak hours and 30- to 60-minute frequency off-peak. This improvement makes transit more convenient for people with origins and destinations in downtown Courtenay, along Ryan Road and Lerwick Road, and in central Comox. However, 20-minute frequency leaves room for future investment in shorter frequency over time. Beyond this route, service through the rest of the system is infrequent.
- **Limited weekend and evening service.** Peak hour service supports travel to work and school for people with a standard '9-to-5' schedule. People who must travel outside of those times or would use transit for other (non-work) trips are left with a more limited schedule, making transit less appealing and may leave those who do not drive with limited options.
- **Routes are indirect and the system is complex.** The Transit Future Plan identified network efficiency as a challenge. Indirect routes create longer travel times and reduce the attractiveness of the system. Over half the survey responses indicated that they did not take transit more often because it takes longer than other modes.

Transit infrastructure concerns identified by community stakeholders are summarized below:

- **Access to transit can be difficult, especially for people with mobility challenges.** Although transit vehicles have become more accessible, some transit stops are not connected to sidewalks, making it difficult to safely reach the stop. A lack of accessible waiting and boarding areas can make it difficult or impossible for people using mobility aids to access transit. This is especially important along the emerging Frequent Transit Network, which is expected to attract the highest ridership.
- **Limited customer amenities through much of the system.** Safe, comfortable, and convenient customer amenities at stops and exchanges can increase the attractiveness of transit and make it easier to use. Many existing transit stops in Courtenay do not meet BC Transit's standard guidelines. Future planned transit exchanges in Downtown Courtenay, at North Island College, and at Driftwood Mall / Anfield Centre create an opportunity to provide a range of customer amenities.
- **Buses are subject to the same delays and reliability issues as other traffic.** Throughout Courtenay, buses travel in lanes with other traffic and are subject to the same queues and delays. This can reduce the reliability and efficiency of the transit network, especially during peak hours. As congestion grows, delays and variability in travel times can be expected to increase, worsening existing issues.

When surveyed about making transit more effective in Courtenay, responses included comments about the service and facilities as illustrated in **Figure 7-2**.

7.2 LONG-TERM TRANSIT-SUPPORTIVE INFRASTRUCTURE

Because of the extensive work completed by BC Transit, and the regional nature of the transit system, the Transit Plan within Connecting Courtenay focuses on specific strategies and actions the City can implement to support access to transit, as well as transit efficiency, and passenger comfort and convenience.

Beyond the transit supportive infrastructure themes described below, increasing transit mode share will require continued support for increasing service frequencies and longer service hours as outlined in the Transit Future Plan. This, in turn, calls for on-going increases in the financial support provided by the City over time. It is recommended that this is completed in consultation with BC Transit and is discussed further in the implementation priorities section of the plan.



7.2.1 Improved Connections to Transit

Connections to transit are strongly tied to improvements in the walking and cycling network. The completeness and accessibility of the walking network adjacent to transit stops and exchanges, in particular, can support access to transit for people of all ages and abilities. Beyond these connections, improving accessibility and safety at transit stops and future exchanges will improve the comfort and usability of these connections.

- **Close sidewalk gaps on the transit network.** As noted in the Walking Plan, prioritize investment in improving the sidewalk network around transit routes, with a focus on the FTN. This included addressing gaps on Ryan Road, Fitzgerald Avenue, Kilpatrick Avenue, and Lerwick Road.
- **Invest in accessible transit stops.** The street leading up to the stop should be well-maintained and should include the necessary pedestrian accessibility treatments to allow those with differing mobility to safely reach the transit stop. Treatments can include sidewalks, crosswalks near bus stops, and accessible curb letdowns (see Walking section).
- **Enhance safety around transit stops.** Safety measures can include providing adequate lighting and locating the stop in a location with good visibility of the surrounding street in accordance with Crime Prevention through Environmental Design (CPTED) principles.

7.2.2 Transit Priority Treatments

Treatments that offer transit vehicles priority over other vehicles and minimize delays can improve transit service delivery and result in more transit use, reduced GHG emissions, and support a more balanced and sustainable transportation system.

As noted earlier, BC Transit and CVRD have identified intersections where transit priority would support operations on the FTN. Key improvements have been reflected in the road plan and are described in more detail below:

- **Cliffe Avenue & 5th Street.** There is an existing southbound queue jump lane for buses at the intersection of Cliffe Avenue & 5th Street. Recommended signal upgrades at this location include transit signal priority to further reduce transit delay.
- **Old Island Highway & Ryan Road.** Recommended improvements at this intersection include a westbound queue jump lane and transit signal priority.
- **Cowichan Drive & Ryan Road.** Information provided by BC Transit indicates that buses turning in and out of North Island College from Ryan Road are subject to delays due to cross street traffic volumes. With the provision of a pedestrian activated crossing, the City will explore on-bus signal communications with BC Transit.

7.2.3 Downtown Exchange

The need for a transit exchange has been documented in planning work by BC Transit as important to the overall function of the transit system. In cooperation with BC Transit and the CVRD, further work is to be undertaken to determine the location and design for a new downtown exchange.

7.2.4 Transit Passenger Amenities

Increasing transit usage is dependent on more than the transit services themselves, as passenger facilities provided at transit exchanges and bus stops contribute greatly to the transit experience. Amenities that make bus stops and transit exchanges more comfortable can also have a significant impact on passenger safety and satisfaction, in addition to attracting new customers.

- **Benches & Shelters.** Shelters provide weather protection, making waits significantly more pleasant. Benches allow people to rest after their walk to the bus stop and are especially important for seniors and people with physical disabilities.
- **Customer information, including safety information, transit system maps & schedules, & wayfinding.** Safety information should be provided on buses and at transit stops. Adequate customer information and wayfinding should be provided to assist users in navigating the transit system. For example, people with cognitive difficulties, language barriers, and tourists may need extra assistance using transit. Information on fares, accessing transit, and safety, with contact information for the transit agency can also improve the customer experience.
- **Litter/Recycling Bins.** Providing litter and recycling bins help to keep the area clean and provide a service to customers.
- **Public Art.** Art can beautify and add interest to a transit ride and stop.
- **Bicycle parking near transit exchanges and / or major transit stops.** Bicycle parking at major stops and transit exchanges facilitates multi-modal trips by bicycle and transit. This can allow people to access transit where their homes are not well served by transit.



8. EMERGING TECHNOLOGIES & NEW MOBILITY

Transportation technology is changing rapidly, leading to new ways of thinking about providing transportation to communities. Advances in telecommunications and socio-behavioural shifts have already led to the exponential growth of new mobility services such as carsharing, ride-hailing (i.e., Uber, Lyft), and bikesharing in larger cities, the impacts of which are only now beginning to be understood. Electric vehicles are changing the environmental impact of private transportation. Further, autonomous vehicle technology is rapidly emerging and changing how safety and capacity may be enhanced without making changes to the established road network.

These technologies will have wide-ranging implications on the way we live and move-about communities, both large and small, and will influence the way we plan for Courtenay's future. Community discussions indicated that there is strong interest in supporting emerging technologies and new mobility, and in enhancing the potential benefits of these advances while limiting any potential negative impacts.

8.1 ISSUES & OPPORTUNITIES

Exploring the existing context for emerging technologies and new mobility allows for understanding of how these new modes are already impacting transportation in Courtenay.

Electric Vehicles. Electric, hybrid, and alternative energy vehicles are becoming more common and affordable in today's fast changing automobile market. Although the technology is steadily advancing, allowing vehicles to travel further on a single charge, wide scale proliferation of electric cars has not yet occurred, which may in part be limited by a lack of conveniently located and readily accessible charging stations.

Plug-in electric vehicles are recharged by plugging into the electricity grid via a charging station. Three charging station types are available:

- Level 1 (one hour of charge – 8 km of range)
- Level 2 (one hour of charge – 30 km of range)
- Level 3 (one hour of charge – 250 km of range)

A Level 3 charging station (also known as a DC Fast charge station) can fully charge most EVs in under one hour.

There are currently five public electric vehicle charging stations in Courtenay (per [chargehub.com](https://www.chargehub.com)), located at the following businesses:

- Wayward Distillation House (Level 2)
- Best Western Westerly Inn (Level 2)
- Real Canadian Superstore (Level 3)
- Comox Valley Nissan (Level 2)
- Comox Valley Volkswagen (Level 1)

Expanding the local electric vehicle charging network is a priority of Council as identified in the Strategic Priorities 2019-2022 and the City is actively pursuing grant opportunities to help fund new charging stations.

Electric Bicycles. E-Bikes are electric bicycles with an electric motor of 500 watts or less and functioning pedals limited to a top speed of 32 km/h without pedalling. The level of assistance provided by the motor depends on the size of the motor - smaller motors work to only assist the rider's pedaling and larger, more powerful, motors can propel the bike forward without the rider needing to pedal.

Three distinct e-bike types exist, as follows:

1. Pedal assist (or "pedelecs") automatically provide assistance when the user encounters conditions where increased physical effort is required.
2. Power-on-demand systems provide assistance when initiated by the user, typically using a throttle integrated into the handgrip.
3. Hybrid systems combine both the automated pedal-assist sensor and the option to manually engage the motor utilizing the throttle.

The improved cycling infrastructure laid out in Connecting Courtenay will facilitate e-bike use, in addition to conventional bicycles. The high cost of e-bikes (typically \$2,000 to \$5,000 or more) and related security / theft concerns are the key barriers to e-bike uptake and may be addressed through high-quality bicycle parking facilities.

New Mobility / Mobility as a Service. Advances in information technology have provided travel consumers with the ability to access, plan, reserve, and pay for travel options at the push of a button. Powered by real time information, travel consumers can now choose the optimal mode for each trip or trip segment from a suite of options.

In a fully developed mobility system, these options can consist of walking, public transit, bike-share, car share or ride-sharing (ride-hailing). A traveller may choose to take public transit for one trip and may later choose to use carshare to run errands. This way of interacting with the transportation system is a shift from viewing one's mobility options as relatively unchanging to relating to mobility as a service.

Autonomous Vehicles (AV) technology is rapidly emerging. Currently most major auto manufacturers and large technology companies (such as Google and Uber) are rapidly advancing research and development to fine-tune the technology with vehicles already being trialed to varying degrees on city streets. Over the next several years, fully autonomous vehicles are expected to be available for purchase with market adoption occurring over the next 30 years.

Amongst other implications, autonomous vehicles could extend the freedom of personal mobility to those who cannot or are unwilling to drive, such as the visually impaired and youth under the age of 16. As 90% of vehicle collisions are a result of human error, it is anticipated that autonomous vehicles will significantly reduce collision rates. Further, autonomous vehicles are projected to improve roadway operations.

8.2 LONG-TERM NEW MOBILITY PLAN

The Long-Term New Mobility Plan guides City actions toward addressing concerns and facilitating up-take of new and emerging travel options, specifically **Electric Vehicles** and **New Mobility Services**. Given the uncertain timeline associated with these new mobility services, the recommendations contained in this section are flexible and are intended to be pursued only once new mobility options emerge.

8.2.1 Electric Vehicles

The B.C. government is introducing new legislation to phase out gas-powered vehicles over the coming decades. The legislation will require the sale of all new light-duty cars and trucks to be zero-emissions vehicles by 2040, with requirements for automakers to reach a zero-emission sales target of 10% by 2025 and 30% by 2030.

New infrastructure is required to facilitate greater uptake of electric vehicles and meet the forthcoming demand for charging, including public charging stations and designated parking. Transportation policy and business / tax incentives may also be considered in promoting these types of vehicles.

The City should consider the following to encourage the use of electric vehicles:

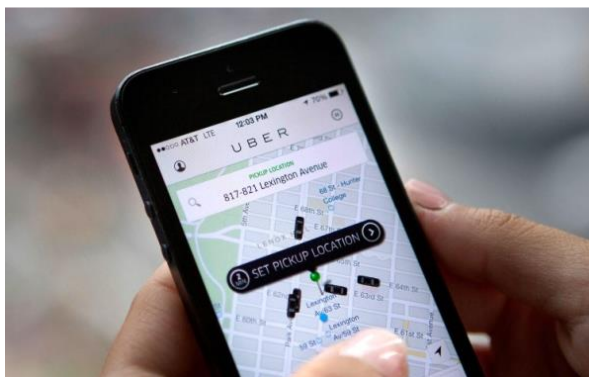
- Work with businesses and community partners to identify and incentivize locations for public charging stations, including candidate locations for Level 3 charging stations.
- Develop policies to locate charging stations in desirable and visible parking spots to incentivize local residents to purchase an electric vehicle.
- Change parking regulations to require a portion of parking spaces to be “electric vehicle-ready” and/or require charging stations at new multi-family residential or commercial developments.
- Identify opportunities to partner to provide Level 2 and Level 3 charging stations at public facilities, either by leveraging development funding to introduce a charging station to an on-street parking stall or through grants or cost-sharing at new City-owned buildings.
- As the City’s light-duty fleet vehicles require replacement, consider electric and alternative fuel vehicles.

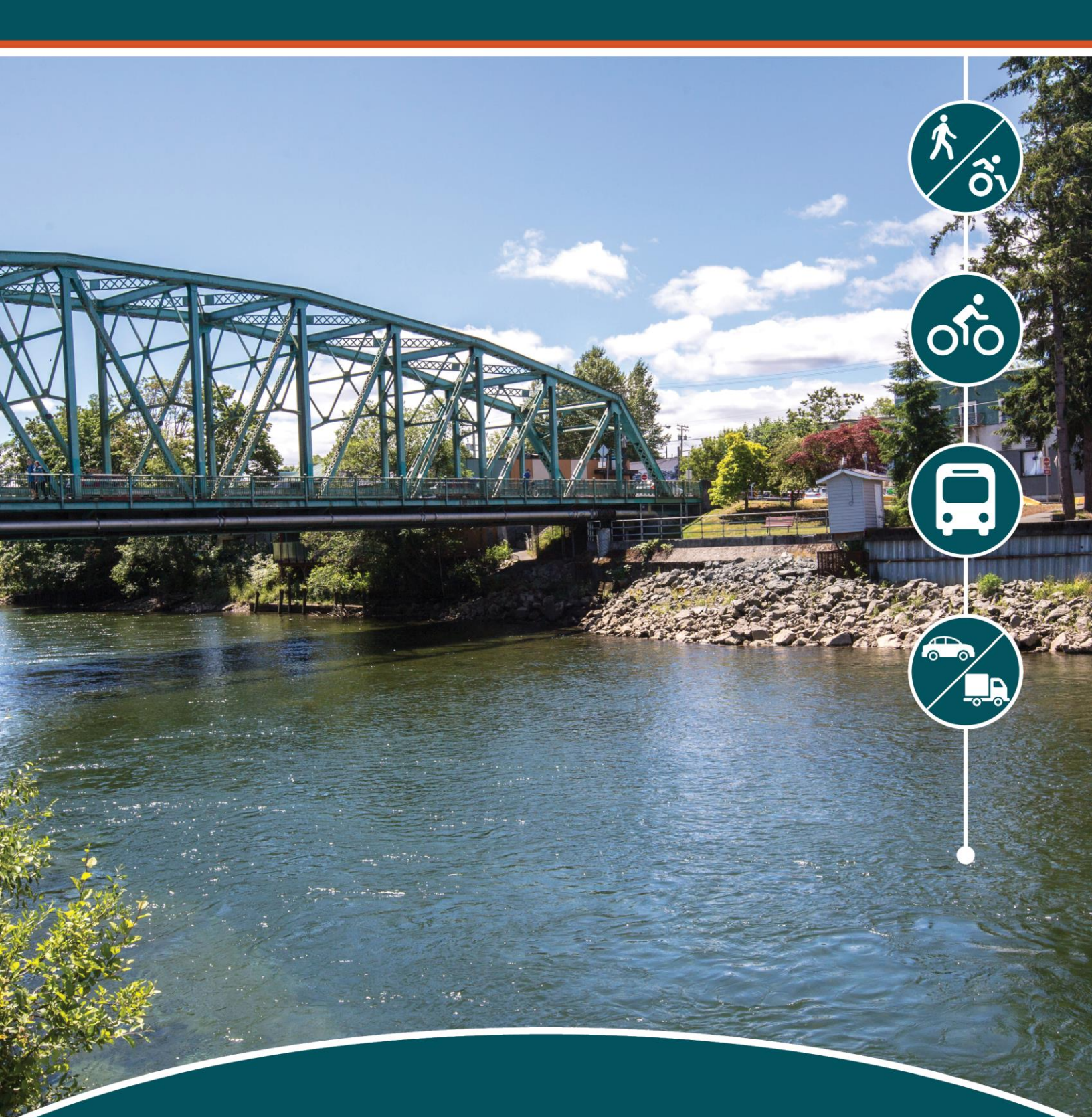


8.2.2 New Mobility Services

While growth in new mobility services have mainly occurred to this point in larger cities, these services could have benefits to small cities in the future. Courtenay should put strategies in place to encourage the adoption of new mobility / mobility as a service.

