Comox Valley REGIONAL DISTRICT

Staff Report

DATE: May 22, 2024

FILE: 5330-20/SSCP

TO: Chair and Members
Sewage Commission

FROM: Doug DeMarzo
Acting Chief Administrative Officer

Supported by Doug DeMarzo
A/Chief Administrative Officer

D. DeMarzo

RE: Sewer System Conveyance Project Traffic Management Plan

Purpose

The Sewer System Conveyance Project (SSCP) will have significant traffic impacts within the Comox Valley during the course of construction, especially in 2025 when unidirectional traffic along Comox Road and Comox Avenue is implemented. To address the 2025 traffic impacts, an overarching draft Traffic Management Plan (TMP) is being presented within this report for approval by the Sewage Commission (Commission) for staff to engage the community on.

Recommendation from the Acting Chief Administrative Officer:

THAT the draft Traffic Management Plan as outlined within Appendix A of the staff report dated May 22, 2024, be approved such that staff can engage the community on the plan.

Executive Summary

- In March 2024, the Commission approved the goals and objectives of the TMP, as summarized below:
  1. Ensuring safe road conditions on the alternative routes during construction on Comox Road and Comox Avenue;
  2. Maintaining the flow of traffic along the official detour route (N Island Highway, Ryan Road, Lerwick Road, Guthrie Road, Anderton Road);
  3. Ensuring connectivity between K'ómoks First Nation (K'ómoks) and the broader road network;
  4. Proactively adjusting the road network based on anticipated changes.
- As noted in the March 2024 Commission report, staff met in parallel with K'ómoks Chief and Council, and received the following four key areas to be considered in the development of the plan:
  - Safety concerns due to increased traffic along Back Road;
  - Elders requiring access to health services on IR#1 during construction;

  - Safety concerns for Bayside Road residents making a left turn during construction;
  - Ensuring two-way access to the administration office for cyclists and pedestrians.
- With these goals, objectives and key areas to consider, staff have worked with Urban Systems and developed a draft TMP for Phase 2 (2025 work on Comox Road and Comox Avenue) that is attached as Appendix A. The plan, designed for westbound unidirectional traffic flow on Comox Ave/Road and eastbound traffic flow on the detour, focuses on two main areas: traffic flow along the official detour route and preventing use of Back Road as an unofficial detour route.
- Highlights of the plans for the official detour route include:
  - Traffic lights will be proactively modified along the official detour route to optimize and prioritize traffic flow from Courtenay to Comox.
  - Significant signage will be placed along travel routes.
  - Comox Road will be blocked to eastbound traffic at the 17th St bridge intersection to ensure traffic keeps flowing on Comox Road and the official detour route.
- Regarding preventing the use of Back Road as a detour route:
  - Traffic will be blocked on Glacier View Drive at Comox Avenue for the construction of the roundabout, blocking the main outlet of Back Road.
  - Signage will be installed at Ryan Road and Back Road indicating detour route to remain on Ryan Road, that trucks are not to use Back Road and that Back Road is for local access only.
  - Signage will be installed at Back Road and McDonald Road to indicate road closure ahead on Back Road and only local traffic to continue through IR1.
  - A speed reader board is proposed to be installed on the western entrance to IR1 on Back Road
  - Traffic volumes and speed to be monitored, and compared against 2024 baselines, at McDonald Road and Strathcona Crescent.
  - If the above measures are not deemed to be successful, as measured by traffic volumes and speed against TMP goal #1 of safety, additional calming measures are to be implemented including closing the intersections of Strathcona Crescent and/or Corker Avenue, and/or closing Back Road at Morrison Road. The reason these are not proactively implemented is that they adversely affect goals #2 and #3 of the TMP, as well as a bus route.
- The plan does not address traffic management within the Comox Avenue or Comox Road corridors, as these are designed and managed by the Prime Contractors completing the construction in those areas. However, the contractor's construction zone TMPs have the following requirements to ensure they provide public safety, maintain traffic flow and effectively manage the key areas of consideration requested by K'ómoks:

  - Public safety to be maintained for all people transiting through the work zone including those on Bayside Road.
  - Emergency vehicle access is to be maintained at all times in both directions.
  - Between 6am and 8pm a westbound vehicular travel lane and an eastbound bike lane must be maintained at all times (westbound bikes will merge with traffic through work zones as speed will be significantly reduced).
  - A narrow eastbound vehicular travel lane will be maintained at the intersection of Glacier View Drive and Comox Avenue through the majority of the construction to maximise the time in 2025 when residents along Comox Road can travel eastwards into Comox.
- Should the Commission approve the draft TMP, next steps are as follows:
  - Summer: Public engagement on the TMP and approval of Contractor TMPs for their work zones on Comox Ave and Comox Road.
  - September: Approval of final TMP.
  - Fall 2024: Public notification via newspapers, open houses and media.

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Government and Community Interests Distribution (Upon Agenda Publication)

