ATTACHMENT 1

MUNICIPALITY OF NORTH Cowichan

May 2024

MASTER TRANSPORTATION PLAN

WATT Consulting Group

LAND ACKNOWLEDGEMENT

The Municipality of North Cowichan sits on the traditional territories of the Quw'utsun First Nation, which includes the Cowichan Tribes, the Halalt First Nation, the Lyackson First Nation, the Penelakut Tribe, and the Stz'uminus First Nation. North Cowichan also sits on the traditional, territory of the Snuneymuxw First Nation.

PROJECT ACKNOWLEDGEMENT

WATT Consulting Group would like to thank the North Cowichan community, staff, the Environmental Advisory Committee, elected officials, Cowichan Tribes, and other groups in the community who provided invaluable feedback throughout development of the Master Transportation Plan. We would also like to thank the over 1,000 residents who participated in the 2021 North Cowichan Household Travel Survey—the Municipality's first comprehensive household travel survey. The results from that survey provided invaluable data to help develop a more rigorous transportation model and produce a more accurate assessment of future traffic projects in North Cowichan.

The development of the Master Transportation Plan involved a multi-disciplinary consulting team composed of transportation experts, engagement specialists, and statisticians along with engineering and planning staff from MNC, as shown below.

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1.0 INTRODUCTION

The Municipality of North Cowichan's 2024 Master Transportation Plan (MTP) was developed to provide clear direction on how the municipality could improve transportation options for all people. The MTP builds on the Municipality's recently adopted Official Community Plan, which recognizes the strong linkage between land use and transportation. Further, given the Municipality's commitment to addressing climate change, and its specific climate targets outlined in the Climate Action & Energy Plan, the Master Transportation Plan is a critical document that, once implemented, can reduce transportation-related emissions through the expansion of sustainable transportation choices for the community.

1.1 How to Use this Plan

The North Cowichan MTP has a long-term planning horizon and will guide the Municipality's decisions related to all aspects of the transportation network over the build-out of the Official Community Plan. It provides a vision, goals, infrastructure recommendations as well as supportive policies and programs that can achieve the overall aspirations of the community. Long-term planning documents such as master transportation plans are intended to be reviewed and updated as communities grow and change. The Master Transportation Plan should ideally be reviewed and updated within the same time period as the Official Community Plan. Regular updates of the MTP will ensure that this plan adjusts as needed to accommodate the community's needs. Full updates to MTPs generally occur every 10 to 20 years depending on the pace of change.

1.1.1 What is a Master Transportation Plan?

Master transportation plans provide direction on how a community's transportation network should grow, evolve, and adapt over time. They include a suite of infrastructure improvements along with supportive policies and programs that provide local governments—and private developers—with clear direction on what the transportation network aspires to be. An MTP is separate from an Official Community Plan as it is more technical and detailed in nature. However, an MTP should speak to, reference, and build on a community's OCP to ensure that all land use and transportation planning decisions are coordinated. This plan assesses the long-term needs (build-out of all of the OCP's land use densities) for all modes of transportation.

1.1.2 Who is the Plan for?

The North Cowichan MTP is intended for Council, Municipality staff, developers, and the larger community. The MTP provides staff with a long term set of transportation needs to be used to identify future right-of-way requirements and plan for potential worst-case needs. The plan provides a prioritized action plan for the next 10 years; however, priorities may change based on development and asset management projects and needs. Municipal staff will utilize this plan along with asset management needs and known and expected development areas to adjust when projects should be

implemented. It provides the development community with blueprint of where new transportation infrastructure is recommended and where they may be required to contribute to it. Lastly, it provides the larger community with an overall vision of how it can meet its future mode share targets, the general goals of the OCP, projected growth, and the climate targets in the Climate Action and Energy Plan while ensuring adaptability.

1.2 Land Use & Transportation Integration

Urban planning and transportation professionals have long argued that "the best transportation plan is a great land use plan". Therefore, an MTP cannot be completed without understanding both current and future land uses. With the recent adoption of the Municipality's Official Community Plan, North Cowichan is committing to see focused growth and development and an increase in the number of new housing units throughout the municipality.

As outlined in Goal #1 of the OCP (Focus Growth and Development), 75% of new residential units will be in the Growth Centres as identified in the OCP. The Growth Centres include Chemainus, Crofton, University Village, Bell McKinnon, and Berkey's Corner. Their features include:

- A broad range of uses typical of a village and urban centres (e.g., shopping services, financial and business uses, government and institutional uses, clinics, leisure and recreational facilities, cultural and residential uses).
  Residential uses mainly in the form of multi-family units to make efficient use of land.
- Pedestrian-oriented and multi-modal transportation focus.

Cowichan Lake Road is a critical corridor for Berkey's Corner. The MTP identifies several improvements to the corridor to facilitate more active transportation travel, which will benefit future residents / employees.

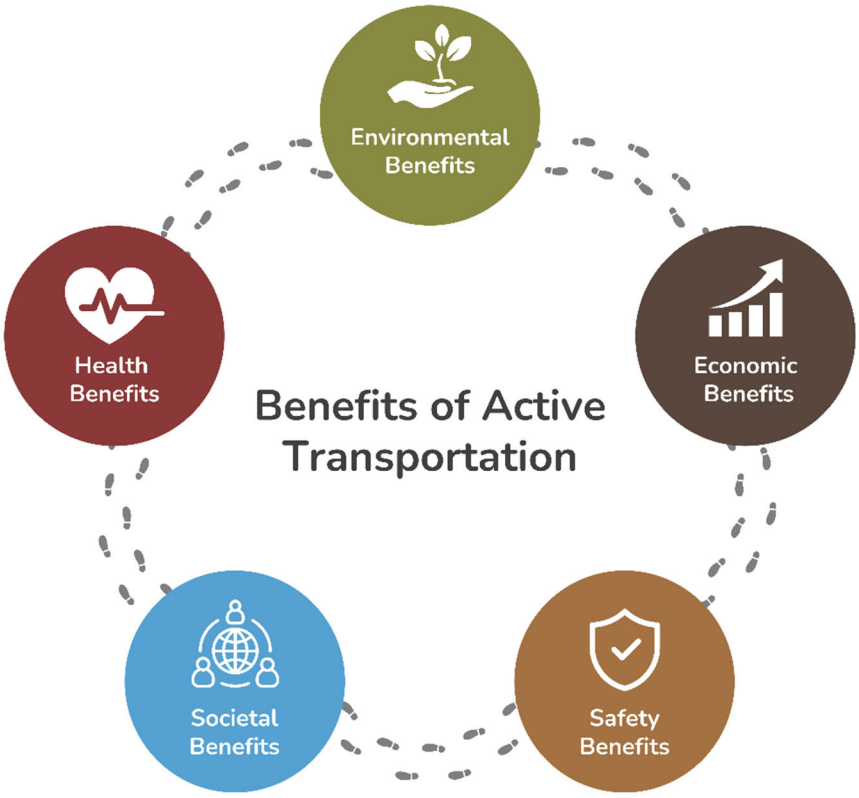
The other 25% of new residential units will be largely realized elsewhere within the Urban Containment Boundary (UCB), with very little housing development expected outside of the UCB.

The Growth Centre areas—and the specific type of development they attract—will inform the types of transportation improvements required to ensure they have the walkability and mobility options, so people are not reliant on their vehicles.

The critical connection between land use and transportation played an important role in the overall development of the MTP including the expected long term traffic volumes across the road network and mode share targets. The MTP plan is based on a business-as-usual (BAU) assessment of the vehicle (road) network to allow for worst-case

planning for right-of-way requirements and potential road widening and intersection upgrades. However, the intention of this plan is to work towards shifting from business-as-usual use of vehicles and increase the amount of active transportation trips. Creating this shift to fewer vehicle trips will likely lower demand for more travel lanes and asphalt. Maintaining existing two-lane roadways provides numerous benefits including the ability to increase the amount of buffer between user groups, utilize buffer space to increase vegetation (trees, hedges, shrubs), and utilize bioswales and rain gardens. The increase in vegetation provides a more visually appealing corridor that can help to reduce vehicle speeds as well as provide shade and cooling which reduces the heat island effects from the asphalt roadways.

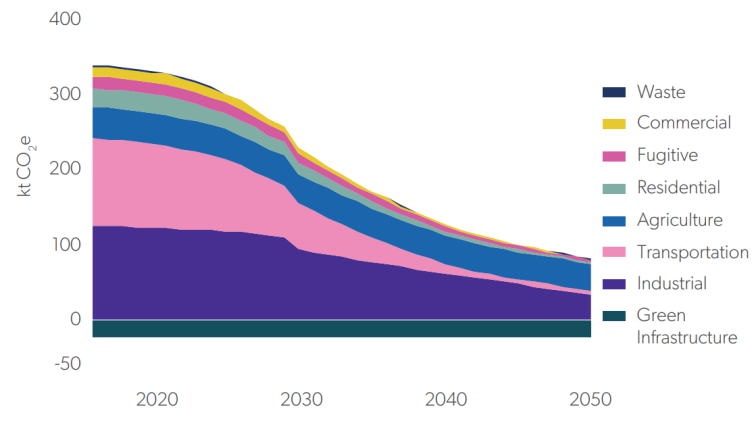
Well designed active transportation provides a range of benefits including reducing greenhouse gas emissions, increasing accessibility, affordability and equity, improved safety along with economic and health benefits. Economic benefits are created by increasing the accessibility and attractiveness for people using active modes which can attract more visitors and tourists, who contribute to the local economy. Increased active transportation, within a community, is associated with healthier communities. This includes both improved physical health, by lowering the risk of chronic diseases such as obesity and cardiovascular issues, and mental health. Active transportation modes also encourage social interactions and create opportunities for face-to-face meetings, helping build trust, respect, understanding, and a sense of community. Improved sense of community can contribute to improved mental health.



TRANSPORTATION & CLIMATE CHANGE

Climate Mitigation

North Cowichan has a set a target of reducing its greenhouse gas emissions by 100% and electricity use by 12% by 2050 based on 2007 levels. Achieving these targets is not possible without making changes to the transportation network as on-road transportation accounted for approximately 34% of the Municipality's total emissions in 2016. The Municipality's Climate and Energy Plan Update (2022) modelled a significant reduction in transportation-based emissions as shown in the graph below. But achieving these reductions will be largely contingent on the Municipality implementing the MTP and meeting the mode share targets in this plan.

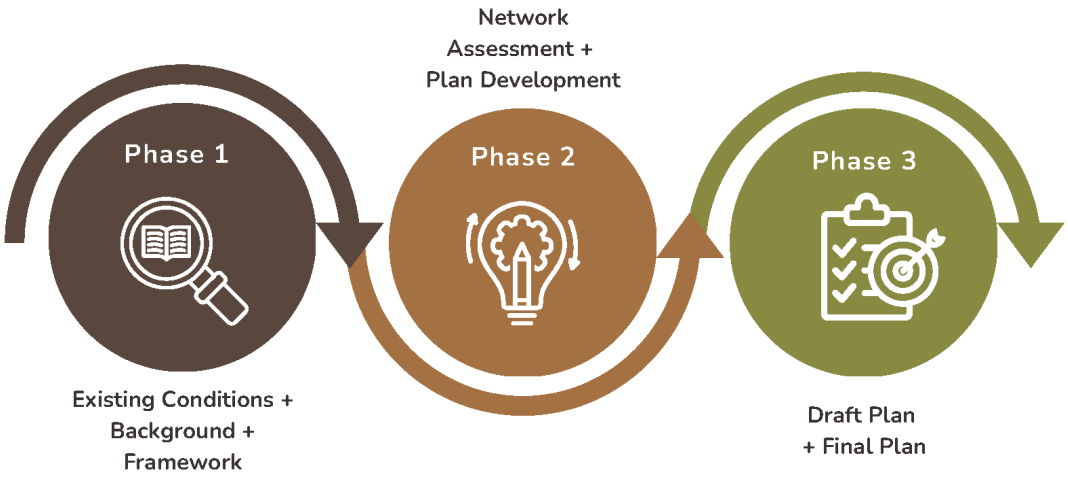


Low-carbon scenario emissions by sector, 2016-2050 (CAEP Update)

Climate Adaptation

Improvements to the transportation network could also help address climate adaptation. Historically, the Municipality has been inundated by floods and several areas in the community—particularly Cowichan Tribes, Penelukat Tribes, and Halalt First Nations—were devasted by the atmospheric river in November 2021. The Municipality's transportation network could be more resilient and less prone to flooding through the provision of more landscaping, green space, and boulevards along roads as well as raising roadways. Increased resilience could be achieved by adding multi-use pathways and landscaping between vehicle travel lanes and cycling facilities, for example.

1.3 Plan Process & Directions



1.4 What We Heard from the Community

The MTP included an extensive engagement process with the North Cowichan community and key groups to ensure that the final plan reflects their needs, priorities, and vision for a future transportation network. Over the course of the plan process, three activities took place in two phases to garner meaningful feedback, as detailed below.

Opportunities to engage were promoted using several tools, including the project webpage (*Connect North Cowichan*), social media platforms, emails to key groups, and letters to each of the First Nations listed below to provide them with the opportunity to decide if, and how, they would like to be involved in the process:

- Cowichan Tribes
- Halalt First Nation
- Lyackson First Nation
- Penelakut Tribe
- Snuneymuxw First Nation
- Stz'uminus First Nation
- Ts'uubaa-asatx Nation (formerly known as Lake Cowichan First nation)

Each of the engagement activities are summarized below. For a detailed summary of the first phase of engagement, please refer to the *Phase 1 Engagement Summary Report* – Municipality of North Cowichan. Results from the second phase of engagement are detailed throughout Sections 3 – 8 to indicate what was heard about the community's level of support for the recommended actions. Lastly, results from the third and final phase of engagement are also provided in latter

sections of the plan, which capture some community members' overall support for the MTP and what they would like to see addressed as the plan is implemented. It should be noted that the engagement activities are not intended to be statistically valid and is based on voluntary community engagement. The household travel survey in Section 2.2 provides statistically valid data on transportation mode choices.

Online Survey #1

Hosted on the *Connect North Cowichan* platform, online survey #1 was available to all members of the public from April 1 to April 22, 2021, and received a total of 448 responses. The survey asked for perspectives on the following topics:

- Existing conditions of the transportation network
- Active transportation patterns
- Barriers to walking, cycling, driving and taking transit
- Opportunities to improve travel for all modes
- Top transportation issues the community would like to see addressed in the MTP
- Visions for a future transportation network

Interviews

Seventeen interviews were conducted between April 12 to April 22, 2021, with key community and institutional groups representing a diversity of transportation-related interests. In-depth insights into current transportation challenges, potential solutions, and long-term priorities and aspirations for the future transportation network were discussed. The groups were selected based on a mapping exercise conducted between Municipality of North Cowichan staff and the consulting team. Below is the full list of organizations who were interviewed:

- Chemainus Chamber of Commerce
- Chemainus Residents Association
- City of Duncan
- Clements Care Society
- Cowichan Action Team / Our Health Network
- Cowichan Intercultural Society
- Cowichan Trail Stewardship Society
- Cowichan Valley Regional District
- Crofton Community Centre Society
- Crofton Mill
- Cycle Cowichan
- Municipality Student Advisory Committee
- Duncan Cowichan Chamber of Commerce
- Island Corridor Foundation

- Quamichan Lake Neighbourhood Association
- Maple Bay Community Association

Online Survey #2

The community was invited to provide feedback on the draft vision, goals, and recommendations in online survey #2. Available on *Connect North Cowichan* from July 18 to August 15, 2022, the survey received 263 responses, all of which helped to prioritize the network and infrastructure improvements to inform the recommendations outlined in this plan.

Draft MTP Online Questionnaire

The draft Master Transportation Plan was presented to the community through an online questionnaire available on *Connect North Cowichan* from February 23 to March 18, 2024. The purpose of the questionnaire was to offer the community one final opportunity to share their feedback on the MTP before finalization and adoption by Council. The overarching goal of the questionnaire was to ask the community if we got it right and whether the MTP reflects their priorities. The questionnaire received 23 responses.

Draft MTP Open House

To extend the reach of the online questionnaire, an open house was held at the Cowichan Community Centre on March 7, 2024. Similar to the online questionnaire, the purpose of the open house was to gauge whether we got it right and offer one final opportunity for input. A total of 30 people attended the open house.

1.5 Vision

The vision statement, which was endorsed by Council in May 2022, provides the overall vision for what North Cowichan's transportation network aspires to be in the long term. It builds on and aligns with other important community planning processes including the 2022 Climate Action and Energy Plan Update.

> *North Cowichan is a connected community, where residents, employees, businesses, and visitors have transportation choices when deciding how to move around their network. Each transportation choice is supported with safe infrastructure. North Cowichan vehicle travel has become electrified to reduce impacts on the environment and align with the community's desire to be more sustainable. With greater transportation choices, the transportation network is resilient, supportive, and inclusive to all residents.*

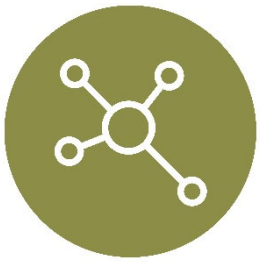
1.6 MTP Goals

The following goals provide the strategic direction for what the Master Transportation Plan will strive to achieve for the community and align with the OCP.

Safety for All Modes

Streets are redesigned to support all modes especially vulnerable road users.

This goal relates to the OCP goal #2 (Build Resilient, Supportive, Inclusive Communities).



Connectivity

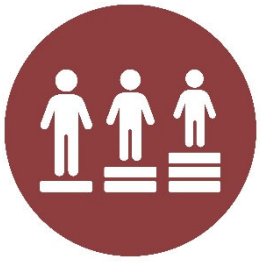
A connected network allows residents to travel to where they need to go, for any trip purpose.

This goal relates to the OCP goals #1 (Focus Growth and Development), #2 (Build Resilient, Supportive, Inclusive Communities) and #6 (Support a Thriving Economy).

Reduce Impact on Environment

Energy use in the transportation network is gradually reduced over time.

This goal relates to the OCP goals #1 (Focus Growth and Development), #2 (Build Resilient, Supportive, Inclusive Communities) and #7 (Prioritize Climate Action).



Transportation Equity

The transportation network can be accessed by all road users and transportation investments prioritize vulnerable road users.

This goal relates to the OCP goals #2 (Build Resilient, Supportive, Inclusive Communities) and #3 (Encourage and Enable a Diverse Mix of Housing Types, Tenures, and Levels of Affordability).

2.0 COMMUNITY CONTEXT

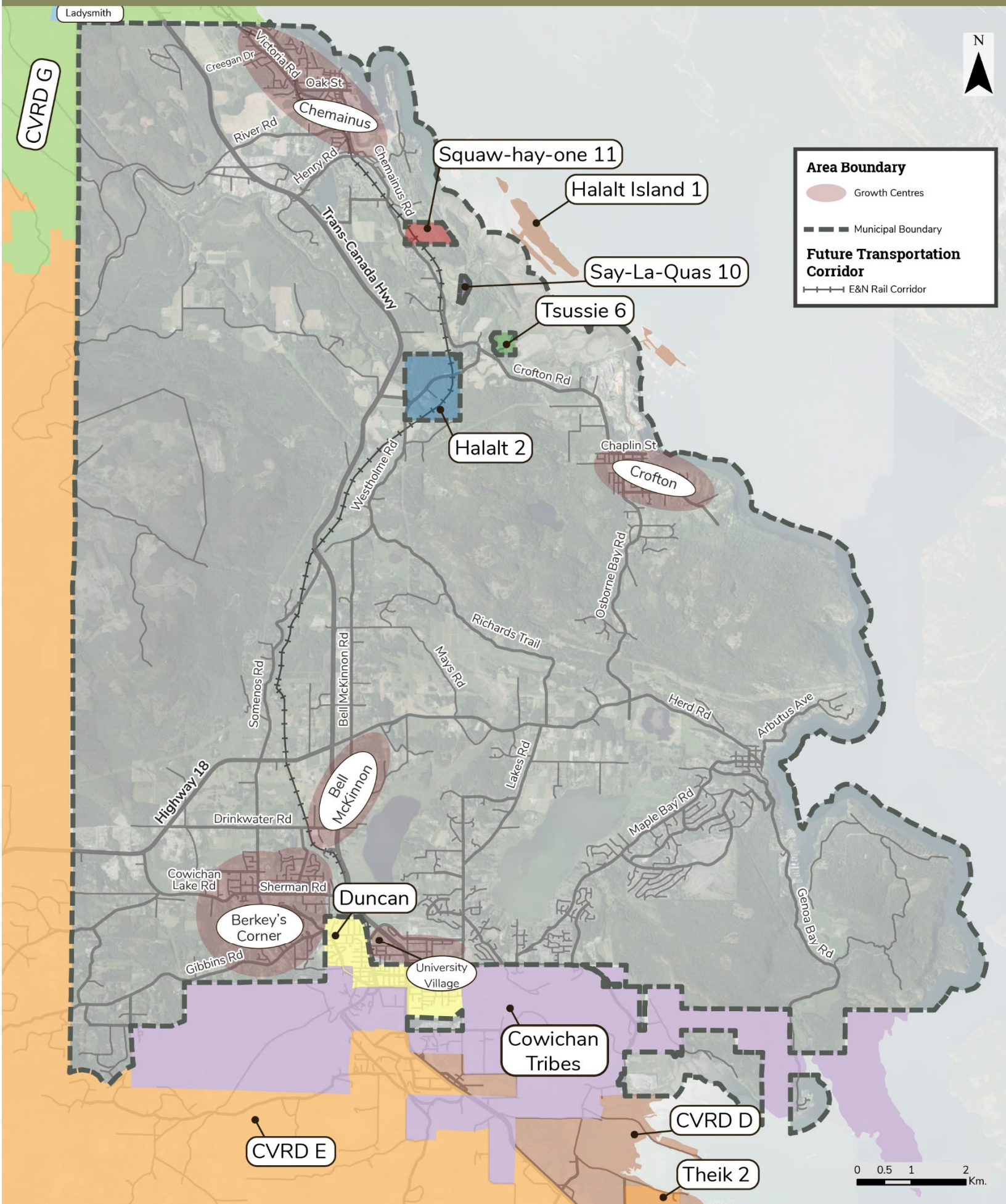
2.1 Location

North Cowichan is a vibrant, growing, and active community located between two major centres – 69 kilometers north of Greater Victoria and 45 kilometers south of Nanaimo. North Cowichan spans an area of 195 square kilometers and is the largest municipality in the Cowichan Valley. It is a geographically diverse community in population, its economy, and its many natural features ranging from parks, trails, lakes, mountains, and oceanfront.

It is also a "community of communities" including the existing communities of Chemainus, Crofton, Quamichan / Maple Bay, and the South End, which includes University Village and is adjacent to the City of Duncan. The Growth Centres of Berkey's Corner and the Bell McKinnon area will continue to add to the communities within North Cowichan. Collectively these communities make up the identity of North Cowichan. Its diverse nature makes North Cowichan unique, but also presents challenges when trying to find universal transportation solutions that result in enhanced accessibility, safety, and connectivity for all North Cowichan residents.

Map 1 illustrates the location of the boundaries of the municipality, the Growth Centres as per the OCP, and the surrounding jurisdictions.