- Explore the suitability and viability of bike sharing in Courtenay including a range of technology options for the provision of bike share services, focusing on areas around the Long-Term Cycling Network (refer to **Figure 6-4**).
- Work closely with business and community partners to identify opportunities for partnerships for bike-sharing and carsharing, including major employers and destinations, such as North Island College and Island Health.
- Develop an approach to on-street and off-street public parking that includes incentives for carshare vehicles (i.e. priority parking, free parking at parking meters). This includes identifying street parking spaces in Downtown Courtenay that could be reserved for carshare in the future.
- Investigate the potential for parking variances if developers provide and support carshare services. This provision is based on research that carshare vehicles can significantly reduce the need for private vehicle ownership.
- While Provincial legislation is required to enable Transportation Network Companies to legally operate and will likely regulate aspects such as customer safety, pricing, accessibility requirements, licensing, insurance, and operations, the City of Courtenay should consider the following once ride-hailing is legalized:
 - Study the impacts of ride hailing in Courtenay. To accomplish this task, the City should seek to acquire data from Transportation Network Companies on a periodic basis, such as length of trips, time of day, customer wait times, trip distributions (origins and destinations), and accessible versus non-accessible vehicle statistics. This data will allow the City to effectively assess the impacts of ride hailing in Courtenay, as well as identify areas for improvement.
 - Explore the need for support infrastructure including designated pick-up / drop-off zones at key locations and the relationship to established taxi infrastructure such as taxi stands.
 - Work with BC Transit and the CVRD to explore whether ride-hailing could be used to expand basic transit provision to zones outside the current service area.





9. FINANCIAL PLANNING & IMPLEMENTATION PRIORITIES

The implementation of long-term improvements for streets, walking, cycling, and transit supportive infrastructure and programs will take many years. The City will not only require new and additional sources of funding through local, provincial and federal partnerships, but will also need to substantially increase funding for sustainable travel modes at the municipal level. Investments in sustainable modes will contribute towards the mode shifts envisioned in Connecting Courtenay, as well as at the regional level, and defer the need for other investments in major transportation infrastructure.

This section of Connecting Courtenay highlights the overall costs estimated to implement the long-term plans for walking, cycling, streets and transit supportive infrastructure.

Recognizing that Connecting Courtenay will take 25 years or more to implement, guidance is also provided on a phasing and implementation strategy. This phasing strategy reflects a combination of community input and feedback, technical assessment of conditions and needs, alignment with the goals and objectives of the plan as well as elements of affordability.

It should be noted that the cost estimates presented here should not be used for budgeting purposes. They are developed based on unit costs for conceptual level designs of possible configurations. Each infrastructure project will require a functional design to identify exact project scope, impacts and mitigation requirements before the cost estimate can be confirmed. It is also best practice to engage the community that may be impacted by specific projects in the process of design.

As is, the costs do not include other major items such as property, utility and environmental, as well as staff resources and stakeholder engagement for each improvement. It should also be noted that the long-term improvements for each mode and phasing strategy over the next 10 years do not imply a financial commitment.

Pending available resources, financial commitments are confirmed through the City's annual budget and capital plans. Beyond the City's budgets, the specific timing for recommended projects will be influenced by the pace of growth and development - slower rates of growth will mean deferred need and resources for spending on transportation infrastructure. Conversely, faster rates of growth mean that projects can likely be advanced.

The timing to implement the long-term plan and short- to medium-term improvements can also be impacted by partnerships. For some infrastructure, partnerships with the provincial and federal governments will be required to support significant investments. Additionally, the City will want to leverage opportunities for development related infrastructure improvements as well as partnerships with local agencies and volunteer groups for support programs.

9.1 LONG-TERM PLAN COSTS

Conceptual order-of magnitude cost estimates were developed for each of the capital investments identified in the Long-Term Plan sections for each mode. Refer to **Figure 9-1**. This provides a sense of the potential overall future levels of transportation investment for the City and its partners in current (2018) dollars. These costs can be escalated to the year of implementation for planning purposes, but they should be refined to establish project budgets. Actual costs for implementation could vary significantly for each initiative as project scope gets confirmed through subsequent stages of design and costs are clearer.

The level of investment required to implement improvements and programs recommended in Connecting Courtenay that are within municipal or shared jurisdiction is approximately \$142.6-million as summarized in the following sections.

Table 9-1: Long-term Implementation Order-of Magnitude Cost (Class D, 2018 \$)¹

Plan Theme	Class D Cost (2018 \$)
Walking Plan	\$11.5 M
Pedestrian Network Improvements	\$7.5 M
Enhanced Intersections and Improved Accessibility Allowance	\$2 M
Enhanced Street Treatments for Major Destinations	\$1 M
Pedestrian Support Programs	\$1 M
Cycling Facilities	\$26.7 M
Cycling Facility Standards	\$0.3 M
Cycling Network Improvements	\$24.4 M
Support Facilities Allowance	\$1 M
Support Programs Allowance	\$1 M
Transit Plan²	\$6 M
Improved Connections to Transit Allowance	\$2 M
Improve Intersections & Consider Transit Priority (included in Streets Plan)	n/a
Transit Passenger Amenities	\$4 M
Streets Plan³	\$97.5 M
Major Intersection and Corridor Safety & Operational Improvements	\$13.3 M
New / Widened Major Corridors & Connections	\$84.2 M
Roadway Classification	n/a
Emerging Technologies & New Mobility Plan (first 5 years only)	\$0.9 M
Electric Vehicles Allowance	\$0.3 M
New Mobility / Mobility as a Service Allowance	\$0.3 M
Autonomous Vehicles Allowance	\$0.3 M
TOTAL	\$142.6 M

¹ Class D (2018 \$) cost estimates are based on concept level information using unit rates for linear works and intersection improvements. Cost estimates include 25% engineering and communications as well as 40% contingency. Cost do not include property and other significant impacts. Class D cost estimates should not be used for budgeting purposes.

9.2 PHASING & IMPLEMENTATION

This phasing and implementation section of the Plan provides guidance on priority walking, cycling, street and transit supportive infrastructure projects to be implemented over the next 5 to 10 years. The priorities are identified based on the guiding principles outlined below:

- Priority street improvements should target the most congested areas and maximize the efficiency and safety of existing infrastructure.
- High priority walking improvements should focus on enhancing connectivity on major roads, around schools, access to transit, and improving accessibility.
- Priority cycling improvements should form the spine of the cycling network, connect existing infrastructure and focus on easily achievable successes in neighbourhoods.
- Transit infrastructure investments should be centred on supporting the accessibility, comfort, and reliability of the FTN.

² Does not include financial contributions to operations or shared investment in rolling stock.

³ Excludes projects that fall entirely within MoTI jurisdiction.

9.2.1 Street Network

The total long-term cost for street network capital improvements recommended in this plan is approximately \$97.5-million⁴. This includes the new major roadways and connections, which should be advanced along with partner agencies.

Over the next 10 years, the City and its partners will continue to invest in improving existing major roadways. This approach will maximize effectiveness and efficiencies of existing infrastructure before investing in upgrades or new major roadways. This approach also focuses on improving safety for all modes by addressing the locations with the most significant safety challenges first. Many of the projects identified in this section are integrated with walking, cycling, and transit priorities to maximize investment and ensure a multi-modal approach that supports the efficiency and safety of all road users.

The total cost of projects and programs recommended for the medium-term is approximately \$25.2-million (2018 dollars), as summarized in **Table 9-2**.

As previously noted, improvements centre around maximizing use of existing infrastructure as well as addressing hotspots for delays and collisions. Many of the intersection investments also centre around improving safety and mobility at intersections for pedestrians with improved controls and laning.

Beyond these priorities, the City should work with MoTI to advance priority improvements that are under MoTI jurisdiction.

Table 9-2: Medium-term (10 Year) Street Improvement Cost Estimates & Allocations (Class D, 2018 \$)⁵

Street Improvements	Class D Cost (2018 \$)
Major Intersection and Corridor Safety & Operational Improvements	\$5.7 M
Ryan Road (Old Island Highway to Highway 19A Bypass / Island Highway) Access Management and Intersection Improvements	\$2.4 M
Old Island Highway (Comox Road to Ryan Road) Access Management, Multi-Use Pathway, and Intersection Improvements	\$1.2 M
Old Island Highway & Fraser Road / Millard Road Intersection Improvement	\$1.0 M
Tunner Drive Extension	\$10.0 M
Signal Replacement & Improvement Program	\$1.9 M
Intersection Control & Upgrades Program	\$3.0 M
Total	\$25.2 M

⁴ Excludes projects entirely within the jurisdiction of MoTI

⁵ Class D (2018 \$) cost estimates are based on concept level information using unit rates for linear works and intersection improvements. Cost estimates include 25% engineering and communications as well as 40% contingency. Cost do not include property and other significant impacts. Class D cost estimates should not be used for budgeting purposes.

Figure 9-1: Medium-Term (10 Year) Street Improvement Priorities

Legend

- — — Widen to 4-Lanes
- — — 2 Lane Roadway
- — — Access Control
- Intersection Improvements



9.2.2 Pedestrian Network

The total long-term cost for the walking projects recommended in this plan is approximately \$11.5-million. This focus is on sidewalk improvements. Costs for intersection improvements that facilitate pedestrian crossings are included in the total cost for streets and costs for multi-use pathways are included in the total cost for cycling.

The total cost of the pedestrian projects and programs recommended for the medium-term is approximately \$5.3-million (2018 dollars) as summarized in **Table 9-3**.

In addition to the provision of sidewalks and addressing key crossing barriers, support facilities and programs should be planned and implemented within the medium-term as described in the Plan.

The recommended pedestrian network projects are illustrated in **Figure 9-2**. The medium-term projects address sidewalk gaps along major roads, connections to transit and access to schools.

Table 9-3: Medium-term (10 Year) Walking Improvement Cost Estimates & Allocations (Class D, 2018 \$)⁶

Improvement / Program	Class D Cost (2018 \$)
1st Street from Embleton Crescent to Menzies Avenue	\$590 K
Cumberland Road from Piercy Avenue to McPhee Avenue	\$120 K
Cumberland Road from Burgess Road to Willemar Avenue	\$290 K
Back Road from Tunner Drive to 10th Street East	\$410 K
10th Street from Back Road to Hobson Avenue	\$120 K
Kilpatrick Avenue from 26th Street to 29th Street	\$180 K
Fitzgerald Avenue from 21st Street to north of 26th Street	\$190 K
Valley View Drive from Thorpe Avenue to Lerwick Road	\$280 K
Lerwick Road from Lerwick Nature Park to McDonald Road	\$220 K
Morrison Creek / Arden Road crossing	\$1,600 K
Enhanced Intersections and Improved Accessibility Allowance	\$50K / yr
Enhanced Street Treatments for Major Destinations	\$50K / yr
Pedestrian Support Programs	\$50K / yr
Total	\$5,300 K

⁶ Class D (2018 \$) cost estimates are based on concept level information using unit rates for linear works and intersection improvements. Cost estimates include 25% engineering and communications as well as 40% contingency. Cost do not include property and other significant impacts. Class D cost estimates should not be used for budgeting purposes.

Figure 9-2: Medium-Term (10 Year) Pedestrian Improvement Priorities

Medium Term Pedestrian Improvement Priorities

- - - Sidewalk
- - - Multi-Use Path (Adjacent To Street)
- Improved Crossing



9.2.3 Cycling Network

The long-term capital cost for the cycling projects recommended in this plan is approximately \$26.7-million. This includes linear facilities and improvements to intersections, some of which should be undertaken in collaboration with partner agencies.

Historically, the City has not invested significantly in cycling infrastructure. Consultation with the public and stakeholders indicates that there is a desire to increase funding for cycling, especially for projects that separate bicycles from vehicles. Still, some cycling projects should be prioritized for medium-term investment to allow for an increase in cycling funding over time. Funding from other sources, including grants, will allow the City to maximize investment and advance projects more quickly. Key destinations considered in project prioritization are Core Commercial areas (especially Downtown Courtenay), Lewis Centre, North Island College, schools, and connections from the spine cycling network to existing paved trails (including the Courtenay Riverway and trails in east Courtenay that connect to Comox). In addition to providing on- and off-street cycling facilities to get around the community, support facilities and programs should be planned and implemented in the medium-term.

The total cost of projects and programs recommended for the medium-term is \$11.5-million (2018 dollars). Costs do not include property, environmental impacts, utility relocations, staff time, or operations and maintenance. The recommended medium-term priority projects are summarized in **Table 9-4** and shown on **Figure 9-3**.

Expansion of pedestrian and cycling facilities on the Fifth Street Bridge is not included in the capital cost estimate for medium-term priorities as it is being addressed through a parallel process. This project is recommended for the medium-term as part of overall bridge rehabilitation and maintenance work.

Table 9-4: Medium-term (10 Year) Cycling Improvement Cost Estimates & Allocations (Class D, 2018 \$)⁷

Improvement / Program	Class D Cost (2018 \$)	Improvement / Program	Class D Cost (2018 \$)
Anderton Avenue Intersection + Anderton Avenue from 5th Street to 6th Street	\$314 K	Old Island Hwy from Ryan Road to Braidwood Road	\$231 K
6th Street from Fitzgerald Avenue to Anderton Avenue	\$69 K	Braidwood Road from Back Road to Old Island Highway	\$77 K
Cumberland Road from Piercy Avenue to Fitzgerald Avenue	\$202 K	Back Road from Ryan Road to Braidwood Road	\$34 K
Fitzgerald Avenue from 5th Street to 8th Street / Cumberland Road	\$70 K	Centennial Drive / McLauchlin Drive from Back Road to end of McLauchlin Place	\$86 K
Fitzgerald Avenue from Cumberland Road to 26th Street	\$170 K	Muir Road / Mission Road from McLauchlin Drive to Lerwick Road	\$52 K
19th Street from Fitzgerald Avenue to Courtenay Riverway	\$70 K	Veterans Memorial Parkway from Caledon Crescent to Mission Road	\$420 K
26th Street from Willemar Avenue to Fitzgerald Avenue	\$266 K	Back Road from Ryan Road to 6th Street	\$349 K
17th Street from Willemar Avenue to Comox Road	\$448 K	Tunner Drive from Williams Road to Back Road	\$114 K
Willemar Avenue from Cumberland Road to south end of trail	\$48 K	6th Street / Hobson Avenue / Hawk Drive from Back Road to Swallow Crescent	\$77 K
Cumberland Road from Willemar Avenue to Arden Road	\$266 K	Cowichan Avenue / Arrowsmith Avenue from Ryan Road to Malahat Drive	\$30 K
Willemar Avenue from 5th Street to Cumberland Road	\$196 K	Malahat Drive from Arrowsmith Avenue to Lerwick Road	\$154 K
Lake Trail Road from Willemar Avenue to Webdon Road	\$810 K	Lerwick Road from Malahat Drive to Valley View Drive	\$440 K
Arden Road from Morrison Creek to Comox Valley Parkway	\$1,485 K	Valley View Drive / Idiens Way from Mallard Drive to trail connection	\$263 K
4th Street from Willemar Avenue to Menzies Avenue / 5th Street	\$21 K	Crown Isle Drive from Ryan Road to Idiens Way	\$80 K
5th Street from Menzies Avenue to Lake Trail Road	\$2,267 K	Royal Vista Way from east end to Crown Isle Drive	\$48 K
5th Street / Old Island Highway from 5th Street Bridge to Lewis Centre	\$223 K	Crown Isle Boulevard / Water Place from Lerwick Road to Ryan Road	\$280 K
Tsolum Road / Puntledge Road from Old Island Highway to Highway 19A	\$15 K	Support Facilities Allowance	\$50 K / yr
North Island Highway from 17th Street Bridge to Ryan Road	\$825 K	Support Programs Allowance	\$50 K / yr
		Total	\$11.5 M

⁷ Class D (2018 \$) cost estimates are based on concept level information using unit rates for linear works and intersection improvements. Cost estimates include 25% engineering and communications as well as 40% contingency. Cost do not include property and other significant impacts. Class D cost estimates should not be used for budgeting purposes.