Ministry of Transportation and Infrastructure	✔

Attachment: Appendix A – Sewer Conveyance Project Draft Traffic Management Plan

URBAN SYSTEMS

Sewer Conveyance Project
Traffic Management Plan -DRAFT



Prepared for
Comox Valley Regional District

May 17, 2024

File no.
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URBAN SYSTEMS

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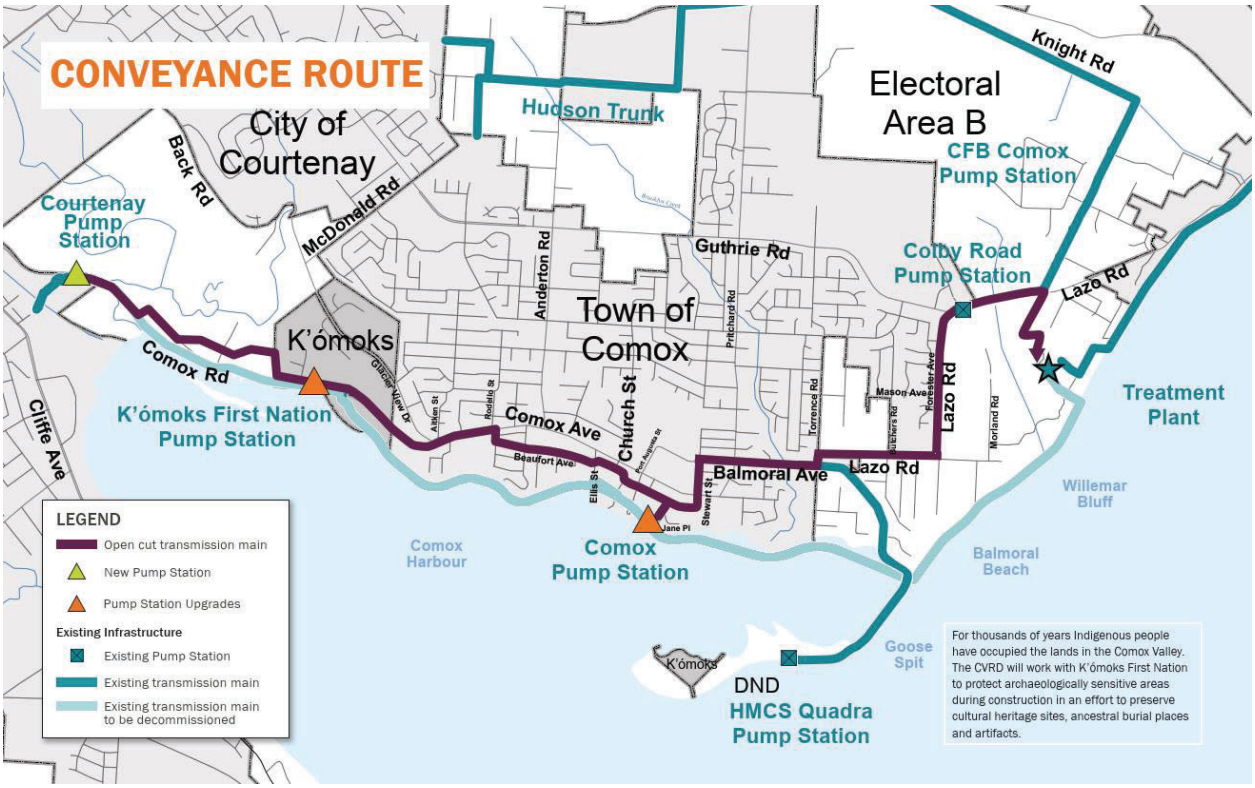
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1.0 Overview

The Comox Valley Sewer Conveyance Project is a multi-year construction project that will replace the conveyance pipe and upgrade the pump stations that move more than 14,000 cubic metres of raw sewage each day to the sewage treatment plant on Brent Road. This new system will route sewer pipes further inland away from the foreshore and provide increased capacity in the system.

The project scope includes upgrades to existing infrastructure and new piping infrastructure that will be installed between the Courtenay Pump Station on Comox Road and the Comox Valley Water Pollution Control Centre (CVWPCC). The conveyance route, outlined in **Figure 1-1**, moves through the lands under jurisdiction by the City of Courtenay, the Comox Valley Regional District, K'ómoks First Nation, and the Town of Comox. Traffic pattern changes/detours resulting from this construction work will impact roads under the jurisdiction of all the entities identified above in addition to the Ministry of Transportation and Infrastructure (MoTI).

Figure 1-1: Sewer Conveyance Project Alignment



Construction will include traditional trenching ('cut and cover') pipe installation along Comox (Dyke) Road, Comox Avenue (to Rodello Street), Beaufort Avenue, Stewart Street, Balmoral Avenue Lazo Road and Brent Road to the treatment plant. The project will also include a new, relocated, Courtenay Pump Station and upgrades to the K'ómoks Pump Station in IR#1 and Comox Pump Station located at Jane Place in the Town of Comox.

The Comox Valley Sewer Conveyance Project will be constructed and funded in one phase but will include two separate construction contracts. One contract will be delivered as a Design-Build contract which will include the pump stations and the sections of the forcemain from the Courtenay Pump Station to the bottom of the Comox Road hill and then from the intersection of Lazo Road and Torrence Road to the treatment plant. The second contract will be a conventional Design-Bid-Build (DBB) contract for works generally through the Town of Comox.

The CVRD is working with the K'ómoks First Nation to protect archaeologically sensitive areas during construction to preserve cultural heritage sites, ancestral burial places and artifacts. It is also collaborating with the Town of Comox to ensure smooth and efficient delivery of the project that will see planned infrastructure improvements for the Town delivered in conjunction with the sewer project to minimize disruption to homes and businesses along the route.

1.1 Previous Traffic Management Strategy

The conveyance route and surface works comprising the project will have significant impacts to traffic movements in vicinity of the works, and the greater roadway network. In January 2023 Urban Systems prepared for the CVRD the *Sewer Conveyance Project Traffic Management Strategy*.

The purpose of the Strategy was to identify and evaluate various traffic management scenarios for project level traffic impacts through the corridor and wider network while providing a safe environment for all road users and minimizing impacts to the public, businesses, and priority vehicles (transit, emergency services, etc.). The key recommendations in the *Traffic Management Strategy* for the wider network included:

1. Comox Road / Comox Avenue should be operated in a unidirectional westbound configuration for periods of time where continuous two-way traffic cannot be maintained along the corridor.
2. An eastbound detour route using Ryan Road, Lerwick Road / Guthrie Road and Anderton Road into the Town of Comox should be signed and communicated during times of westbound unidirectional traffic on Comox Road/Comox Avenue.

3. Eastbound and westbound access for emergency vehicles must be always maintained for each construction zone. This would include the ability to stop westbound traffic and provide eastbound access to emergency vehicles.
4. For the sections on Comox Road where single lane construction can't be accommodated during construction, full shutdowns can be implemented at night with signed detours and communications in place.
5. Where feasible transit movements should be prioritized. This could include means for transit vehicles to be prioritized through single lane alternating traffic (SLAT) sections or other non-unidirectional traffic-controlled sections of the project.
6. Space for cyclists and pedestrians needs to always be accommodated throughout the corridor.
7. Back Road should be discouraged from being used as a detour route and traffic calming measures should be put in place to reduce speeds and traffic loads.

As the eastbound traffic using Comox Road / Comox Avenue will divert via the assigned detour route, the eastbound travel time for the diverting traffic is anticipated to increase due to this being a less direct route. However, traffic analysis indicates that the overall travel times along the detour routes are generally comparable to pre-construction conditions. The management plan seeks to reduce delays at various locations along the detour route from current levels and the impacts of the detour are also minimized as the detour has vehicles making right hand turns for most of the route. In short, the eastbound travelers that use Comox Road / Comox Avenue today will experience longer travel time mainly due to longer travel distance.

Travel patterns and the resulting travel times and volumes on the other collector and arterial roads in the broader network that motorists use to travel between Courtenay and Comox (such as Ryan Road north of Lerwick Avenue and Anderton Road north of Guthrie Road) are not anticipated to be significantly affected by the construction works.