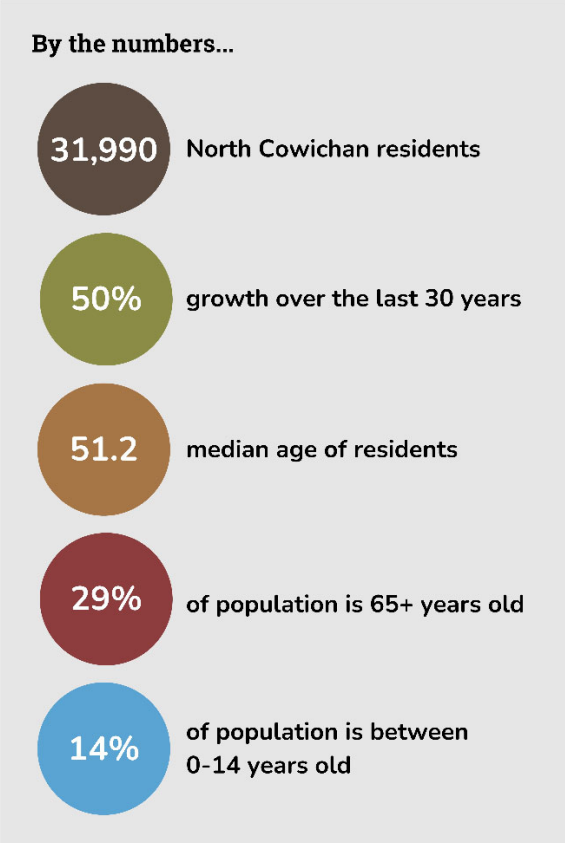
Map 1. Jurisdictional Map



2.2 Demographic Summary

The current population of North Cowichan (based on the 2021 Statistics Canada census) is 31,990. In 1991, the community had 21,360 residents and has since grown by 50% over the last 30 years. In a long-term "full build out" scenario according to the visions of the OCP's land use designations, an additional 25,355 residential doors could be accommodated without significantly amending the OCP, which would increase the Municipality's population to over 90,000 people.

The Municipality's 2021 median population age was 51.2 years old—an increase from 44.4 in 2006, 47.1 in 2011, and 50 in 2016. The age range with the two largest populations is the 60-64 years old group (2,815) and 65-69 group (2,865). Further, those 65 years and older make up 28.7% of the Municipality's population. According to future projections, the age group of 85 and over is projected to increase by 230% while the remaining population is projected to increase by less than 50%.



The data from the 2021 North Cowichan Household Travel Survey reported that Berkey's Corner has the youngest median age and Chemainus has the oldest median age. Overall, understanding the age distribution in the Municipality's sub-areas can allow for more targeted transportation planning and investments to suit the needs of the different areas of the community.

WHAT IS THE NORTH COWICHAN HOUSEHOLD TRAVEL SURVEY?

A household travel survey was conducted in April 2021 (by Malatest) to provide North Cowichan with a statistically significant baseline on travel patterns, behaviours, and mode share. Data was collected for the different sub-areas (as identified in the OCP) and then summarized by sub-area and municipality wide. The North Cowichan Household Travel Survey (NCHTS) was utilized throughout the development of the Master Transportation Plan to inform current transportation modes as well as to shape the future transportation network for the community. The survey gathered information through confidential online surveys and phone interviews regarding household information, resident information, and trip information. Household information included the number of people, number of vehicles, number of bicycles, age, gender, and more. Resident information included age, gender, if residents were licensed to drive, occupation, and place of work or school. Lastly, trip information included the departure and arrival time of residents from an origin to a destination, purpose of trip, trip distance, mode(s) of travel, and questions related to transit including access and routing.

Census Data vs NCHTS

The federal census only provides data on journey to work whereas the NCHTS provides a more comprehensive account of all trip types, trip mode, trip purpose, and origin and destinations. Therefore, for the Master Transportation Plan, the mode share targets are based on the NCHTS to provide a more accurate assessment of how people travel around North Cowichan today and where the investments are needed to increase sustainable transportation mode share.

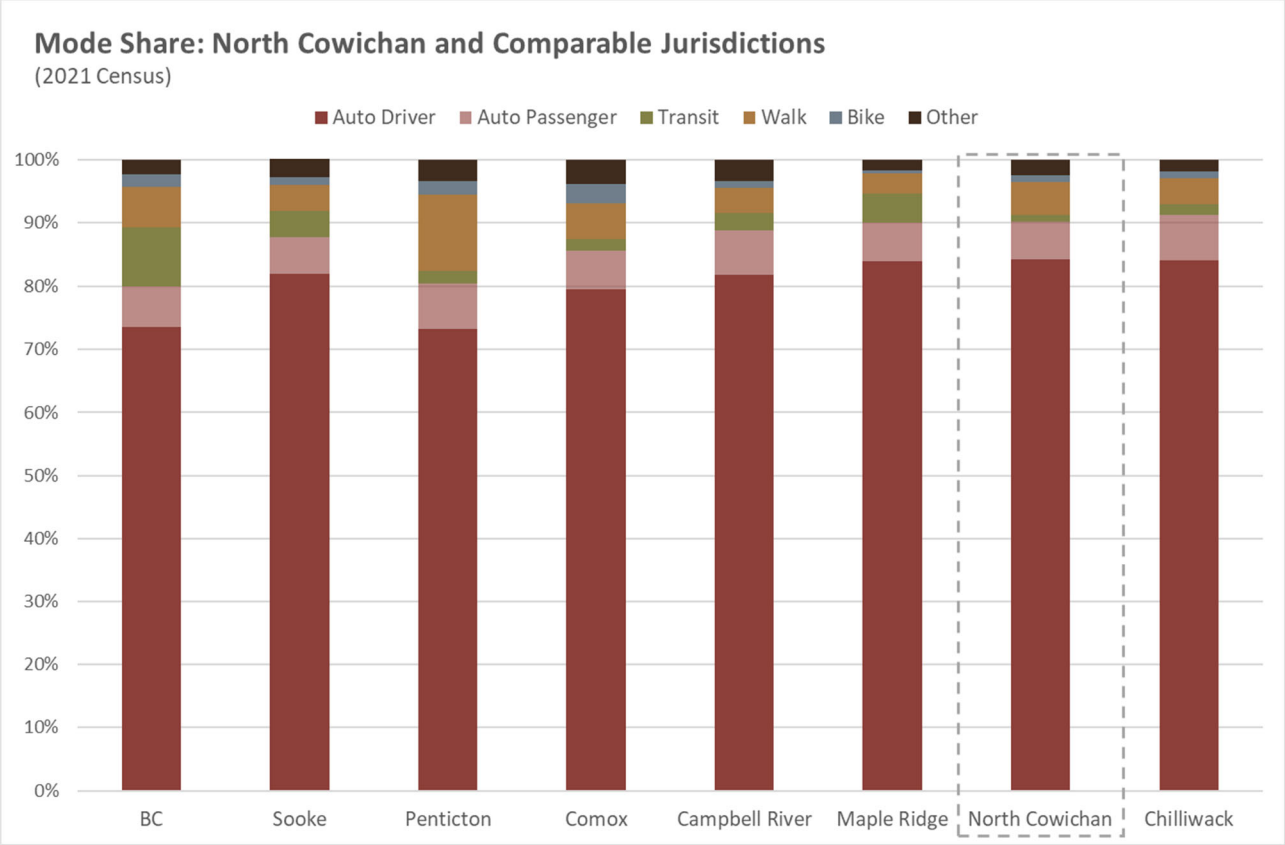
Key Findings

- Most residents own a vehicle and over half own a bicycle.
- Approximately 5% of the vehicles (including bicycles) are electric.
- The average trip distance in North Cowichan is 11.24km with some modes (e.g., walk, bike) averaging 1-4km and auto driver, auto passenger, and transit trips being over 10km in distance.
- Berkey's Corner, Chemainus, and Lakes have the shortest average trip distances among the sub-areas.
- Bell McKinnon has the highest percentage of auto drivers. It is also the least densely populated with limited amenities in the area as this Growth Centre has yet to begin being built-out. Lastly, it has limited sustainable transportation infrastructure and limited transit service.
- The data indicate that the denser sub-areas that have commercial and residential land uses within closer distances to each other are more likely to have a higher percentage of sustainable transportation mode share.

2.3 Transportation Mode Share

2.3.1 Mode Share Today

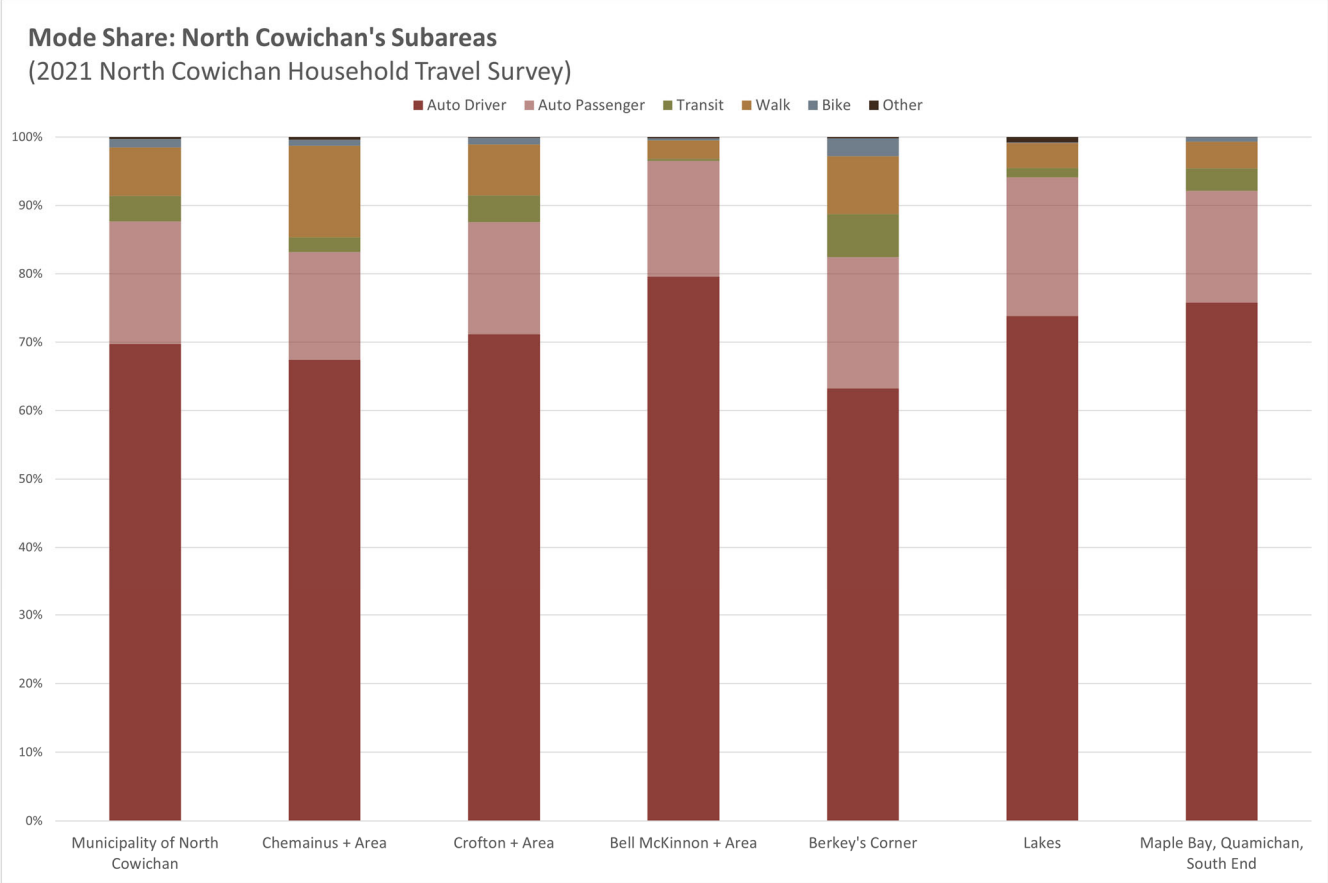
North Cowichan's auto drive mode share is 11% higher than the provincial rate. However, since the provincial data includes major population centres (e.g., Vancouver, Surrey, Victoria, etc.) that have more extensive sustainable transportation infrastructure and transit service, it is not surprising that North Cowichan has a higher percentage of car dependency. That said, even compared to similar communities (based on mixed urban-rural geography and population size), North Cowichan is relatively more car dependent. As shown below, North Cowichan has the highest auto driver mode share among comparable jurisdictions at just over 84%. The mode share data below are from the 2021 Statistics Canada census.



Mode Share for North Cowichan and Comparable Jurisdictions, 2021 Census

The data from the 2021 North Cowichan Household Travel Survey largely corroborates the census data, as shown below. The data indicate that 88% of trips are by an automobile (driver or passenger) with the balance as sustainable transportation trips including transit, walking, and cycling. That said, the auto driver mode share in the NCHTS is only 70% compared to 84% in the federal census, which indicates that residents may be using other forms of transportation to complete non-work trips (e.g., recreation, shopping, social outing, etc.).

The NCHTS also reveal differences in travel patterns among the different sub-areas within North Cowichan. The sub-areas have different demographics, land use densities, transportation options, mixture of land uses, and proximity to amenities, which help explain why mode share percentages differ. Except for Berkey's Corner, transit and cycling mode share represent a smaller mode share in most of the sub-areas.



Mode Share of North Cowichan's Subareas, 2021 NCHTS

2.4 2050 Mode Share Targets

The following outlines the long term 2050 mode share targets for the community. The targets were established based on the Municipality's OCP policy direction and modelling in the 2022 Climate Action and Energy Plan. Specifically, the following policies / assumptions were utilized to create the 2050 mode share targets.

OCP:

- Prioritize walking, cycling, and public transit over automobile transportation in policy, design, and capital investment decision-making.
- Shift municipal transportation budgets away from cars to active transportation and transit.
- Connect transportation planning with land use and growth management to reduce the need for vehicle trips.

CAEP:

- Transit mode share increases to 25% by 2050
- 35% of trips are walking and cycling by 2050
- 100% of BC Transit's bus fleet is electric by 2030
- 100% of the municipal fleet is electric by 2030
- 100% of all new vehicle sales are EV by 2035

Mode share targets for each of the sub-areas are shown below. Higher sustainable transportation mode share targets are established for the Berkey's Corner and Bell McKinnon sub-areas based on the higher level of residential and commercial density anticipated in these areas, which will support more transit, walking, and cycling trips. These targets are aggressive and will require sustained funding to meet the targets.

To understand how well the Municipality is meeting its mode share targets, it is recommended that the household travel survey be conducted every five (5) years. The survey will help inform if the trendline for mode shift is occurring. If the Municipality is not on track to meet it mode share targets, then it should carefully review how much residential and commercial development has been constructed in the growth centres along with the how many kilometres of new active transportation infrastructure have been built. These indicators can help inform the Municipality where it can focus its efforts to meet its 2050 mode share targets.

WHAT DID WE HEAR FROM THE COMMUNITY?

In the draft MTP online questionnaire, some members of the community indicated that the ultimate success of the MTP will lie in how well it is implemented and monitored. Some members of the community would like the Municipality to track the implementation of the MTP so there are clear timelines including a clear indication of what has been achieved, and what is outstanding.

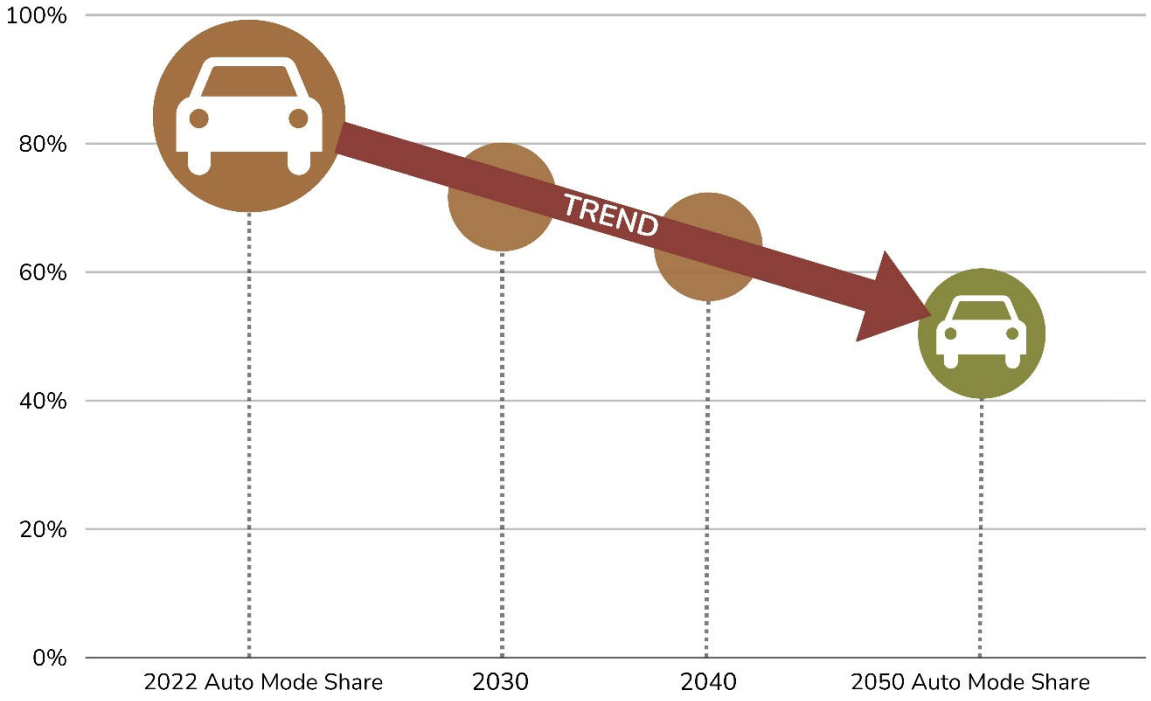
Table 1 – 2050 Mode Share Targets

	Auto Driver	Auto Passenger	Transit	Walk	Bike
North Cowichan Overall	**45%**	**5%**	**18%**	**15%**	**17%**
Chemainus	38%	4%	20%	18%	20%
Crofton	53%	8%	11%	12%	16%
Bell McKinnon	35%	2%	20%	30%	13%
Berkey's Corner	35%	2%	20%	20%	23%
Lakes	60%	5%	12%	8%	15%
Maple Bay	51%	3%	20%	8%	18%

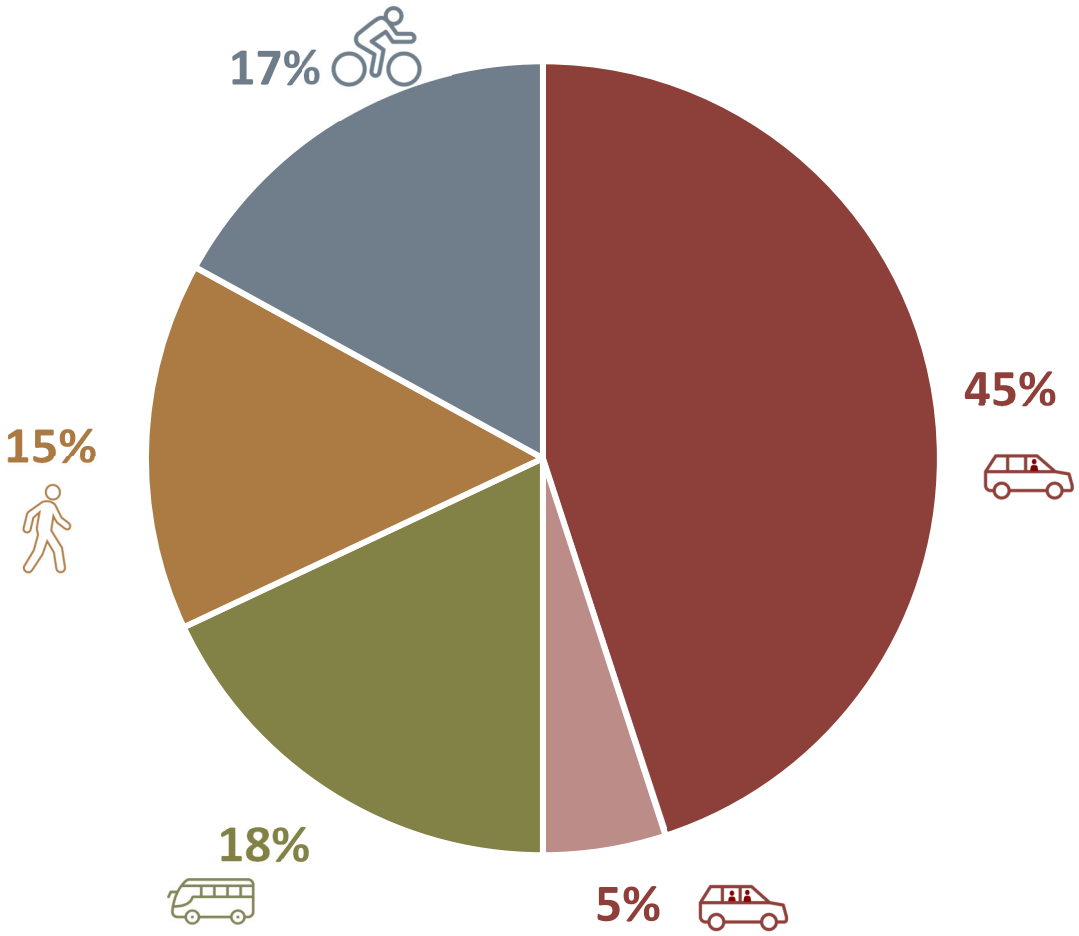
To help contextualize the mode share targets above, it is useful to compare to other communities. For example, the communities of Saanich and Sidney have auto driver mode share percentages (55-56%) that are similar to the Crofton, Lakes, and Maple Bay sub-areas in the long term. The walking mode share in Sidney is 18% due to its more compact nature, which is conducive to higher walkability. The City of Victoria has an overall auto driver mode share of 36% and the sub-areas of “Victoria north”, “downtown” and “Victoria West” have an auto driver mode share of 42% according to the 2022 origin destination household travel survey.[1]

Downtown Victoria has the lowest auto driver mode share at 26% with 7% for auto passenger, 31% for walking and 13% for bicycles. The combined areas of Saanich, Victoria, Esquimalt, and Oak Bay currently have a similar auto driver mode share as North Cowichan’s target in 2050 at 48%. These areas have multiple commercial cores / villages with residential dwellings within walking distance, expanding cycling networks, and access to transit service that continues to get better.

[1] R.A. Malatest & Associates Ltd. & David Kriger Consultants Inc. (2023). 2022 Capital Regional District Origin Destination Household Travel Survey. Available online at: https://www.crd.bc.ca/docs/default-source/regional-planning-pdf/transportation/crd-2022-origin-destination-household-travel-survey-report.pdf?sfvrsn=5aec13ce_1



North Cowichan's auto mode share can be reduced significantly by 2050 by committing to the recommendations in the MTP



2050 Mode Share Targets for North Cowichan

2.5 Travel Patterns & Distances

2.5.1 Travel Patterns

Understanding baseline travel patterns provides insight on where North Cowichan residents are travelling to today and where they may travel to in the future. The origin and destination data from the NCHTS provides insight on travel patterns and was utilized in the long-term (OCP Build-Out) traffic model. The following outlines the key insights on travel patterns in North Cowichan.

- Berkey's Corner has the most trips and has the most people travelling within the sub-area.
- Most trips in the Chemainus sub-area stay within that sub-area.
- Many sub-areas have the highest portion of their trips staying within their own sub-area. This indicates that people are most commonly travelling within their own sub-area and therefore, average trip distances are relatively short, which lends itself well to sustainable modes such as walking and cycling.
- Bell McKinnon is the least travelled to sub-area whereas the Lakes sub-area has the fewest trips leaving that sub-area. Both Bell McKinnon and Lakes have the lowest number of trips remaining in their respective sub-areas, which indicates that they do not have a balance of residential and amenities / employment.
- About 26% of people regularly travel outside of North Cowichan with 15% travelling to the Duncan area, 5% travel to Cobble Hill, Mill Bay, Shawnigan Lake or Victoria, 3% to Ladysmith and North, and 2% to Lake Cowichan.