Figure 9-3: Medium-Term (10 Year) Cycling Improvement Priorities

Legend

- Protected Bicycle Lane / Cycle Track
- Paved Multi-Use Pathway
- Bike Boulevard / Neighbourhood Bikeway
- - Buffered / Painted Bicycle Lane

- New / Upgraded Crossing



9.2.4 Transit Supportive Infrastructure

The City of Courtenay supports transit operations through annual contributions that help fund the transit system. Beyond this, Connecting Courtenay includes infrastructure projects to support transit customers and operators in the case of transit priority treatments. Transit support priority projects recommended for the medium-term include:

- Sidewalk and pathway connections to the FTN. High priority connections to the FTN are included in the pedestrian and cycling priority sections.
- Transit priority treatments at key intersections.
- Transit customer amenities along the FTN on an annual basis.
- Transit exchanges that support intermodal travel and provide a high level of customer safety and comfort.

The total cost allocation for these recommended priorities is \$3-million, excluding items that are covered within priority projects for other modes. Refer to **Table 9-5**. This amount is an allocation and not derived from cost estimates. It does not include staff time, operations and maintenance, or shared investment in rolling stock.

Table 9-5: Medium-term Transit Improvement Cost Estimates & Allowances (Class D, 2018 \$)

Improvement / Program	Class D Cost (2018 \$)
Improved Connections to Transit Allowance	\$1.0 M
Improve Intersections and Consider Transit Priority (price included in Street Plan)	n/a
Transit Passenger Amenities	\$2.0 M
Total	\$3.0 M

9.2.5 New Mobility

Connecting Courtenay prepares the City for the changing landscape of transportation. The City should look to leverage emerging technologies and new mobility while mitigating possible negative impacts. In the next ten years, this calls for programs that allow the City to show leadership and to understand and respond to key changes.

The total cost allocation in the next ten years for these recommended priorities is \$800,000, as identified in **Table 9-6**.

Table 9-6: Medium-term (10 Year) New Mobility Improvement Cost Estimates & Allowances (Class D, 2018 \$)

Improvement / Program	Class D Cost (2018 \$)
Electric Vehicle Allowance	\$250 K
New Mobility / Mobility as a Service Allowance	\$300 K
Autonomous Vehicles / Preparing for the Future Allowance	\$250 K
Total	\$800 K

9.3 PARTNERSHIPS & FUNDING STRATEGIES

Connecting Courtenay has been a community-based initiative to create a long-term plan with implementation priorities for transportation infrastructure, programs and policies. Over 1,000 residents were engaged in developing the Plan and identifying priorities. Further, several partners and community groups were engaged. These included the Accessibility Committee, Comox Valley Cycling Coalition, School District #71, K'omoks First Nation, and regional government partners. Implementation of the Plan will require guidance and participation from many community groups and individuals.

The City typically plans and funds transportation facilities and programs through various revenue streams, as well as cost sharing opportunities. As part of the City's on-going capital planning, consideration may be given toward utilizing alternative funding sources for the delivery of key street, walking, cycling, and transit facilities and programs as briefly outlined below.

General Revenues

The City should incorporate the recommendations from Connecting Courtenay into its short-, medium-, and long-term budgeting plans to ensure that the projects are accounted for in the City's capital planning process. To accommodate this, the City may seek changes to its capital budget to fund the implementation of this Plan over the medium- and long-term. The City should also seek to integrate transportation improvements with other capital projects, such as utility projects.

Developers

The City should leverage transportation investments during the planning of new development projects such as through: public realm improvements; community amenity contributions; density bonusing contributions; and high-quality bicycle parking facilities. Cash in-lieu of parking is one means to fund new active transportation and transit facilities.

Development Cost Charges (DCC)

The City has a DCC bylaw that should be updated to include projects identified through Connecting Courtenay.

Provincial Programs and Initiatives

Key infrastructure may be funded in partnership with the province.

Federal Funding

There are several programs that provide funding for environmental and local transportation infrastructure projects in municipalities across Canada. Typically, the federal government contributes one third of the cost of municipal infrastructure projects.

Green Municipal Fund

The Federation of Canadian Municipalities manages the Green Municipal Fund, with a total allocation of \$550 million. This fund is intended to support municipal government efforts to reduce pollution, reduce greenhouse gas emissions, and improve quality of life.

Carbon Tax Rebate

Municipalities that signed the Climate Action Charter receive an annual rebate based on completion to support sustainable transportation projects.

ICBC

ICBC's road improvement program provides funding for road improvements, including pedestrian and bicycle infrastructure, particularly where these have the potential to reduce crashes, improve safety, and reduce claims costs to ICBC.

Private Sector

Many corporations wish to be good corporate neighbours— to be active in the community and to promote environmentally-beneficial causes.

9.4 SUMMARY

Connecting Courtenay is a guide for the development and implementation of transportation infrastructure, policies, programs, and activities in Courtenay. It will require funding and partnerships to be successful. Further, it looks both to the long-term – i.e. what issues should the City be prepared to address and what are the most promising solutions – as well as to the actions that should be implemented in the next ten years. This is a living document, and the actions recommended here within must be reaffirmed through funding, Council resolutions, and effective partnership action on an annual basis. This is particularly important for major infrastructure, which may be deferred if investments in non-automobile modes of transportation and changes in land use patterns are successful in limiting vehicle volume growth.





Connecting Courtenay

Cycling Network Plan

September 2019

URBAN
systems

REPORT FOR:

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1 INTRODUCTION

Cycling can be an attractive transportation option, as it is convenient, relatively low cost, and for shorter trips can be a practical alternative to vehicle travel. Cycling has several benefits to individuals, the community, and the environment. Cycling is enjoyable, efficient, affordable, healthy, sociable, and a sustainable form of transportation.

Cycling is already a popular recreational activity in Courtenay, due to the City's natural beauty and great climate. Cycling accounts for 4% of all trips to/from work and school within Courtenay.¹ Based on the feedback received from residents and stakeholders people are cycling in Courtenay for a variety of trip purposes including cycling to school and work but also for shopping, to restaurants, for groceries and for their other daily needs. The most common trips are to work and for daily errands. Approximately 32% of survey respondents cycle or are cycling at least once a week with approximately 57% cycling at least once a month.

Developing a safe and comprehensive bicycle network along with supporting education and promotional programs is an important way to encourage cycling as a viable and attractive mode of transportation. With appropriate facilities, cycling can be time-competitive with both automobiles and transit, particularly over short-to-moderate distances during peak travel periods. A variety of factors influence an individuals' decision to bicycle, such as network connectivity, quality of facilities, and the distance between destinations.

¹ Source: Statistics Canada, Census Profile, 2016

2 POLICY CONTEXT

Courtenay's OCP outlines the importance of cycling as a form of transportation. The OCP sets a target that by 2020 10% of trips in Courtenay will be made by bicycle. Additionally, one of the goals identified in the Transportation chapter recognizes the importance of developing a transportation system that provides choice for different modes of travel including pedestrians and people with mobility challenges. The OCP also states that the City will continue to pursue the development of a continuous, integrated bicycle network to promote and encourage cycling as a commuting alternative to the automobile and as a means of active recreation.

The Subdivision and Development Servicing (SDS) Bylaw identifies the recommended bicycle facility types by street network classification and land use context for new developments in the City of Courtenay. **Table 1** outlines the City's bicycle facility design recommendations based on the street network classification. Bicycle facilities are identified on arterial and collector streets, the facility type is either a buffered or unbuffered bicycle lane. The bicycle lane is 1.5 metres and where applicable the buffer is 0.5 metres. Design guidance and width are also provided for gravel and asphalt multi-use pathways which should be 3.0 metres in width.

Table 1: Bicycle Facility Requirements for New Developments by Road Classification

Road Classification	Bicycle Facility	Width (m)
Arterial	Buffered Bicycle Lane	1.5 (lane) 0.5 (buffer)
Collector - Urban	Buffered Bicycle Lane	1.5 (lane) 0.5 (buffer)
Collector - Residential	Buffered Bicycle Lane	1.5 (lane) 0.5 (buffer)
Collector - Road Rural	Bicycle Lane	1.5
Local Road	NA	-

Per the City's Strategic Plan, the Cycling Plan and future cycling projects should apply what was learned on the Complete Street Pilot Project.

One objective of the Comox Valley Regional Growth Strategy is to improve bicycle and pedestrian infrastructure to increase the use of active transportation options.

The supporting policies outlined in the RGS proposed to meet these goals by supporting local efforts to improve cycling connections to, through, and between Town Centres, improving connections and amenities through development, identifying and addressing gaps, developing

and implementing consistent regional street standards that improve cycling safety, and promoting healthy lifestyles.

Another policy with overlapping implications for walking and cycling, the Comox Valley Sustainability Strategy, includes a goal of reducing the need for single occupant vehicles.

In 2007, the Comox Valley Cycling Plan was developed. The purpose of the plan was to compile and synthesize existing information, policies and guidelines from the provincial level to the local area (neighbourhood) level that pertain to safe cycling and bicycle ways within the Comox Valley. It included infrastructure recommendations and a discussion on preferred facility types.

3 BICYCLE INVENTORY & ASSESSMENT

The bicycle inventory considers both physical infrastructure and existing programs that support cycling as a mode of transportation in the City of Courtenay. The inventory is followed by an assessment of existing cycling patterns and gaps.

Bicycle Inventory

The City has existing bicycle facilities, as well as bicycle parking and other support infrastructure. There is also support for integration between cycling and transit, as well as some historic programs that have encouraged cycling in Courtenay.

Courtenay's existing bicycle network is limited and largely on-street. Multi-use trails, such as the Courtenay Riverway, the Rotary Trail, and other connections provide key connectivity, but face special challenges due to narrow widths, popularity with a wide variety of trail users, and uncontrolled intersection crossings. The majority of the recommended improvements to the multi-use pathway network are addressed in the City's Draft Parks and Recreation Master Plan. The City has some existing designated bicycle facilities. on-street bicycle lanes and signed bicycle routes, as described below and shown in **Figure 1** and **Table 2**. Existing bicycle facilities include:

- **Painted Bicycle Lanes** are located on both directions of Fitzgerald Avenue between Cumberland Road and 21st Street.
- **Paved shoulders** have been signed as bicycle routes on some streets in Courtenay including Lerwick Road and Cumberland Road.
- **Paved and Unpaved Off-Street Pathways.** There are several kilometres of paved and unpaved pathways throughout the City which are used by both people walking and cycling. There are approximately 13 km of paved pathways, 11 km of unpaved pathways and nearly 30 km of pathways within the City where the surface type is unknown.
- **Protected Bicycle Lanes.** In parallel with the first phases of development of Connecting Courtenay, the City of Courtenay constructed its first protected bicycle lanes as part of the 5th Street Complete Street Pilot Project. The lanes connect Menzies Avenue to Fitzgerald Avenue along 5th Street for a total of approximately 500m.

Figure 1: Existing Bicycle Network



*Unpaved multi-use pathways as identified may not be suitable facilities for all cyclists due to their varying condition. Lerwick Road offers inconsistent cycling facilities.

Table 2: Distance of Existing Bicycle Facilities by Type

Bicycle Facility	Km	Percentage
Off Street Pathway (Paved)	12.7 km	44%
Off Street Pathway (Unpaved)	11.5 km	40%
Protected Bicycle Lanes	500m	0.5%
Bicycle Lane	1.3 km	4%
Signed Bicycle Route	3.5 km	11.5%
Total	29.5 km	100%

Beyond the linear facilities described above, cycling in Courtenay is also supported by the following infrastructure and programs:

- **Transit Integration.** By integrating cycling with transit, the utility of both the transit and the cycling networks can be improved for longer distance trips and trips where transit does not directly serve a trip origin or destination. Bicycle racks are available on all buses, allowing two bicycles to be transported. Some buses, usually the smaller community shuttle style buses, do not carry bikes after dark as the bikes block the front lights.
- **Bike Parking and End of Trip Facilities.** Support infrastructure allows more people to choose cycling, knowing that their bicycle is stored safely and that there is an opportunity to store their belongings and shower at their destination if needed.

There is some short term and longer-term parking throughout Courtenay at various locations, this includes bicycle racks located throughout Downtown within the public right of way as well as in front of City buildings such as City Hall. A lack of bicycle parking was noted by some as a barrier to cycling in the public survey.

There are currently no short or long-term bicycle parking requirements or end-of-trip facility requirements in the City's Zoning Bylaw. Many communities provide bicycle parking requirements based on dwelling unit for residential dwellings and floor space for commercial land uses.

- **Support Programs.** The City supports cycling related initiatives such as Bike to Work and School Week which focuses on encouraging people that live and/or work in the Comox Valley to try cycling rather than driving for at least one trip during the week. Bike to Work and School Week is held in late May annually.

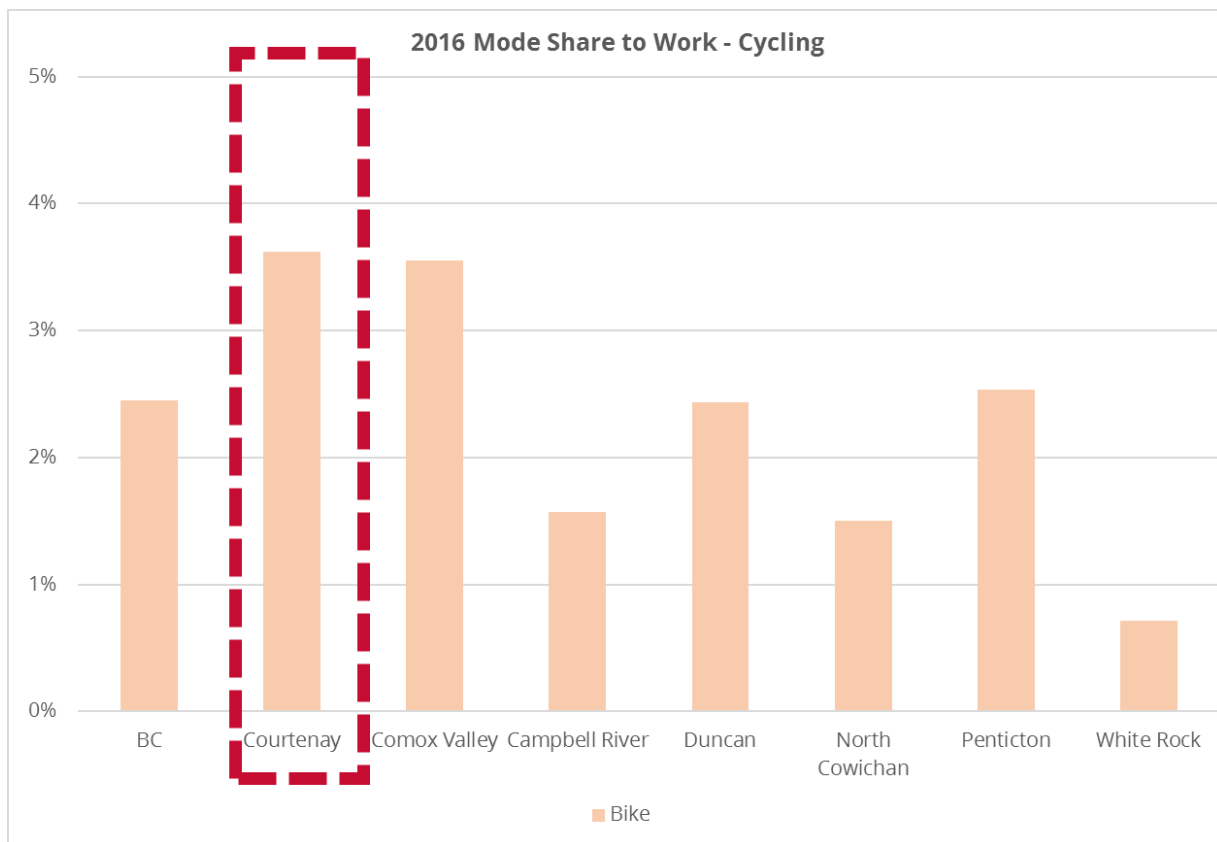
Existing Conditions Assessment

The existing conditions assessment evaluated cycling mode share and connectivity for cycling in Courtenay. This assessment is summarized below.

Cycling Mode Share Assessment

Cycling is already a popular recreational activity in Courtenay, due to the City's natural beauty and great climate. According to Statistics Canada, cycling accounts for 4% of all trips to/from work and school within Courtenay. This is less than half of the target of 10% set by the OCP. As illustrated in **Figure 2**, Courtenay's commuting mode share for cycling is the highest among comparable communities in BC.