1.2 Project Timing and Traffic Management Plan Purpose

Now that the construction contractors have been selected and the construction timing and impacts are further understood, the project can be split into the following three phases:

<u>Phase 1 (Spring 2024 – End 2024)</u>

- Construction of Courtenay Pump Station
- Construction of forcemain within the Town of Comox (Beaufort, Stewart, Balmoral, Torrence)
- Construction of the forcemain within Area B along Lazo and Brent Roads
- Minor utility and street improvements within the Town of Comox

Phase 2 (Start 2025 – Fall 2025)

- Construction of all pump stations
- Construction of forcemain on Comox Road
- Construction of forcemain within the Town of Comox on Comox Avenue
- Construction of roundabouts within the Town of Comox on Comox Avenue

Phase 3 (end 2025 – Summer 2026)

- Pump station commissioning
- Construction of roundabouts within Town if Comox on Comox Avenue

Phase 1 is currently under construction and traffic is being managed with localized plans and detours coordinated by the contractor, the Town of Comox, the City of Courtenay, and MoTI. This localized traffic management approach is expected to continue to be managed by the contractor as the project progresses through Phase 1 with local road closures and minor detours expected throughout the year.

For Phase 2, due to the larger network impacts a more detailed *Traffic Management Plan* is required to define and detail specific management recommendations and implementation measures. Specifically, this *Traffic Management Plan* addresses project level traffic impacts on the broader network that result from the unidirectional traffic flow on Comox Road and Comox Avenue. It has not been prepared to guide local traffic considerations for work zones through The Town of Comox or other areas of the project.

The goal of this plan is to have project partners and approval agencies agree to the proposed traffic management measures. Once the plan is accepted, comprehensive traffic control signage plans and updated signal timing sheets will be created for implementation in conjunction with the Phase 2 works.

The *Traffic Management Plan* builds upon the January 2023 Strategy and outlines a proactive approach for mitigating community impacts resulting from the construction traffic management to the greatest extent possible. This plan will proactively inform the traffic management approach to minimize disruptions to traffic, residents and other corridor users.

The intent of this Traffic Management Plan is to provide the high-level plan for management of traffic on the broader network. It is expected that a traffic control company implementing the strategy will prepare detailed Traffic Control Signage Plans along with the other required sub-plans. The contractors are responsible for managing safety within their work areas and will be developing and implementing traffic management plans for their work zones and localized impacts to ensure the safety of their workers and the travelling public in these areas.

The recommendations in this Plan should be reviewed and adjusted, as necessary, with any significant changes to the contractors' work plans. The CVRD should also re-evaluate construction schedules and the impacts of the TMP for Phase 2 before reviewing the need for a TMP for Phase 3.

2.0 Project Partners

As part of the first step of developing the *Traffic Management Plan*, the CVRD connected with the project partners. A workshop was held with the City of Courtenay, Town of Comox, and MoTI. K'ómoks First Nation was unable to attend the workshop, but a follow up meeting was held with Chief and Council.

2.1 Workshop

The CVRD led a workshop with project partners (City of Courtenay, Town of Comox, and MoTI) on January 29, 2024. The purpose of the workshop was to discuss the project, hear from the partners on any new or heightened concerns following the creation of the January 2023 *Traffic Management Strategy* and build consensus towards the goals and objectives for the *Traffic Management Plan*.

Workshop participants discussed the following items:

- Primary concern is ensuring safety. Speed is often a key contributor to unsafe conditions.
- Project partners are supportive of CVRD's proactive approach to planning for the traffic impacts from the required road closures/detours but also recognize that some flexibility will likely be required since unexpected scenarios will arise regardless of the degree of pre-planning.
- Good communication to ensure the public is informed of what to expect and the detour routes is important, including advance signage.
- Maintaining flow on the detour route (Lerwick Road / Ryan Road) should be a key objective with implementation of any measures that make Lerwick Road / Ryan Road flow well so that it is more appealing as a detour route than Back Road.
- For Back Road there is generally more concern about speed rather than volume from the public, but both can be a concern. Appropriate speed (safety) is more of a priority. Some increase in volume (within the range of what is appropriate for the nature of the road) may be acceptable, provided it does not increase speed.
- MoTI indicated that temporary traffic control devices as included in the *Traffic Management Manual for Work on Roadways*[1] are generally acceptable.

[1] 2020 Traffic Management Manual for Work on Roadways (TMM), published by the Ministry of Transportation and Infrastructure (MoTI), issued August 2020.

2.2 K'ómoks First Nation

The CVRD met with K'ómoks First Nation Chief and Council on February 29, 2024. K'ómoks First Nation noted that the Sewer Conveyance Project is a significant project that runs through their land and will have major construction, traffic and archaeology impacts. K'ómoks First Nation Chief and Council have identified four key areas to be considered in the development of a Traffic Management Plan:

- Safety concerns due to increased traffic along Back Road.
- Elders requiring access to health services on IR#1 during construction.
- Safety concerns for Bayside Road residents making a left turn during construction.
- Ensuring two-way access to the Administration office for cyclists and pedestrians.

The safety concerns on Back Road are intended to be addressed through this TMP. Movements and safety considerations along the Comox Road portion of IR#1 will be included in the contractors localized traffic management plans. These plans are expected to include full pedestrian and cycling access along Comox Road, access and exit considerations at Bayside Road and local traffic access from Bayside Road back into the Town of Comox during portions of the detour schedule.

3.0 Objectives and Goals

Goals and objectives for CVRD's *Traffic Management Plan* have been developed to guide the development of the traffic control measures on the broader road network. The goals and objectives are informed by the previous work on the January 2023 *Traffic Management Strategy*, previous discussions with K'ómoks First Nation and what we heard from the project partners during the January 2024 workshop.

Objectives

- Ensuring safe road conditions on the alternative routes[2] during construction of Phase 2 works
- Maintaining the flow of traffic along the official detour route.
- Ensure connectivity between K'ómoks First Nation and the broader road network is maintained.
- Proactively implement traffic calming measures and traffic signal adjustments based on anticipated changes in traffic patterns. Escalating measures and clear implementations should be pre identified to anticipate drivers' reactions to various management measures.

[2] The contractors are responsible for ensuring the safety of the public and project personnel within their work areas.