2.5.2 Trip Distances

The NCHTS also provides insight about how far North Cowichan residents travel and how long it takes to complete a trip. **Table 2** presents the average trip distance and duration by mode and **Table 3** presents the average trip distance by sub-area. The average trip distance within North Cowichan is 11.24 kilometres with some modes (e.g., walk, bike) averaging 1-4 kilometres and transit trips being closer to 11 kilometres.

Table 2 – Trip Distance & Duration by Mode

Mode	Average Distance (km)	Average Duration (minutes)
Auto Driver	12.5	14.2
Auto Passenger	10.87	12.8
Transit	10.68	28.9
Walk	1.12	14.2
Bike	3.75	14.0
Average	**11.24**	**14.0**

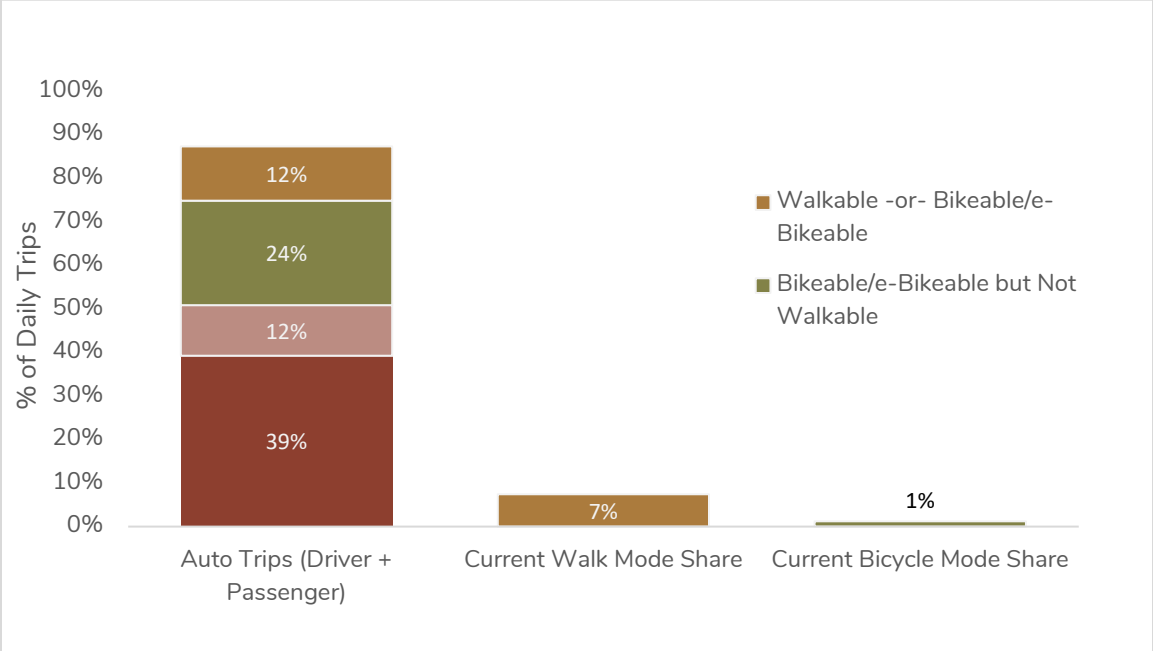
Table 3 – Trip Distance by Sub-Area

	Average Distance (km)
Chemainus	8.75
Crofton	14.30
Bell McKinnon	10.97
Berkey's Corner	8.83
Lakes	6.94
Maple Bay, Quamichan, South End	11.53
Average	**11.24**

The NCHTS provides insight on the number of trips that were made using an automobile that could have feasibly utilized an active mode instead (e.g., walking or cycling) based on the distance of the trip. The following assumptions were used:

- The distance threshold for an "e-bikeable" trip was set at 9.4 km (about a 22-minute e-bike trip at 26 km/h).
- The distance threshold for a “bikeable” trip was set at 4.6 km (an 18-minute bike ride at 15 km/h).
- The distance threshold for a “walkable” trip was set at 1.6 km (19-minute walk at 5 km/h or 1.39 m/s).

Approximately 48% of trips that are taken by an automobile today could have been done by walking, cycling with a regular bike, or cycling with an e-bike based on the average trip distances. This suggests that improvements to the pedestrian and cycling networks could result in a significant increase in walking and cycling trips to help meet the target mode share if safe and comfortable facilities are provided for them.



Percentage of Auto Trips that are with Walkable / Bikeable Distance Today


SLOW
30 km/h

3.0 ROAD NETWORK & NETWORK FOUNDATION

The most dominant mode of transportation in North Cowichan, and across North America, is the automobile. Over the last two decades, since the last MTP was completed, there has been a greater understanding of the climate, equity, and health related issues associated with automobile use. Communities have recognized the benefits of creating a balanced transportation network that can accommodate automobiles (personal vehicle travel) and goods movements while also providing infrastructure to accommodate sustainable transportation modes. In urban-rural communities like North Cowichan, the automobile will still be an important mode of transportation for the foreseeable future; however, over time, it will be less critical for the mobility and accessibility needs of the community as more transportation choices become available.

The transportation network needs to be viewed through a new lens where walking, rolling, cycling, and transit users are considered the higher priority. The focus of this section on vehicles—and the larger road network—is for North Cowichan to maintain a safe, balanced, reliable network that is based on current best practices and emerging trends. This means moving away from evaluating the road network solely on the peak hour to understanding how the network performs throughout the day. Having a more balanced approach will allow for reallocation of some of the road / vehicle funding to sustainable modes.

While this section identifies several potential road widenings and intersection improvements, the majority of those are driven by completion of the OCP density, which is a significant increase over today's land use density and by continuing the business-as-usual level of driving. The intent of identifying the worst-case vehicle needs over the long term (60+ years), is to identify where additional right-of-way width maybe required as acquisition of additional right-of-way is challenging and requires long timelines. Right-of-way can be obtained through rezoning / development, when it can be requested by the Municipality, by purchasing, or by expropriation powers. Purchasing or expropriation would require exceptional circumstances and is expected to be rarely used. Therefore, if right-of-way cannot be obtained and additional vehicle travel lanes, pedestrian and cycling facilities or any other cross-sectional changes are needed, then trade-offs will be required in order to stay within the available right-of-way

The actual need for the road widening and intersection improvements will depend on the ability to shift a portion of vehicle trips to active modes and transit and the level of development. If modal shift occurs then it is unlikely there will be a long term need for four laning key corridors; however, the right-of-way should be obtained, where possible as a worst-case scenario. If the road widening is not required, the additional right-of-way provides the Municipality with opportunities to enhance separation between modes and add more vegetation, landscaping, and green features. Corridors identified for potential additional laning in the long term may not have additional vehicle lanes

provided based on Council direction, desired function of the road, and consideration of how many hours per day additional laning is needed.

3.1 Road Network Today

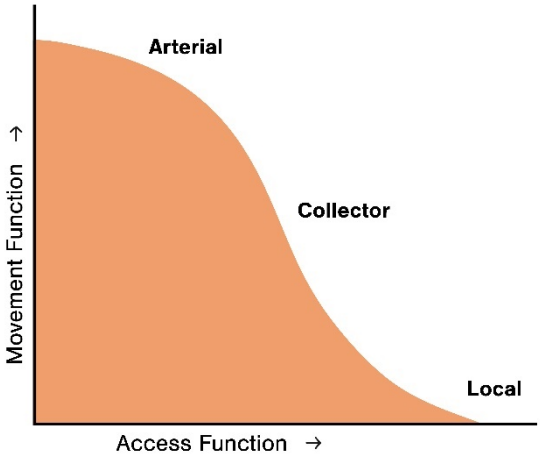
The Municipality has approximately 607 kilometers of roads with many designed as wide rural roads. The rural nature of these roadways provides character and scenery while also prioritizing the automobile. Some of these roads have been designated as Scenic Roads as per Map 7 of the OCP. They are, however, a double-edged sword as their rural nature preserves character and scenic integrity while providing drivers with a significant amount of space and limited constraints (actual or perceived). This has and continues to result in undesirable vehicle speeds throughout the network.

Historically, the conventional wisdom in traffic engineering was that designing roadways with wide lanes, longer sight distances, and flatter horizontal and vertical curves would improve road safety. While this works well when designing high speed highway systems, these concepts have not translated well over time in municipal road settings. Many of the roadway elements in most municipalities provide too little constraint on the automobile resulting in faster vehicle speeds. Alternatively, when roads have been designed to be too narrow and too constrained, there have been safety issues. Therefore, a balance to the road network is required.

Example of a rural road with limited natural surveillance and limited active transportation space, which may result in vehicles travelling above the posted speed limit.

3.2 Road Classifications

The vehicle transportation system is based on a hierarchy of roadways. Lanes and local roads are the most common type of road that provide direct access to properties and are not intended to maintain free flow / mobility of vehicles (see graphic at right). Collector roads are the middle classification and seek to balance direct access with mobility. Collector roads are intended to collect traffic from local roads and distribute vehicles to higher-level roadways. The highest level of municipal road is the arterial road. These roads are intended to be the major roads that carry the collector road traffic to the highway system. They generally work towards prioritizing and maintaining traffic flow and minimize the number of direct accesses per kilometer of roadway.



Overall, the road classifications are intended to indicate the function of the road in the network. Today 14% of the vehicle road network are arterial roads, 10% are collectors, and 76% local roads. Several roads have been identified that will have a change in classification including Norcross Road, Drinkwater Road (west of Somenos Road), and River Road. (see **Map 2**).

Maple Bay Road (left) and Herd Road (right) are examples of 'scenic roads' that are identified in the OCP.

SCENIC ROADS

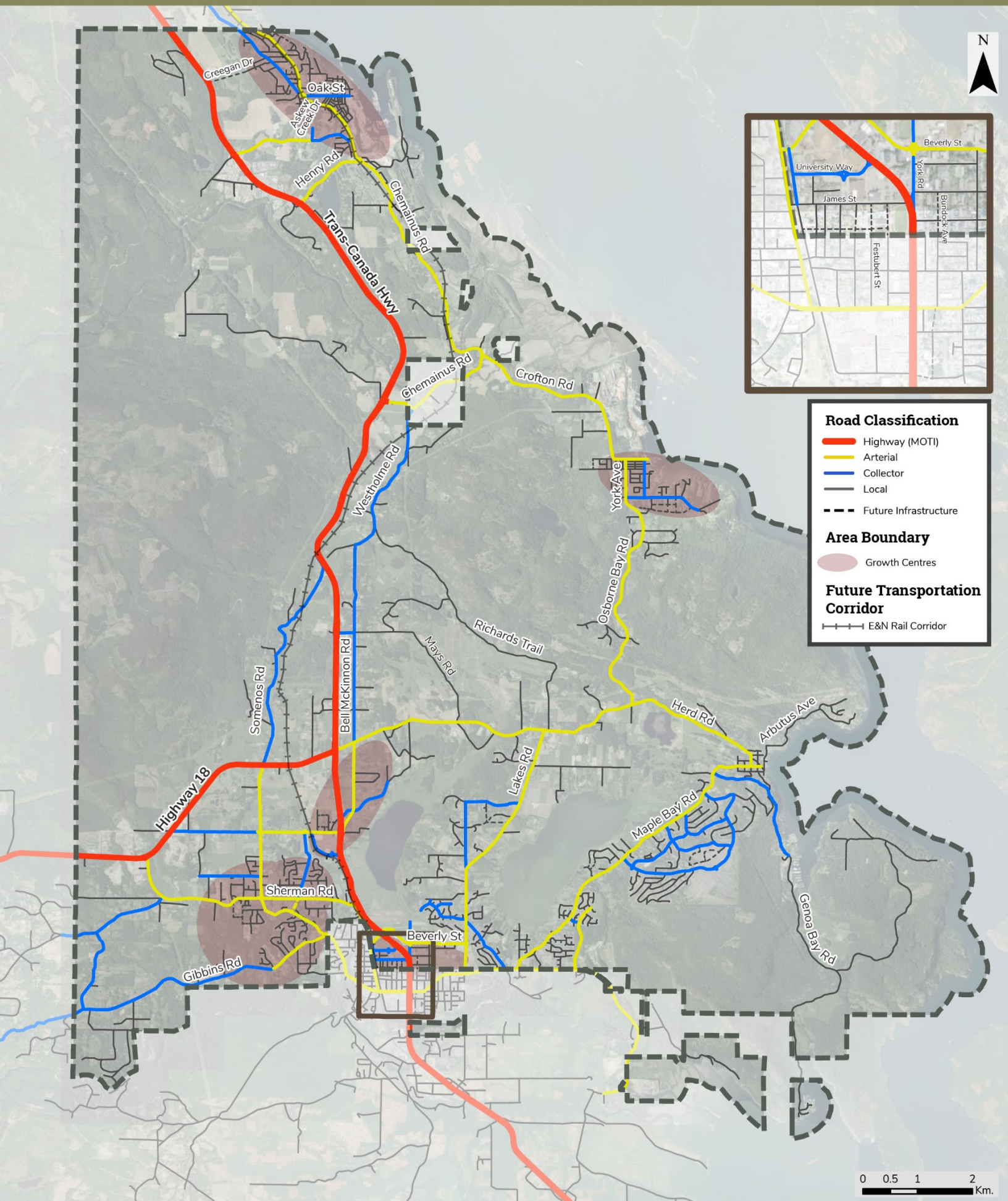
Scenic roads are identified in the OCP. The OCP section 3.4 outlines the planning policies related to Scenic Roads. In general, these routes are identified by their scenic attractiveness, visual integrity, and adjacent land use classification (rural areas). However, scenic roads may function as different road classes including as a local road up to a higher volume arterial roadway. The wide range in functional (engineering) need of scenic roads does not allow for a single standard to be created for all scenic roads in North Cowichan. Tradeoffs between maintaining scenic status and optimizing traffic performance/capacity may be required. During any contemplated design changes to existing scenic roads, the choice of cross section elements would be influenced by scenic status considerations but may result in changes that reduce the scenic elements to ensure safe and efficient corridors that minimize congestion.

Scenic road features include maintaining the existing horizontal and vertical curves or matching existing topography (where possible by current road standards of the day), adding buffers, and limiting asphalt, travel lane, and shoulder widths. The overall new road cross section elements consider narrower lanes along with maintaining or adding to the adjacent landscaping. This helps to visually narrow the road and maintain the scenic 'feel' of the roadways. Landscaping on these roads could include trees, hedges (where sight lines can be maintained), shrubs, native plantings, bioswales / rain gardens, or other environmental or green features. Added landscaping (in buffer spaces) can help to reduce heat island effects of roads. Where possible, existing vegetation will be maintained unless it creates a safety hazard or impacts utilities.

Scenic routes do not equal low volume or slow (less than 50km/h) roadways as some roads are intended to carry higher volumes of traffic (arterials). Eg. Maple Bay Road is both a scenic road and an arterial road that carries higher volumes of traffic. However, local scenic roads could be considered for speed limits of less than 50km/h if the road is designed to these lower speed limit design criteria.

NORTH COWICHAN MASTER TRANSPORTATION PLAN

Map 2. Future Road Classifications and Connections



3.3 Road Cross Sections

The existing road cross sections are in Section B of the Municipality's Subdivision Bylaw 1851. The Engineering Standards were last updated in 1993 and the standard cross sections date back to the mid-1980s and include large lane widths more aligned with high-speed high volume highway corridors. The Municipality's road standards are out of date and need to be revised to better reflect current best practices, enhance the scenic nature, and support the equity of the road network for all user groups.

Cross section elements have been identified to meet best practices and reduce oversized vehicle facilities. The new elements include the introduction of elements such as landscaping zones, multi-use pathways, and an integrated neighborhood approach to create scenic roads that maintain the 'country' feel of the rural areas and accommodate all modes in a safer way.

Table 4 outlines the cross-sectional elements and is intended to be a guideline for determining the appropriate cross section for a corridor. Corridors may include travel lanes, active transportation facilities, parking, utilities, lighting, and/or trees and landscaping depending on the corridor. Each corridor needs to be assessed to determine which of the elements should be included and which should be excluded or have adjusted widths. The amount of available right-of-way, roadside topography, adjacent land use, and the road function needs will be used to determine a corridor cross section. Trade-offs between elements will need to be considered in constrained corridors. The amount of right-of-way identified, in **Table 4**, is to be used to identify where new or additional right-of-way is required. The full width of a right-of-way does not have to be fully utilized; however, wider rights-of-way provide opportunities to add non-vehicle infrastructure, landscaping / trees, lighting, and natural drainage features to provide a more balanced and equitable transportation network.

WHAT DID WE HEAR FROM THE COMMUNITY?

In online survey no.2, the community was asked to indicate their level of support for the recommended cross-sections shown below. Overall, 69% of respondents indicated that they support or strongly support updating the cross-sections with some residents expressing concern.

"*Few of our roads are wide enough to have a buffer between parking and the sidewalk. The design shown for parking would change a relatively straight section of road into a winding one and make it impossible to have passing lanes anywhere.*" – online survey no.2 respondent

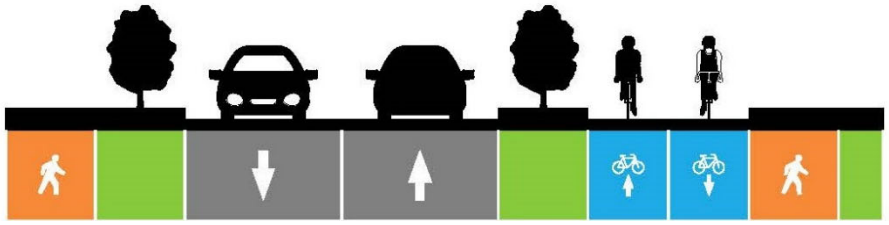
"*Slowing down vehicle traffic is so important to meet goals of plan but also for the overall character and feel of the municipality.*" – online survey no.2 respondent

Table 4 – Road Cross Section Elements

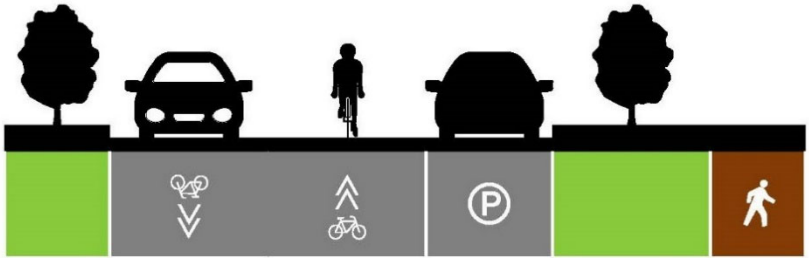
FACILITY TYPE	Adjacent Land Use	ADT (vpd)	ROW	Travel Lane[1]	Travel Way[2]	Shoulder (paved)	Multi-use Pathway	Bicycles[3]	Sidewalk[4]	Parking[5]	Buffer[6]
Rural Arterial	Residential > 4,000m^2	3,000 to 12,000	25-30m	3.5m	n/a	✓ 0.5m	✓ 3.0 to 4.0m	✗	✗	2.4m possible in limited cases	✓ 2.0m to 3.0m
Urban Arterial	Mixed use; Commercial; Multi-family	5,000 to 30,000	25-30m	3.5m	n/a	✗	✗	✓ 3.0 to 4.0m	✓ 1.8 to 3.0m	2.4m possible in limited cases	✓ 2.0m to 3.0m
Rural Collector	Residential > 4,000m^2 or Agricultural	1,000 to 5,000	25-30m	3.3-3.5m	n/a	✓ 0.5m	✓ 3.0 to 4.0m	✗	✗	✓ 2.4m	✓ 2.0m to 3.0m
Urban Collector	Mixed use; Commercial; Multi-family	3,000 to 8,000	25-30m	3.3-3.5m	n/a	✗	✗	✓ 3.0 to 4.0m	✓ 1.8 to 3.0m	✓ 2.4m	✓ 2.0m to 3.0m
Rural Local	Residential > 4,000m^2 or Agricultural	< 1,000	20m	n/a	5.0 to 6.0m	✓ 0.5m	✓ 1.8m	✓ none	✗	✓ 2.4m	✓ 2.0m to 3.0m
Residential Local	Single Family < 4,000m^2	<1,000	20m	n/a	5.0 to 6.0m	✗	✗	✓ none	✓ 1.8 to 2.0m one side	✓ 2.4m	✗
Urban Local	Mixed use; Commercial; Multi-family	<3,000	20m	3.0m	n/a	✗	✗	none	✓ 1.8 to 3.0m	✓ 2.4m	✓ 2.0m

1. Travel lanes on collectors to be increased to 3.5m on corridors with bus routes and / or high truck traffic. Lane width excludes gutter pan.
2. Travel way is based on two-way traffic and no centreline. Travel way width excludes gutter pan.
3. Buffer width of a minimum of 0.6m required between travel lane and bicycles. Ideally buffer width is as per table. Bicycle width excludes gutter pan. Width shown is for two-way protected cycle track.
4. Excludes the gutter pan width. Sidewalk width to be increased if commercial land uses on corridor.
5. Parking may be included but is not recommended for Rural Collectors and Rural Arterials. If parking is not included, this space can be allocated to other elements.
6. Intended to be buffer between bicycles, vehicles, and pedestrians as well as space for landscaping, trees, street furniture, utilities, and street lighting.

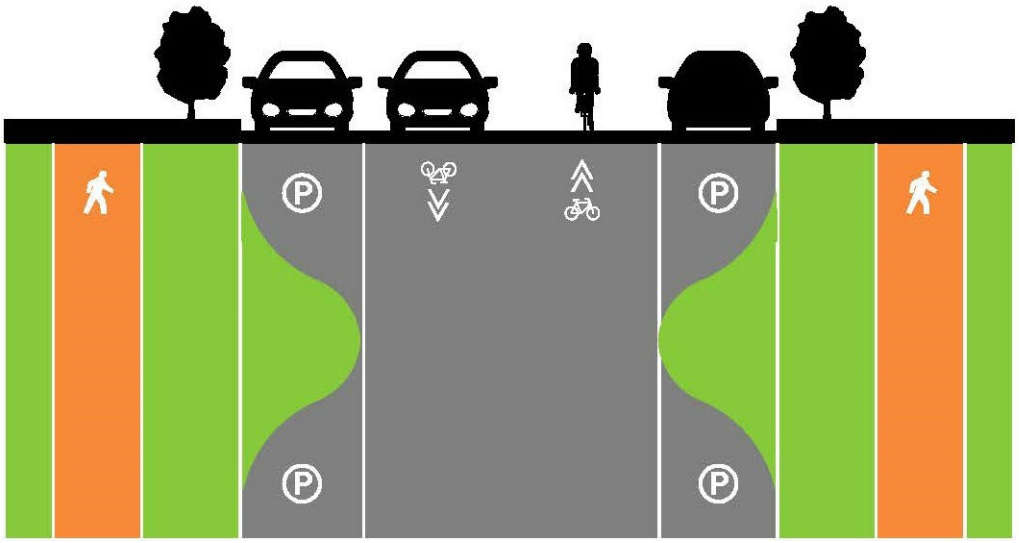
The following are examples of potential cross sections that could be implemented based on the cross-section table.



Example of an Urban Collector Cross Section with a Bi-Directional Protected Bike Lane, Buffers, and Sidewalks



Example of a Rural Local Cross Section with a Pathway, Parking, and Bicycle Boulevard



Example of a Residential Local Cross Section with Sidewalks, On-street Parking, and a Bicycle Boulevard

The identified buffer spaces—between edge of property line and sidewalks, between pathways and road surface, and between bicycles and vehicles—provide numerous opportunities for additional trees, hedges, shrubs, native plants, bioswales, rain gardens, and other features to increase green space, treat storm water, and reduce heat generated from the asphalt.