Figure 2: 2016 Mode Share to Work - Cycling



Based on the feedback received from residents and stakeholders, people are cycling in Courtenay for a variety of trip purposes including cycling to school and work but also when they are going shopping, to restaurants, for groceries and for their other daily needs. The most common trips are to work and school and for daily errands. Approximately, 32% of survey respondents are cycling at least once a week with approximately 57% cycling at least once a month.

Gap Analysis

The cycling gap analysis focused on three geographic areas: river crossings, west of the Courtenay River, and east of the Courtenay River. These are described below:

- **River Crossings.** Courtenay is bisected by the Courtenay River, which results in a barrier for cyclists. There are three existing river crossings, two of which are within the City of Courtenay, at 5th Street and 17th Street. At the 5th Street crossing, signage indicates that cyclists and vehicles should traverse the bridge single file. Cyclists can also dismount and push their bicycles along the separated pedestrian walkways on either side of the bridge. At 17th Street, the metal grate surface of the lift bridge is difficult and uncomfortable for most cyclists to ride. Cyclists also must dismount to use the sidewalks on the bridge as they are not designated as multi-use facilities. Both bridges have poor connections to the surrounding area.
- **West Courtenay.** West of the Courtenay River the grid system provides cyclists who are comfortable riding in traffic with route choice and connectivity to destinations. The Courtenay Riverway provides a protected, off-street connection through much of the commercial areas of West Courtenay; however, it can be challenging to ride because of its popularity with a wide variety of users. There are no protected connections from the Riverway Trail to the commercial areas or to the existing Fitzgerald Avenue bike lanes. Similarly, the protected bicycle lanes that are part of the 5th Street Complete Street Pilot Project are not connected to any other complete cycling facility. The 5th Street Complete Street Pilot Project does connect to the Rotary Trail; however, the uncontrolled intersections along this trail can be difficult for cyclists to navigate. The schools in west Courtenay are not connected to comfortable cycling facilities.
- **East Courtenay.** East of the Courtenay River cycling facilities are limited to trails and shoulder bikeways. Ryan Road is a barrier for cycling – both as a major roadway that is difficult to cross, and because it is a major east-west connection with no provision for cycling. According to stakeholders, cyclists currently use local roads to cycle south of Ryan Road. There are informal and formal paved and unpaved trails connecting to schools, the North Island College, and the North Island Hospital which provide a mix of user experience. Some of these trails are not currently suitable for all cyclists.

3.1 KEY ISSUES AND OPPORTUNITIES

There is strong interest in cycling in Courtenay, and the existing mode split for commuter cycling is higher than in some other communities with similar – or even more – infrastructure. The existing cycling system in Courtenay is discontinuous, with a limited number of cycling facilities, most of which are not comfortable for cyclists of all ages and abilities. There is an opportunity to invest in cycling, expand the cycling mode share for all trip purposes, and improve the health and vibrancy of the community. To embrace the opportunities for cycling, the City and its partners should address some key issues.

This section summarizes key issue and opportunities surrounding cycling in Courtenay. It was developed based on input received through Connecting Courtenay public surveys, public engagement events, discussions with stakeholders and City staff, and through the inventory and assessment summarized above. Key issues include:

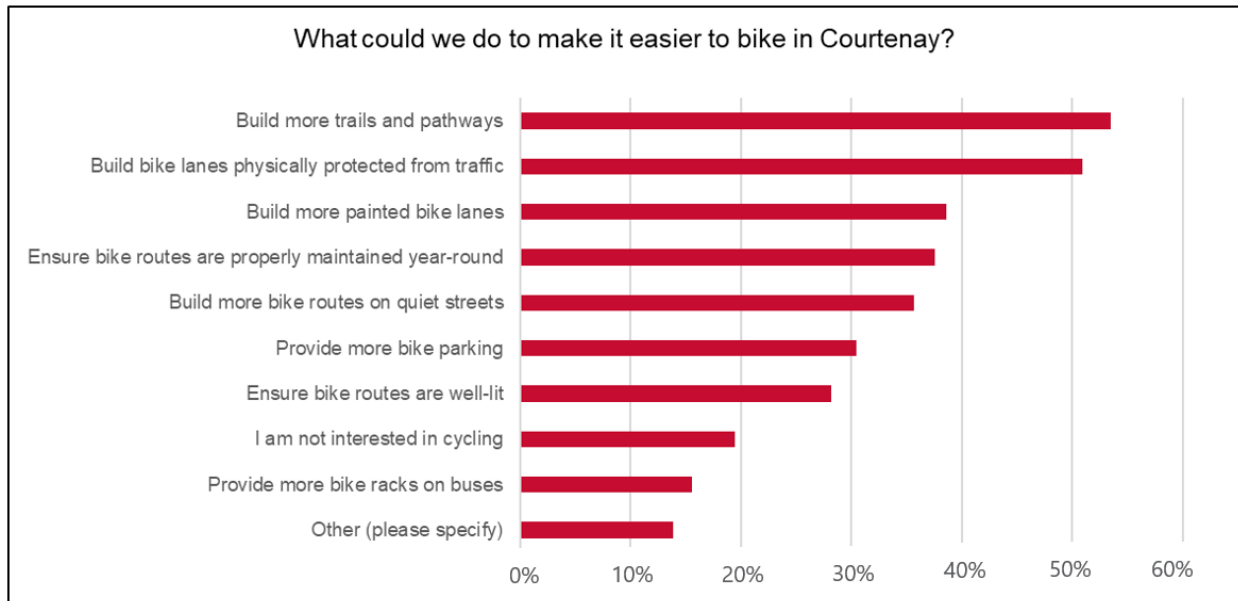
- **Limited network of designated routes.** Courtenay has very few protected and off-street cycling routes that connect to key destinations and 54% of survey respondents indicated that they do not feel safe riding in traffic. Routes do not connect to key commercial areas or to other key destinations, like schools – 29% of survey respondents indicated that bike routes do not go to destinations.
- **No comfortable river crossing.** Because Courtenay is bisected by the Courtenay River, many trips must cross this natural barrier. With no comfortable river crossing, cycling is not an attractive option for these trips.
- **Although popular off-street pathway facilities act as the spine to the current network, there are inherent barriers in some locations.** The Courtenay Riverway is popular with many different trail users – including people walking with children and dogs on leash. When the pathway is busy, cycling can be difficult. Intersections along the Rotary Trail can be difficult for cyclists to safely navigate.
- **Many neighbourhood routes that are comfortable to ride on are unsigned.** Cyclists currently use local roads to make many trips. Some local roads are very comfortable to ride on; however, they can be hard to locate and are not communicated with potential cyclists and drivers. Most of these routes do not offer traffic calming to ensure vehicles travel at speeds more appropriate for shared facilities.

- **Existing highways as well as major and minor arterials do not have comfortable cycling facilities, and most do not have parallel routes.** None of the highways or the City's major arterials have cycling facilities that are protected or buffered from vehicle traffic. There are limited parallel routes to allow cyclists to reach the same destinations as drivers.
- **Lack of secure bicycle parking at the end of a trip.** Currently many potential cyclists do not have a safe and secure place to store their bicycles at the end of their trip. Almost 30% of survey respondents indicated that having no safe place to park their bicycle discouraged them from cycling more for their day-to-day needs. An update to the Zoning Bylaw could be beneficial to support the provision of secure bicycle parking.

Because the existing infrastructure, support facilities and programmatic support for cycling is limited in Courtenay, there are many opportunities for enhancement. This can be expected to lead to a larger cycling mode share and can contribute to the City and region's overall transportation, environment, and health goals.

The top survey responses for what might encourage people to cycle more focus on providing more on-street and off-street cycling facilities. This includes, more trails and pathways, which was also the top response for encouraging walking. It was also noted that, many of the popular off-street pathway facilities which act as a spine to the cycling network are unpaved, and all are shared with pedestrians. The second most common response was build bicycle lanes that are physically separated from motor vehicle traffic. Some of the other top opportunities for making it easier to bike around Courtenay include, more painted bicycle lanes, ensuring routes are properly maintained year-round and more cycling routes on quiet streets. Overwhelmingly, the top opportunities focus on providing higher quality bicycle facilities that will make biking in the city more comfortable for all cyclists (**Figure 3**).

Figure 3: Biking Opportunities (Connecting Courtenay Survey, 2018)



Through the survey and public engagement process residents and stakeholders were asked about future funding and investment in the various modes of transportation. Approximately 58% of respondents said they would like to see more or much more investment in the cycling network when compared to current levels, this was second only to transit.

4 CYCLING NETWORK

The Long-Term Cycling Plan addresses key issues by identifying where, when, and how the City can invest in the development of a comfortable cycling network, support programs, and facilities. Like the other long-term plans, the recommendations are intended to be advanced by the City and its partners over a number of years. The City is beginning with limited cycling infrastructure and it will take time to fully develop a network that connects residential areas to major destinations throughout the City. Further, the City will need to work with partners and stakeholders to refine and further develop the recommendations outlined in the Long-Term Cycling Plan.

To encourage cycling in the City of Courtenay, the City and its partners should invest in making cycling a safe and comfortable transportation option. Investment focused on creating infrastructure and support facilities and programs that foster safe and comfortable cycling to important destinations will have the greatest likelihood of increasing the percentage of all trips that are made by bicycles. Guiding principles for cycling were developed based on this overarching approach, as well as industry best practices, and input from stakeholders and the public survey. They outline the approach to the development of the network and application of facility types in different areas, while focusing higher investment facilities where they are likely to have the highest use from across the population. The guiding principles are:

- **Build on existing momentum.** The City has recently completed the construction of a separated bicycle facility on 5th Street from Fitzgerald Avenue to Menzies Avenue. The City also has an existing network of well-used multi-use trails² and local roads that are already used by local cyclists. Understanding that cycling infrastructure is most effective where it is connected, the City should focus on creating a network that connects outwards from existing infrastructure to maximize the value of investment.
- **Create network ‘spines’ that connect key destinations and focus on safety and comfort for all ages and abilities (AAA).** Public input was clear; there is a desire for more separated bicycling infrastructure – both trails and protected bicycle lanes – in Courtenay. Acknowledging the size and capital limitations of the community, focus on creating a spine network that builds from existing assets and connects key destinations, including commercial areas and schools.
- **Supplement the spine routes with a network that uses local street bikeways and existing and planned trails to access a broader area.** Stakeholders identified that there are local roads that are commonly used by the cycling community and

² As defined in the Draft Parks and Recreation Master Plan.

provide important access to destinations, as well as connections between communities. Formalize these routes as bicycle boulevards with signage, pavement markings, wayfinding, and localized traffic calming/diversion treatments. Where existing and future off-street multi-use trails can connect bicycle routes or provide access to destinations, work towards improving crossings and providing additional width where required. Consider paving these pathways so they can be used by all cyclists, as well as pedestrians using mobility devices.

- **Ensure new roadways provide for all modes.** New major roadway projects proposed in the long-term plan and built by the City and / or Province should be corridors for all modes of transportation. Neighbourhood plans for new neighbourhoods should identify safe connections for cyclists, prioritizing protected lanes or multi-use pathways along arterial and collector roads.

These guiding principles were well supported by the public – more than 80% of survey respondents agreed with the principles outlined above. They were used to inform the development of the Long-Term Cycling Plan.

Connecting Courtenay, and therefore this Cycling Network Plan, was developed in tandem with the Draft Parks and Recreation Master Plan and acknowledges that recreational trails can also act as important transportation connections for bicycles and pedestrians. The Cycling Network Plan was developed to align with the outcomes of the Draft Parks and Recreation Master Plan.

4.1 CYCLING FACILITY STANDARDS

Creating a safe, comfortable, and enjoyable cycling network for people of all ages and abilities relies on planning, designing, and implementing cycling facilities along corridors and at intersections. Before recommending a long-term cycling network, the Long-Term Cycling Plan provides a toolbox of bicycle facilities and intersection treatments that should be applied as the cycling network in Courtenay evolves. This toolbox is described in more detail below (**Table 3**).

Bicycle Facility Toolbox




The SDS bylaw has already integrated cycling facilities with minimum widths into typical cross-sections for new roadways in the City. This is a Complete Street approach that assigns space in the cross-section to all modes of transportation. Beyond the minimums specified in the SDS, there are a range of cycling facility types that can be applied to different circumstances to achieve a cycling network that focuses on safety and comfort for all.

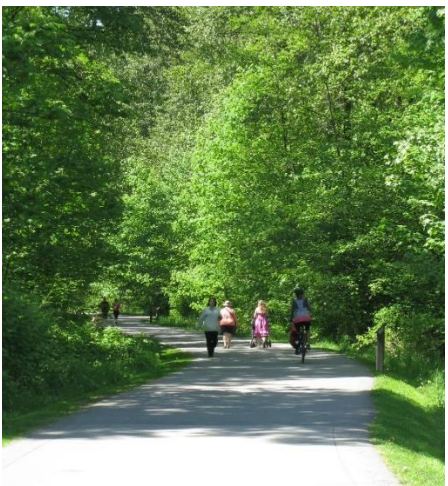


To develop a more comfortable and effective network of bicycle facilities across a wide range of conditions, the City can apply a toolbox of cycling facility types. This toolbox, based on the recently updated Transportation Association of Canada Design Guide for Canadian Roads, is described in **Table 3**. The facilities identified have varying levels of appeal for different users and respond to different contexts and constraints. Bicycle facilities that are physically separated from motor vehicle traffic, such as off-street pathways and cycle tracks, are generally the most comfortable for the widest range of users. Different facilities perform better in different situations, and can have different impacts on property requirements, parking restrictions, and other cross-section elements. The broad toolbox presented in this section allows for the right-sizing of bicycle facilities based on the desired characteristics and local constraints.

Facility types can be divided into two overall categories:

- **All Ages and Abilities (AAA) Facilities.** AAA facilities include bicycle facilities that are physically separated from motor vehicles, including multi-use pathways and trails and protected bicycle lanes or cycle tracks. AAA facilities also include neighbourhood greenways or bicycle boulevards, which are routes along local streets with low vehicle speeds and volumes in which people cycling share the same space with vehicles. A core network of AAA facilities can encourage more bicycle ridership and increase perceived and actual safety within the City's bicycle network.
- **Supporting Facilities.** These facilities include buffered bicycle lanes, painted bicycle lanes, shared use lanes, and paved shoulders. These facilities are less comfortable to ride on because they do not include physical separation from motor vehicle traffic where vehicle volumes and/or speed tend to be high. Supporting bicycle facilities are typically less expensive and are useful for expanding and connecting the overall bicycle network and can often provide interim solutions when long-term facilities require greater investment than is currently available. They are sometimes preferred by high speed cyclists.

Table 3: Toolbox of Bicycle Facilities

ALL AGES AND ABILITIES FACILITIES		<p>Bicycle Boulevards and Neighbourhood Greenways are local streets with low vehicle speeds and volumes in which cyclists share the same space with vehicles. They often include traffic calming measures to keep speeds low and improvements at major road crossings to help cyclists cross safely.</p>
		<p>Protected Bicycle Lanes / Cycle Tracks are bicycle only facilities that are physically separated from vehicle travel lanes. They can be roadside or on-street, raised or at grade, one- or two-way, and combine the experience of an off-street path with the on-street infrastructure of a conventional bicycle lane.</p> <p>Ideal width: 1.8 m with 0.3 to 1.0 m buffer Minimum width: 1.5 m with 0.3 m buffer (minimum 0.6 m buffer adjacent to parking)</p>
		<p>Multi-use Pathways are physically separated from streets and designed to support cyclists, pedestrians, and other non-motorized road users. In the busiest areas, a wider pathway with paint indicating separate areas for bicycles and other users may be warranted.</p> <p>Ideal width: 3.0 – 6.0 m depending on the expected volumes of users. Minimum width: 2.7 m</p>

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">ALL AGES CONT.</p>		<p>Multi-use Trails are trails outside of the roadway network that are designed to support cyclists, pedestrians, and other non-motorized road-users. They are part of the recreational trail system, but can also provide important linkages for cyclists between other facilities on and adjacent to streets.</p> <p><i>These trails are being recommended through the Courtenay Draft Parks and Recreation Master Plan.</i></p>
	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">SUPPORTING FACILITIES</p>	
		<p>Bicycle Lanes are separate travel lanes designed exclusively for bicycles. The lane is defined by white pavement markings and signage.</p> <p>Ideal width: 1.8 m Minimum width: 1.5 m</p>



Shared Use Lanes / Wide Shared Use Lanes indicate that cyclists and vehicles should share the roadway through signage and painted 'sharrows'. Wide shared use lanes provide additional width for cyclists and vehicles to share the outer lane of a roadway.