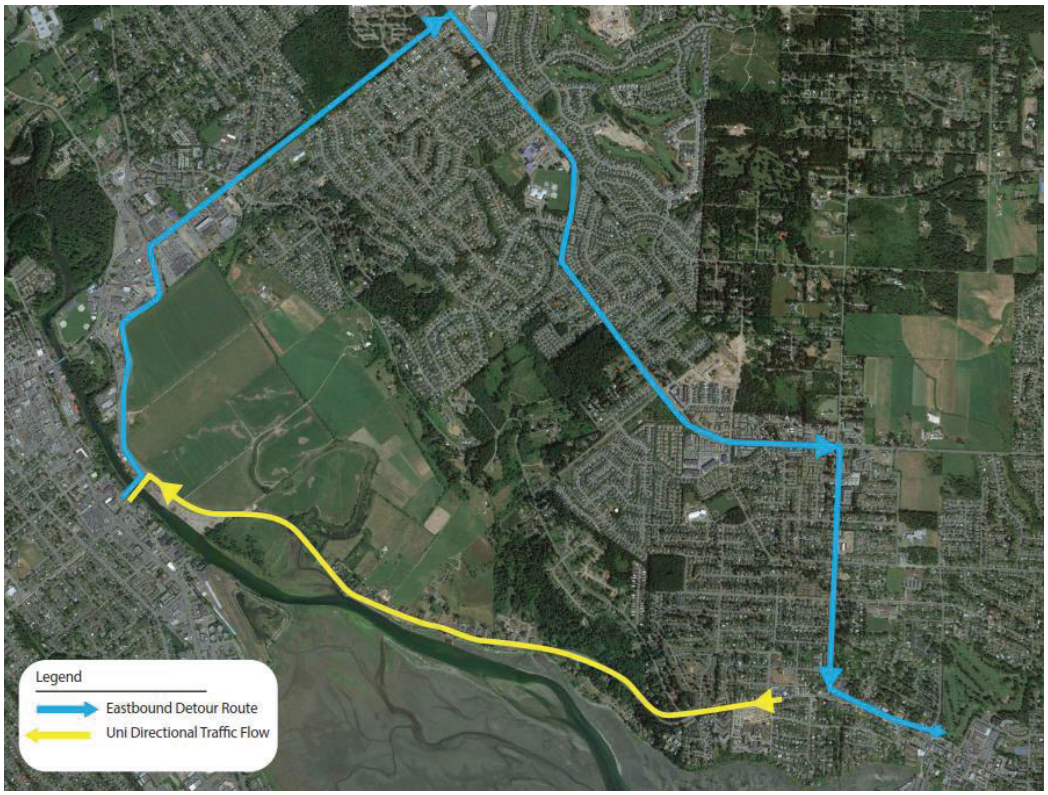
4.0 Traffic Management Plan

Based on the strategy document and what has been heard from project partners, a set of traffic management strategies have been developed to proactively manage the traffic impacts from the construction during Phase 2 and the required detour. The traffic management options relate to optimizing traffic flow on 17th Street / Highway 19A / Ryan Road / Lerwick Road / Guthrie Road and mitigation of any traffic impacts on Back Road / Glacier View Drive. These options are outlined in the sections below.

4.1 17th Street / Hwy 19A / Ryan Road / Lerwick Road /Guthrie Road Traffic Optimization

With Comox Road being restricted to westbound traffic only all traffic travelling eastbound from Courtenay to Comox will need to use an alternative route that was noted in the Traffic Management Strategy. The designated detour route will be via Highway 19A, Ryan Road, Lerwick Road, Guthrie Road and Anderton Road as shown on **Figure 4-1**.

Figure 4-1: Comox Road and Detour Traffic Route



A key objective of the traffic management plan is to ensure the Highway 19A / Ryan Road / Lerwick Road / Guthrie Road detour route traffic flows as smoothly as possible to encourage motorists to use this as their detour route. For some intersections this will involve changes to current traffic signal timing.

The detour route along with the locations of the recommended signal timing adjustments to optimize the traffic flow are shown on **Figure 4-2**. The subsections after the figure, organized by priority, provide further information on the recommended traffic signal adjustments to optimize the traffic flow.


Lerwick Rd
Ryan Rd
Guthrie Rd
Back Rd
Back Rd
Back Rd
McDonald Rd
Aspen Rd
Anderton Rd
Noel R
N Island Hwy
Old Island Hwy
5th St
Glacier View Dr
Comox Ave
Aitken St
Strathcona Cres
DETOUR
LOCAL TRAFFIC ONLY
ROAD CLOSED
Cover/ modify green highway sign indicating Comox to the right
Cover/ modify green highway sign indicating Comox to the right
Comox Rd
Cliffe Ave
17th St
LEFT TURN ONLY
RIGHT TURN ONLY

4.1.1 High Priority Signal Modifications

There are six intersections that have been identified as high priority for signal modifications to accommodate the detour traffic. These locations were identified as high priority since they already experience significant congestion during peak periods and the detour is anticipated to have a larger impact on the traffic patterns.

The recommended modifications should be implemented in conjunction with Phase 2 works and Comox Road being restricted to westbound traffic only. The traffic performance at these intersections should be monitored and further timing adjustments made, as necessary.

17th Street / Comox Road

Traffic patterns at the 17th Street / Comox Road intersection will change significantly with Comox Road closed to eastbound traffic. All northbound traffic that currently turns right from the 17th Street bridge to Comox Road will be instead directed to turn left and use the Highway 19A / Ryan Road / Lerwick Road / Guthrie detour route[3]. Similarly, the eastbound through movement will be eliminated and all eastbound traffic will be directed to turn right onto the 17th Street Bridge. Based on these traffic pattern changes the following adjustments should be made to the traffic signal:

- Eliminate the phase for the eastbound through movement on Comox Road and cover (bag) the signal heads for this movement.
- Adjust the signal timing splits to provide additional time to the northbound (17th Street) and Westbound (Comox Road) approaches. It is anticipated that the time allocated to these approaches will be relatively balanced.

It is understood that this intersection is MoTI jurisdiction. The traffic signal changes should be coordinated with MoTI and new traffic signal timing sheets created.

[3] While the northbound right turn from the 17th Street bridge to Comox Road will generally be banned, it is possible to allow construction trucks accessing the work site to complete this movement with a traffic control person adjusting the barricades. Additionally, the CVRD could consider allowing local residents (such as those living on Farmview Road) to make the right-turn, depending upon the specific location of the construction activities.

Highway 19A / Ryan Road

The Highway 19A / Ryan Road intersection is anticipated to experience an increase in westbound traffic on Highway 19A making a right-turn to Ryan Road. This is a channelized right-turn with yield control. Based on traffic modelling and analysis, the following changes should be made to the traffic signal[4]:

- Adjust the signal timing splits to provide more time to the southbound through and left movement on Ryan Road since this will create additional time where the westbound right-turn yield movement can occur with no conflicting traffic.

It is understood that this intersection is MoTI jurisdiction. The traffic signal changes should be coordinated with MoTI and new traffic signal timing sheets created.

Ryan Road / Sandwick Road

The Ryan Road / Sandwick Road intersection is anticipated to experience an increase in northbound through traffic on Ryan Road. Based on traffic modelling and analysis, the following changes should be made to the traffic signal:

- Adjust signal timing splits provide more time for the northbound and southbound approaches to improve the flow of traffic on Ryan Road. This will also help to reduce the northbound queues on Ryan Road between Sandwick Road and Highway 19A.