3.4 Moving Forward

3.4.1 Road Connections and Right-of-Way

Obtaining right-of-way for vehicle and active transportation allows the Municipality to be adaptable and plan for future active transportation connections or new complete corridors. New right-of-way for 'roads' does not mean these rights-of-way must have roads built in them. Most of the major corridors identified may not be needed for vehicle traffic (additional vehicle lanes) long term, but for providing alternative and higher quality active transportation facilities over upgrading other routes.

A number of major vehicle connections, including a parallel route to Cowichan Lake Road, Donnay connection, and York Road extension, were assessed in the OCP build-out model and most of them would attract some traffic but are not expected to see significant volumes. As such, most of these connections are not needed to be built in the long term; however, as developments occur the Municipality should ensure right-of-way is secure (where there is no existing right-of-way) for a future corridor whether that corridor is for active transportation, vehicle traffic to provide local neighbourhood connections, or improved / secondary access routes for emergencies. Obtaining a 25 to 30m right-of-way provides the Municipality with more flexibility and adaptability if there is more growth than is expected and/or less mode shift than planned. The only connection that is expected to be required in the long term for vehicles, is the connection of Cowichan Lake Road to Sherman Road at Lane Road. There is an existing right-of-way; however, use of that right-of-way may be challenging, and an alternative alignment may have to be considered.

Four corridors have been identified where additional lanes (from two lane to four lane) may be required if the OCP density is built out with no change in modal use and therefore additional right-of-way should be considered. These include:

- Bell McKinnon Road from Herd Road to Highway 1[2]
- Cowichan Lake Road from Kimberly Drive to Gibbins Road
- Herd Road from Highway 1 to Osborne Bay Road
- Chemainus Road from Victoria Street to Mt. Sicker Road

Thirty metre right-of-way widths should be obtained for all four identified potential high-volume corridors as developments occur to allow for potential future additional lanes or more robust landscaping and active transportation facilities instead of

[2] More detailed analysis of the Bell McKinnon area found that volumes would be near the threshold for four lanes between the Hospital and Herd Road only. Additional right-of-way should be considered for this corridor to plan for the worst-case scenario for vehicle lanes and in order to meet the vision of the Bell McKinnon Local Area Plan for Bell McKinnon Road. This vision includes spaces for travel lanes, centre median / left turn lanes, parking, landscaping / trees / boulevard, and bicycle and pedestrian facilities.

additional lanes. The Chemainus Road corridor may be challenging to obtain additional right-of-way as many segments travel through several First Nations' reserve lands and is currently operated by Ministry of Transportation and Infrastructure (MoTI). First Nation communities have been working with MoTI to reduce traffic volume and speeds through the reserve lands and therefore additional widening for vehicles on Chemainus Road may contradict the goals of the First Nation. However, additional active transportation facilities would be a benefit to both North Cowichan and the First Nations of the area and any additional right-of-way could be used for improved active transportation and / or landscaping.

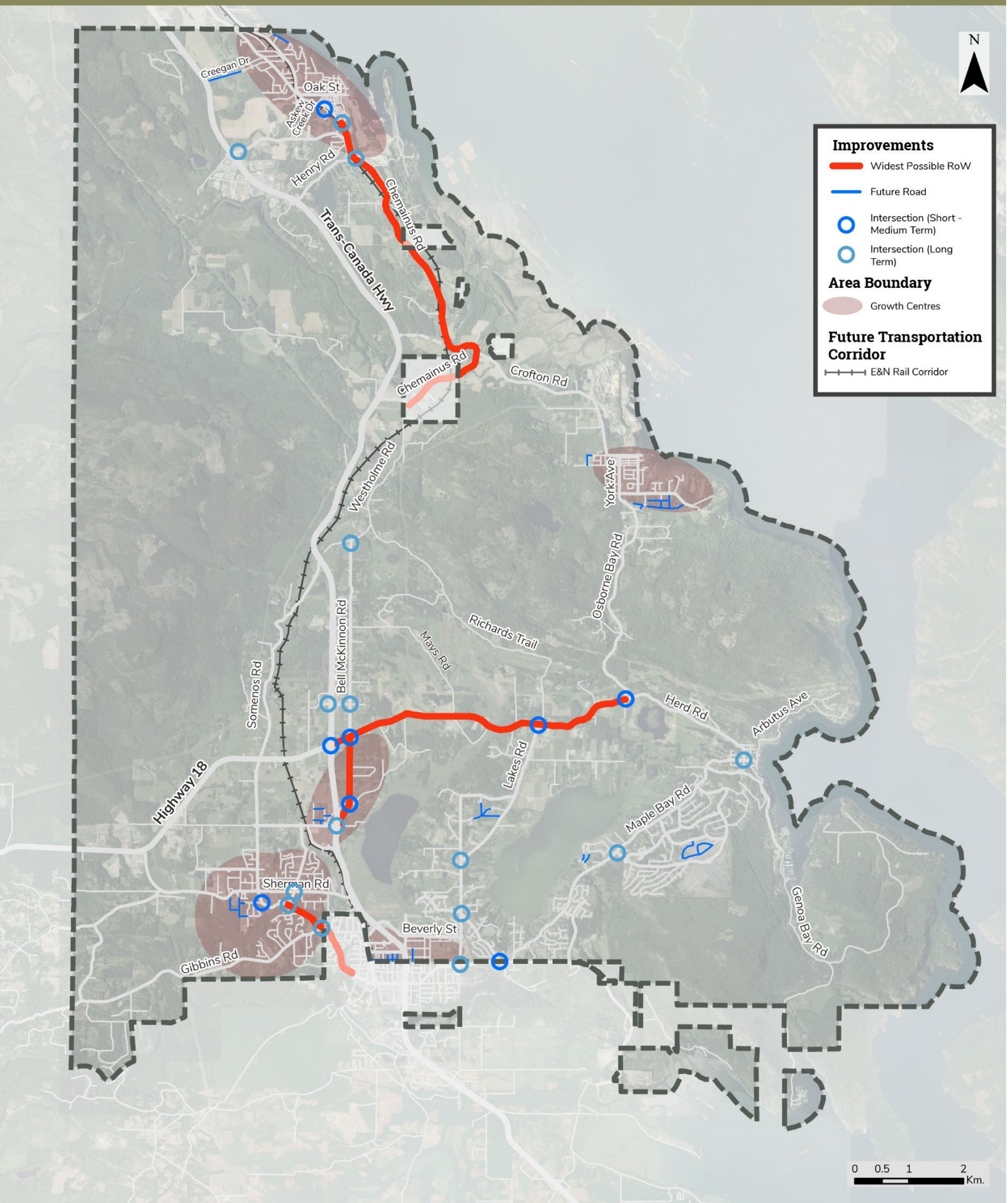
If the projected traffic, at OCP build-out, is realized and Chemainus Road is not widened, this traffic will spread over multiple hours and/or add to the high volumes (and associated congestion) on Highway 1 between Chemainus and Bell McKinnon. The decision to build any four-lane cross section would be up to the council of the day to consider the level of congestion they are comfortable accepting on these corridors. However, the goals of this Master Transportation Plan are to encourage the shift away from the business-as-usual amount of vehicle travel (as modelled) and encourage use of sustainable transportation modes, which will reduce the amount of vehicle traffic on the network and reduce the need for additional vehicle lanes in the long term. Any right-of-way obtained for the future worst-case scenario can be utilized to continue to benefit modal shift and provide space for active transportation users.

The Municipality should evaluate all development applications for network connections – both for vehicle connectivity and active transportation routes to ensure minimum 20m rights-of-way are obtained and additional width along major corridors. See **Map 2** and **Table 5** for the identified future connections to obtain new corridor rights-of-way.

Table 5 – Right-of-Way Connections

Location
Donnay Drive Connection (AT Only) *Between Donnay Drive (North) to Donnay Drive (South)*
Hudson Road Connection *Between Trans-Canada Highway and Chemainus Road*
Skinner Road to Cowichan Lake Road *West of Dharam Place*
North Chemainus Connection *Extension of Creegan Drive to Trans-Canada Highway*
Askew Creek Drive to Elm Street
Ford Road to Paddle Road
Bundock Avenue *Powell Street to Beverly Street*
St. Julien Street, Festubert Street, Ypres Street *Coronation Avenue to James Street*
Frontage Road *River Road to Henry Road*
Timbercrest Drive *Wisteria Way to Lochsyde Drive*
Drumcullen Road to Regina Way
New Road between James Street and Queens Road *Duncan Avenue to St. Julien Street*
New Road between Cowichan Lake Road and Sherman Road

Map 3. Future Road and Intersection Improvements



3.4.2 Highway 1 Corridor

Over the last 20 years, there have been three studies undertaken by MoTI (and other partners) on the Highway 1 corridor through Duncan / North Cowichan. The studies covered various segments of the corridor and identified various management plans and opportunities. The most recent study, completed in 2014, covers Highway 1 from Boys Road to Beverly Street. This segment touches intersections in both the City of Duncan and Municipality of North Cowichan. The following is the identified vision for the TCH Corridor in Duncan/North Cowichan. The recommendations from the 2014 study include:

- Improving the pedestrian realm along the highway including sidewalks, fencing, countdown timers, curb-bulbs, and lighting
- Improve pedestrian crossings at Cowichan Way and University Way
- Bicycle and pedestrian infrastructure across the 'Silver Bridge'
- Medians and / or removal of two way left turn lanes
- Add dedicated left / right turn lanes at key intersections (Trunk Road, Coronation Avenue)
- Realignment of James Street intersection at Highway 1
- Add parallel road connections to Highway 1 including Price Road to Bundock Avenue and extending Bundock Avenue to Dingwall Street, Whistler Street from Trunk Road to Dingwall Street, and Festubert Street to James Street.

The 2014 study no longer considered significant bypass options for Highway 1. It is recommended that the Municipality work with the City of Duncan and MoTI to implement access management on the Highway.

The full build out of the OCP is projected to add significant volumes to the Highway 1 corridor if people in North Cowichan continue driving at the same level (same mode share) as they currently drive. If this level of traffic (over 2,000 vph per direction in peak periods) occurs, improvements would need to be considered for highway intersections and the capacity of the corridor long term. If there are no improvements to add capacity on Highway 1 or provide an alternative 'parallel' corridor to increase capacity, then the peak hour will spread over several hours on the Highway. This includes all intersections from River Road in the north and Boys Road in the south that would need significant improvements.

MoTI's *CleanBC Plan* and *CleanBC Roadmap 2030* provides direction on the need to increase active transportation (mode shift) to reduce vehicle trips and reduce travel distances as methods to reduce vehicle trips on the provincial network. As MoTI works with municipalities across the province, including North Cowichan to achieve mode shift, it may reduce the need for additional capacity long term. However, it is recommended that Municipality continue to work with MoTI and the City of Duncan to assess the long-term feasibility of widening Highway 1 or identifying a Highway By-pass that is designed / built to a highway standard as the existing Highway 1 corridor may not accommodate the traffic from the full build-out of the OCP without significant reductions in automobile use. The decision to build an alternative to Highway 1 is

MoTI's; however, they would be required to work with North Cowichan, Cowichan Tribes, CVRD, and Duncan to implement an alternative route.

North Cowichan can minimize the potential need for this alternative route by focusing on modal shift and increased amenities within proximity to denser residential areas (Growth Centres). Several areas within North Cowichan are mainly (or solely) residential such as the Lakes Road and Quamichan / Maple Bay sub-area. This increases the need for residents to travel longer distances for employment and amenities (many of the grocery stores, medical offices, recreational destinations are located on the west side of Highway 1). Adding more commercial (retail/office) east of Highway 1—and within 5 km of the single family ('city lot') neighbourhoods—also supports the ability to shift traffic patterns and behaviors to active modes. This may also have the benefit of improving traffic operations at the Highway 1 signals from Beverly Street to Trunk Road as less side street traffic would need to cross back and forth across the highway.

3.4.3 Traffic Operations & Safety

Overall, most of the Municipality's intersections and the larger road (vehicle) network operates at good conditions during the existing (2022) peak traffic periods of the day (AM and PM peak hours) with movement operations at a level-of-service (LOS) C or better (less than 30 seconds of average delay).

Several locations were reviewed for safety and three locations are identified for short to medium term improvement based on existing conditions:

1. Lakes Road / Herd Road
2. Osborne Bay Road / Herd Road
3. Lakes Road / Tzouhalem Road / Trunk Road

The intersections of Lakes Road / Herd Road and Osborne Bay Road / Herd Road both have a similar design where the traffic on the stopped leg has a left turn lane and small channelized right turn island. The design of the right turn island allows right turning vehicles to pull out at a 45-degree angle, which fully blocks left turning vehicles from observing an approaching vehicle. A change in design to remove this island—through either a single shared lane on the stopped leg or separate turn lanes with the right turn occurring at 90 degrees—would improve the safety at these two intersections as turning vehicles would be able to see across the front of the adjacent vehicle. The intersection of Lakes Road / Tzouhalem Road / Trunk Road would benefit from a review of the signal timing including pedestrian clearances, detector delays, and overall green time and cycle length assessments.

Long term modelling, using VISUM macro-level software, was undertaken with the OCP land use build-out. Note achieving "full" build out of the OCP significantly surpasses the OCP's 2050 timeline; the OCP build-out is expected to add 25,355 residential doors to the Municipality's existing 13,580 doors for a total of 38,935 residential doors. This is a substantial increase in the size of North Cowichan's housing during and beyond the life of the OCP. In addition, 2,165,000 square feet (sq. ft.) of commercial / retail space and 550,000 sq. ft. of industrial land use were added to the long-term land use of North

Cowichan as part of the model. The model is based on 'business-as-usual' mode of travel (i.e., the existing amount of driving mode share and therefore trips associated with each residential door was used to project the future amount of trips for the new doors).

Key intersections were identified that would need to be upgraded to a higher level of traffic control with the business-as-usual travel modes and OCP build out densities. These intersections include:

- Victoria Street / Chemainus Road
- Elm Street / Chemainus Road
- Chemainus Road / Henry Road (if four lanes required on Chemainus Road)
- Bell McKinnon Road / Westholme Road
- Bell McKinnon Road / Sprott Road
- Bell McKinnon Road / Herd Road
- Bell McKinnon Road / Norcross Road
- Herd Road / Lakes Road
- Herd Road / Osborne Bay Road
- Herd Road / Maple Bay Road
- Maple Bay Road / Kingsview Road
- Lakes Road / Wicks Road
- Lake Road / Trillium Terrace / Jaynes Road
- Jaynes Road / Tzouhalem Road
- Lakes Road / Trunk Road / Tzouhalem Road
- Sherman Road / Lane Road
- Cowichan Lake Road / Skinner Road
- Cowichan Lake Road / New Connector
- Cowichan Lake Road / Gibbins Road (if four lanes required on Chemainus Road)
- River Road / Trans-Canada Highway (MoTI)
- Sprott Road / Trans-Canada Highway (MoTI)
- Herd Road / Trans-Canada Highway (MoTI)
- Drinkwater Road / Trans-Canada Highway (MoTI)
- Beverly Street / Trans-Canada Highway (MoTI)
- Drinkwater Road / Highway 18 (MoTI)

The mitigation for the unsignalized intersections listed above would be to convert to a roundabout or a signal in the long term. For those intersections that are signalized or have a roundabout, additional laning may be required to improve vehicle operations. Highway 1 and Highway 18 intersections would require support of MoTI to upgrade. Upgrades may include additional lanes, signalization, or higher-level control.

The Lakes Road / Trillium Terrace and Lakes Road / Jaynes Road intersections are both full movement T-intersections with stop control on Trillium Terrace and Jaynes Road. At Lakes Road / Jaynes Road, there are channelized right turns in and out of the intersection, while the Lakes Road / Trillium Terrace intersection has no separate turn lanes. Due to the offset alignment of these intersections, left turners on Lakes Road can cause vehicles behind each left turning vehicle to queue and then block the left turner's ability to make the turn. This results in gridlock at both intersections on occasion during existing conditions; however, as the volume of traffic on Lakes Road increases over full build-out of the OCP, it is expected that the number of times these two intersections block the road will increase. It is recommended that in the long-term that these intersections be realigned to a single intersection, which would help eliminate this issue in the interim and allow for left turn lanes in the future, if warranted. Realignment will require property acquisition of at least one property. Once realigned, the new four-legged intersection should be upgraded to a higher level of control.

The need for these intersection upgrades, and the identified potential road widenings, are subject to available budgets which are set by Council. Therefore, Council can decide that a level of congestion on a corridor or at an intersection is acceptable over creating a vehicle change in the network.

WHAT DID WE HEAR FROM THE COMMUNITY?

In the draft MTP online questionnaire, some members of the community indicated that the future road network must be designed in a way that maximizes safety for all users. Specific comments were centred around the need to improve and prioritize the intersections identified in the MTP along with addressing ongoing speeding concerns with some vehicles travelling at operating speeds that are higher than the posted speed limit.

3.5 Supportive Policies & Programs

The following policies should be written to support the long-term vehicle network.

3.5.1 Retrofitting During Public Work Projects

When a corridor is required to be repaved (identified through Asset Management System) or major utility works are required, the Municipality should review the existing cross section and utilize the opportunity to reallocate the existing space or rebuild the corridor to include pedestrian and cycling facilities. During design of retrofits, the scenic road designation should be considered in relation to traffic operation needs. The OCP policy objectives for maintaining scenic roads, including the longer-range settings and viewscapes in which those roads exists, should be balanced with traffic operations and engineering design requirements.

3.5.2 Emergency Access Routes to Neighbourhoods

During an emergency, whether a major fire event, earthquake, flooding, or other event, the ability to provide alternative routes or entry/exit points are critical. The Municipality should adopt a policy identifying when secondary or tertiary accesses may be required for emergencies.

3.5.3 Speed Limits

The Municipality requires a policy around the setting and changing of posted speed limits on roads. The changing of a speed limit (either up or down) should not be done arbitrarily or changed based on requests from the community. The changing of a speed limit without any other changes to the roadway will lead to further complaints as posting signage has limited impact on changing driver behaviours.

3.5.4 Channelized Right Turns

Historically, North Cowichan used channelized right turns over 90 degree turns at intersections. The Municipality should create a policy to limit the introduction of new channelized right turns (including smart right turns) except in locations where intersection angles are skewed and/or where frequent large truck movements need to be accommodated. This policy would not preclude the use of smart right turn islands; however, should it should not be the first choice within the municipal environment. Standard right turn lanes, without islands, provide the same level of service to vehicles in a municipal environment, but utilize less land, reduce crossing distances, and slow turning vehicles down. When re-construction of an intersection occurs, the Municipality should consider removing existing islands (but maintaining right turn lanes) and reducing the width of the intersection while maintaining a separate right turn lane.

Example of a channelized right turn at the intersection of Osborne Bay Road and Herd Rd.

3.5.5 Truck Routing

The Municipality of North Cowichan currently identifies places where heavy trucks are not permitted. It is more typical to identify routes where trucks are allowed to travel and where they are permitted to deviate from those roads if their destination is not on a truck route. It is recommended that the *Traffic Bylaw* be reviewed and updated.

3.5.6 Traffic Calming

A modern, up-to-date *Traffic Calming Policy* is needed to provide guidance and streamline the decision-making process for where and when to apply traffic calming.

3.5.7 Road Maintenance

The *Snow and Ice Removal Council Policy* should be reviewed regularly and updated as needed to ensure that arterial and collector roads along with bus routes, school routes, and heavy truck routes are cleared first. Reviews and any updates should consider the snow and ice removal for both vehicles and active transportation when routes are planned.

3.6 Summary of Recommendation Actions

Table 6 – Summary of Recommended Actions for the Road Network

Action	
1A	Update Schedule B of the Subdivision Bylaw to implement the new cross section elements
1B	Obtain additional right-of-way along existing corridors as development occurs to ensure a minimum of 20m with 25-30m for collector and arterials. Chemainus Road, Cowichan Lake Road (south), Herd Road, and Bell McKinnon Road should have 30m of right-of-way
1C	Obtain right-of-way for active transportation corridor for the Donnay Drive connection
1D	Obtain right-of-way for future transportation corridors (vehicles + active transportation): • Hudson Road • Skinner Road to Cowichan Lake Road • Creegan Drive to Highway 1 • Askew Creek Drive to Elm Street • Bundock Avenue • St. Julien Street • Festubert Street • Ypres Street • Frontage Road between River Road to Henry Road • Ford Road to Paddle Road • Timbercrest Drive to Lochsyde Drive • Drumcullen Road to Regina Way • New Road between James Street and Queens Road • New Road between Cowichan Lake Road and Sherman Road
1E	Work with MoTI to identify capacity improvements at Highway 1 intersections between River Road and Boys Road to facilitate access across and onto Highway 1 and Highway 18. Priority intersections include: • River Road / Trans-Canada Highway • Sprott Road / Trans-Canada Highway • Herd Road / Trans-Canada Highway • Drinkwater Road / Trans-Canada Highway
1F	Work with MoTI and City of Duncan to evaluate options for additional capacity on Highway 1 and/ or identifying a by-pass option to provide additional

Action	
	capacity as determined by MoTI through an update to the corridor management plan.
1G	Remove channelized right turn islands at Osborne Bay Road / Herd Road and Lakes Road / Herd Road in the short term to improve safety. In long term, upgrade both intersections to a roundabout or signal
1H	Upgrade Herd Road / Bell McKinnon Road to a roundabout in the short term
1I	Review signal timing including detection delays, pedestrian clearance times, vehicle clearance times, green times, and time of day plans at Lakes Road / Trunk Road / Tzouhalem Road
1J	Short to medium traffic control upgrades (roundabout or signal) should be planned for at: • Elm Street / Chemainus Road • Bell McKinnon Road / Norcross Road • Herd Road / Lakes Road • Herd Road / Osborne Bay Road • Cowichan Lake Road / Skinner Road • Jaynes Road / Tzouhalem Road
1K	Long term traffic control upgrades (e.g., laning modifications, roundabout or signal) should be planned for at: • Victoria Street / Chemainus Road • Chemainus Road / Henry Road (widening through roundabout if four lanes required on Chemainus Road) • Bell McKinnon Road / Westholme Road • Bell McKinnon Road / Sprott Road • Herd Road / Maple Bay Road • Maple Bay Road / Kingsview Road • Lakes Road / Wicks Road • Lakes Road / Trunk Road / Tzouhalem Road • Sherman Road / Lane Road • Cowichan Lake Road / New Connector • Cowichan Lake Road / Gibbins Road (widening through roundabout if four lanes required on Chemainus Road)

Action	
1L	Obtain right-of-way to realign Trillium Terrace and Jaynes Road to a four-legged intersection from the existing offset 'T' intersections in the long term. Upgrade traffic control at the intersection once realigned
1M	Develop a policy to review retrofitting roads to include active transportation when the corridor is scheduled for paving or other major underground utility works
1N	Develop a policy for when secondary or tertiary accesses are required
1O	Develop a *Speed Limit* policy
1P	Develop a policy to reflect the latest understanding and concepts for treatment of right turns in the municipal environment
1Q	Update the *Traffic Bylaw* to address truck routes
1R	Update the *Traffic Calming* policy
1S	Review and update, as necessary, the *Snow and Ice Removal Council Policy* to ensure priority routes (school routes, bus routes) are cleared first and in consideration of clearing active transportation corridors


Warning
Water Pipeline
NO PARKING

4.0 PEDESTRIAN NETWORK

4.1 Network Today

North Cowichan residents pride themselves on their active and recreational lifestyles. The Municipality's parks, trails, rivers, lakes, oceanfront, mountains, and Municipal Forest Reserve are at the heart of North Cowichan's quality of life, sense of place, and ecosystem services. While there are several recreational assets and amenities that support active modes such as walking, North Cowichan's overall pedestrian network is limited, which is due in part to its rural / suburban nature, large geographical area, and significant distances between destinations. As a result, walking for commuting and utilitarian purposes can be challenging for most pedestrians today.