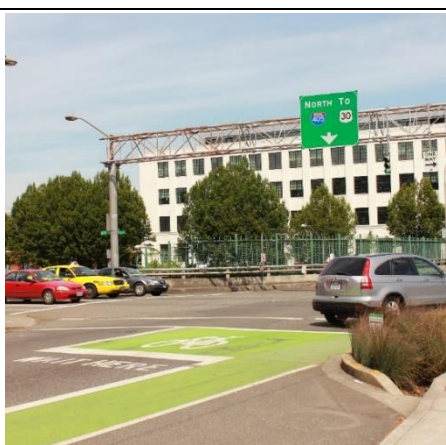


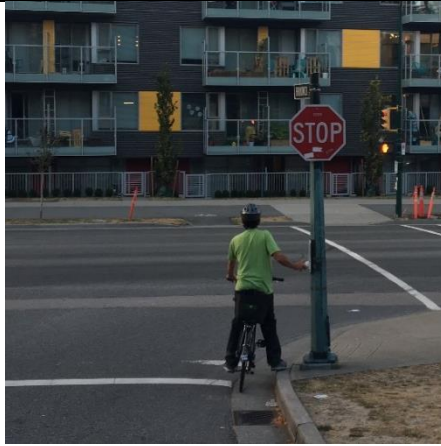
Shoulder Bikeways are paved shoulders that are typically found on streets without curb and gutter and where shoulders are wide enough for shared bicycle / pedestrian travel. Shoulder bikeways are typically indicated with the white painted bicycle symbol and with signage alerting motorists to expect bicycle travel along the roadway. Ideal width: 2.0 m to 3.0 m on higher speed roadways. As low as 1.8 m on roadways with speeds of 50 km/h or less. Minimum width: 1.5 m

Intersection Treatment Toolbox

Beyond the bicycle facility toolbox for corridors described above, intersections need to be carefully addressed, as these are common locations for cycling collisions. Properly designed intersection treatments can increase cyclist convenience and reduce conflicts with motorists helping to improve the overall comfort and safety of a city's bicycle network. Cycling safety improvements also serve to remove barriers and can help make cycling more attractive to people of all ages and abilities. A brief description of some intersection treatments is provided in **Table 4**.

Table 4: Intersection Treatment Toolbox

INTERSECTIONS		<p>Coloured conflict zone markings can be used at conflict zones, including intersections and driveways, areas where vehicles are merging across a bicycle lane. Often denoted by the colour green, these markings increase the visibility of cyclists and highlight areas where potential conflict can occur.</p>
		<p>Dashed bicycle lane markings through intersections provide direction for where cyclists should be positioned as they travel through an intersection. They also alert vehicle drivers that cyclists may be travelling in these lanes.</p>
		<p>Bike boxes can be used at signalized intersections to provide cyclists with an opportunity to position themselves ahead of queued vehicles, and to proceed through the intersection when the signals turn green in advance of vehicles.</p>



Enhanced bicycle signal crossings can include full signals or pedestrian and bicycle activated signals which can be activated by a cyclist through a range of technologies, such as bicycle loop detectors, bicycle pushbuttons, or video detection at traffic signals.



Crossbikes and elephant's feet are pavement markings that indicate a crossing zone in which a cyclist does not need to dismount. They may be combined with a pedestrian crosswalk or may be used to indicate a separate bicycle crossing.

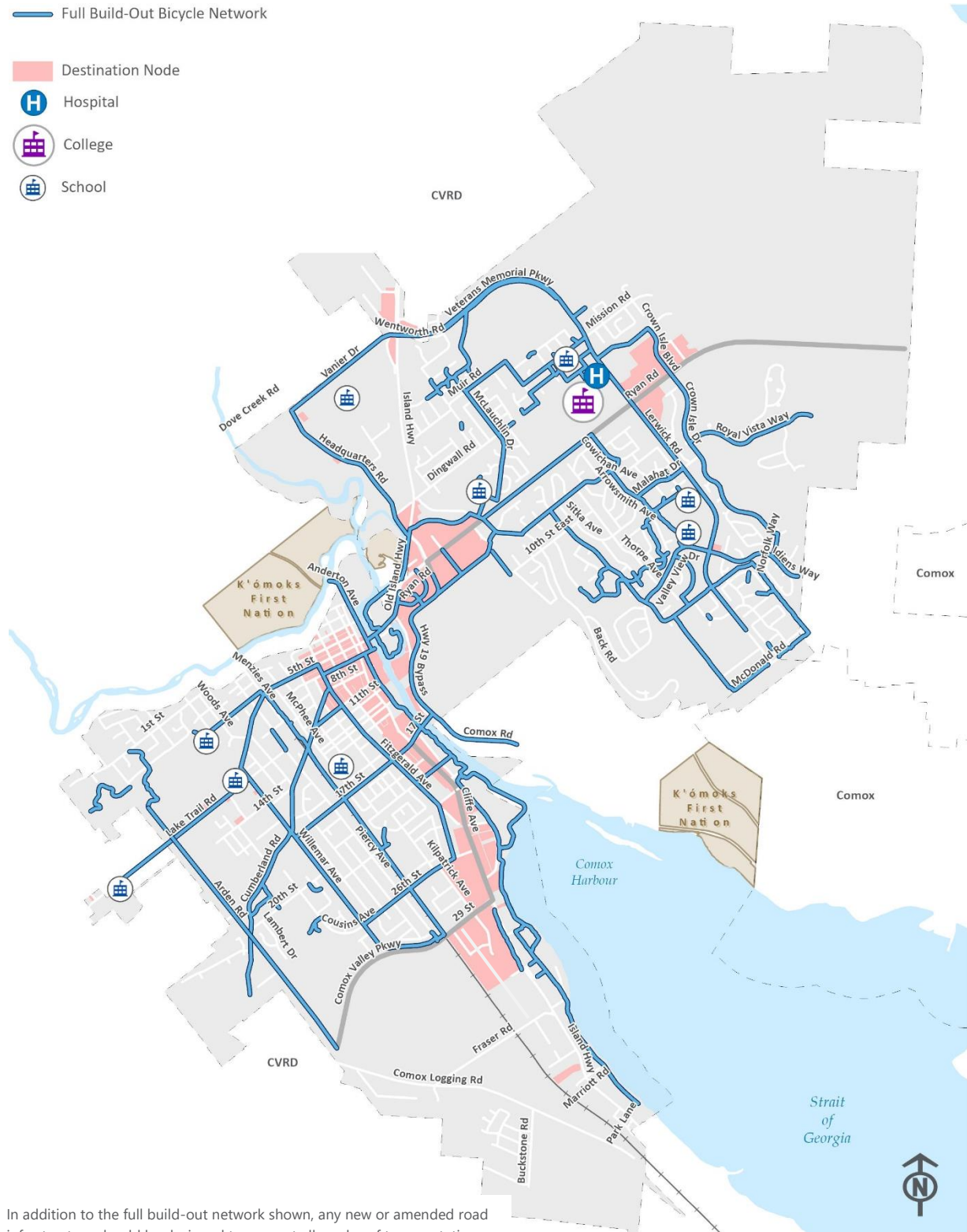


Protected intersections utilize a combination of bicycle signal phases and design elements as well as space allocation to help protect people cycling from turning vehicles. The design of protected intersections include a combination of corner refuge islands, a forward stop bar for bicyclists, a setback bicycle and pedestrian crossing and protected bicycle phasing help protect bicycle users in intersections as they are riding along protected bikeways.

4.2 LONG-TERM CYCLING NETWORK

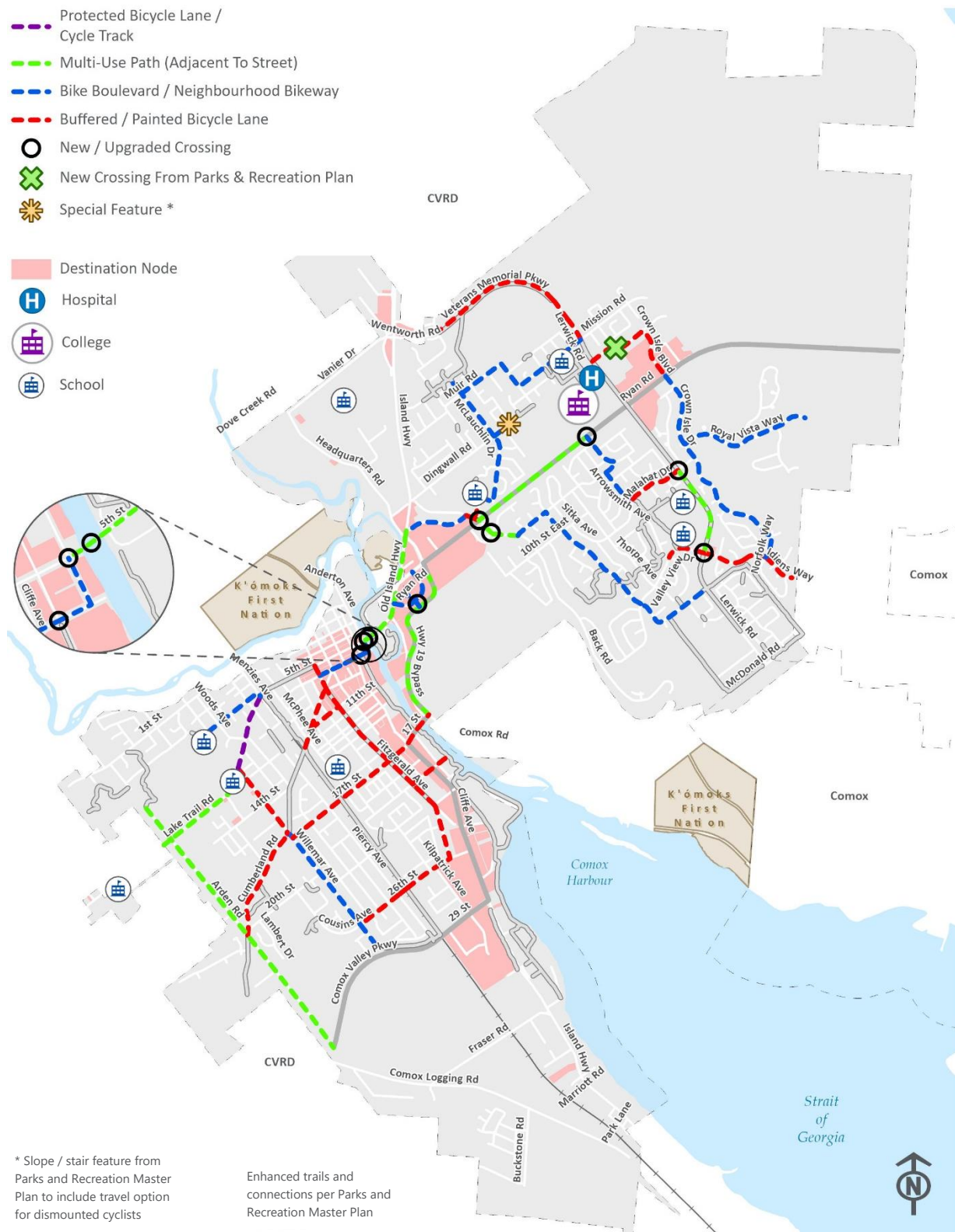
The Long-term Cycling Network was developed to address the gaps noted in the inventory and assessment and the issues summarized earlier. In accordance with the guiding principles, the recommendations focus on a spine network of comfortable facilities that builds on recent improvements and connects to key destinations. This spine is supplemented with a network that uses bicycle boulevards and existing and planned multi-use trails, which are recommended in the Courtenay Draft Parks and Recreation Master Plan. Facility types were chosen from the bicycle facility toolbox, although the final facility types and design of the network are subject to further study and consultation. The recommended Cycling Network is illustrated in **Figure 4**, the cycling network connectivity map. The implementation of the overall Cycling Network is also demonstrated through medium-term (which includes short-term improvements) and long-term network maps in **Figure 5** and **Figure 6**. More detail about the options considered for each route and period of implementation are provided in **Appendix A**.

Figure 4: Recommended Long Term Cycling Network, Connectivity Map



In addition to the full build-out network shown, any new or amended road infrastructure should be designed to support all modes of transportation

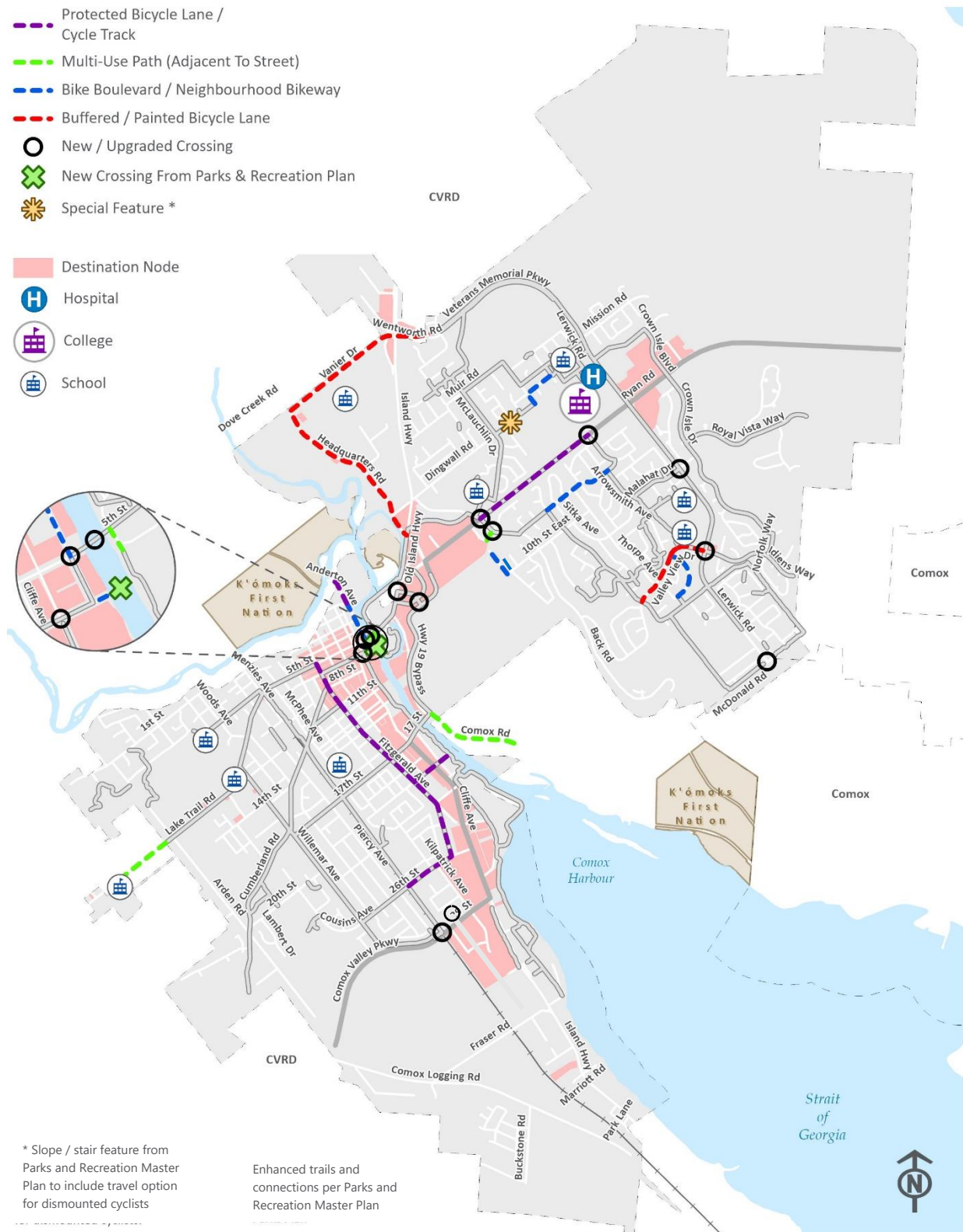
Figure 5: Recommended Short- and Medium-Term Cycling Facilities



* Slope / stair feature from Parks and Recreation Master Plan to include travel option for dismounted cyclists

Enhanced trails and connections per Parks and Recreation Master Plan

Figure 6: Recommended Long-Term Cycling Facilities



4.3 SUPPORT FACILITIES

In addition to on-street and off-street network connections, there are other bicycle infrastructure improvements that can make cycling a more attractive and convenient transportation choice. The draft Transportation Master Plan, Connecting Courtenay, recommends that the City look for opportunities to enhance wayfinding, increase bicycle parking supply, improve end-of-trip facilities, improve bicycle-transit integration and partner on cycling amenities.