It is understood that this intersection is MoTI jurisdiction. The traffic signal changes should be coordinated with MoTI and new traffic signal timing sheets created.

[4] Adjusting the lane allocations at Highway 19A / Ryan Road to provide a free flow westbound right-turn Highway 19A to Ryan Road (add-lane) by eliminating one of the northbound through lanes on Ryan Road was analyzed but is not recommended. This change reduces the stop line capacity for the northbound approach which then requires additional time allocated to the northbound approach which then results in reductions in the amount of signal time allocated to the other approaches. Reducing the signal time allocated to the other approaches has the consequence of increasing traffic queues on the Highway 19A westbound approach and making it harder for the traffic turning right from Highway 19A to Ryan Road to reach the right-turn lane and benefit from the free-flow movement. Additionally, this change will create two new weave conflicts: the buses using the stop on Ryan Road at the Shell will need to change lanes to proceed through at the Highway 19A / Ryan Road traffic signal and any northbound vehicles on Ryan Road who are turning right at Sandwick Road to access the Superstore will have to change lanes immediately after the intersection.

Guthrie Road / Aspen Road

At Guthrie Road / Aspen Road the detour is expected to increase the volume of eastbound through traffic on Guthrie Road. While the volume increase may be less than what is experienced on Ryan Road as motorists filter into the broader network depending on their ultimate destination, Guthrie Road only has one through lane in each direction. Based on traffic modelling and analysis, the following changes should be made to the traffic signal:

- Adjust the signal timing splits to provide more time to the eastbound through movement on Guthrie Road.

This intersection is Town of Comox jurisdiction, and any modifications should be coordinated with Comox.

Guthrie Road / Anderton Road

At Guthrie Road / Anderton Road the detour is expected to increase the volume of eastbound traffic turning right from Guthrie Road to Anderton Road. Based on traffic modelling and analysis, the following changes should be made to the traffic signal:

- Adjust signal timing splits to allocate more time to the eastbound phase to provide more opportunities for the additional eastbound right-turn traffic.

This intersection is Town of Comox jurisdiction and any modifications should be coordinated with Comox.

Comox Avenue / Anderton Road

The traffic patterns at the Comox Avenue / Anderton Road intersection are anticipated to change significantly. The volume of eastbound traffic on Comox Avenue will be much lower since Comox Road will be closed after the 17th Street Bridge. Instead, this traffic will be using the Ryan Road detour route and will be making a southbound left turn from Anderton Road to Comox Avenue. There may also be some increase in the southbound right turn volume if some westbound traffic that currently uses Guthrie Road / Lerwick Road / Ryan Road / Highway 19A chooses to instead use Comox Road to avoid the additional eastbound traffic on the detour route.

Based on traffic modelling and analysis, the following changes should be made to the traffic signal:

- Adjust signal timing splits to provide less time for the eastbound protected left-turn (green arrow) phase.
- Adjust the signal timing splits to provide more time for the southbound Anderton Road approach.

Traffic volumes and the intersection performance should be monitored with particular attention to the demand for the eastbound left-turn from Comox Avenue to Anderton Road. The protected (green arrow) left-turn phase may not be necessary and could be eliminated.

This intersection is Town of Comox jurisdiction and the traffic signal changes should be coordinated with Town of Comox including the creation of new traffic signal timing sheets.

4.1.2 Medium Priority Signal Modifications

There are six intersections that have been identified as medium priority for signal modifications to accommodate the detour traffic. These locations are either not directly on the detour route, or generally operate with a good level of service and are not anticipated to be significantly impacted by the detour.

These intersections should be monitored as part of the TMP implementation by CVRD, their traffic management contractor, and/or traffic/electrical consultants. If significant unexpected changes to traffic patterns occur and through observation of the traffic performance opportunities to adjust the traffic signals to provide optimized timing[5] are identified, then signal timing adjustments should be implemented. The traffic forecasting and analysis to date does not indicate signal timing changes are necessary at these intersections, but people can respond to changes in unexpected ways and therefore these locations have been identified with the intention of being as pro-active as possible. Potential signal timing changes can be discussed with MoTI with new signal timing sheets pre-prepared for acceptance.

Cliffe Avenue / 17th Street

The traffic patterns at Cliffe Avenue / 17th Street are not anticipated to change significantly with the detour. Some traffic may choose to use the 5th Street Bridge rather than the 17th Street Bridge which may result in less northbound traffic on 17th Street and more eastbound traffic on Cliffe Avenue. Traffic performance at this intersection should be monitored and the signal timing should be adjusted, if necessary.

Additionally, the Cliffe Avenue / 17th Street intersection is located 300m from the 17th Street / Comox Road intersection (where significant high priority signal timing changes will be occurring). The Cliffe Avenue / 17th Street intersection performance should be monitored and

[5] No changes to the signal phasing or clearance times (yellow and all-red) are anticipated at any of the medium priority signals. If there are any changes, the are anticipated to be simple adjustments to the time allocated to the various existing phases (i.e. the timing splits).

adjusted, should the changes at the 17th Street / Comox Road intersection have unintended impacts at the Cliffe Avenue / 17th Street intersection.

It is understood that this intersection is MoTI jurisdiction and any modifications should be coordinated with MoTI.

Ryan Road / Old Island Highway

The traffic patterns at Ryan Road / Old Island Highway are not anticipated to change significantly with the detour as this intersection is not located on the detour route, but if more traffic chooses to use the 5th Street Bridge then the demand for the westbound right-turn from Old Island Highway to Ryan Road may increase. This right-turn is channelized with its own receiving lane on Ryan Road so increased traffic is anticipated to only have a minor impact. However, the performance of this intersection should be monitored with adjustments made to the signal timing, if required.

It is understood that this intersection is MoTI jurisdiction, and any modifications should be coordinated with MoTI.

Ryan Road / Back Road

The Ryan Road / Back Road intersection is anticipated to experience an increase in northbound traffic on Ryan Road; however, it is not expected to significantly impact the intersection performance. No signal timing modifications are proposed, but the intersection performance should be monitored and adjusted if needed. Modifications could include adjusting the signal timing splits to provide more time for the northbound and southbound approaches and reduce the northbound queues on Ryan Road between Back Road and Sandwick Road.

Westbound traffic on Back Road is not anticipated to increase with the detour as access to Back Road will be closed at Glacier View Drive and Aitken Street and there are no westbound restrictions on Comox Road or Guthrie Rd / Lerwick Road / Ryan Road / Highway 19A; however, the signal timing changes would also have the effect of increasing delay for westbound traffic exiting Back Road which will further discourage westbound traffic from using Back Road.

It is understood that this intersection is MoTI jurisdiction. The traffic signal changes should be coordinated with MoTI and new traffic signal timing sheets created.