There are two existing types of pedestrian facilities in North Cowichan's network—sidewalks and walkways (which are generally paved shoulders that can be shared by pedestrians and cyclists). This does not include the Municipality's designated trails, which also provide walking connections across North Cowichan. The overall pedestrian network consists of approximately 136 kilometres of sidewalk facilities and 108 kilometres of walkways—a total of 244 kilometres. This represents about 40% of the Municipality's overall road network. The pedestrian network, together with the cycling network, form the active transportation network for North Cowichan.

Pedestrian crosswalks on Beverly Street (left) and James Street (right)

WHAT WE HEARD FROM THE COMMUNITY

The top issues and opportunities identified in the first phase of the public and stakeholder engagement process included:

- There are many safety issues within the pedestrian network, specifically a lack of sidewalks along busier roads such as Maple Bay Road, unsafe crossings, and lack of wheelchair accessibility
- The top barriers to walking according to the online survey included (1) the lack of space or buffer between sidewalks and motor vehicle traffic and (2) the lack of sidewalks, and other infrastructure to main destinations
- The most desired improvements in the pedestrian network are to improve existing pedestrian network connections, implement vehicle speed reductions, better / more consistent sidewalk maintenance, and streetscape enhancements

Maple Bay Road is a high vehicle volume road with little to no space allocated for people walking

4.2 Moving Forward

The future pedestrian network is shown in **Map 4**, which includes 63 kilometres of new pedestrian facilities. The future network builds on what is there today but will offer people walking greater separation from vehicle traffic and improved connectivity. Many of the arterial roads do not have a dedicated sidewalk facility or multi-use pathway, which makes it more uncomfortable and unsafe for a pedestrian to complete a trip. The high priority pedestrian facilities were selected based on five criteria:

1. Existing traffic volumes and speeds are not suitable for all ages and abilities;
2. The facility would fill a gap in the network / critical connection to key destinations;
3. The facility location is located near schools or recreational facilities;
4. The facility is within or connects to an identified Growth Centre area (as per the OCP); and
5. The facility location is in an area where development is occurring.

The recommended pedestrian facilities are intended to address safety concerns while ensuring there are continuous links to key destinations including schools, commercial amenities, workplaces, and transit facilities. The following three principles, which are derived from the BC Active Transportation Design Guide, provide overall direction on the types of pedestrian facilities recommended in the future and informed the pedestrian facility design guidance.

- **Principle 1**: Dedicated Space over Mixed Conditions | Providing dedicated pedestrian facilities is recommended over mixed conditions, where people walking and cycling all share the same space.
- **Principle 2**: Physical Separation over Pavement Marking | Physical separation provided by curbs or other physical separation is preferred over shoulders.
- **Principle 3**: Off-Street Pathways over Shoulders | Off-street pathways are preferred on roads with high motor vehicle speeds or volumes. Removing pedestrians from the roadway and providing a buffer between them and vehicle traffic creates a comfortable space for people of all ages and abilities. Landscaping including trees, shrubs, and native plantings support increased comfort.

HOW THE COMMUNITY WOULD LIKE TO PRIORITIZE THE NETWORK

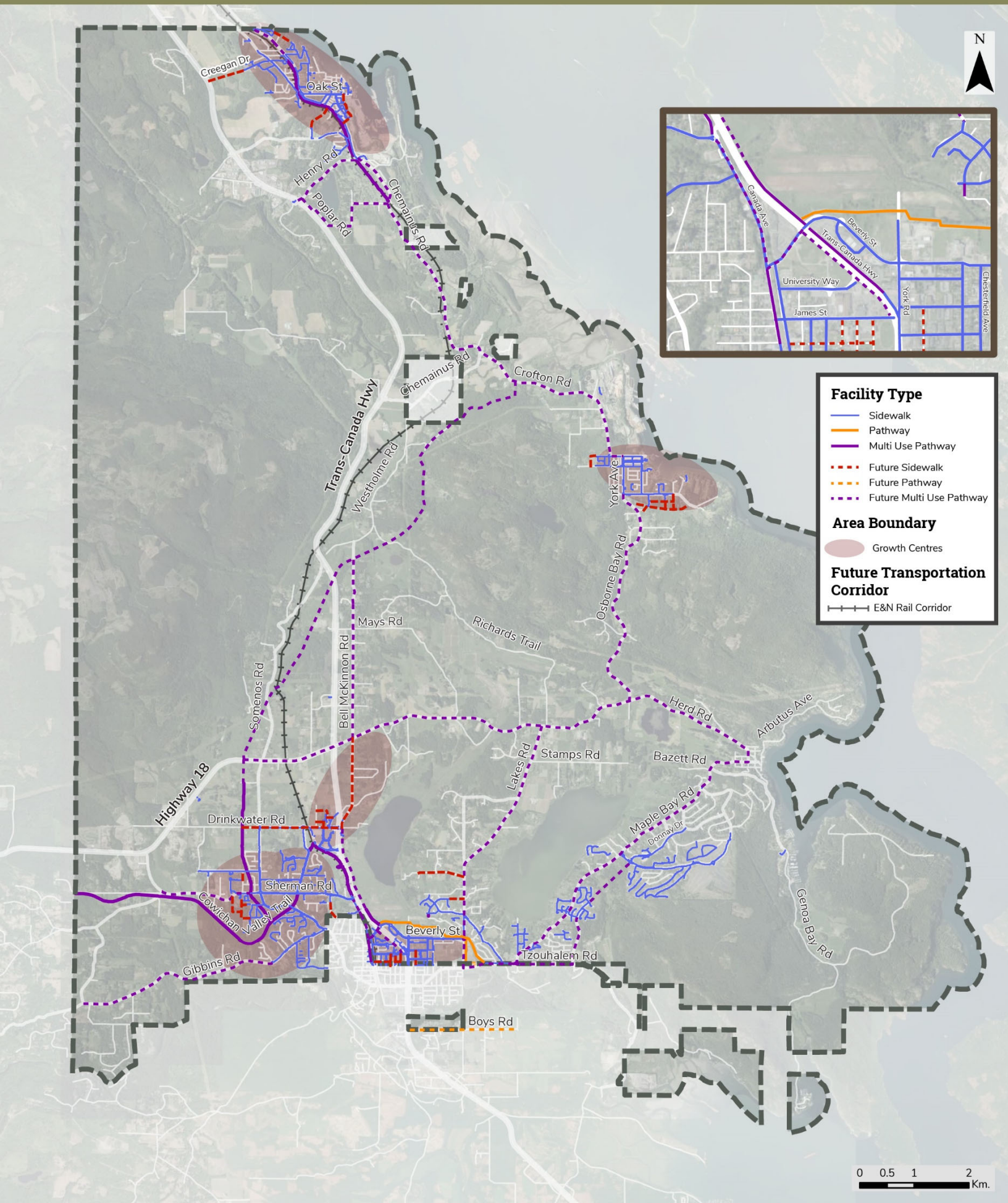
In online survey no.2, the community was asked to indicate what they see as the highest priority pedestrian facilities over the next 5-10 years. The top five ranked projects were identified as follows:

1. Maple Bay Road (Tzouhalem Road to Herd Road) multi-use pathway
2. Lakes Road (Tzouhalem Road to Wicks Road) multi-use pathway
3. Completing the Cowichan Valley Trail (i.e., Rail Trail) to Chemainus
4. Lakes Road (Wicks Road to Herd Road) multi-use pathway
5. Tzouhalem Road (Lakes Road to Donnay Drive) multi-use pathway

"Pedestrians are by far the slowest moving users and should be separated from motor vehicles and bicycles in urban/suburban environments - either a sidewalk or the outermost limit of the paved surface. Rail corridor trails can be shared, as can paved shoulders in more rural areas." – online survey no.2 respondent

Drinkwater Road near Highway 18, where no pedestrian facilities are currently available

Map 4. Ultimate Pedestrian Network



4.2.1 General Pedestrian Facility Design Guidance

The table below includes more detail about the recommended design parameters for the three pedestrian facilities: (1) sidewalks; (2) multi-use pathways; and (3) pathways. For more detailed design guidance, see Chapter C (Pedestrian Facilities) and Chapter E (Multi-Use Facilities) in the BC Active Transportation Design Guide.

Sidewalk

Most of the sidewalks in North Cowichan are considered "non-separated", which is where the walking surface is separated only by a curb from vehicle lanes. Examples of existing non-separated sidewalks include portions of Beverly Street (York Road to Quamichan School), Drinkwater Road (Somenos Road to Trans-Canada Highway), Jaynes Road, and Oak Street, among others. See **Table 7** for the recommended sidewalk widths based on road class and OCP land use designation.

Multi-use Pathway

The recommended (preferred) width is 4.0 metres. The minimum width of a multi-use pathway is 2.7 metres, based on the operating envelope of a single bicycle user (1.2 metres) and the operating envelope of two people walking abreast (1.5 metres). Asphalt is the preferred surface type, which provides a smooth continuous surface that is accessible for all user groups at a relatively modest cost.

Pathway

On many of North Cowichan's rural roads today, residents are forced to walk on the roadway and either share the road with vehicles or have little separation from them. The recommendation is to include pathways in these situations and specifically on roads with the 'Rural Roads' classification. Where space permits, a landscaped buffer should be provided to create a comfortable space for people of all ages and abilities. For example, a proposed pathway facility is recommended on Boys Road. Pathways can meander around existing mature trees to maintain the scenic nature of corridor.

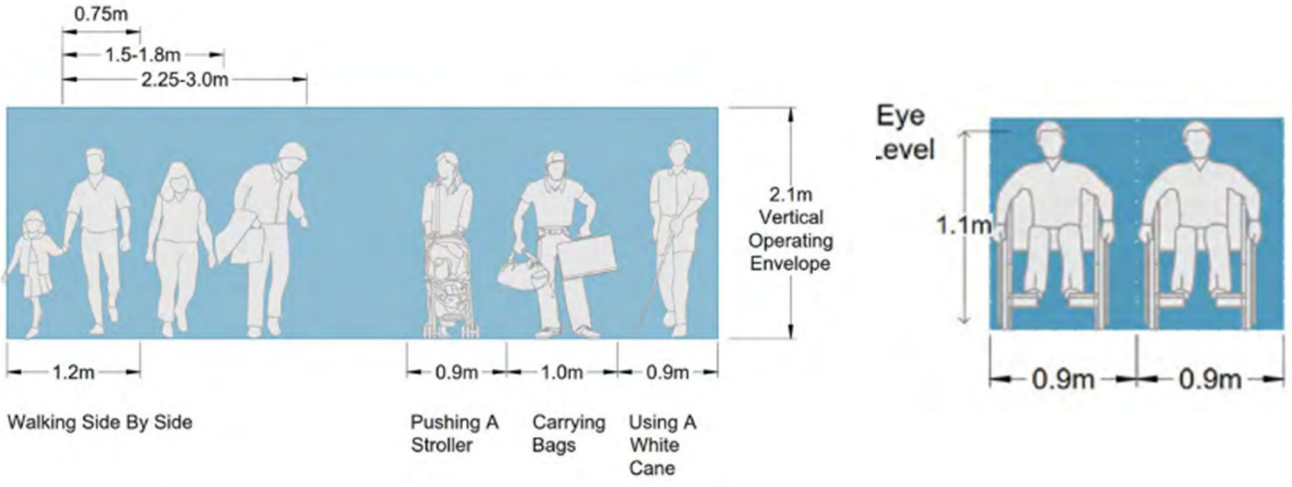
To align with the BC Active Transportation Design Guide, all non-separated sidewalks should have a minimum width of 1.8m including the curb and 2m where space permits. This is an increase from the Municipality's current standard sidewalk width of 1.65m.

In more urban locations such as the South End (University Village) and Berkey's Corner consideration should be given to a separated sidewalk, especially on collector and arterial roads. **Table 7** below includes the recommended widths for the sidewalk facilities based on OCP land use designation.

Table 7 – Sidewalk Recommended Widths

OCP Land Use Designation	Road Class	Separation	Desirable (m)	Constrained (m)
Village Core	Urban Local	Separated	2.4-3.0	1.8
Village Residential	Urban Local	Non-Separated or Separated	2.0	1.8
	Urban Collector / Arterial	Separated	2.4	1.8 / 2.0
Neighbourhood	Any	Separated	2.0	1.8
Commercial	Any	Separated	2.0	1.8

The above is based on typical pedestrian operating space requirements which allows for two wheelchairs to be side by side as well as those with children, strollers, bags, and visual aids (white cane).



Pedestrian Operating Spaces

Source: *BC Active Transportation Design Guide*

Example of a separated sidewalk in front of a multi-family residential building on Paddle Road within the “Village Residential” OCP land use designation. This is an example of a 1.8m sidewalk with a landscape buffer separating the sidewalk facility from the parking lane, which meets the recommended sidewalk widths.

The use of the landscaped buffer also reduces the effective amount of impervious surface by sloping the sidewalk towards the buffer and not directly into the street and drainage syste.

WHAT DID WE HEAR FROM THE COMMUNITY?

In the draft MTP online questionnaire, some members of the community indicated that the plan for the pedestrian network is comprehensive and supportable. However, some concerns were expressed about how pedestrian facilities are not always designed with pedestrians in mind. For example, community members indicated that the Municipality needs to improve accessibility standards in the design of its pedestrian infrastructure. Further, there was commentary about how multi-use pathways should not only prioritize people cycling; it was indicated that the Municipality should consider separating pathway users in the future if they get busy, which can help ensure a more comfortable and safe experience for people walking.

4.2.2 Accessibility Design Guidance

The provision of universal design elements not only supports those with accessibility issues (physical or cognitive impairment) but improves the facilities for all users. The level of accessibility needs to fit the context and location and will require engineering judgment to be utilized on a case-by-case basis.

In general, an active transportation network should not have vertical grades above 5% as they are not considered accessible to all users. For areas where the vertical grade is higher than 5%, landing areas and resting spots should be integrated into the design of the facility (corridor) where possible. In instances where driveways cross the pedestrian facility, the driveway drop/ramp should be located past the pedestrian facility to allow for the facility to remain at the same elevation. All facilities should have a smooth surface that is slip-resistant and free of tripping hazards. Below is a description of various accessibility improvements that the Municipality should consider as it builds out the pedestrian network.

Detectable Warning Surfaces

Tactile surface indicators are made up of two components – tactile attention indicator and tactile direction indicator.

Tactile attention indicators are typically truncated domes and are used to warn of an impending change in elevation, conflict area with other transportation users (e.g., bicycle lane or vehicle lane), and / or potential hazards. Tactile attention indicators are generally a bright yellow or other contrasting colour to the walking surface. Tactile attention indicators should be placed at the base of curb ramps (behind curb), edge of medians (if pedestrians cross/use median), border between sidewalk and raised crosswalks/intersections, edge of transit stop platform, and prior to railway crossings.

Tactile direction indicators are elongated flat top bars that create lines parallel with the walking surface. These may also be a bright or contrasting colour to the walking surface. Other types of tactile direction indicators includes wide score lines in concrete. These indicators indicate the direction of travel for pedestrians. Tactile directional indicators

are typically used on transit stop platforms, on sidewalks in high pedestrian traffic areas, and in shared spaces including plazas where there is no typical navigation elements (curbs). They may also be utilized along the edge of a sidewalk that is flush to a raised transit stop or bicycle facility.

Examples of Tactile Directional Indicators (top left); Tactile Attention Indicators at a Curb Ramp (top right); Tactile Attention and Directional Indicators (bottom left); Informational sign including text in Braille to access a transit stop (bottom right)

Curb Ramps

Curb ramps include the actual ramp section, a landing area at the top (typically the sidewalk), a landing area at the bottom (typically the road/driveway) and flares. Curb ramps are enhanced to provide universal accessibility by adding score lines and tactile attention indicators (truncated domes).

The curb ramp should be a minimum of 1.8m with a constrained with of 1.5m. The maximum grade of a ramp is 8.3% (1:12); however, to make the ramp more accessible the grade of the ramp should be between 5% (1:20) and 6.7% (1:15). The cross slope on the ramp should not exceed 2% (1:50). Tactile score lines should be used on any ramp segment.

The landings (top and bottom) should be 1.8m in length. The flares that connect the ramp to the sidewalk or landscape area. These flares should be slip resistant and have a maximum slope of 10% (1:10)

Curb ramps may be perpendicular to the road or be a depressed corner ramp. Perpendicular ramps provide enhanced safety and mobility for pedestrians. Depressed corners should be utilized in constrained environments where perpendicular ramps are unable to be built.

Tactile attention indicators should be installed on all ramps. Refer to Chapter D (Intersections + Crossings) in the *BC Active Transportation Design Guide* for more information on installation guidelines.

Traffic Signals

Accessibility features at traffic signals include adding countdown timers and audible pedestrian signals that provide sounds to indicate when and which direction to cross. The Municipality should ensure that all existing signals utilize a 1.0m/s walking speed for the calculation of the pedestrian clearance interval and any new signals use the 1.0m/s walking speed. Pedestrian pushbuttons that do not require pressure resistance to activate should be utilized. Additional navigation features such as audible messages should be considered when selecting a pedestrian pushbutton.

4.3 Supportive Policies & Programs

4.3.1 Safe Routes to School

A Safe Routes to School program is a multi-stakeholder and multi-staged process that involves a municipal / regional district partner, the school community (e.g., parents, teachers, staff, students), and other organizations to identify barriers and solutions for active travel and strategies to address traffic safety concerns. It is recommended that the Municipality, in collaboration with School District 79, the City of Duncan, Cowichan Tribes and the Cowichan Valley Regional District, look to establish a similar program and pilot it at 3-5 schools per year.

4.3.2 Pedestrian Infrastructure Prioritization Policy

The Municipality should develop a pedestrian infrastructure prioritization policy to determine the order of priority for implementation of pedestrian facilities. The following criteria should be considered for determining prioritization:

- Routes to School
- Streets with connections to recreational amenities including parks, community / recreation centres, trails, and other facilities
- Streets and locations with transit facilities (e.g., bus stops)
- Streets with the 'Urban Road' classification
- Streets with the 'Residential Local' classification

4.3.3 Crosswalk Warrant Policy

The Municipality does not currently have a standard policy to determine the need for the installation of signed and marked crosswalks or higher order crosswalks. As a result, many crosswalks are installed inconsistently. A crosswalk warrant policy will help the Municipality consistently implement crosswalks at appropriate locations. This will ensure consistent messaging for improved conspicuity.

A crosswalk with curb extensions on York Avenue

4.4 Summary of Recommended Actions

Table 8 – Summary of Recommended Actions for the Pedestrian Network

Action	
2A	Implement the recommended pedestrian facilities in accordance with **Section 9.0**, Implementation Plan
2B	Promote Safe Routes to School program with School District 79, Cowichan Tribes, City of Duncan, and the Cowichan Valley Regional District
2C	Develop a pedestrian facility prioritization policy
2D	Develop a crosswalk warrant policy

RIVER RD
CYCLISTS MUST STOP
YIELD

5.0 CYCLING NETWORK

5.1 Network Today

North Cowichan's cycling network, while underdeveloped, has the potential to be a critical part of the Municipality achieving the goals of the MTP, and, specifically reducing GHG emissions in the transportation sector. As an active and recreational community with access to over 40 designated trails, North Cowichan already has the foundations of a robust a cycling network; however, due to gaps in connectivity, limited infrastructure that is suitable for all ages and abilities, and insufficient bicycle parking, most North Cowichan residents do not move around by bike in their community.

It is clear from the public engagement that North Cowichan residents want to see more physically protected cycling infrastructure, but other 'soft' measures are required to increase the overall safety of cycling.

Part of the reason why cycling accounts for a small portion of trips is due to the type of cycling infrastructure available. Most of the existing cycling network does not meet the needs of all ages and abilities. Most of the facilities that are available include painted bike lanes and/or shared use lanes where people cycling must share the lane with vehicle traffic. As of 2020, there were also 17 kilometres of designated trail facilities, some of which have not been built. In addition, in 2020, the Municipality installed protected bike lanes along Chemainus Road between Henry Road and Victoria Street.

Notwithstanding these improvements, overall, the cycling network is limited and does not provide a level of safety required for public to consider it fully as a mode of transportation.

Uni-directional bike lanes were implemented along a segment of Chemainus Road (Henry Road to Victoria Street) in 2020, making these facilities the first protected bicycle lanes in North Cowichan.

WHAT WE HEARD FROM THE COMMUNITY

The top issues and opportunities identified in the first phase of the public and stakeholder engagement process included:

- There is a lack of safe cycling infrastructure available to where residents need to travel to
- The cycling network has poor connectivity with some cycling routes not connecting to others
- There is a lack of secure bicycle parking at key destinations
- The most desired improvement in the cycling network is more cycling infrastructure including bike lanes, trails, and pathways that are physically protected from motor vehicle traffic

Beverly Street is a high traffic volume road with critical connects to schools, Highway 1, and the City of Duncan. There are painted bicycle lanes on both sides of the road, but they are not suitable for all ages and abilities including children riding their bikes to school.

5.2 Moving Forward

The future cycling network is shown in **Map 5**. All the recommended cycling facilities meet the criteria for all ages and abilities, which addresses the main concerns heard in the public engagement process. With 100 kilometres of new cycling infrastructure, the future network is intended to provide extensive network connectivity and access to most destinations in North Cowichan and connect to the City of Duncan's network, which will make it easier to bike for most trip purposes.

The high priority cycling facilities were selected based on the following criteria:

1. Existing corridors where traffic volumes (>3,000vph) and speeds (>50km/h) create conditions unsuitable for all ages and abilities to use the corridor in existing condition;
2. The facility would fill a gap in the network and provide a critical connection to key destinations;
3. Proximity to schools and recreational facilities;
4. The facility location is consistent with the recommendations in the Municipality's *Parks and Trails Master Plan* for priority on-street multi-modal corridors; and
5. The facility is within or connects to an identified Growth Centre (as per the OCP).

WHAT IS ALL AGES AND ABILITIES?

'All ages and abilities' has become a buzz word in transportation planning and is often not well defined. Building on the definition of the National Association of City Transportation Officials (NACTO), many existing bicycle facilities do not feel safe for people who might otherwise ride. Designing for all ages and abilities must consider the safety, comfort, unique circumstances, and needs of a broad range of potential users including children, seniors, women, marginalized populations, persons with a disability, families travelling with their children, and people moving cargo and goods.

An extension of the Cowichan Valley Trail (CVT) is identified to connect Chemainus Road (between Crofton and Chemainus) to Bell McKinnon, Berkey's Corner and downtown Duncan. The mapping illustrates a route utilizing an existing pipeline right-of-way; however, there maybe alternative routes available including utilizing the E&N Railway corridor and existing traffic signals (at Mays Road) to cross Highway 1. Exact alignment of the route will be identified during the design stage of that project.

High priority bicycle projects can be quick-build and may have interim alignments / elements in constrained areas. Quick-build projects are ideally constructed between existing curbs (if curbs exist); however, they may require removal of on-street parking or a travel lane to be accommodated. There are three locations where quick build designs could be achieved:

1. James Street (between Highway 1 and Canada Avenue)
2. Sherman Road (between Somenos Road / Cowichan Lake Road and Canada Avenue)
3. York Road (Highway 1 to Beverly Street)

On James Street with removal of 10 on-street spaces and re-striping a quick build protected cycling facility could be implemented. Similarly, on Sherman Road, a quick-

build facility could be built between Somenos Road / Cowichan Lake Road and Sayward Road with the removal of on-street parking and re-striping. It should be noted that much of the corridor, while wide enough for on-street parking on one side, has significant sections of yellow curbs which restricts on-street parking; however, this width is potentially utilized during busy events at the Duncan Curling Club or the Sherman Road Soccer Park even though it is not permitted. Both venues have large parking lots to accommodate vehicles off-street. The addition of bicycle facilities may encourage some people to arrive at these venues by bicycle. The section of Sherman Road between Canada Avenue and Sayward Road is narrower but would accommodate a 1.7m facility (1.5m lane plus 0.2m buffer with pickets) on one side. However, providing a facility on the uphill side maybe beneficial in the short term over no facility at all. It may be possible to widen the corridor in the longer term, but it would require relocation of sidewalk, utility pole relocations, and a new retaining wall, which would have a significant cost.