- **Wayfinding.** While most residents know how to travel through the City by car, it may not be obvious which routes are the best by bicycle. For both experienced and inexperienced cyclists, signage and pavement markings can help riders to find the best routes that match their cycling abilities and comfort levels and to find new routes as they become more confident. Bicycle route signage and pavement markings can also highlight for drivers and other road users where they should expect to see greater concentrations of cyclists, which can help to educate drivers and cyclists and to improve cycling safety.
- **Bicycle parking.** Providing safe, secure parking for bicycles is an important part of improving cycling conditions. It is important to recognize that the fear of bicycle theft or vandalism is a significant deterrent to cycling. There are many different types of bicycle parking that can be tailored to specific situations. One of the key considerations in providing bicycle parking is to locate the 'right' bicycle parking facility in the 'right' place. The best type of bicycle parking facility for a specific location is driven by user needs (such as the purpose of the trip, length of the trip, and length of stay); and other factors (such as adjacent land uses, available space, and safety). Bicycle parking is typically categorized as either short-term or long-term. Recommendations to improve bicycle parking in Courtenay include:
 - Ensure there is sufficient long- and short- term bicycle parking at all City-owned buildings and that the location and type of parking is clearly communicated to staff and guests through a variety of measures.
 - Work with the Downtown Business Association and with individual local businesses to provide regularly spaced and sheltered on-street bicycle parking in the public right-of-way on all commercial streets and other commercial areas.
 - Work with School District 71 to ensure that bicycle parking is provided at schools.

- Consider revising the Zoning Bylaw to require long-term and short-term bicycle parking in all developments. Bicycle parking should be addressed as part of development site traffic impact and / or parking studies.
- Work with community groups to provide temporary event parking. Temporary parking typically consists of portable racks that meet the demand for an event. Racks are clustered together, providing a higher level of security than if people were to park the bicycles on their own. Event staff can monitor the area, providing people with peace of mind while they are away from their bicycle.
- **End-of-trip facilities.** End-of-trip facilities such as showers and clothing lockers at workplaces are critical components of making cycling more convenient for employees. Many bicycle commuters have long commutes or are required to wear professional clothing attire and need a place to change before coming into the office.
 - Investigate opportunities to provide end-of-trip facilities at City-owned workplaces.
 - Consider requirements for end of trip facilities as part of a Zoning Bylaw requirement.
- **Bicycle-transit integration.** Transit integration allows people cycling to make trips that are farther than they may be able to ride and allowing transit riders to reach destinations that are not adjacent to transit routes. Currently, bicycles are supported on all BC Transit buses through carrying racks on the front of each bus. The City can work with BC Transit to continue to ensure transit and cycling are seamlessly integrated by continuing to ensure that all buses have bicycle racks and by providing bicycle parking at transit exchanges and major transit stops.
- **Facility maintenance.** Once bicycle facilities are installed, it is important to ensure that bicycle infrastructure is well maintained on a regular basis, all year-round. Riding surfaces should be kept smooth and free of debris, while pavement markings and signage should be visible for all road users. This includes prioritizing road maintenance on bicycle routes and ensuring that durable pavement markings are used to identify bicycle routes. The City should consider developing and implementing maintenance and cleaning guidelines for bicycle routes, prioritizing routes with high ridership.

- **Cycling amenities.** The City should also identify opportunities to provide cycling amenities throughout the City. Cycling amenities include drinking fountains with bottle fill stations and bicycle maintenance stations placed at key locations. The City should also consider opportunities to provide a “bike traffic garden” education park with demonstration infrastructure, display boards/kiosks, bike racks, and repair stands. Possible partners for this bike traffic garden could include the Comox Valley Cycling Coalition, ICBC and School District 71.

4.4 SUPPORT PROGRAMS

Education, awareness campaigns, events and other incentive and information programs can help bolster cycling activity in addition to infrastructure improvements. While it is understood that the installation of a well-connected network of comfortable cycling facilities is likely to help promote cycling within the city, it has also been found that infrastructure alone is often not enough to see higher levels of ridership. A number of support initiatives are recommended for Courtenay, as described below. The City should partner with other organizations, agencies, non-profits, and other nearby communities to gain support for these programs and to help make them more effective.

- **Cycling education programs.** Courtenay should work with partner agencies to provide cycling skills and information to residents. Examples of programs include Share the Road safety campaigns, School Travel Planning programs, and bike skills courses for both adults and school-aged children. These programs help to instill confidence in new riders, support existing riders, and educate both people cycling and people driving about the rules of the road.
- **Promotional events.** Promotional events help to raise awareness and showcase the benefits of cycling as healthy sustainable transportation options. These events can be mixed in with other active transportation events. Bike to Work Week is an example of an enjoyable community event that simultaneously promotes cycling and provides cycling education. Bike to School week could also be provided to schools currently participating in the School Travel Planning process.

- **Bike maps.** Bike maps enable users to identify designated cycling routes that match their cycling ability and comfort level. The Comox Valley Cycling Coalition has developed a bicycle map with existing facilities. The City should build on this base to develop updated maps for the City of Courtenay as new infrastructure is delivered. Bike maps should identify bicycle facility types and include important local destinations and amenities. The map should be available in both hard copy and digital formats.

Beyond education and awareness programs, the City should also engage with partner agencies and stakeholder groups on a regular basis to confirm directions and priorities and to seek to understand new issues as they arise. These groups should also be consulted in the development of projects from planning through to detailed design.

Bicycle Parking near transit exchanges and / or major transit stops. Bicycle parking at major stops and transit exchanges facilitates multi-modal trips by bicycle and transit. This can allow people to choose non-auto modes for longer distance trips, especially where their homes are not well served by transit.

5 IMPLEMENTATION PLAN

The implementation of the cycling network and establishment of supportive programs will take many years. The draft Transportation Master Plan, Connecting Courtenay, and this associated Cycling Network Plan recognizes that the City of Courtenay will not only require new and additional sources of funding through local, provincial and federal partnerships, but will also need to substantially increase funding for sustainable modes of transportation at the municipal level. This not only responds to input and feedback from the community and stakeholders but will contribute towards the mode shifts envisioned throughout the City and CVRD's guiding strategies and defer the need for other investments in major infrastructure.

The Cycling Network Plan identifies short, medium and long-term projects. This section highlights *medium-term* priorities for infrastructure, programs, and policies to be implemented over the next ten or so years as funding and resources become available. Medium-term priorities for cycling have been developed to a concept level and documented in the respective appendices to this plan. It should be noted that the City will want to work with the community and Council to advance these priorities during annual capital and financial planning. Concept costs for City-based infrastructure have been developed and are included for reference and planning purposes. This section also identifies existing and potential funding sources to implement the medium- and long-term priorities.

5.1 THE APPROXIMATE COST OF THE LONG-TERM PLAN

As part of the development of the Cycling Network Plan conceptual order-of magnitude cost estimates were developed for each of the capital investments identified for the networks long-term implementation. This provides a sense of the potential overall future levels of investment for the City and its partners in current (2018) dollars. The order of magnitude costs are for comparative purposes and are based on a conceptual level of design; they should be refined to establish project budgets. Actual costs for implementation could vary significantly for each initiative as project scope gets confirmed through subsequent stages of design and costs are clearer. The preliminary estimates provided within this report are 'Class D' type estimate (order of magnitude) which uses simplified methods of estimate preparation, consistent with methods used for the draft Transportation Master Plan.

Possible contributions from other agencies and the private sector are not possible to estimate and have not been included to offset the overall costs.

The level of investment required to implement improvements and programs recommended within this Cycling Network Plan that are within municipal or shared jurisdiction is approximately \$26.7-million (2018 dollars) as summarized in **Appendix B**. Projects are identified as short term (five years), medium term (10 years) and long term (up to twenty years). The implementation map provided in **Figure 5** shows both short- and medium-term improvements. **Figure 6** shows the long-term improvements. It should be noted that these cost estimates do not include items such as property costs, environmental mitigation costs, and utility relocations, staff time, or operations and maintenance and include costs for both interim measures and long-term improvements. These interim measures include critical corridors for the network's connectivity such as Fitzgerald Avenue and Ryan Road.

5.2 IMPLEMENTATION CONSIDERATIONS

The long-term plan will require significant financial investment over the next 20 years and beyond. The implementation strategy identifies priorities for investment, as well as to guide the City's on-going transportation planning and design work in service of achieving long-term goals. The implementation plan was developed based on the following considerations:

- **All transportation future planning and design work should consider the needs of all modes of transportation.** The priority improvements integrate the recommendations for all modes of transportation within the improvement area. Further, as projects progress through design, consideration should be given to the needs of all road users.
- **Cycling improvements in the first ten years should focus on the spine of the cycling network, connecting existing infrastructure and 'quick wins' in neighbourhoods.** The guiding principles included in the Cycling Plan prioritize building on existing momentum and developing a spine cycling network. The implementation plan for the first 10 years connects key destinations – like the Lewis Centre, North Island College, commercial areas, and schools. It also focuses on cycling facilities that are relatively easy to implement, such as bicycle boulevards that can provide key connections and serve important destinations. In some cases, a lower-cost facility can be implemented in the medium-term and then upgraded over time as demands increase or resources allow.

5.3 CYCLING NETWORK PRIORITY PROJECTS AND PROGRAMS

The total long-term cost for the cycling projects recommended in this plan is approximately \$26.7-million. This includes linear facilities and improvements to intersections, some of which should be undertaken in collaboration with partner agencies.

Historically, the City has not invested significantly in cycling infrastructure. Consultation with the public and stakeholders indicates that there is a desire to increase funding for cycling, especially for projects that separate bicycles from other vehicles. Still, some cycling projects should be prioritized for medium-term investment to allow for an increase in cycling funding over time. Funding from other sources, including partners and grants will allow the City to maximize investment and advance projects as quickly as possible. The guiding principles from the Cycling Plan provide a basis for the prioritization of cycling projects. This includes the prioritization of projects that build on existing momentum and that complete a spine network of routes that are comfortable for cyclists of all ages and ability to access key destinations. Key destinations and connections that were considered in project prioritization are:

- Core commercial areas, especially Downtown Courtenay.
- Lewis Centre
- North Island College
- Schools
- Connections from the spine cycling network to existing paved trails, including the Courtenay Riverway and trails in east Courtenay that connect to the Town of Comox.

In addition to the provision of on-street and off-street cycling facilities to get around the community, support facilities and programs should be planned and implemented within the medium-term. They may include, but not be limited to:

- Wayfinding signage to connect to key areas of the City.
- Bicycle parking for short- and long-term parking either as part of new development within the city or potentially within public rights-of-way.
- End of trip facilities to make cycling more convenient for commuters that ride longer distances and/or simply need a place to change after arriving at work.
- Cycling support initiatives such as educational programs, school travel planning, promotional events and bike maps.

The total cost of projects and programs recommended is \$2.1-million for the short-term (up to five years), \$8.5-million for the medium-term (five to ten years), and \$13.8-million for the long-term (ten to twenty years). Costs do not include property, environmental impacts, utility relocations, staff time, or operations and maintenance. All costs are outlined in **Appendix B**. An additional \$2.3-million is identified for support initiatives beyond those explicitly listed in the Cycling Network Plan (support programs, support facilities, cycling facility standards), consistent with the draft Transportation Master Plan.

Expansion of pedestrian and cycling facilities on the 5th Street Bridge was not included in the capital cost estimate for medium-term priorities because it is being addressed through a parallel process. This project is recommended to continue in the near-term as part of overall bridge rehabilitation and maintenance work.

Appendix A provides key information for each of the recommended priority projects. All projects require further development, confirmation of all features, discussion with stakeholders, and collaboration with partner agencies (where applicable). Improvements may be eligible for grants and funding from other agencies.

APPENDIX A

CYCLING FACILITY PLAN DEVELOPMENT

The existing cycling network in Courtenay is made up of a network of off-street pathways, supported by signed neighbourhood bicycle routes, bicycle lanes on Fitzgerald Avenue, and a protected cycle lane on 5th Street between Fitzgerald Avenue and Menzies Avenue. The Recommended Long-Term Cycling Network developed as part of Connecting Courtenay will guide the City's capital investments over the next 20 years. This recommended implementation process has been separated into short (5 year), medium (ten year), and long-term capital projects.

The Recommended Long-Term Cycling Network is shaped by the assessment of existing conditions and future demands that are informed by input from the public and key stakeholders, as well as through the application of best practices and an assessment of the physical characteristics of potential routes.

This appendix summarizes the identification and evaluation of routes to create a network over the long-term. Key trade-offs and constraints for each corridor are identified for future consideration by the City as these recommendations move from planning to design. It will be important to continue to work with partner agencies and stakeholders, including the Comox Valley Cycling Coalition and adjacent property owners as these concepts are advanced.

A.1. RIVER CROSSINGS

Options Evaluation

There is a need to provide a safe, comfortable cycling connection between Downtown Courtenay and east Courtenay, and especially to the Lewis Centre. Stakeholders and the public expressed a need for this connection and the Courtenay River is a barrier to cycling in Courtenay. Historically, two options have been explored:

- Widening of the existing pedestrian facilities on the 5th Street crossing
- Development of a new crossing between Anderton Avenue and Simms Millennium Park on the 6th Street alignment.

Previous work has investigated options for widening the existing pedestrian facilities on the 5th Street crossing to 3.0 m multi-use pathways that would be suitable for shared use by cyclists and pedestrians. Previous work confirmed the feasibility of this approach and ongoing work is confirming the expected cost. From a network perspective, both approaches to the bridge are constrained and improvements would be required to connect the proposed crossing to a broader network – this is discussed further in the evaluation of networks on the west and east sides. This concept is available to the City in the near-term since the planning for rehabilitation of the bridge is currently underway. For this reason, Connecting Courtenay includes widening of pedestrian and cycling crossings of the 5th Street crossing in the Long-Term Cycling Network Plan. Pursuing this option in combination with planned maintenance and rehabilitation work

maximizes investment by the City and allows for a connection in the near-term, making cycling and walking safer. This option requires some changes to the surrounding network that are discussed in the 'West Courtenay' and 'East Courtenay' section below.

In 2012, City Council directed staff to pursue development of a new pedestrian and cycling crossing on the 6th Street alignment between Anderton Avenue and Simms Millennium Park. This crossing had been proposed by members of the public and was supported by architectural and engineering work. The crossing would connect to the existing trails network in the Park, providing indirect access to the Lewis Park and the Lewis Centre. The staff report submitted on March 15, 2012 indicated an estimated cost of \$2,000,000 with maintenance and repair costs of around \$5,000 per year and \$25,000 every ten years. This option provides more direct connectivity with existing off-street pathways on the east side; however, the off-street pathways do not connect to a broader network. This option is included in the Draft Parks and Recreation Master Plan because of its role connecting Downtown Courtenay to Simms Millennium Park and Lewis Park. It has generated substantial public interest and was found through previous work to be technically feasible. Connecting Courtenay includes a 6th Street pedestrian and cycling crossing in the long-term plan. Connections developed for the 5th Street crossing can be utilized for a future 6th Street crossing. Because of the cost of this structure and the coverage provided by the 5th Street crossing, it is anticipated that this may be a low priority, long-term improvement from a transportation lens relative to some of the other network needs and the City should explore potential future funding opportunities.

A.2. WEST COURTENAY

The assessment of existing facilities and core destinations, including review of input from stakeholders and the public, identified a number of core gaps and challenges with the existing network. These include:

- The 5th Street protected bicycle lanes do not connect with the existing bicycle lanes on Fitzgerald Avenue.
- The existing Fitzgerald Avenue bicycle lanes end before connecting to Driftwood Mall, an important regional destination.
- There is no all ages and abilities east-west connection between the end of the 5th Street protected bicycle lanes and the 5th Street Crossing. Cyclists are expected to share the road with vehicles.
- Ecole Puntledge Park Elementary, Lake Trail Middle School, and Arden Elementary are not served by any cycling facilities.
- The bicycle lanes on Fitzgerald Avenue are good for more confident cyclists but are not suitable for all ages and abilities.