Ryan Road / Lerwick Road

At Ryan Road / Lerwick Road the detour is anticipated to increase the volume of traffic completing the northbound right-turn from Ryan Road to Lerwick Road. This movement is

channelized with yield control and has a good level of service with spare capacity. Therefore, the additional detour traffic is not anticipated to impact the performance of this intersection. Therefore, no signal timing modifications are proposed[6]. However, the performance of the intersection should be monitored, and the timing adjusted if there are unanticipated impacts from the detour.

It is understood that this intersection is MoTI jurisdiction, and any modifications should be coordinated with MoTI.

Lerwick Road / McDonald Road

The Lerwick Road / McDonald Road intersection is anticipated to experience an increase in eastbound through traffic on Lerwick Road from the Ryan Road detour route. Additionally, there is likely to be additional northbound traffic on McDonald Road making a right-turn onto Lerwick Road. Some of this traffic may be associated with vehicles using Back Road to avoid the Ryan Road detour route; while other vehicles will be residents of Back Road that are impacted by the closure of Glacier View Drive at Comox Road and are now using McDonald Road to travel between their home and downtown Comox.

The delays and queues eastbound on Lerwick Road and northbound on McDonald Road should be monitored along with traffic volumes on Back Road. If significant delays and queues are observed northbound on McDonald Avenue, increasing the amount of signal time allocated to the northbound movement would be beneficial to the Back Road residents impacted by the closure on Glacier View Drive. However, if motorists are using Back Road to avoid the Ryan Road detour route, then the longer delay to turn from McDonald Road on to Lerwick Road can discourage motorists from choosing this route.

This intersection is City of Courtenay jurisdiction. The performance of the intersection should be monitored and any traffic signal changes should be coordinated with City of Courtenay.

Anderton Road / Noel Avenue

At Anderton Road / Noel Avenue the detour is expected to increase the volume of southbound through traffic on Anderton Road. However, the volume increase may be less than what is experienced on Ryan Road as traffic filters into the broader network depending on their ultimate destination. This intersection is generally not highly congested; therefore,

[6] Adjusting the lane allocations at Ryan Road / Lerwick Road to provide a free flow northbound right-turn from Ryan Road to Lerwick Road (add-lane) by eliminating one of the eastbound through lanes on Lerwick Road was considered but is not recommended since the traffic modelling shows the northbound right-turn has sufficient capacity and would not benefit from this change. However, the change would require new signal timing to accommodate the reduced eastbound stop line capacity that will likely increase overall delays at the intersection for minimal benefit.

the impact of the additional detour traffic is not a significant concern. The performance of the intersection should be monitored and the timing adjusted if there are unanticipated impacts from the detour.

This intersection is Town of Comox jurisdiction, and any modifications should be coordinated with Comox.

4.1.3 Low Priority Signal Modifications

The remaining traffic signals in the region are ranked as low priority for modifications. It is not anticipated that any of the low priority locations will require adjustments to their timing. However, they should be monitored throughout the construction and adjusted, if necessary.

4.2 Back Road / Glacier View Drive

Back Road and Glacier View Drive are a classified as collector roads with residences fronting the road. While all communications and signage will encourage motorists to use the detour route via Highway 19A / Ryan Road / Lerwick Road / Guthrie Road, some motorists who are familiar with the area may be enticed to use Back Road and Glacier View Drive as opposed to the signed detour route. The CVRD has heard from the project partners that speed is currently a concern on Back Road and that, during the detour, traffic should be discouraged or calmed to reduce the public from using Back Road as a detour. While calming traffic on Back Road could be an option, Back Road is a collector and currently provides access and a secondary route to many neighbourhoods in East Courtenay, The Town of Comox as well as KFN IR 1. One significant change will be that Glacier View Drive at Comox Road will be closed to all traffic at Comox Avenue to accommodate the roundabout construction. This will require considerations as detailed below.

Based on the above, we recommend that while Back Road should be discouraged for use as a detour, that it does remain open to traffic as it provides a needed route to many users. The premise would be that Back Road should be open to those that currently use it to get to and from their homes now. With this, speed and volume management should be the focus of the initial strategy with the ability to escalate measures as needed depending upon how motorists adjust their travel patterns in response to the construction.

4.2.1 Initial Traffic Management Measures

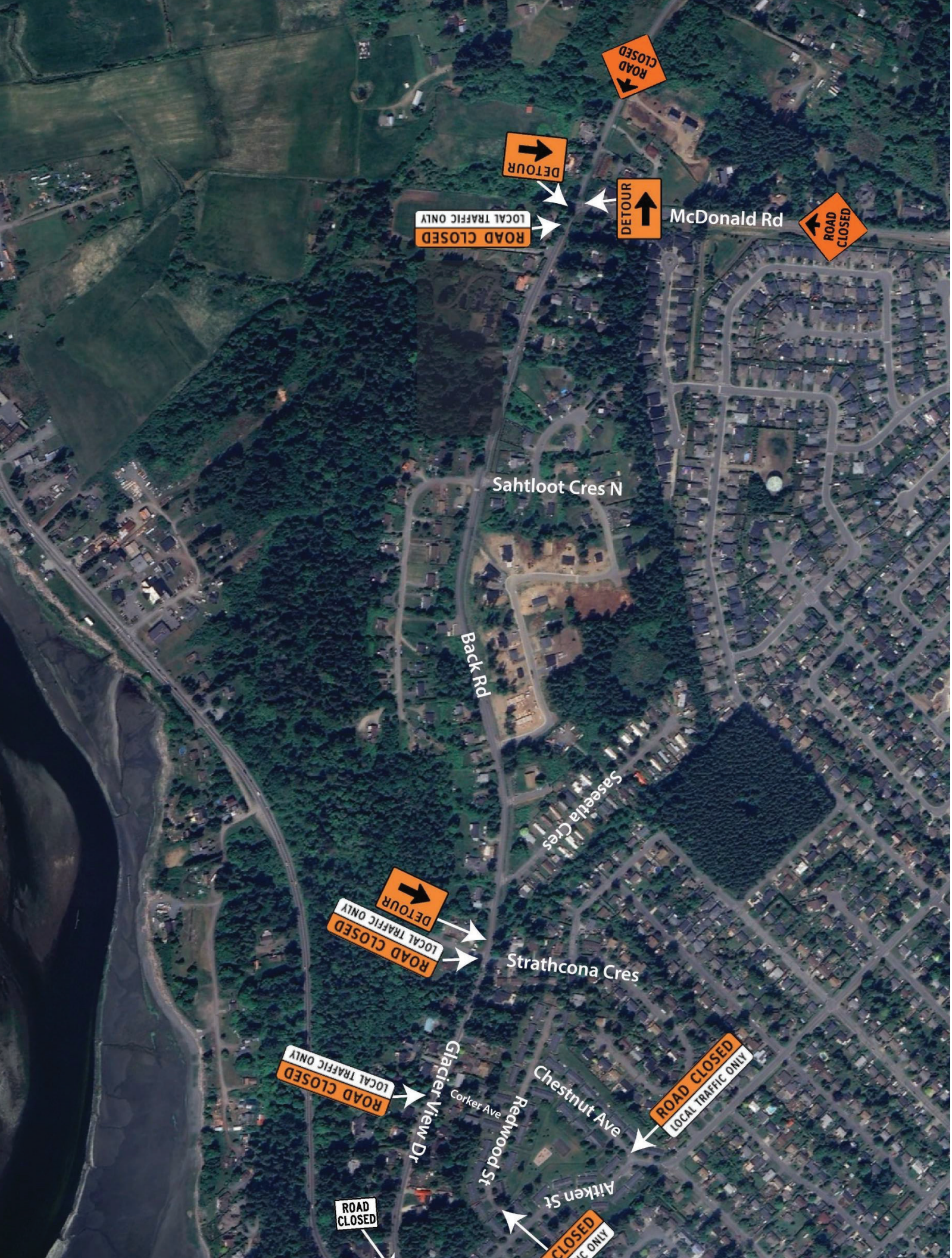
This section outlines the initial traffic management measures that should be implemented for Back Road / Glacier View Drive in conjunction with Phase 2 works. Details are shown in **Figure 4-3**.