Constructing these two quick build projects from Highway 1 to Cowichan Lake Road would provide a significant bicycle connection between two growth centres as well as two major recreational areas. Extending the quick build along York Road to Beverly Street would extend the connectivity to the South End and connect Quamichan School. York Road with re-striping (removal of one lane) would allow for on-street parking to remain on one side with a bi-directional bicycle facility and potential for landscaping using planters (1.5m wide) in addition to curbs.

Examples of quick builds using concrete curbs (left) and plastic delineators (right)

The following cycling facilities are recommended in North Cowichan.

Image credit: Capital Regional District

Multi-use Pathway

Off-street pathways that are physically separated from motor vehicle traffic and can be used by any non-motorized user including pedestrians and cyclists as well as other forms of active transportation such as skateboarding, kick scootering, and in-line skating.

Bi-directional Protected Bike Lane

Separate travel lanes designated exclusively for bicycle use and other forms of active transportation that are physically separated from motor vehicles and pedestrians by vertical and/or horizontal elements. All the recommended protected bike lanes are bi-directional facilities, which are consistent with the multi-use pathways and allow for easier snow removal.

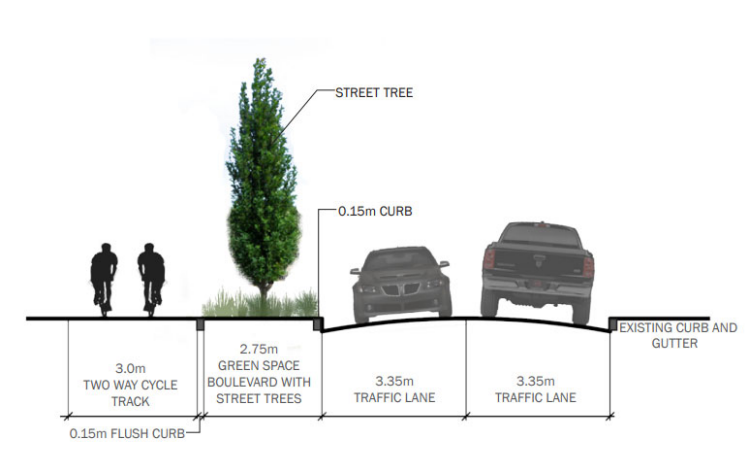
Bicycle Boulevard

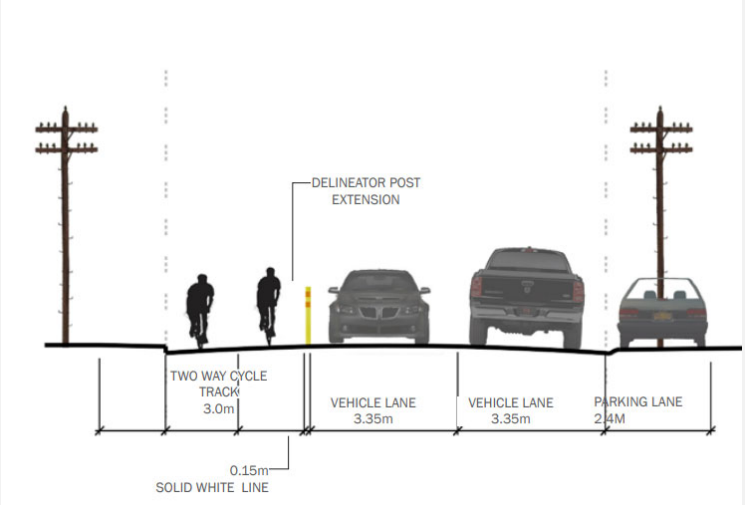
Also referred to as neighbourhood bikeways, they are a shared roadway that provide a continuous corridor of suitable operating conditions for cyclists, including limiting exposure to vehicle traffic and designing for low motor vehicle speeds. Per Chapter D of the BC Active Transportation Design Guide, bicycle boulevards are most effective in road networks with a strong and continuous grid pattern. They can also be suitable in suburban contexts with curvilinear streets with appropriate wayfinding and connections between streets.

HOW DO THE PRIORITY FACILITIES ALIGN WITH THE PARKS AND TRAILS MASTER PLAN?

The Municipality's Parks and Trails Master Plan includes recommendations for on-street multi-modal corridors, which are defined as cycling facilities with three classification levels including Class 1 (2-way separated with green boulevard), Class 2 (2-way separated with delineator post) and Class 3 (1-way on each side of road with no barrier). The Class 1 and Class 2 facilities align with the recommended cycling facilities in the MTP whereas Class 3 is not recommended as it does not meet current industry standards or meet the needs of all ages and abilities. Even though there are some differences in the design parameters between the Class 1 / Class 2 facilities and the cycling facilities recommended in the MTP, the priority locations have been informed by the overall directions in the PTMP.

Class 1 (top) and Class 2 (bottom) multi-modal facility in the PTMP





HOW THE COMMUNITY WOULD LIKE TO PRIORITIZE THE NETWORK

In online survey no.2, the community was asked to indicate what they see as the highest priority cycling facilities over the next 5-10 years. Specifically, the community was asked to rank their top multi-use pathways and protected bike lane facilities. The results are shown below. It should be noted that the results of that survey are not statistically valid and included a larger number of responses from certain neighbourhoods / areas. Therefore, the highest ranked facilities may not represent the preferences of the entire community.

The top five ranked **multi-use pathway** projects were identified as follows:

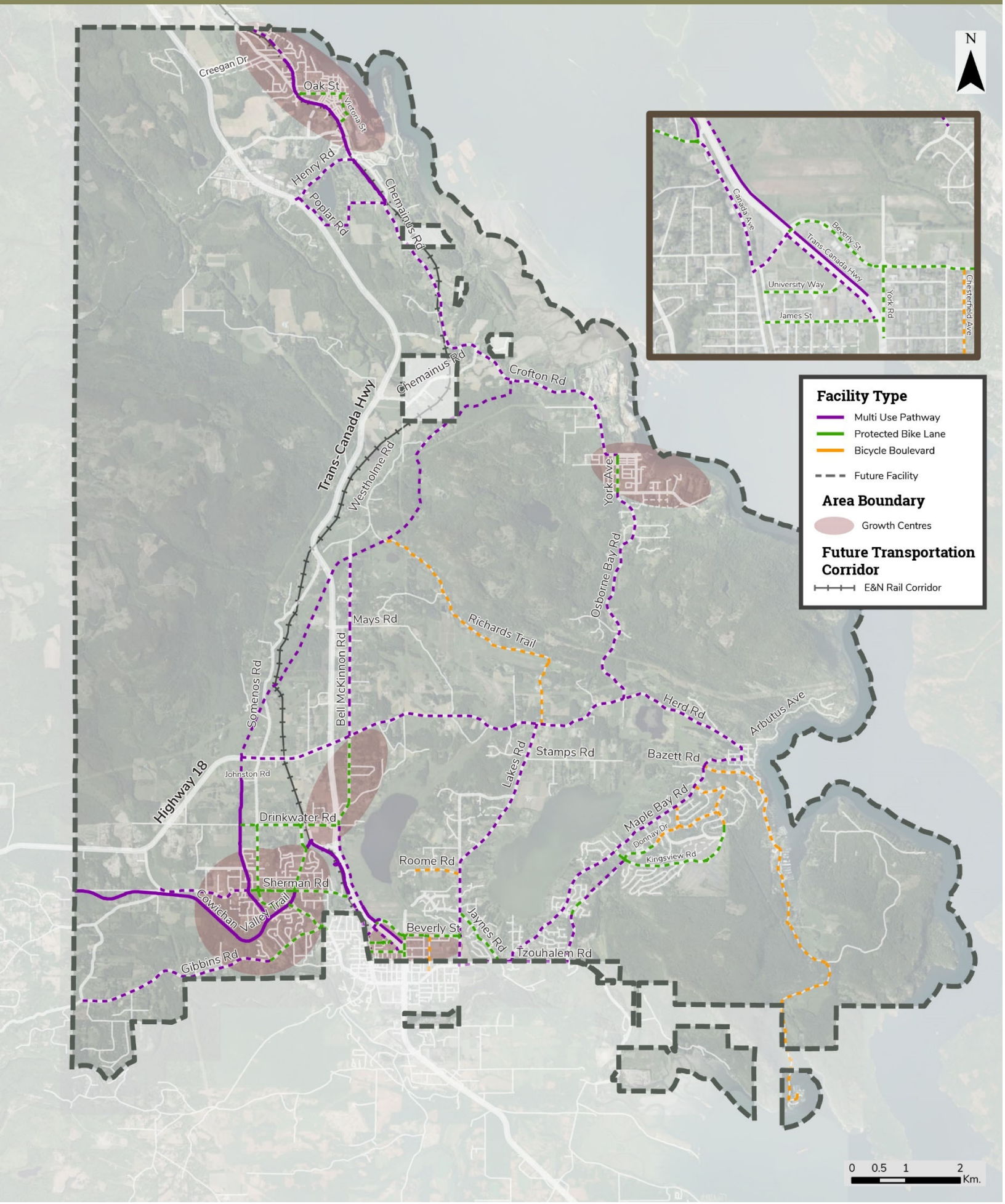
1. Completing the Cowichan Valley Trail (i.e., Rail Trail) to Chemainus
2. Lakes Road (Tzouhalem Road to Wicks Road)
3. Maple Bay Road (Tzouhalem Road to Herd Road)
4. Lakes Road (Wicks Road to Herd Road)
5. Tzouhalem Road (Lakes Road to Donnay Road)

The top five ranked **protected bi-directional bicycle lane** projects were identified as follows:

1. Beverly Street (Lakes Road to Trans-Canada Highway)
2. Cowichan Lake Road (Sherman Road to Cairnsmore Road)
3. Bell McKinnon Road (Drinkwater Road to Sprott Road)
4. James Street (Trans-Canada Highway to Canada Avenue)
5. Drinkwater Road (Somenos Road to Trans-Canada Highway)

"Protected bike lane facilities are important for safety and enabling people to make use of active transport options. If they don't feel safe on a bike, they aren't going to do it, regardless of other improvements that are made." – online survey no.2 respondent

Map 5. Ultimate Cycling Network



5.2.1 General Cycling Facility Design Guidance

Table 9 below illustrates each facility type and its key design parameters. For more detailed design guidance, see Chapter D (Cycling Facilities) in the *BC Active Transportation Design Guide*.

Table 9 – Cycling Facility Design Parameters

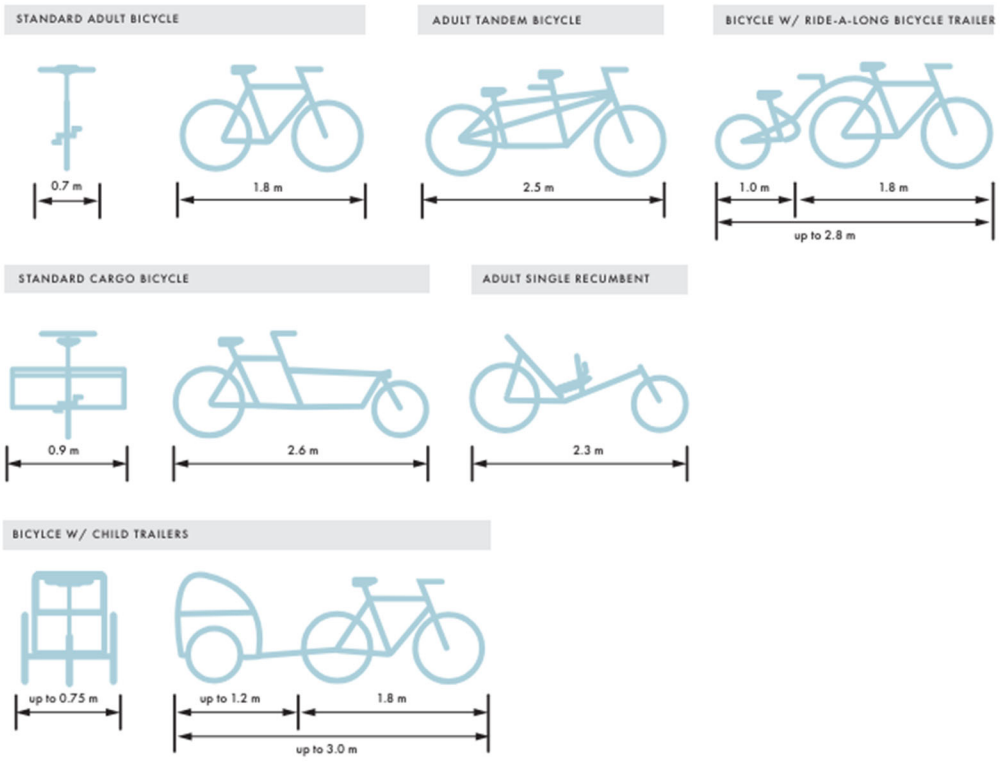
Facility Type	Design Parameters
Multi-use Pathway	**Width** – 4.0m (ultimate) or 3.0m if constrained. **Street Buffer Zone Width** – ideally 2.0m; 0.6m if constrained. Buffer may include trees, hedges, shrubs, native plantings, ditches, or bioswales. **Signage** – Shared Pathway sign **Surface Material** – asphalt is preferred but compact gravel is acceptable in rural and low volume environments
Bi-Directional Protected Bike Lane	**Width** – 4.0m (ideally) or 3.0m if constrained. **Signage** – Reserved Bicycle Lane (RB-90, RB 91) Reserved Bicycle Lane Ends (RB-92) **Separation** – a concrete / landscaping with barrier curb is preferred. Minimum width 0.6m (ideal width greater than 2m to provide landscaping / tree opportunities) unless using alternative type. For quick-build or retrofitting situations the type of separation may be flexible delineator posts, planter box, or other devices that can be used in constrained or on roads with lower volumes and speeds. Chapter D.3 of the BC Active Transportation Design Guide provides more guidance on the types of separation materials that could be used for protected bike lanes.
Bicycle Boulevard	**Clear Width (excluding parking lane)** – 4.0 to 5.5m **Vehicle Speed** – 30 km/h or less if it is to be considered an all ages and abilities bike facility. **Signage** – Bicycle Route sign (IB-23) **Pavement Markings** – Shared use lane pavement markings (i.e., “sharrows”) could be used to indicate the positioning of bicycle users, although this is not required for all bike boulevards.

WHAT DID WE HEAR FROM THE COMMUNITY?

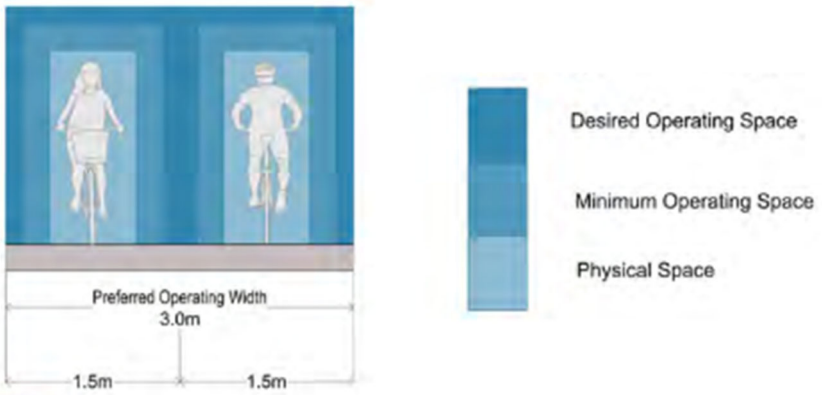
In the draft MTP online questionnaire and final open house, participants commented on how they are supportive of the cycling network. The three common themes of feedback surrounding the cycling network are that (1) the Municipality must prioritize separating people cycling from motor vehicles through the provision of protected cycling facilities; (2) cycling facility projects should be prioritized where there is a critical gap to a key destination including a school, community centre, and/or from one growth centre to another and (3) the Trans-Canada Highway is a major barrier for east-west connectivity and that future crossings are required to make it safer for people to cross the highway by bicycle.

User Operating Space

Bicycles range from standard bicycles at 1.8m in length by 0.7m in width to bicycles with trailers or ride-a-longs that are up to 3.0m in length and 0.75m width. Cargo bicycles can be even wider at 0.9m. When riding a standard bicycle, the rider requires a horizontal envelope 1.2m to 1.5m for lateral movement especially uphill.



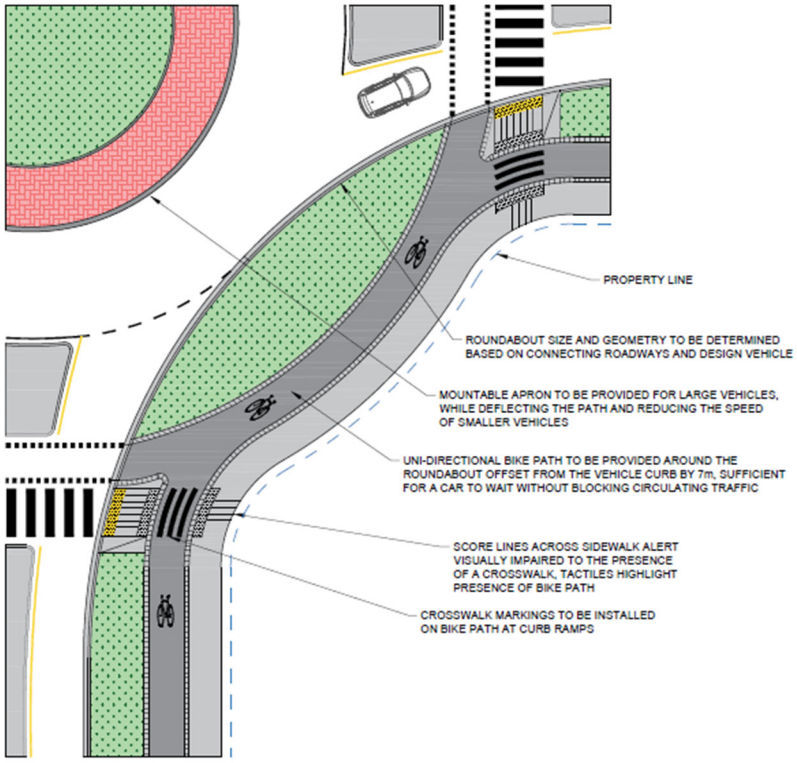
Typical bicycle dimensions as per BC Active Transportation Design Guide



Typical bicycle operating space as per BC Active Transportation Design Guide

Accommodating People Cycling at Roundabouts

Retrofitting existing roundabouts to accommodate people cycling outside of the roadway may not be feasible due to current right-of-way constraints; however, additional right-of-way should be obtained to provide a cycle facility outside of the circulatory roadway. Currently, people cycling are accommodated by taking the lane upon entry to the roundabout and vehicle speeds are slow through a roundabout; however, they are not separated from the vehicles. Accommodation of cyclists outside of the roadway is shown in the graphic below. Cyclists are accommodated adjacent to the pedestrian space, outside of the circulatory roadway.



Cycling facility design guidance for roundabouts. *Source: City of Nanaimo*

5.3 Supportive Policies & Programs

5.3.1 Maintenance Policies & Procedures for the Cycling Network & Snow and Ice Removal Council Policy

Cycling facilities will not be well utilized if the facilities are not regularly maintained and cleared of snow in the winter months. Icy/snowy conditions, debris, potholes, and uneven paving all have negative impacts on cycling as they pose hazards to people cycling and potential causes for crashes.

There is an existing *Snow and Ice Removal Council Policy* that needs to be updated to ensure proper maintenance in the winter for active transportation facilities. For example, the policy should be amended to have a schedule that prioritizes plowing roads where a cycling facility is located to ensure that people can cycle year-round for any trip purpose.

In addition, the Municipality does not currently have the proper equipment required to maintain the recommended cycling facilities and smaller machinery should be purchased to access the bicycle facilities and multi-use (paved) paths within the road rights-of-way for snow removal and clearing of debris. Additional components that the Municipality will need to incorporate into their maintenance policies and procedures:

- Sweeping and removing gravel, debris, and leaves; trimming adjacent vegetation on a monthly basis
- Clear and remove snow and treat and remove ice or slippery conditions with priority to facilities on school routes
- Asset management activities, including repairing pavement surfaces and other road surface appurtenances such as utility covers; replacing worn pavement markings and signs; mitigating locations with pooling water or drainage issues; maintaining street lighting; and repairing and maintaining equipment that is used to maintain cycling facilities

Photo (top) is a Bobcat with rotating brush attachment that the City of Victoria uses to clear snow in its protected bike lanes. Example of a plowed two-way cycling facility in Montreal (bottom). Photo credit: Capital Daily & CBC News

5.3.2 Bike Skills Training

Building a network of all ages and abilities cycling facilities will be critical for enhancing overall bike safety. Given the low rates of cycling in North Cowichan today, a bicycle skills training program would help increase confidence among those who are interested but concerned in cycling. The Municipality could partner with or provide funding support to local cycling advocacy organizations to offer bicycle skills training courses throughout the year in different locations in North Cowichan. These would also be beneficial to offer to all school children (K to 12).

5.3.3 Lighting

Lighting is a critical component of cycling infrastructure. Lighting can enhance the aesthetics of the built environment, increase comfort and safety, and assist with wayfinding. The Municipality does not currently have any guidance on bike-specific lighting. The Municipality should update their existing lighting standards / policies to include specific lighting design standards for cycling facilities in the Municipality, including:

- Illuminance levels
- Type of lighting (e.g., pedestrian-scale lamps) including location, placement, and height.
- Colour and Uniformity including specific hues of LED lighting for personal safety and maximizing visibility.

5.4 Summary of Recommended Actions

Table 10 – Summary of Recommended Actions for the Cycling Network

Action	
3A	Implement the recommended cycling facilities in accordance with the implementation strategy identified in **Section 9.0**
3B	Update the *Snow and Ice Removal* Policy
3C	Update maintenance / street sweeping schedules to include bicycle facilities
3D	Implement a Municipally sponsored bicycle skills training course
3E	Update the lighting policy to include lighting requirements for bicycle facilities


BC ransit
BC ransit
BUS STOP
6 Chemainus
6 Duncan

6.0 TRANSIT NETWORK

6.1 Network Today

The Municipality of North Cowichan is within BC Transit's Cowichan Valley Regional Transit System. The transit system is a partnership between the Cowichan Valley Regional District (CVRD) and BC Transit, with the services operated by First Canada ULC under contract. Decision making and direction for the system are set by the CVRD Board and CVRD staff act as the primary local government liaison with BC Transit staff. However, the Municipality of North Cowichan is ultimately responsible for providing the bus stop infrastructure within its jurisdiction and for maintaining it. The Municipality also has representation on transit matters through the CVRD Board.

Based on this partnership model, the Municipality does not directly have control over service route planning; however, it can influence overall transit planning through several different ways including providing CVRD staff / elected officials and BC Transit staff with its service and transit infrastructure priorities for their consideration. Importantly, the decisions that the Municipality makes around location of key destinations, density, and active transportation improvements (sidewalks or multi-use path connections, etc.) also influence and help make the case for improved transit within its jurisdiction.

Similar to cycling, transit is one of the least popular modes of transportation in North Cowichan. According to the 2021 Statistics Canada census, only 1% of North Cowichan residents commuted to work by transit, which decreased from 2% since the 2016 census. This transit mode share is lower than most of the peer communities including Sooke, Campbell River, and Maple Ridge. The Municipality's low transit ridership was also confirmed in the 2021 North Cowichan Household Travel Survey where only 1.7% of all trips were by transit.