- The Rotary Trail provides a separated connection; however, intersections do not have any measures for cycling, trail is unpaved.

Based on the guiding principles, the proposed long-term network for 20 years focuses on:

- Building on recent work at 5th Street and the existing bike lanes on Fitzgerald Avenue to create a more complete network.
- Protected connections to and through commercial areas and schools where traffic volumes are too high for neighbourhood bikeways.
- Providing alternatives to the Riverway Trail, which is heavily used by pedestrians and can be difficult to cycle.

Routes were chosen that identify the gaps summarized above and then assessed to determine the facility type that is most likely to provide the highest quality connection, while being sensitive to the local context, physical and cross-section constraints, overall network affordability and other issues. The key considerations for each recommended corridor are summarized in the bullets below:

- **Fitzgerald Avenue** provides a north-south connection with access to commercial areas west of the Courtenay River. The existing bicycle lanes from 8th to 21st provide a north-south spine. It does not currently connect to the 5th Street protected bike lanes to the north or to Driftwood Mall or the trail network to the south and east (Riverway Trail). Fitzgerald is part of BC Transit's proposed Frequent Transit Network – providing good bicycle connections to transit can encourage multi-modal trips, but bike lanes can conflict with bus stops. There is an opportunity to connect bike facilities on north Fitzgerald Avenue to the Complete Street Pilot Project on 5th Street and to the Riverway Trail. Because this is a central spine of the cycling network and connects many important destinations, the recommended configuration for this facility in the long-term is a protected bicycle lane or cycle track. Improving and expanding this corridor would be a valuable piece of the network's overall implementation. Key considerations:
 - The existing curb is old and in need of repair in some areas. Some signal configurations have been identified as requiring improvement in previous studies.
 - This will require reconstruction from property-line to property line in some areas, with a need to eliminate parking at approaches to some intersections to maintain turn lanes.
 - The intersection of 8th Street / Fitzgerald Avenue / Cumberland Road requires additional study.

- Parking could be maintained for most of Fitzgerald Avenue with the exception of the blocks around 11th Street where the right-of-way is narrow. South of 14th Street the parking could be maintained with a reduced boulevard or parking could be alternated on each side of the road to maintain ideal boulevard width.
- Need to reconfigure the intersection and reduce turning lanes at 26th Street to accommodate protected intersection.
- Additional property should be acquired where available through development to provide enhanced treatments, including wider lanes and passenger amenity areas for transit stops along the cycle track.
- This cross-section can be implemented over time as the opportunity arises – either from development or through other works. The highest priority components are the extensions of the current bicycle lane to connect to other infrastructure and destinations.
- The existing facility from 8th to 21st could be improved with spot improvements such as updated pavement markings near intersections and signage along the route, this could be done simultaneously to extending the network outwards from this north-south spine.
- **6th Street** is a local road in the Downtown that connects Fitzgerald Avenue to the Courtenay River. It provides access to the commercial core of Downtown Courtenay, including the Courtenay branch of the Vancouver Island Regional Library. A bike boulevard / neighbourhood greenway is recommended for this route as a comfortable cycling connection. Key considerations include:
 - 5th Street between Fitzgerald Avenue and the 5th Street Bridge was considered as an alternate east-west connection. It was eliminated from further review for a number of reasons. 5th Street is heavily used by vehicles and pedestrians and supports the movement of goods and services. The narrow right-of-way and angled parking would make protect bike lanes difficult on 5th Street in this area.
 - Requires a crossing of Cliffe Avenue, which can be accommodated at the existing signal with the addition of bicycle pushbuttons and paint treatments. May require minor curb modifications.
 - Traffic calming may be required to reduce traffic volumes and speeds.
 - Drive-in angle parking on 6th Street between Fitzgerald Avenue and England Avenue should be modified to be reverse-in angle parking or parallel parking, which are safer when combined with cycling routes.

- Bicycle parking opportunities and partnerships with local businesses and the BIA should be pursued along 6th Street as the 'bicycle gateway' to Downtown.
- **Anderton Avenue** between 6th Street and the City boundary connects the recommended bike boulevard on 6th Street to the 5th Street Bridge and on to planned development on the K'omoks First Nation land north of the Puntledge River. A bike boulevard / neighbourhood greenway is recommended from 6th Street until 1st Street. North of 1st Street a protected cycle track is recommended due to Anderton's classification as a collector roadway and the potential for increased traffic volumes accessing the planned development. Key considerations include:
 - A new bicycle / pedestrian crossing of 5th Street is recommended. The type of connection is to be determined, but it will require changes to the curbs and existing concrete median. Design will need to give special consideration of the visibility of any flashing lights or signals from the bridge deck and how this crossing will operate in conjunction with the nearby signal at 5th Street & Cliffe Avenue. Amalgamating the crossing with the existing signal at 5th Street was considered; however, connecting the crossing to the 5th Street Bridge would be complex and require additional property.
 - Traffic calming may be required to slow traffic speeds south of 1st Street.
 - Transition to no parking or parking pockets north of 1st Street.
- **5th Street** from Menzies to Lake Trail Road (via Willemar Avenue) connects the protected bicycle lanes that have recently been constructed on 5th Street at Menzies to Lake Trail Middle School. Protected bicycle lanes or cycle tracks are recommended for this corridor. Key considerations include:
 - North of 9th Street, ideal cross-section widths can be maintained in narrow sections by alternating parking. Alternatively, parking could be maintained with reduced widths for all cross-section elements – this would also require reconstruction from property line to property line.
 - More detailed assessment and discussions with stakeholders are required to finalize the facility type and configuration on Willemar Avenue adjacent to the school. This includes consideration of pick-up and drop-off patterns and use of existing turn lanes. There may be an opportunity to partner with the school to locate a cycle track or multi-use pathway on school property.
- **Lake Trail Road** connects Lake Trail Middle School to Arden Elementary. A multi-use pathway is recommended to provide separation for traffic and a connection for both cyclists and pedestrians. This is the subject of a concurrent study.

- **Arden Road** Arden Road runs from 1st Street in the north and dead ends near the Comox Valley Parkway in the south. A possible roadside multi-use pathway could be implemented along Arden Road, from Morrison Creek to the Comox Valley Parkway, in order to increase pedestrian and cyclist connectivity in this area and provide a continuous north-south connection at the west end of the City.
- **17th Street** improvements will provide a continuous east-west connection between Comox Road / 17th Street Bridge and Willemar Avenue and Cumberland Road, with access to the Riverway Trail.
- **19th Street** connects the Courtenay Riverway to the existing Fitzgerald Avenue bike lane. In the long-term, protected bicycle lanes are recommended because of this short connection's central role between two planned facilities that are fully protected. Key considerations include:
 - Although protected bicycle lanes are recommended in the long-term, they will require additional property. Buffered bicycle lanes are recommended for a more immediate connection but require elimination of existing parking. This requires more discussion with property owners and stakeholders. A bike boulevard can be considered as an alternative to removing parking.
 - Changes will be required at 19th Street and Cliffe Avenue 19th to the existing signalized intersection
- **26th Street** connects the proposed Fitzgerald Avenue protected bicycle lanes and Driftwood Mall to the planned future extension of the Rotary Trail and on to the existing multi-use pathway along Comox Valley Parkway. Protected bicycle lanes are recommended for this connection. Key considerations:
 - The existing curbs can be maintained along with the addition of protected bicycle lanes by implementing alternating parking. Full parking can be accommodated by acquiring additional right-of-way or reducing all cross-section elements to recommended minimums and reconstructing the roadway from property line to property line.
- **Cumberland Road** currently offers a discontinuous signed route and painted shoulder. It is recommended that this route be improved to provide a consistent bicycle route to connect to the Fitzgerald Corridor.
- **Willemar Avenue** has been identified as a corridor for improvement and will provide an alternate north-south connection to the recommended improvements along Lake Trail Road. This route is proposed as a neighborhood greenway requiring signs and paint treatment from Cumberland Road to 26th Street. North of

Cumberland Road to 5th Street, painted/buffered lanes are the recommended treatment. Key considerations:

- Improvements at the intersection of Lake Trail Road could be required. Parking could be impacted along the route and requires further study.

The Courtenay Draft Parks and Recreation Master Plan is expected to include recommendations for extension of, and improvements to, key multi-use trails that also provide transportation connections. These include the Courtenay Riverway and the Rotary Trail. For the Rotary Trail, improvements will be required at intersections to maximize the safety and efficiency of the trail for cyclists. Although recommendations to improve and extend the Rotary Trail will be provided within the Draft Parks and Recreation Master Plan, Connecting Courtenay includes a recommendation (and associated costs) for improved crossings along the length of the trail.

A.3. EAST COURTENAY

The assessment of existing facilities and core destinations, including review of input from stakeholders and the public, identified a number of core gaps and challenges with the existing network. These include:

- No east-west connection on Ryan Road or parallel roads to provide cycling access to commercial areas, the 5th Street Bridge, North Island College, North Island Hospital, residential areas, or to regional destinations.
- No current connection from commercial areas around Ryan Road south to the 17th Street bridge or on to the Town of Comox.
- No connection from Courtenay east to Comox.
- No all ages and abilities connections to Mark R Isfeld Secondary and Valley View Elementary school from the east. Trails connecting from the west are not suitable for all cyclists.
- No all ages and abilities connections to Queneesh Elementary School, North Island College, and North Island Hospital.

Based on the guiding principles, the proposed long-term network for 20 years focuses on:

- Creating a spine network that connects key destinations and focuses on safety and comfort for all ages and abilities (AAA).
- Creating a network of neighbourhood bikeways that connect to existing trails and schools and by formalizing and improving routes already used by cyclists.

Routes were chosen based on the gaps summarized above and then assessed to determine the facility type that is most likely to provide the highest quality connection, while being sensitive to the local context, physical and cross-section constraints, overall network affordability and other issues. The evaluation for each recommended corridor is summarized in the bullets below:

- **Major road widenings and new major roads** are recommended to include facilities for all modes of transportation. On the east side of the Courtenay River, this would include the following facilities:
 - Cycling facilities – either multi-use pathways or protected cycling lanes along with sidewalks – on both sides of the community
 - Multi-use pathway along one side of the potential, widened Highway 19A Bypass. (under jurisdiction of MoTI, not included in cost estimates)
 - Multi-use pathways along both sides of the recommended 17th Street Extension.
 - Protected bicycle lanes along Ryan Road in the long-term when widening occurs. Alternative facilities are recommended along Ryan Road in the medium-term before full widening occurs (under jurisdiction of MOTI, not included in cost estimates)
- **Old Island Highway / 5th Street** from 5th Street Bridge to Puntledge Road connects the recommended improvements to the 5th Street Bridge crossing to the Lewis Centre. A multi-use pathway is recommended. Key considerations include:
 - Preliminary investigation suggests that the north side would be more suitable because of access to Lewis Park and property constraints on the southeast side of Old Island Highway.
 - The pathway may be through the park property at some points to manage impacts to trees. Grades and driveway crossings require careful consideration.
 - The portion of the pathway in front of the Lewis Centre should be delivered along with recommended road network improvements to access control along Old Island Highway.

- The crossing of Old Island Highway at Puntledge Road is already a controlled crossing; updated paint markings and a bicycle push button are recommended.
- **Puntledge Road** provides an alternate to Old Island Highway and Ryan Road where there is no space available for a multi-use pathway or other cycling facilities comfortable for all ages and abilities. A bicycle boulevard is recommended with the length to be determined following further study of potential crossing locations of the Highway 19A Bypass. A crossing of the Highway 19A Bypass would connect the Puntledge Road bike boulevard to the multi-use pathway along Highway 19A and a multi-use trail recommended in the Draft Parks and Recreation Master Plan. Key considerations:
 - Traffic calming may be required to reduce vehicle volumes and speeds. Any traffic calming applied in this area should be suitable for navigation by large trucks, since this is an industrial area.
 - The location and type of crossing of Highway 19A should be determined through further planning and design work and be responsive to the final design for the potential widening of Highway 19A.
- **Tunner Drive** is identified as a future street connection, which would include sidewalks and cycling facilities connecting Back Road to the Highway 19A Bypass. Consideration is to be given to coordination with planned cycling facilities on Back Road and Highway 19A Bypass, including a means of crossing Highway 19A Bypass
- **Back Road** connects future protected bicycle lanes on Ryan Road and Tunner Drive to a network of bicycle boulevards in this neighbourhood. A multi-use pathway is recommended for this corridor. Key considerations:
 - In the long-term widening Back Road is recommended to accommodate traffic growth. To accommodate widening and a multi-use pathway requires additional property.
 - In the interim – before widening is required and property is available – preliminary investigations suggest a multi-use pathway can be accommodated on the southwest side of the roadway. Between 6th Street and Tunner Drive the pathway can be accommodated beyond the limits of the existing asphalt. North of Tunner Drive, implementing a full multi-use pathway may require removing the existing curb and narrowing the southbound lane. Further consideration is required in the design stage.
 - Connecting the network requires an improved crossing of Back Road, with the type to be determined. Locating the crossing at Tunner Drive would

provide a direct path for the most cycling trips because it does not require 'back-tracking' to reach Ryan Road or 6th Street. It also responds to other community requests for a controlled pedestrian crossing; however, Tunner Drive is within 150 m of the nearest controlled crossing at Ryan Road. A crossing at 6th Street could be considered as an alternative. More detailed study is required to confirm the crossing location.

- Connecting the network also requires an improved crossing of Ryan Road at Back Road to facilitate bicycle connections. Bicycle push-buttons and paint are recommended. Changes to existing curbs could further enhance crossing comfort. This intersection is under MoTI jurisdiction.
- **A network of bicycle boulevards** south of Ryan Road and east of Back Road is recommended to facilitate travel through the neighbourhood and to key destinations. Proposed roadways are:
 - 6th Street East from Back Road to Arrowsmith Avenue.
 - Hobson Avenue from 6th Street East to Hawk Drive.
 - Hawk Drive from Hobson Avenue / Valley View Drive to Swallow Crescent.
 - Mallard Drive from the trail connecting to Hawk Drive to Valley View Drive.
 - Cowichan Avenue / 6th Street East / Arrowsmith Avenue from Ryan Road to Malahat Drive.
 - Williams Road from Hunt Road to 10th Street.
 - Crown Isle Drive from Ryan Road connecting to Idiens Way, including Royal Vista Way.
- Key considerations include:
 - Traffic calming may be required to reduce traffic speed and volume on these roadways.
 - A continuous connection on 6th Street was considered and not included in the recommendations due to the extreme grade of 15%.
- **A network of bicycle boulevards** is also recommended north of Ryan Road along Braidwood Road, connecting to recommended painted facilities on Back Road to Centennial Drive, along Centennial Drive to McLaughlin Drive connecting through the cul-de-sac at the north of McLaughlin Drive and onwards to recreational trails. This connection would also follow Dingwall Road. This connection should align with the proposed dismantled bicycle feature at the extreme slope at the northeast corner of Dingwall Road where it meets Cruikshank Avenue (this feature is being

explored through the Draft Parks and Recreation Master Plan process). This connection is dependant on that feature's development.

- **Tamarack Drive and Muir Road** from North Island College to Queneesh Elementary School are recommended to be bicycle boulevards. Key considerations:
 - The corridors provide a local connection to the elementary school via an existing trail.
 - A bicycle boulevard along Muir Road connects to a potential future multi-use trail that has been identified through the Courtenay Draft Parks and Recreation Master Plan. The exact configurations of these trails are subject to further investigation due to grade and right-of-way considerations.
- **Malahat Drive** connects the proposed network of bicycle boulevards to Lerwick Road and the Crown Isle neighbourhood. Buffered or painted bicycle lanes are recommended for this connection. Key considerations:
 - Narrowing of existing lanes and / or modification of the existing painted median will be required.
 - Improvements to the intersection of Lerwick Road and Malahat Drive may be required to provide safe crossing to the Crown Isle neighbourhood.
 - Buffered bicycle lanes with flexible delineators are preferred in sections where volume is higher and where more detailed work indicates there is sufficient width.
- **Valley View Drive / Idiens Way** connects the proposed network of bicycle boulevards to an existing multi-use pathway. Buffered or painted bicycle lanes are recommended for this connection.
 - Improvements to the intersection of Lerwick Road and Valley View Drive / Idiens Way are required to facilitate crossing. Paint and bicycle push-buttons are recommended.
 - Buffered bicycle lanes with flexible delineators are preferred in sections where volume is higher and where more detailed work indicates there is sufficient width.
 - Some modifications to existing lane configurations may be required to accommodate the bicycle lanes. More detailed study is required to determine trade-offs.
 - Parking restrictions on Idiens Way will be required to accommodate bicycle lanes.