To discourage traffic and reduce volumes through the upper portions of KFN IR 1 and residential roads in the Town of Comox, efforts should be put in place to restrict traffic on Back Road / Glacier View Road between McDonald Road and Comox Avenue to local traffic only. This is typically encouraged by providing an entrance to the area, but no exit. Eastbound traffic on Back Road approaching McDonald Road will be directed to turn left and use McDonald Road as it is a collector. Similarly, southbound traffic on McDonald Road would be directed to turn right at Back Road. As noted above, access to Back Road east of McDonald Road would be restricted to local traffic only. During the initial days of Phase 2, it may be beneficial to initially have a traffic control person at the Back Road / McDonald Avenue intersection to reinforce the local traffic only restriction.

Additionally, Aitken Street, Corker Avenue and Strathcona Cresent should also be restricted to local traffic only. Corker Avenue and Strathcona Crescent are both classified as local roads and Aitken Street is expected to be closed at Comox Road for a significant portion of Phase 2. The intent of the local traffic only restrictions is to minimize the detour length for residents who live within the local traffic only area while discouraging other motorists from travelling through the area to keep traffic volumes on Strathcona Cresent and Corker Avenue as low as possible.

To prevent trucks that would normally use Comox Road from using Back Road, detour directional signage should be provided on Ryan Road at Back Road which indicates the detour route is straight ahead on Ryan Road. This should be supplemented with truck route signage indicating the right turn from Ryan Road to Back Road is prohibited[7] for trucks.

[7] Trucks making deliveries are generally exempt from the truck prohibitions. In other words, trucks are allowed to deviate from a truck route provided they use the most direct route between the truck route and their destination.


ROAD CLOSED
DETOUR
DETOUR
ROAD CLOSED
LOCAL TRAFFIC ONLY
McDonald Rd
ROAD CLOSED
Sahtloot Cres N
Back Rd
Saseetla Cres
DETOUR
ROAD CLOSED
LOCAL TRAFFIC ONLY
Strathcona Cres
ROAD CLOSED
LOCAL TRAFFIC ONLY
Glacier View Dr
Corker Ave
Redwood St
Chestnut Ave
ROAD CLOSED
LOCAL TRAFFIC ONLY
Aitken St
ROAD CLOSED

4.2.2 Additional Traffic Management Measures

Once the detour route is implemented traffic volumes and speeds should be monitored on Back Road near McDonald Road and Strathcona Crescent and additional traffic management measures could be implemented, if necessary. The objective is to ensure safe conditions while minimizing disruption to Back Road area residents, including transit and school buses. The additional traffic management measures and considerations for their implementation are outlined below. These additional traffic management measures are each independent and can be utilized as necessary depending upon the specific issues. The order in which they are presented is not intended to imply a hierarchy.

Speed Management

Vehicular speed on Back Road as been identified as an existing issue. Vehicular speeds on Back Road will be monitored to determine if existing conditions are worsened due to traffic management during the project. A speed reader "flasher" has recently been installed on Back Road within the City of Courtenay. The CVRD will also be installing a speed reader board on the western entrance to IR 1.

Additionally, targeted enforcement can be used if excessive speeds are observed. The location of this interventions should be specific to where the issues are being observed. CVRD will make a request to the RCMP for increased enforcement at the start of the project to establish safe behaviour with motorists using Back Road. The CVRD will offer funding to provide the RCMP with the resources to conduct this work. However, the CVRD has been made aware that several requests for speed enforcement have been made to the RCMP in the past and that safety concerns for officers have been cited as an impediment for enforcement.

Strathcona Cresent and Corker Avenue Closure

If it is found that there is a significant increase in traffic on Strathcona Cresent and Corker Avenue despite the local traffic only restrictions a full road closure for vehicles on Strathcona Crescent and Corker Avenue at Glacier View Drive would address the issue. Details are shown on **Figure 4-4**. Pedestrians and cyclists would still be permitted access between Strathcona Crescent and Corker Avenue at Glacier View Drive. This may encourage some residents to use sustainable transportation options.

Figure 4-4: Strathcona Cresent and Corker Avenue Closure



With the full closure residents of Strathcona Crescent, Corker Avenue, Chestnut Avenue and the rest of that neighbourhood would not have access from Back Road. They would need to use Aitken Street for all journeys to and from their homes. Similarly, all Back Road and Glacier View Residents would not have access to Strathcona Cresent, Corker Avenue or Comox Avenue and would need to use McDonald Road for all vehicular trips to and from their homes. This will be particularly impactful to K'ómoks First Nation residents who will need to travel an additional 3km on trips to the health clinic and administration office on Comox Road. Additionally, these closures will cause significant disruption to the School District 71 bus route serving K'ómoks First Nation residents and transit route 15. Further engagement with BC Transit and School District 71 is required prior to implementation of a full closure.

Given the significant disruption to residents these closures would cause, the speed management and local traffic only recommendations should be implemented first before proceeding to the full closure.

Back Road Closure at Morrison Road

If the volume or speed of short cutting traffic on Back Road or McDonald Road is found to be excessive, Back Road can be closed to vehicles at Morrison Road; however, this will have a very significant impact on resident's access to their homes. For example, K'ómoks First Nation members travelling from the health clinic on Comox Road to their home on Back Road would need to go westbound on Comox Road to Ryan Road and then instead of turning on to Back Road would need to continue to Lerwick Road before turning down McDonald Road to finally reach Back Road.