Overall, there are 17 routes in the Cowichan Valley Regional Transit System, 10 of which operate within North Cowichan's municipal boundaries. The ridership data from BC Transit revealed that overall ridership in the Municipality is low with most bus stops seeing less than 10 passengers per day. The transit infrastructure in the Municipality is limited to bus stops as there are no formal transit exchanges in North Cowichan. There are a total of 234 bus stops in the Municipality ranging in type and quality with some stops offering passenger amenities like a shelter or bench and others only a sign and pole. Many of the stops lack bus stop pads or sidewalk with curb that make the stops accessible.

WHY CHANGE?

What We Heard

The engagement process largely confirmed that there is community desire for transit-related improvements in North Cowichan. Issues and opportunities identified by the community include:

- The lack of frequent transit, lack of transit service in some areas of North Cowichan, and lack of familiarity with the transit system are the top barriers facing the system.
- Residents would like to see vehicle “right-sizing”, which means providing smaller buses to meet the demand.
- The most desired improvement to make transit easier to use is to increase its frequency.
- There is an interest in the community to explore on-demand transit as a way to provide more direct service to where people need to go.
- Residents would like to see improved bus stop infrastructure (i.e., shelters) to encourage safety and use of the system.

Holistic Transportation Network

Transit is a critical component of a holistic transportation network to provide inter-community connections and links between different modes of travel. As the Municipality is comprised of various communities with different levels of amenities, having options to travel within and outside of the Municipality is beneficial for connecting community members to services, employment, and recreational and social opportunities. Further, transit bolsters the active transportation network by linking pedestrians and cyclists to longer-distance connections that may be unfeasible to travel entirely by active modes. Transit can be a cost-effective and sustainable way to travel if it is an accessible, convenient, and an easy service to use.

Existing Barriers

The current transit network is lacking in infrastructure, frequency and service levels that may make it a convenient and attractive choice for people to travel within and beyond the Municipality.

6.2 Moving Forward

The BC Transit Cowichan Valley Transit Future Action Plan (2023) outlines targets, objectives, and priorities for service improvements in the Cowichan Valley region. The overarching target is for 1,200,000 rides per year by 2036, with three main objectives:

- Make transit an attractive transportation alternative to the private vehicle;
- Reduce the community's impact on the environment; and
- Make the transit system more efficient.

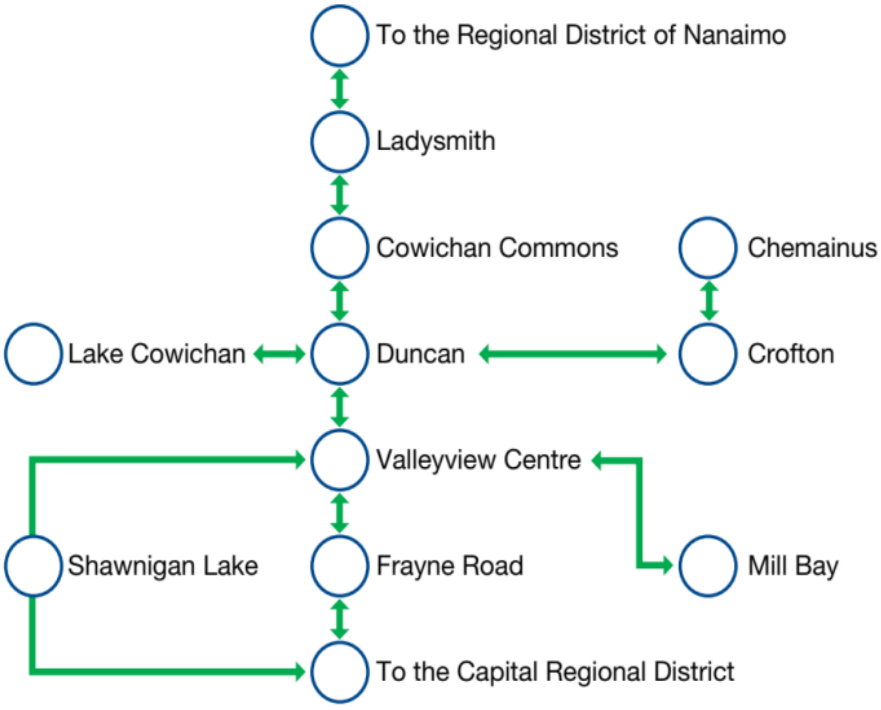
6.2.1 Service Improvements

The Transit Future Action Plan identifies several conventional service priorities that pertain to North Cowichan:

- Crofton / Chemainus Route – identified as an immediate priority, one more trip is planned to be added to Route 6 that connects Crofton / Chemainus to Duncan.
- New core service – two new routes that would provide local service within Duncan and North Cowichan are prioritized, providing the core with a higher quality transit service. These new routes are more direct and frequent and will provide more east-west connections and a new north-south route to provide service between Cowichan Commons and Village Green. Route 3 Quamichan would be discontinued to reallocate resources to the new routes.
- Improvements to transfer opportunities and service reliability – in order to make seamless connections in the Cowichan Valley region, schedule changes and a reallocation of resources are required, in addition to resources needed to address traffic congestion to improve bus reliability.
- Provide service to the new hospital – as the hospital is being relocated to the Bell McKinnon area within North Cowichan, transit service will need to adjust to provide service to the hospital.

The Municipality should talk to BC Transit and CVRD about adding a transit stop on Highway 1 at Fuller Lake Road or having Route 6 detour into the Fuller Lake Arena with a stop at the arena. New stops may also be required in Growth Centres as new service is provided in these areas.

Digital on-demand service – an initiative that uses technology to dynamically dispatch a bus to locations on-request via an app or phone-in service – is currently being investigated for areas with lower ridership and density. The Transit Future Action Plan identifies three areas in the Cowichan Valley to consider for on-demand transit, none of which are in North Cowichan. As the development of on-demand transit grows within BC Transit, it can be explored further in the future for areas within the Municipality that have lower performing conventional routes.



Key transfer locations within the Cowichan Valley. The ability to make seamless connections is one of the top factors identified by the public that would encourage them to use transit more.
Credit: Cowichan Valley Transit Future Action Plan (2023)

WHAT DID WE HEAR FROM THE COMMUNITY?

In the draft MTP online questionnaire and final open house, participants echoed similar comments around transit that have been articulated throughout the MTP process—transit service and frequency is lacking in North Cowichan, which makes transit less attractive. Participants stressed that transit service improvements are critical part of the future network and should be prioritized.

6.2.2 Infrastructure Improvements

Bus stop infrastructure within the Municipality ranges in type and quality. Since the service offered is primarily local, the BC Transit Infrastructure Design Summary (2018) indicates that bus stops should be in 250m – 300m intervals with a shelter, bench, and universally accessible standards as appropriate passenger amenities.

Table 11 identifies the bus stops are recommended for improved amenities due to [a] having higher ridership, [b] being located in a Growth Centre per the OCP, and/or [c] will see greater service based on the recommendations in the Transit Future Action Plan. The table identifies the recommended amenity improvement at each stop.

Service	Amenities
Rapid Transit & Transit Exchanges	• Premium transit shelters • An elevated boarding platform • Off-board fare payment • Real time schedule information • Bike storage • Customer wayfinding information • Universally accessible • May include Park & Ride facilities
Frequent Transit	• Transit shelters • Bike storage • Quality customer information (such as transit schedule and map information) • Universally accessible • May include Park & Ride facilities
Local Transit	• Transit Shelter • Universally accessible • Bench
Targeted Transit	• Transit Shelter • Universally accessible • Bench
Custom Transit	• Not required

BC Transit Service Type and Associated Stop Amenities
Credit: BC Transit Infrastructure Design Summary (2018)

Example of Existing Bus Stop Infrastructure at North Cowichan Stops

Table 11 – Bus Stop Improvement Locations

Bus Stop Location	Urban Containment Boundary Area per OCP	Amenity		
		Universally Accessible	Bench	Shelter
Cowichan Lake Road & Avondale Place (NB & SB)	Berkey's Corner		X	X
Cowichan Lake Road 3250 Block (NB)	Berkey's Corner			X
Beverly Street at 2540 Block	South End		X	X
Beverly Street at 2500 Block	South End		X	X
Beverly Street at Chesterfield Avenue (EB & WB)	South End		X	X
Howard Avenue & Dingwall Street (NB & SB)	South End		X	X
Lakes Road & Moose Road	Quamichan	X	X	X
Donnay Drive 1500 Block (EB & WB)	Maple Bay		X	X
Chisholm Trail & Maple Bay Road	Maple Bay	X	X	X
Kingsview Road & Selkirk Terrace (EB & WB)	Maple Bay	X	X	X
Crofton Road & Musgrave Street	Crofton		X	X
Crofton Road & Chaplin Street	Crofton		X	X
York Avenue & Chaplin Street	Crofton		X	X
Crofton Road & Chemainus Road	Chemainus		X	X
Oak Street & Daniel Street	Chemainus	X	X	X
Chemainus Road 9930 Block	Chemainus		X	X

There are currently no stops along Bell McKinnon Road. Once the routing of the service to the new hospital is known, it is recommended to consider adding at least one more stop along this route, in addition to the hospital.

6.3 Summary of Recommended Actions

Table 12 – Summary of Recommended Actions for the Transit Network

Action	
4A	Work with BC Transit and the CVRD to implement the transit service improvements recommendations identified in the Cowichan Valley Transit Future Action Plan
4B	Implement and maintain a list of bus stops that require improved amenities
4C	Implement at least one bus stop upgrade per year


CHEMAINUS
VILLAGE SQUARE
PHARMASAVE
ANYTIME FITNESS

7.0 PARKING & TRANSPORTATION DEMAND MANAGEMENT

Both off-street and on-street parking management practices in North Cowichan do not meet current trends or best practices. Previous work completed as part of the MTP process outlined where the Municipality's existing policies and regulations do not meet best practices. The following sections outline the recommended changes to align the Municipality's parking management approach with best practices.

7.1 Off-Street Parking – Amendments to Zoning Bylaw

Based on a review of the Municipality's Zoning Bylaw No. 2950, the bylaw should be updated to align the regulations with current trends and best practices, and more importantly meet the goals of the MTP. A formal review of the off-street parking requirements is recommended, which would provide a more comprehensive suite of recommendations. Key elements to be included as part of the update are as follows:

- Update the 'Multi-Family Apartment' parking rate to reflect parking demand factors such as location, housing tenure, and unit size
- Consider area specific parking rates for Growth Centres and/or urban containment boundary areas per the OCP
- Review and modernize the accessible parking stall rates and design requirements
- Include electrification requirements for vehicle stalls including electric vehicle ready requirements
- Include short-term and long-term bicycle parking rates
- Include bicycle parking design requirements such as location, accessibility, weather protection, dimensions, layout, electrification requirements, and oversized bicycle parking
- Include mobility scooter parking rates and design requirements

7.2 Transportation Demand Management

Transportation demand management (TDM) refers to policies, programs, and services that influence why, when, where, and how people travel. TDM initiatives typically aim to reduce single-occupant vehicle (SOV) trips and encourage sustainable travel options such as walking, cycling, public transit, and shared rides. Successful TDM initiatives can result in the reduction of parking demand, fewer vehicle trips, and associated benefits of decreased greenhouse gas (GHG) emissions, improved personal health and well-being, reduced traffic congestion, and lower infrastructure costs.

Some municipalities have taken the approach to include specific TDM regulations within their zoning or parking bylaws to incentivize sustainable transportation and reduce the amount of vehicle parking required. The most common mechanism is a reduction in the required parking supply, expressed as either a percentage reduction in the total requirement or a specific number of spaces. It is recommended that the Municipality explore TDM requirements and/or a standalone TDM policy as part of the off-street parking review.

7.3 Cash in-Lieu

Cash in-lieu provides an opportunity for a municipality to decrease private parking supply associated with new development, while increasing public parking supply and enhancing sustainable transportation infrastructure. Public parking is of benefit to the broader community as it can more efficiently meet demand from multiple parkers in a single resource and may be managed by the Municipality for greater community benefit.

The Municipality already has a cash-in-lieu bylaw in place (Cash-in-Lieu of Parking Bylaw 2838). However, the bylaw does not apply to the entire municipality. Further, it does not indicate what the cost per space or how the funds will be allocated. It is recommended that the Municipality revisit its Cash-in-Lieu of Parking Bylaw and consider the cost per space, geographic areas for the bylaw, and what reserve funds the monies are allocated to.

7.4 On-Street Parking

Equally important, in terms of parking supply, is how public parking supplies are managed and utilized, which mostly include on-street stalls. The Municipality does not have a formal—or current—inventory of its on-street parking supplies. The Municipality should add this asset to its GIS database.

On-street parking on Paddle Road

As North Cowichan continues to grow, and as the growth centres see more residential and commercial density over time, there will be more pressure on the Municipality's on-street parking supplies. To plan for and better manage this potential challenge, it is recommended that the Municipality conduct a more formal review of its on-street parking and create a management framework. The review should include assessment of the following on-street parking management tools:

- Designated Residential Parking
- Time Limited Parking
- Parking Enforcement

7.5 Summary of Recommended Actions

Table 13 – Summary of Recommended Actions for Parking & TDM

Action	
5A	Undertake a formal review of the Municipality's off-street parking requirements (contained in Part 4 of the Zoning Bylaw) to align regulations with best practices and current trends
5B	Explore TDM requirements and/or a standalone TDM policy as part of the off-street parking review
5C	Revisit its Cash-in-Lieu of Parking Bylaw and consider the cost per space, geographic areas for the bylaw, and what reserve funds the monies are allocated to
5D	Conduct a more formal review of the Municipality's on-street parking management framework. The review should include assessment of the following on-street parking management tools: • Designated Residential Parking • Time Limited Parking • Parking Enforcement


neuron
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8.0 EMERGING MOBILITY

Transportation is a rapidly evolving sector with new technologies and systems being introduced on a frequent basis. While gas powered vehicles and single-occupancy vehicle travel dominated the 20th century, advances in technology along with societal changes and a climate change emergency have resulted in several new—and emerging—mobility services and options ranging from carsharing, ride-hailing, micromobility vehicles (e.g., e-bikes/e-scooters), and more.

8.1 Electric Vehicles

Electric vehicles (EVs) are a class of vehicles that run entirely or partially on electricity. These vehicles have a battery instead of a gasoline tank, and an electric motor instead of an internal combustion engine. EVs and other types of zero-emission vehicles can play an important role in reducing community GHG emissions.

According to the 2021 North Cowichan Household Travel Survey, about 2% of the total vehicles in North Cowichan are plug-in hybrid electric vehicles and 2% are battery electric vehicles.

Battery Electric Vehicles ("BEVs") run exclusively on electricity and need to be plugged into an outlet or charging station to recharge the battery. The typical battery range varies from 100 km to over 450 km.

Plug-In Hybrid Electric Vehicles ("PHEVs") have both an electric motor and an internal combustion engine. The electric motor needs to be charged at an outlet or charging station and typically has a shorter battery range than BEVs, and PHEVs use the internal combustion engine when the battery is low or when extra propulsion power is needed.

The Municipality also has several electric vehicle charging stations that are publicly accessible in surface parking lots across the community including community centres, libraries, grocery stores, and other locations. Access to charging—both at home and in public locations—is critical for supporting and accelerating EV adoption.

8.1.1 EV Charging Infrastructure Gap Analysis

It is recommended that the Municipality work with the CVRD and undertake an EV charging infrastructure gap analysis. The gap analysis would identify "hot spot" locations in the Municipality and larger region where Level 2 and Level 3 (DCFC) charging stations should be sited to meet current and future charging demand. This could include both public and private properties.

8.1.2 Funding for EV-Ready Retrofits

Most EV owners charge their vehicles at home overnight. However, not everyone has access to at-home charging, especially residents of existing multi-family residential buildings. The BC government provides an EV Charger Rebate Program through CleanBC Go Electric, which offers $2,000 for the installation of Level 2 charging stations designed for multiple users in existing multi-residential or commercial buildings with workplace parking. The Municipality could consider providing a top-up to make it easier for residents to pay for the retrofit. The Municipality could include information about these rebate programs on its website to increase awareness. This is also consistent with the Municipality's Climate Action and Energy Plan (CAEP) update, which directs North Cowichan to "coordinate and promote EV subsidies, purchase incentives, and bulk purchases".

8.2 Electric Bicycles

Electric bicycles (e-bikes) are bicycles with an electric motor of 500 watts or less, and functioning pedals that are limited to a top speed of 32 km/h without pedaling. Electric bicycles make cycling more attractive for a greater diversity of the population, particularly for seniors, women, and people with disabilities, as they increase the maximum length of bicycle trips, minimize the impact of hills and other terrain challenges, and allow people to bike with heavier cargo loads.

According to the 2021 North Cowichan Household Travel Survey, there are currently about 8% of the total households owning an e-bike. Increases in e-bike ownership supports modal shift goals by allowing people to substitute for some or all vehicle travel for bicycle trips. Increasing e-bike adoption can increase overall cycling mode share, reduce on-road transportation emissions, and provide several health benefits for the community.

8.2.1 E-bike Parking in Existing Multi-Family Residential Dwellings

Electric bicycles, particular e-cargo bikes, require more space when they are parked. Most multi-family residential buildings in North Cowichan today, including many of the older buildings, do not have adequate parking options to accommodate oversized bikes such as electric cargo bicycles. The Municipality could provide funding and/or incentives for property managers of existing multi-residential buildings to retrofit bicycle parking areas to accommodate larger spaces for oversized bicycles in accordance with the design guidelines in Chapter H.2 of the BC Active Transportation Design Guide.

8.2.2 E-bike Incentive Programs

The provincial government introduced an e-bike rebate program in 2023 with rebates ranging from $350 to $1,400 in value. Prior to the provincial program, several communities across BC had already established their own municipal e-bike incentive programs with the goal of accelerating e-bike adoption including the District of Saanich, City of Nelson, and City of North Vancouver, for example. Each program is designed differently with varying rebate amounts, eligibility requirements, and overall incentive structures. The Municipality could explore offering an additional incentive on top of the province's rebate program.

8.3 Other Emerging Mobility

There are other emerging mobility modes that are gaining popularity in some communities but still lack regulatory and legislative direction at the provincial level. Two forms of emerging mobility that are relevant to the North Cowichan context include net zero emissions vehicles and electric kick scooters (e-scooters). A brief discussion is provided below.

8.3.1 Net Zero Emissions Vehicles

Net Zero Emissions Vehicles ("NZEV") are small, clean, environmentally friendly vehicles. NZEVs are also known as Low-Speed Vehicles (LSV) or Neighbourhood Electric Vehicles (NEV). They are electric powered, four wheeled, and capable of travelling 40 km/h or less. NZEVs run on rechargeable batteries that can be plugged into a standard electrical outlet. They have no tailpipe, no exhaust, require no gas, and are noise free.

Example of an NZEV in Nanoose Bay
Image credit: Nanaimo News Bulletin, 2015

NZEVs meeting the requirements of the BC MVA must be registered, insured, and can only travel on roads with 40km/h or less speed limit. Provincial regulation also allows individual municipalities to establish a bylaw permitting NZEV use on roads with speed limits of up to 50km/h. NZEVs may cross a highway that has a speed limit of up to 80km/h provided that the intersection allows travel to continue onto a road or highway where their use is authorized. Due to the limitations of NZEVs and the many municipal/jurisdictional boundaries within the Cowichan Valley, it is recommended that the Municipality continue to monitor provincial regulations on this type of vehicle.

8.3.2 Electric Scooters

Electric kick scooters (e-scooters) are another emerging form of mobility that have become increasingly popular in North America. The BC Active Transportation Design Guide defines them as “single occupant vehicles with an integrated battery that have a maximum speed of 24.9 km/h and have a range of approximately 30 kilometres.” Currently in BC, e-scooters are not permitted on any roadway. However, the provincial pilot project regulation added to the MVA has allowed six communities to enact bylaws that allow for the use of electric scooters on roads in their communities. These communities are currently mid-pilot. It is recommended that the Municipality monitor provincial regulations to determine when it could support the use of e-scooters in the community and how they would be accommodated.

Electric scooters in Ottawa

8.4 Summary of Recommended Actions

Table 14 – Summary of Recommended Actions for Emerging Mobility

Action	
6A	Consider undertaking an EV Charging Infrastructure Gap Analysis to determine where to site publicly accessible EV charging stations
6B	Consider providing a top-up to the BC government's EV Charger Rebate Program to make it more cost-effective for existing multi-residential or commercial buildings to install a charging station.
6C	Consider providing funding and/or incentives for property managers of existing multi-residential buildings to retrofit bicycle parking areas to accommodate larger spaces for oversized bicycles (including e-bikes) in accordance with the design guidelines in Chapter H.2 of the BC Active Transportation Design Guide
6D	Consider offering an additional incentive on top of the province's e-bike rebate program
6E	Continue to monitor provincial legislation around NZEVs
6F	Continue to monitor the provincial legislation around e-scooters

9.0 IMPLEMENTATION STRATEGY

The implementation strategy includes details on intersection improvements for safety or volume, where additional corridors are required for active transportation and roads, active transportation improvements, and updates to bylaws and policies. All of the recommendations below include some detail about how the action would be implemented. For all the infrastructure related actions, a primary funding method is indicated. While there may be other funding opportunities available (e.g., grants), the primary funding method provides an indication of how the action would be best implemented.

The funding method includes [a] capital, where the Municipality would utilize funds from the capital budget as approved by Council on a yearly basis and [b] development, which would be primarily through development cost charges on new developments to help pay for infrastructure upgrades.

An Action Priority list of projects to be implemented are identified in **Section 9.10** based on safety, growth centre (development) demands, and overall network connectivity to support modal shift priorities. The high-level costs for each of these projects is identified; however, the source of the funding may be a combination of capital funding, grant money, and / or development cost charges.

9.1 Monitoring

The Municipality should undertake a Household Travel Survey every five (5) years to monitor mode share and changes in travel patterns to monitor the trends.

9.2 Intersection Improvements: Short to Medium Term

The following intersections have been identified as potentially requiring improvement as traffic volumes grow and / or due to safety concerns in the short to medium term.

ID	Action	Type	Funding Method
1G	Herd Road / Lakes Road: remove channelize right turn and provide standard right turn lane	Safety	Capital
1G	Herd Road / Osborne Bay Road: remove channelize right turn and provide standard right turn lane	Safety	Capital
1H	Bell McKinnon Road / Herd Road: install a roundabout	Volume	Development
1I	Lakes Road / Trunk Road / Tzouhalem Road: review signal timing	Safety	Capital
1J	Upgrade Cowichan Lake Road / Skinner Road to roundabout or signal	Volume	Development
1J	Upgrade Elm Street / Chemainus Road to roundabout or signal	Volume	Development

ID	Action	Type	Funding Method
1J	Upgrade Bell McKinnon Road / Norcross Road to roundabout or signal	Volume	Development
1J	Upgrade Herd Road / Lakes Road to roundabout or signal	Volume	Development
1J	Upgrade Herd Road / Osborne Bay Road to roundabout or signal	Volume	Development
1J	Upgrade Jaynes Road / Tzouhalem Road to roundabout or signal	Volume	Development

9.3 Intersection Improvements: Long Term

The following intersections have been identified as potentially requiring improvement as traffic volumes grows due to development and build-out of the OCP.