- **Lerwick Road** provides the most direct north-south connection across Courtenay east of the Courtenay River. Much of this roadway has been built out, making continuous protected bicycle lanes or multi-use pathways infeasible within the existing right-of-way. Discontinuous bicycle facilities are not desirable. There are some segments of Lerwick Road where a multi-use pathway remains feasible and can provide a connection between other facilities or adjacent to important destinations, such as schools. For this reason, multi-use pathways are recommended on Lerwick Road between Valley View Drive / Idiens Way and Malahat Drive and between Waters Place and the existing unpaved multi-use pathway on Veterans Memorial Parkway. Key considerations include:
 - Because future widening may be required for Lerwick Road in the long-term, consider locating the multi-use pathway adjacent to the school outside of the future widening area. This will require working with School District 71 for property dedication.
 - Changes to the cross-section or narrowing of ideal cross-section element widths may be required at the intersection with Valley View Drive / Idiens Way.

- **Other crossing improvements** are recommended to connect infrastructure. These include:
 - **Ryan Road at Cowichan Avenue**
 - **McDonald Road at Lerwick Road / Guthrie Road.** At this location, multi-use pathways along McDonald Road should connect to on-street bicycle lanes on Guthrie Road in the Town of Comox. Bicycle boxes, push buttons, and conflict paint are recommended to improve the crossing.

The Courtenay Draft Parks and Recreation Master Plan includes recommendations for improvements to trails that also provide transportation connections. On the east side of the Courtenay River, these improvements are focused around an east-west connection between Highway 19A and Tunner Drive, as well as existing unimproved trails that can provide access to schools. Existing dirt and unpaved trails should be paved and widened to connect bicycle boulevards to schools and to provide north-south and east-west connections. Some of these trails are on property owned by School District 71, a key partner in improving these connections.

The City typically plans and funds transportation facilities and programs through various programs, as well as cost sharing opportunities. As part of the city's ongoing 5- and 10-year capital planning, consideration may be given toward utilizing alternative funding sources for the delivery of key street, walking, cycling, and transit facilities and programs as briefly outlined below.

- **General Revenues.** The City should incorporate the recommendations from the cycling network plan into its short-, medium-, and long-term budgeting plans to ensure that the projects are accounted for in the City's capital planning process. To accommodate this, the City may seek changes to its capital budget to fund the implementation of this network plan over the medium- and long-term. The City should also seek to integrate transportation improvements with other capital projects, such as utility projects.
- **Developers.** The City should leverage transportation investments during the planning of new development projects. Other ways in which transportation investments can be leveraged through developers include:
 - Voluntary public realm improvements
 - Community amenity contributions
 - Density bonusing contributions
 - Require high quality bicycle parking facilities through Zoning Bylaw update
- **Development Cost Charges (DCC).** The City has a DCC bylaw that should be updated to include projects identified through Connecting Courtenay. DCC projects should

include projects from across all modes of transportation that benefit new growth in the community.

- **Provincial Programs and Initiatives.** Key infrastructure may be funded in partnership with the Ministry of Transportation. Beyond this, the Provincial Government administers the BikeBC program, which promotes new, safe, and high-quality cycling infrastructure through cost-sharing with local governments. Some possible projects include new bicycle trails and bicycle lanes, improvements to existing cycling infrastructure, and providing for bicycle lockers and other equipment that makes cycling a safer and more convenient option for travellers. The BikeBC program provides funding for infrastructure which forms part of a bicycle network plan adopted by a BC local government. To ensure maximum success at obtaining grant funding, the City should have grant-ready concepts pre-developed for application.
- **Federal Funding.** There are several programs that provide funding for environmental and local transportation infrastructure projects in municipalities across Canada. Typically, the federal government contributes one third of the cost of municipal infrastructure projects. Provincial and municipal governments contribute the remaining funds, and in some instances, there may be private sector investment as well.
- **Green Municipal Funds.** The Federation of Canadian Municipalities manages the Green Municipal Fund, with a total allocation of \$550 million. This fund is intended to support municipal government efforts to reduce pollution, reduce greenhouse gas emissions, and improve quality of life. The expectation is that knowledge and experience gained in best practices and innovative environmental projects will be applied to national infrastructure projects.
- **Carbon Tax Rebate.** Each municipality that has signed the Climate Action Charter receives an annual rebased based on completion of the CARIP form. The City could choose to direct this funding towards sustainable transportation projects, such as funding bicycle, pedestrian, and transit infrastructure.
- **ICBC:** ICBC provides funding for road improvements, including pedestrian and bicycle infrastructure, particularly where these have the potential to reduce crashes, improve safety, and reduce claims costs to ICBC. Funding is available through ICBC's Road Improvement Program, and other ICBC programs include the Speed Watch Program (through the Community Policing Centres), Speed and Intersection Safety Program, Counter Attack, Operation Red Nose, and Road Sense Speaker Program for Schools.
- **Private Sector.** Many corporations wish to be good corporate neighbours—to be active in the community and to promote environmentally-beneficial causes. Bicycle

and pedestrian routes and facilities in particular are well suited to corporate sponsorship and have attracted significant sponsorship both at the local level and throughout North America. Examples in BC include Construction Aggregates in Sechelt, which constructed an overpass over a gravel conveyor to provide a link for pedestrians and cyclists, and 7-Eleven and Molson Breweries, which have sponsored multi-use pathways in Metro Vancouver

APPENDIX B

CYCLING IMPROVEMENT SUMMARY

SHORT TERM CYCLING IMPROVEMENTS AND COST ESTIMATES (Class D)*

Facility Name	Start	End	Horizon	Length (m)	Sides	Facility Type	Additional LS		
							Cost/m	Work	Total Cost
Fitzgerald Avenue	5th Street	8th Street / Cumberland Road	Short	250	2	Buffered Bike Lanes with Delineators - Curb to Curb	\$ 140		\$ 70,000
Fitzgerald Avenue	Cumberland Road	21st Street	Short	1300	2	Spot improvements along existing route			\$ 30,000
Fitzgerald Avenue	21st Street	26th Street	Short	500	2	Buffered Bike Lanes with Delineators - Curb to Curb	\$ 140		\$ 140,000
19th Street	Fitzgerald Avenue	Riverway Trail	Short	250	2	Buffered Bike Lanes with Delineators - Curb to Curb	\$ 140		\$ 70,000
Back Road	Ryan Road	6th Street	Short	350	1	MUP - Convert Rural to Urban (1 side)	\$ 940	\$ 20,000	\$ 349,000
6th Street	Back Road	Hobson Avenue	Short	280	1	Neighbourhood Greenway - Signs and Paint Only	\$ 40		\$ 11,200
Hobson Avenue	6th Street E	Hawk Drive	Short	1300	1	Neighbourhood Greenway - Signs and Paint Only	\$ 40		\$ 52,000
Tunner Road	Williams Road	Back Road	Short	100	4	MUP - Convert Rural to Urban (1 side)	\$ 940	\$ 20,000	\$ 114,000
6th Street	Fitzgerald Avenue	Anderton Avenue	Short	460	1	Neighbourhood Greenway - Signs and Paint Only	\$ 40	\$ 50,000	\$ 68,400
Anderton Avenue	5th Street	6th Street	Short	90	1	Neighbourhood Greenway - Signs and Paint Only	\$ 40		\$ 3,600
Anderton Avenue Intersection	5th Street		Short					\$ 310,000	\$ 310,000
5th Street / Old Island Highway	5th Street Bridge	Lewis Centre	Short	360	1	MUP on Existing Urban	\$ 620		\$ 223,200
Lerwick Road	Malahat Drive	Valley View Drive	Short	800	1	MUP on Rural Road Flat	\$ 550		\$ 440,000
Malahat Drive	Arrowsmith Avenue	Lerwick Road	Short	500	2	Buffered Bike Lanes with Delineators - Curb to Curb	\$ 140	\$ 13,900	\$ 153,900
Cowichan Avenue/Arrowsmith Avenue	Ryan Road	Malahat Drive	Short	750	1	Neighbourhood Greenway - Signs and Paint Only	\$ 40		\$ 30,000
			5-year Total						\$ 2,065,300

* This preliminary estimate is a 'Class D' type estimate (order of magnitude) which uses simplified methods of estimate preparation, consistent with methods used for the Transportation Master Plan, is developed for discussion purposes only for the City of Courtenay.

MEDIUM TERM CYCLING IMPROVEMENTS AND COST ESTIMATES (Class D)*

Facility Name	Start	End	Horizon	Length (m)	Sides	Facility Type	Cost/m	Additional LS Work	Total Cost
5th Street	Menzies Avenue	Lake Trail Road	Medium	800	2	Raised Cycle Track w/ Landscaping	\$ 1,370	\$ 75,000	\$ 2,267,000
Hawk Drive	Hobson Avenue	Swallow Crescent	Medium	450	1	Neighbourhood Greenway - Signs and Paint Only	\$ 40		\$ 18,000
Puntledge Road	Old Island Highway	Highway 19A	Medium	185	1	Neighbourhood Greenway - Signs and Paint Only	\$ 40		\$ 7,400
Idiens Way/Valley View Drive	Mallard Drive	Comox Boundary	Medium	850	2	Buffered Bike Lanes with Delineators - Curb to Curb	\$ 140	\$ 25,000	\$ 263,000
Willemar Avenue	5th Street	Cumberland Road	Medium	700	2	Buffered Bike Lanes with Delineators - Curb to Curb	\$ 140		\$ 196,000
Lake Trail Road	Willemar Avenue	Webdon Road	Medium	910	1	MUP on Rural Road Flat	\$ 550	\$ 310,000	\$ 810,500
Arden Road	Morrison Creek	Comox Valley Parkway	Medium	2700	1	MUP on Rural Road flat	\$ 550		\$ 1,485,000
26th Street	Willemar Avenue	Fitzgerald Avenue	Medium	950	2	Buffered Bike Lanes with Delineators - Curb to Curb	\$ 140		\$ 266,000
Willemar Avenue	Cumberland Road	S end of Willemar at Trail	Medium	1200	1	Neighbourhood Greenway - Signs and Paint Only	\$ 40		\$ 48,000
Cumberland Road	Willemar Avenue	Arden Road	Medium	950	2	Buffered Bike Lanes with Delineators - Curb to Curb	\$ 140		\$ 266,000
Cumberland Road	Piercy Avenue	Fitzgerald Avenue	Medium	720	2	Buffered Bike Lanes with Delineators - Curb to Curb	\$ 140		\$ 201,600
Veterans Memorial Parkway	Caledon Crescent	N of Poje Way	Medium	1100	2	Buffered Bike Lanes with Delineators - Curb to Curb	\$ 140		\$ 308,000
Veterans Memorial Parkway	N of Poje Way	Mission Road	Medium	400	2	Buffered Bike Lanes with Delineators - Curb to Curb	\$ 140		\$ 112,000
Crown Isle Dr	Ryan Road	Idiens Way	Medium	2000	1	Neighbourhood Greenway - Signs and Paint Only	\$ 40		\$ 80,000
Crown Isle Blvd /Water Pl	Lerwick Road	Ryan Road	Medium	1000	2	Buffered Bike Lanes with Delineators - Curb to Curb	\$ 140		\$ 280,000
4th Street	Willemar Avenue	Menzies Avenue / 5th Street	Medium	530	1	Neighbourhood Greenway - Signs and Paint Only	\$ 40		\$ 21,200
Back Road	Ryan Road	Braidwood Rd	Medium	120	2	Buffered Bike Lanes with Delineators - Curb to Curb	\$ 140		\$ 33,600
Centennial Drive	Back Road	McLaughlin Dr	Medium	300	1	Buffered Bike Lanes with Delineators - Curb to Curb	\$ 140		\$ 42,000
McLaughlin Drive	Centennial Drive	Cul-De-Sac	Medium	1100	1	Neighbourhood Greenway - Signs and Paint Only	\$ 40		\$ 44,000
Braidwood Road	Back Road	Old Island Highway	Medium	550	1	Buffered Bike Lanes with Delineators - Curb to Curb	\$ 140		\$ 77,000
Old Island Hwy	Ryan Rd	Braidwood Rd	Medium	420	1	MUP on Rural Road Flat	\$ 550		\$ 231,000
Tsolum Road	Old Island Highway	Puntledge Road	Medium	200	1	Neighbourhood Greenway - Signs and Paint Only	\$ 40		\$ 8,000
N Island Hwy	17th Street Bridge	Ryan Road	Medium	1500	1	MUP on Rural Road Flat	\$ 550		\$ 825,000
17th Street	Willemar Avenue	Comox Road	Medium	1600	2	Buffered Bike Lanes with Delineators - Curb to Curb	\$ 140		\$ 448,000
Muir Road	McLaughlin Drive	Lerwick Road	Medium	1300	1	Neighbourhood Greenway - Signs and Paint Only	\$ 40		\$ 52,000
Royal Vista Way	Crown Isle Drive	End	Medium	1200	1	Neighbourhood Greenway - Signs and Paint Only	\$ 40		\$ 48,000
			10-year Total						\$ 8,438,300

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LONG TERM CYCLING IMPROVEMENTS AND COST ESTIMATES (Class D)*

Facility Name	Start	End	Horizon	Length (m)	Sides	Facility Type	Cost/m	Additional LS Work	Total Cost
Rotary Trail - Street crossing improvement	5th Street	26th Street	Long	2050				\$ 225,000	\$ 225,000
Fitzgerald Avenue	5th Street	26th Street	Long	2050	2	Raised Cycle Track w/ Landscaping	\$ 1,370	\$ 582,500	\$ 6,199,500
Lake Trail Road	Webdon Road	Salisbury Road	Long	550	1	MUP on Rural Road Flat	\$ 550	\$ -	\$ 302,500
26th Street	Rotary Trail	Fitzgerald Avenue	Long	460	2	Raised Cycle Track w/ Landscaping	\$ 1,370	\$ 15,000	\$ 1,275,400
19th Street	Fitzgerald Avenue	Courtenay Riverway	Long	300	2	Raised Cycle Track w/ Landscaping	\$ 1,370		\$ 822,000
Mallard Drive	Trail Connection	Valley View Drive	Long	450	1	Neighbourhood Greenway - Signs and Paint Only	\$ 40		\$ 18,000
Anderton Avenue	1st Street	Puntledge River	Long	230	2	Raised Cycle Track w/ Landscaping	\$ 1,370		\$ 630,200
Anderton Avenue	5th Street	1st Street	Long	350	1	Neighbourhood Greenway - Signs and Paint Only	\$ 40		\$ 14,000
6th Street Pedestrian / Bicycle Bridge	Anderton Avenue	Simms Millenium Park	Long					\$ 2,750,000.00	\$ 2,750,000
Headquarters Road	Old Island Highway	Vanier Drive	Long	1500	2	Buffered Bike Lanes with Delineators - Curb to Curb	\$ 140		\$ 420,000
Muir Road/Mission Road	Cul-de-sac	Trail Connection	Long	350	1	Neighbourhood Greenway - Signs and Paint Only	\$ 40		\$ 14,000
Carmanah Drive / Tamarack Drive	Cruikshank Park	Tamarack Drive	Long	450	1	Neighbourhood Greenway - Signs and Paint Only	\$ 40		\$ 18,000
Valley View Drive	Hobson Avenue	Mallard Drive	Long	450	2	Buffered Bike Lanes with Delineators - Curb to Curb	\$ 140		\$ 126,000
Williams Road	Hunt Road	10 Street	Long	230	1	Neighbourhood Greenway - Signs and Paint Only	\$ 40		\$ 9,200
Comox Road	17 Street Bridge	South	Long	800	1	MUP on Rural Road Flat	\$ 550	\$ -	\$ 440,000
McDonald Road Intersection	Lerwick Road		Long						\$ 96,400
Vanier Drive	Headquarters Rd	Veteran Memorials Pkwy	Long	1500	2	Buffered Bike Lanes with Delineators - Curb to Curb	\$ 140		\$ 420,000
Trail Extension at Simms Millenium Park	Ex. Trail	5th Street Bridge	Long	40	1	MUP on Rural Road Flat	\$ 550	\$ -	\$ 22,000
6th Street	Hobson Avenue	Arrowsmith Avenue	Long	750	1	Neighbourhood Greenway - Signs and Paint Only	\$ 40		\$ 30,000
			20-year Total						\$ 13,832,200
			Grand Total						\$ 24,335,800

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