Pedestrians and cyclists would be permitted through the closure and will not be impacted. This may encourage some people to use sustainable transportation options.

A closure of Back Road at Morrison Road will also result in increased traffic on the detour route and impact the flow of traffic. One of the goals and objectives of the traffic management plan is to maintain the flow of traffic along the official detour route; therefore, the scale of any issues on Back Road should be carefully weighed against the impacts to the detour route before implementing a closure of Back Road at Morrison Road.

This closure will cause significant disruption to the School District 71 bus route serving K'ómoks First Nation residents and transit route 15. Further engagement with BC Transit and School District 71 is required prior to implementation of a closure at Morrison Road.

To mitigate some of the impact on residents, it is recommended that if this was to be considered that this closure only be implemented for eastbound traffic as the short cutting traffic will generally be travelling eastbound.

With the closure of Back Road at Morrison there is a need to understand when this additional measure may be warranted. Back Road is a collector road; volumes of up to 8,000 vehicles per day[9] are typical for collector roads however the geometry of Back Road is unique. The Town of Comox has recently conducted counts that have found the traffic volumes range from 2,400 to 2,900[10] vehicles per day on the Comox portion of Back Road / Glacier view Drive which are well within the level of service for the corridor. While this may not be a complete comparison to other portions of Back Road it provides a sense of the volumes currently using the corridor.

[9] Source: TAC Geometric Design Guide for Canadian Roads Table 2.6.5.
[10] The traffic volumes are based on January 2024 mid-week (Tuesday to Thursday) counts when school was in session.

The CVRD is actively collecting traffic data on Back Road that will provide the current usage along the corridor to compare to volumes during construction.

The benefits of a closure at Morrison Road on traffic speeds and volumes must be considered against the impacts to residents and bus services. A closure should only be considered if significant volumes or speed increases are observed.

If there is minimal change in traffic volumes but an increase in speed, then the change in speed is unlikely to be related to shortcutting detour traffic but instead the behaviour of local residents.

[Note to Draft: The closure at Morrison Road needs to be reviewed and approved for turn-around safety. This review is planned in parallel with the public engagement. Therefore, this measure will only be included in the final plan if it can be achieved safely.]

Other Traffic Management Measures Not Recommended

There are several other mitigation measures that were reviewed but they are not recommended. Specifically, an all-way stop at the Back Road / McDonald Road intersection, temporary speed humps/bumps, the creation of chicanes/road narrowing along Back Road, and speed limit modifications were evaluated but these measures are not recommended for the reasons outlined below:

The *Manual for Uniform Traffic Control Devices for Canada* indicates 5 scenarios where all-way stop control may be justified and the Back Road / McDonald Road intersection does not meet any of the criteria. The manual also indicates that all-way stop control should not be used as speed control or as a means of deterring the movement of through traffic in a residential area. Unwarranted all-way stops can increase safety risks as compliance can be poor.

While speed humps can reduce vehicle speeds, they also increase noise for adjacent residents with vehicles decelerating, traversing the hump and then accelerating. They are also not advised for transit routes due to the impact on passenger comfort. Speed humps that are appropriate for local or collector roads are typically 4m long and are designed to deter motorists from exceeding the speed limit. These are typically made form asphalt and are a permanent installation. Temporary rubber speed bumps that can be removed, such as those sometimes used in parking lots, are typically 0.3m long and are intended for use in environments with very low vehicle speeds (<15km/h). Speed humps are not recommended due to the noise and transit impacts in addition to the temporary speed bumps being only 0.3m long and not appropriate for local or collector roads.

Chicanes are a series of curb extensions on alternating sides of the roadway which narrow the roadway and require drivers to steer from one side of the roadway to the other to travel through the chicane. A one-lane chicane incorporates narrowing to less than the width of two vehicles[11]. A one-lane chicane is only recommended for local streets (typically <1,000 vehicles per day). Back Road and McDonald Road are collector streets with higher volumes. Therefore, one-lane chicanes are not recommended. Two-lane chicanes can be appropriate on collector streets but requires a pavement width of at least 12.0m. This width is generally not available on Back Road or McDonald Road and therefore two-lane chicanes are not recommended.

The *BC MoTI Traffic Management Manual for Work on Roadways* includes a temporary set-up for reducing a road to a single lane. Traffic self-regulation is only recommended for roadways with less than 1,000 vehicles per day. On higher volume roadways traffic control people or temporary traffic signals are required. Given the current traffic volumes narrowing Back Road or McDonald Road with self-regulation is not recommended.

Adjusting permanent speed limits is not CVRD's jurisdiction and outside the scope of this traffic management plan. Advisory speeds (typically identified as a yellow sign with black text) are to only be used in the specific circumstances of indicating the recommended safe speed that a curve or bump may be negotiated. Advisory speed signs are only to be installed on the same post as a curve or bump warning sign[12]. The construction works do not change the conditions on Back Road to satisfy any of the advisory speed criteria and therefore, MoTI does not support their use.

4.3 Comox Road

Traffic management on Comox Road through the construction zones is the responsibility of the construction contractors. On Comox Road contractors are expected to maintain westbound vehicular traffic flow and two-way pedestrians and cyclists through their work zones. Additionally, the contractors must accommodate emergency services travelling in either direction on Comox Road. Closure and detour signage should be incorporated as noted in **Figure 4-2**.

[11] Example of a permanent one-lane chicane on a local road: https://en.wikipedia.org/wiki/Chicane#/media/File:One-lane_chicane_1.jpg

[12] Refer to *BC MoTI Manual of Standard Traffic Signs and Pavement Markings* Chapter 3.

4.4 Comox Road Full Closure Detours

As noted in the strategy there may be times where eastbound and westbound traffic on Comox Road cannot be accommodated. The complete closure of Comox Road should only be considered when no other option is available and if it is then it should be closed during off-peak times that were suggested as 8pm to 6am in the strategy document.

For a full closure a detour will need to be in place for westbound traffic. The detour route should follow the route signed for the eastbound traffic.

5.0 Next Steps

This traffic management plan should be shared with project partners, BC Transit and SD 71 school busing to seek their input and confirm support for the proposed measures.

Once the plan is accepted, comprehensive traffic control signage plans along with the other required sub-plans should be created by a contractor or traffic management firm responsible for implementation. Additionally, the ownership of the traffic signals should be confirmed and optimized traffic timing sheets should be created.

This plan should also be used as the basis of developing a public communications plan to ensure the public is well informed of the Comox Road closure and detour route. The communications plan should also consider how information will be shared if the escalating road closures are required.