ID	Action	Funding Method
1K	Upgrade Victoria Street / Chemainus Road: roundabout / signal	Development
1K	Chemainus Road / Henry Road: upgrades to roundabout if four lanes required on Chemainus Road	Development
1K	Upgrade Bell McKinnon Road / Westholme Road: roundabout / signal	Development
1K	Upgrade Bell McKinnon Road / Sprott Road: roundabout / signal	Development
1K	Upgrade Herd Road / Maple Bay Road: roundabout / signal	Development
1K	Upgrade Maple Bay Road / Kingsview Road: roundabout / signal	Development
1K	Upgrade Lakes Road / Wicks Road: roundabout / signal	Development
1K	Modify Lakes Road / Trunk Road / Tzouhalem Road laning / signal	Development
1K	Upgrade Sherman Road / Lane Road: roundabout / signal	Development
1K	Install at Cowichan Lake Road / New Connector: roundabout / signal	Development
1K	Cowichan Lake Road / Gibbins Road: upgrades to roundabout if four lanes required on Cowichan Lake Road	Development
1L	Upgrade Trillium Terrace / Jaynes Road / Lake Road: roundabout or signal once realigned	Development

9.4 New Corridor Right-of-Way

The following locations have been identified where new right-of-way is required for future road and / or active transportation corridors. Note: “AT” refers to active transportation.

ID	Action	Type	Funding Method
1C	Donnay Drive	AT	Development
1D	Hudson Road	Road + AT	Development
1D	Skinner Road to Cowichan Lake Road	Road + AT	Development
1D	Creegan Drive to Highway 1	Road + AT	Development
1D	Askew Creek Drive to Elm Street	Road + AT	Development
1D	Bundock Avenue	Road + AT	Development
1D	St. Julien Street	Road + AT	Development
1D	Festubert Street	Road + AT	Development
1D	Ypres Street	Road + AT	Development
1D	Frontage Road from River Road to Henry Road	Road + AT	Development
1D	Timbercrest Drive to Lochsyde Drive	Road + AT	Development
1D	Drumcullen Road to Regina Way	Road + AT	Development
1D	New Road between James Street and Queens Street	Road + AT	Development
1D	New Road between Cowichan Lake Road and Sherman Road	Road + AT	Development
1D	Ford Road to Paddle Road	Road + AT	Development

9.5 Additional Right-of-Way

The Municipality has many corridors with rights-of-way in the range of 15 to 18m. The Municipality should be ensuring that it secures right-of-way during rezoning processes including at least 20m of right-of-way for local roads and 25-30m right-of-way for collector and arterial roads. The following locations may be required to be four laned or have increased landscaping/buffers, wider active transportation in the long term, and require the corridor to be planned for converting from two lane to four lane roads. If development does not occur in these areas, the additional right-of-way may not be available.

ID	Action	Funding Method
1B	Chemainus Road	Development
1B	Cowichan Lake Road (south)	Development
1B	Herd Road	Development
1B	Bell McKinnon Road	Development

9.6 Active Transportation: Pedestrians

The following locations are recommended for sidewalks or pathways. As new development occurs, pedestrian facilities should be implemented based on the road classification. See **Section 9.7 (Active Transportation: Bicycles)** for the locations of multi-use pathways that will be shared between pedestrians and cyclists. The pedestrian facilities on Roome Road and Boys Road should be prioritized as they connect to a school and to Cowichan Tribes, where there is a high percentage of pedestrian users. The remaining pedestrian improvements are listed in no specific order and implementation will be dictated by development, funding availability, and constructability.

ID	Action
2A	Add a sidewalk along one side of Roome Road from Lakes Road to Alex Aitken School
2A	Construct pedestrian pathway on north side of Boys Road (from Trans-Canada to Hatchery Road)
2A	Add sidewalk on both sides of Bell McKinnon Road from Highway 1 to Herd Road
2A	Add a sidewalk which extends Old Mill Road to Dharam Place
2A	Add sidewalk when extends along Skinner Rd from Cassino Road to Cowichan Lake Rd

ID	Action
2A	Add an east-west sidewalk from Ford Road to Paddle Road
2A	Add an east-west sidewalk from Ford Road to Norcross Road
2A	Add a sidewalk on the east side of Howard Avenue (from North Cowichan border to Dingwall Street)
2A	Add a sidewalk along Marsh Road (from Hilton Road to Auchinachie Road)
2A	Add a sidewalk along Mary Street (from George Street to Phillip Street)
2A	Add a sidewalk along Elvins Street
2A	Add a sidewalk on Askew Creek Drive (from River Road to Chemainus Road)
2A	Add a sidewalk on Creegan Drive to Trans-Canada Highway
2A	Add a sidewalk which extends from Dogwood Road to Dogwood Road South
2A	Add a sidewalk which extends from Chaplin Street to Robert Street
2A	Add a sidewalk which extends Northview Drive to Osborne Bay Road
2A	Add a sidewalk on Hilltop Close from Osborne Bay Road to Smith Road
2A	Add a sidewalk on Treetop Close from Northview Drive to Beridge Street
2A	Add a sidewalk along Tidemark Way to the extension of Hilltop Close
2A	Add a sidewalk north of Beridge Street to the extension of Hilltop Close

9.7 Active Transportation: Bicycles

The locations are recommended for cycling facilities, which include protected bicycle lanes and/or multi-use pathways. As new development occurs, cycling facilities should be implemented based on the road classification. The improvements are listed in no specific order and implementation will be dictated by development, funding availability, and constructability.

ID	Action	Funding Method
3A	Implement a multi-use pathway on Gibbins Road (from Menzies Road to Carmel Drive)	Development

ID	Action	Funding Method
3A	Implement a multi-use pathway on Henry Road (from Trans-Canada Highway to Chemainus Road)	Development
3A	Implement a multi-use pathway connection between two sections of Donnay Drive	Development
3A	Extend Cowichan Valley Trail to Chemainus Road (within pipeline right-of-way) as a gravel multi-use pathway	Development
3A	Implement a multi-use pathway on the east side of Trans-Canada Highway from Henry Road to Poplar Road to Fuller Lake Road and the Fuller Lake Area	Capital
3A	Implement a multi-use pathway on Fuller Lake Road, Cottonwood Road, and Crozier Road	Capital
3A	Implement a multi-use pathway on Tzouhalem Road (from Lakes Road to Donnay Dr) in conjunction with MoTI and Cowichan Tribes	Capital
3A	Implement a multi-use pathway on the west side of Trans-Canada Highway (from James Street to Beverly Street)	Development
3A	Implement a multi-use pathway on Osborne Bay Road (from York Avenue to Herd Road)	Development
3A	Implement a multi-use pathway on Lakes Road (from Tzouhalem Road to Wicks Road)	Development
3A	Implement a multi-use pathway on Lakes Road (from Wicks Road to Herd Road)	Development
3A	Implement a multi-use pathway on Herd Road (from Osborne Bay Road to Maple Bay Road)	Development
3A	Implement a multi-use pathway on Herd Road (from Lakes Road to Osborne Bay Road)	Development
3A	Implement a multi-use pathway on Herd Road (from Bell McKinnon to Lakes Road)	Development
3A	Implement a multi-use pathway on Herd Road (from Highway 1 to Bell McKinnon Road)	Development
3A	Implement a multi-use pathway on Bell McKinnon Road (from Westholme Road to Herd Road)	Development

ID	Action	Funding Method
3A	Implement a multi-use pathway on Maple Bay Road (from Herd Road to Kingsview Dr)	Development
3A	Implement a multi-use pathway on Maple Bay Road (from Kingsview Dr to Stonehouse Way)	Development
3A	Implement a multi-use pathway on Maple Bay Road (from Stonehouse Way to Tzouhalem Road)	Development
3A	Implement a multi-use pathway on Donnay Dr (south section from Tzouhalem Road to Stonehouse Way)	Development
3A	Implement a multi-use pathway on Canada Avenue (from Sherman Road to Beverly Street)	Development
3A	Implement a multi-use pathway on Chemainus Road (from Crozier Road to Crofton Road)	Development
3A	Implement a multi-use pathway on Chemainus Road (north of Cook Street)	Development
3A	Implement a multi-use pathway on Crofton Road (from Chemainus Road to York Avenue)	Development
3A	Pave the existing portion of the Cowichan Valley Trail	Capital
3A	Implement bi-directional protected bike lanes on Gibbins Road (from Carmel Dr to Cowichan Lake Road) with	Development
3A	Implement bi-directional protected bike lanes on Jaynes Road (from Lakes Road to Tzouhalem Road)	Development
3A	Implement bi-directional protected bike lanes on Kingsview Road (from Maple Bay Road to Nevilane Pl / Pacific Dr)	Development
3A	Implement bi-directional protected bike lanes on Donnay Drive (from Everest to Stonehouse Way)	Development
3A	Implement bi-directional protected bike lanes on Cowichan Lake Road (from Sherman Road to Cairnsmore Road)	Development
3A	Implement bi-directional protected bike lanes on Cowichan Lake Road (from Cowichan Valley Trail to Sherman Road)	Development

ID	Action	Funding Method
3A	Implement bi-directional protected bike lanes on Cowichan Lake Road (from Sherman Road to Gibbins Road)	Development
3A	Implement bi-directional protected bike lanes on Sherman Road (from Cowichan Lake Road to Canada Avenue)	Development
3A	Implement bi-directional protected bike lanes on Bell McKinnon Road (from Mays Road to Herd Road)	Development
3A	Implement bi-directional protected bike lanes on Bell McKinnon Road (from Herd Road to Drinkwater Road)	Development
3A	Implement bi-directional protected bike lanes on Drinkwater Road (from Cowichan Valley Trail to Bell McKinnon Road)	Development
3A	Implement bi-directional protected bike lanes on Lane Road (from Drinkwater Road to Sherman Road)	Development
3A	Implement bi-directional protected bike lanes on James Street (from Duncan Street to Trans-Canada Highway)	Development
3A	Implement bi-directional protected bike lanes on Beverly Street (from Trans-Canada Highway to Lakes Road)	Development
3A	Implement bi-directional protected bike lanes on Oak Street (east of Chemainus Road)	Development
3A	Implement bi-directional protected bike lanes on Victoria Street / Croft Street (from Oak Street to Chemainus Road)	Development
3A	Implement bi-directional protected bike lanes on York Avenue (from Chaplin Street to Osborne Bay Road)	Development
3A	Implement bi-directional protected bike lanes on Donnay Dr (south section, north of Stonehouse Way)	Development
3A	Implement bi-directional protected bike lanes on Donnay Dr (north section from Kingsview Road (south) to Woodgrove Way)	Development
3A	Implement bi-directional protected bike lanes on Somenos Road (from Drinkwater Road to Sherman Road)	Development
3A	Implement bi-directional protected bike lanes on University Way (from Duncan Street to Trans-Canada Highway)	Development

ID	Action	Funding Method
3A	Implement bi-directional protected bike lanes on York Road (from Beverly Street to Trans-Canada Highway)	Development
3A	Implement a bicycle boulevard on Donnay Dr from Woodgrove Way to McKenzie Dr	Development
3A	Implement a bicycle boulevard on McKenzie Dr from Maple Bay Road to Kingsview	Development
3A	Implement a bicycle boulevard on Nevilane Dr and Osprey Dr from Pacific Dr / Nevilane Pl to Maple Bay Road	Development
3A	Implement a bicycle boulevard on Richards Trail (from Lakes Road to Westholme Road)	Capital
3A	Implement a bicycle boulevard on Chesterfield Avenue (from Beverly Street to Coronation Avenue)	Capital

9.8 Transit

The Municipality can provide influence and input on transit related service through the CVRD and funding. For transit stops, the Municipality can directly influence the level of amenities at a stop, therefore they should continue to fund and / or leverage developments to upgrade stops in growth centre areas.

ID	Action	Method
4A	Work with BC Transit and the CVRD to implement the transit service improvements recommendations identified in the Cowichan Valley Transit Future Action Plan	Internal Staff
4B	Implement and maintain a list of bus stops that require improved amenities	Internal Staff
4C	Implement at least one bus stop upgrade per year	Development / Capital

9.9 Policies & Bylaws

The Municipality has a number of policies and bylaws that either require updating and/or need to be created to support the transportation network. The drafting of new policies and bylaws and/or amendments to them should be undertaken by internal staff; however, the Municipality could also seek assistance from outside consultants based on staffing priorities and funding needs. The following outlines the policies, bylaws, and further studies required.

ID	Action	Method
1A	Update Schedule B of the Subdivision Bylaw to implement the new cross section elements	Internal Staff
1E	Work with MoTI to identify capacity improvements at Highway 1 intersections between River Road and Boys Road	Internal Staff
1F	Work with MoTI and City of Duncan to identify additional capacity on Highway 1 or suitable bypass option	MoTI / Internal Staff
1M	Develop a policy to review retrofitting roads to include active transportation when the corridor is scheduled for paving or other major underground utility works	Internal Staff
1N	Develop a policy for when secondary or tertiary accesses are required	Internal Staff
1O	Develop a *Speed Limit* policy	Internal Staff
1P	Develop a policy to reflect the latest understanding and concepts for treatment of right turns in the municipal environment	Internal Staff
1Q	Update the *Traffic Bylaw* to address truck routes	Internal Staff
1R	Update the *Traffic Calming* policy	Internal Staff
1S / 3B	Update the *Snow and Ice Removal Council Policy* to ensure priority routes (school routes, bus routes) are cleared first and in consideration of clearing active transportation corridors	Internal Staff
2B	Promote Safe Routes to School program with School District 79, Cowichan Tribes, City of Duncan, and the Cowichan Valley Regional District	Internal Staff
2C	Develop a *Pedestrian Facility Prioritization Policy*	Internal Staff
2D	Develop a *Crosswalk Warrant Policy*	Internal Staff
3C	Update maintenance / street sweeping schedules to include bicycle facilities	Internal Staff
3D	Develop a Municipality sponsored bicycle skills training course	Internal Staff

ID	Action	Method
3E	Update the *Lighting Policy* to include lighting requirements for bicycle facilities	Internal Staff
5A	Undertake a formal review of the Municipality's Off-street Parking Requirements (contained in Part 4 of the *Zoning Bylaw*)	Internal Staff
5B	Explore TDM requirements and/or a standalone TDM policy as part of the off-street parking review	Internal Staff
5C	Revisit its Cash-in-Lieu of Parking Bylaw	Internal Staff
5D	Conduct a more formal review of the Municipality's on-street parking management framework and on-street parking management tools	Internal Staff
6A	Consider undertaking an EV Charging Infrastructure Gap Analysis	Internal Staff
6B	Consider providing a top-up to the BC government's EV Charger Rebate Program	Internal Staff
6C	Consider providing funding and/or incentives for property managers of existing multi-residential buildings to retrofit bicycle parking areas to accommodate larger spaces for oversized bicycles (including e-bikes)	Internal Staff
6D	Consider offering an additional incentive on top of the province's e-bike rebate program	Internal Staff
6E	Continue to monitor provincial legislation around NZEVs	Internal Staff
6F	Continue to monitor the provincial legislation around e-scooters	Internal Staff

The policies and bylaw updates would be worked on by staff as resources are available and Council priorities.

9.10 Priority Action Plan

The following outlines the Priority Action Plan, which outlines the short-term intersection and active transportation improvements. Within the more urban areas of North Cowichan where there are existing sidewalks, the Municipality can implement cycling facilities using quick build materials such as concrete curbs, plastic delineators, or planters along with re-striping the travel lanes. Quick build facilities, without removal of curbs and sidewalks, may require removal of on-street parking or lanes (where there are two lanes in one direction).

The Priority Action Plan is expected to occur over a 10-year period although priorities may shift as development occurs and funding is available. This Action Plan will establish an active transportation network that connects Berkey's Corner, Bell McKinnon, University Village and South End to Maple Bay as well as provide active transportation connectivity for two key residential areas of Cowichan Tribes. The plan also continues improvements in Chemainus and Crofton. High priority projects are expected to occur in the next three years (1-3 years), with medium projects in years four to seven years (4-7 years), and then low priority projects in the final three years (7-10 years). Overall, the implementation of this Priority Action Plan is estimated at $47.06 million or $4.71 million per year. The $8 million estimated cost for the Tzouhalem multi-use facility may be eligible for cost sharing with the Ministry of Transportation and Infrastructure and other grant funding sources.

Table 15 – Priority Action Plan

ID	Action	Priority	Estimated Cost
1H	Bell McKinnon Road / Herd Road: install a roundabout	Under construction	
1G	Herd Road / Lakes Road: remove channelize right turn and provide standard right turn lane	High	$50,000
1G	Herd Road / Osborne Bay Road: remove channelize right turn and provide standard right turn lane	High	$50,000
2A	Add an east-west sidewalk from Ford Road to Norcross Road on Drinkwater Road	High	$400,000
3A	Implement bi-directional protected bike lanes on York Road (from Beverly Street to Trans-Canada Highway) – Quick Build	High	$125,000
3A	Implement bi-directional protected bike lanes on James Street (from Duncan Street to Trans-Canada Highway) – Quick Build	High	$325,000

ID	Action	Priority	Estimated Cost
3A	Implement bi-directional protected bike lanes on Sherman Road (from Cowichan Lake Road to Canada Avenue) – Quick Build	High	$850,000
3A	Implement a bicycle boulevard on Richards Trail (from Lakes Road to Westholme Road)	High	$50,000
3A	Implement a bicycle boulevard on Chesterfield Avenue (from Beverly Street to Coronation Avenue)	High	$10,000
4C	Implement at least one bus stop upgrade per year (3 total)	High	$300,000
		High Priority Sub-Total	$2,160,000
1I	Lakes Road / Trunk Road / Tzouhalem Road: review signal timing	Medium	$10,000
2A	Add a sidewalk on the east side of Howard Avenue (from North Cowichan border to Dingwall Street)	Medium	$900,000
2A	Add a sidewalk along one side of Roome Road from Lakes Road to Alex Aitken School	Medium	$1,300,000
1J / 2A	Upgrade Cowichan Lake Road / Skinner Road to roundabout or signal and add sidewalk on Skinner Road from Cowichan Lake Road Cassino Road	Medium	$3,900,000
1J / 2A / 3A	Upgrade Elm Street / Chemainus Road to roundabout or signal. With sidewalk on Askew Creek Drive from River Road to Chemainus Road*	Medium	$3,000,000
2A	Construct pedestrian pathway on north side of Boys Road (from Trans-Canada to Hatchery Road)	Medium	$6,000,000
3A	Implement a multi-use pathway on Tzouhalem Road (from Lakes Road to Donnay Dr) in conjunction with MoTI and Cowichan Tribes	Medium	$8,000,000
3A	Implement a multi-use pathway on Canada Avenue (from Sherman Road to Philip Street) **	Medium	$110,000
3A	Implement bi-directional protected bike lanes on Cowichan Lake Road (from Cowichan Valley Trail to Sherman Road)	Medium	$450,000

ID	Action	Priority	Estimated Cost
3A	Implement bi-directional protected bike lanes on Drinkwater Road (from Lane Road to Bell McKinnon Road) – quick build	Medium	$630,000
2A / 3A	Implement sidewalks and bi-directional protected bike lanes on Bell McKinnon Road (from Herd Road to Drinkwater Road)	Medium	$17,200,000
4C	Implement at least one bus stop upgrade per year (3 total)	Medium	$300,000
	Medium Priority Sub-Total		$41,800,000
3A	Implement bi-directional protected bike lanes on Beverly Street (from York Road to Lakes Road)- quick built	Low	$500,000
3A	Implement bi-directional protected bike lanes on Lane Road (from Drinkwater Road to Sherman Road)	Low	$2,200,000
4C	Implement at least one bus stop upgrade per year (4 total)	Low	$400,000
	Low Priority Sub-Total		*$3,100,000*
	10 year Total		**$47,060,000**

*this connection has been cleared and rough graded and is expected to be built to include sidewalk and bicycle facilities. Therefore, the cost of the sidewalk and bicycle lane are excluded.

**This does not include any environmental costs which may significantly increase the cost of this project.

9.11 Funding

The number of projects and scope of the projects identified in this plan are significant; however, many of these projects are development driven and not expected to be required for decades. There are multiple ways the Municipality could pay for its infrastructure including through its own municipal budget, through the development process, and provincial / federal grants. A full costing of implementation of this entire plan has not been developed as it is be expected to take 60 to 100 years to require all of the proposed transportation improvements and the majority have been identified as developer driven. The cost for the development identified projects will be costed as part of the Municipality's Development Cost Charge (DCC) review which is currently underway. A description of potential funding opportunities are outlined below.

9.11.1 Capital Planning

Historically, all transportation related projects are from the same pool of funds at the Municipality whether for active transportation, intersections improvements, road widening, or general road maintenance. This capital fund typically has a budget of $3,000,000 to $4,000,000, which is a limited amount of funding considering the size of North Cowichan and the length of roadways that need to be maintained.

The Priority Action Plan identifies a need for an additional budget in the range of $4,700,000 per year for 10 years be added. This additional capital budget would be allocated for the Priority Action Plan items, which are mainly active transportation related over intersection / vehicle works and therefore could be allocated from a new separate capital fund. A portion of the projects identified in the Priority Action Plan maybe paid for through other means such as development cost charge fund and / or grants.

The existing capital budget for roads should be maintained at the current $3,000,000 to $4,000,000 per year to allow for asphalt (existing road) maintenance and implementation of additional active transportation or intersection improvements when rehabilitation work (on the road surface and/or underground utilities) is required. However, if less funding is approved by Council per year, then less works would occur which would impact the modal shift potential, as outlined in Section 2.4.

9.11.2 Private Development

As the Municipality continues to grow, it will be important to leverage transportation investments during the planning of new development projects. These investments maybe through Development Cost Charges (DCCs), Amenity Contribution Charges (ACCs), or direct frontage works.

9.11.3 BC Active Transportation Infrastructure Grant Program

The B.C. Active Transportation Infrastructure Grants Program offers two grant options for Indigenous governments and local governments, including municipalities, regional districts, and Islands Trust. Specifically, the Active Transportation Infrastructure Grant allows eligible governments to apply for a maximum of two grants if they satisfy the following criteria (based on the 2022 intake):

- Projects previously funded prior to 2022/23, or prior to 2021/22 for projects with budgets over $1M, must be completed by application submission date.
- Project is part of an active transportation network plan or equivalent
- Project can begin construction once provincial funding has been announced
- Projects will be completed by March 2025 (projects under $1 million) or by March 2026 (projects over $1 million)
- Projects are open to the public

The grant program typically requires that projects be “shovel-ready”. The program guidelines provide the specific detail on what constitutes as a “shovel-ready” project, which includes the following:

- The Cost Estimate submitted with the Grant Application must be Class A-C and current or forecasted to proposed construction date
- All project design work is complete
- Community consultation is complete

The province cost-shares to a maximum of $500,000 per project and the Municipality would be eligible for 70% of the provincial funding.

9.11.4 Green Municipal Funds

The Green Municipal Fund (GMF) is a program administered by the Federation of Canadian Municipalities intended to help Canadian communities expand their sustainability initiatives. Since 2000, the GMF has deployed $900M in financing to 1,250+ sustainability initiatives and a further $1 billion has been committed to the fund through the Federal 2019 budget.

The specific GMF initiative that is relevant to North Cowichan is the “Capital Project Transportation Networks Commuting Options”, which is a combined loan and grant funding program for capital projects that reduce pollution by improving transportation systems and networks. This program covers several topics including bike paths, walking and cycling networks that promote accessibility and safety, and evaluation of active transportation infrastructure, among others.

9.11.5 Other Grant Programs

The Municipality should continue to monitor available opportunities to leverage funding for their transportation network.

10.0 NEXT STEPS

The Municipality of North Cowichan's 2024 Master Transportation Plan (MTP) was developed to provide clear direction on how the municipality could improve transportation options for all people. The next steps are to implement the action priority plan and continue to monitor traffic volumes, through existing on-going count programs, and to measure modal shift by undertaking Household Travel Surveys every 5 years. This data will identify trends in modal shift and help determine if additional supports, through policies, programs, additional funding, and additional infrastructure are required to meet the modal split goals for 2050.

As the action plan is implemented, the community will begin to see the needle move on making the transportation network more safe, connected, and equitable for its citizens by providing more transportation choices for any single trip within the Municipality and beyond. Providing a suite of transportation options and opportunities allows citizens to select the appropriate travel mode for their individual needs.

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