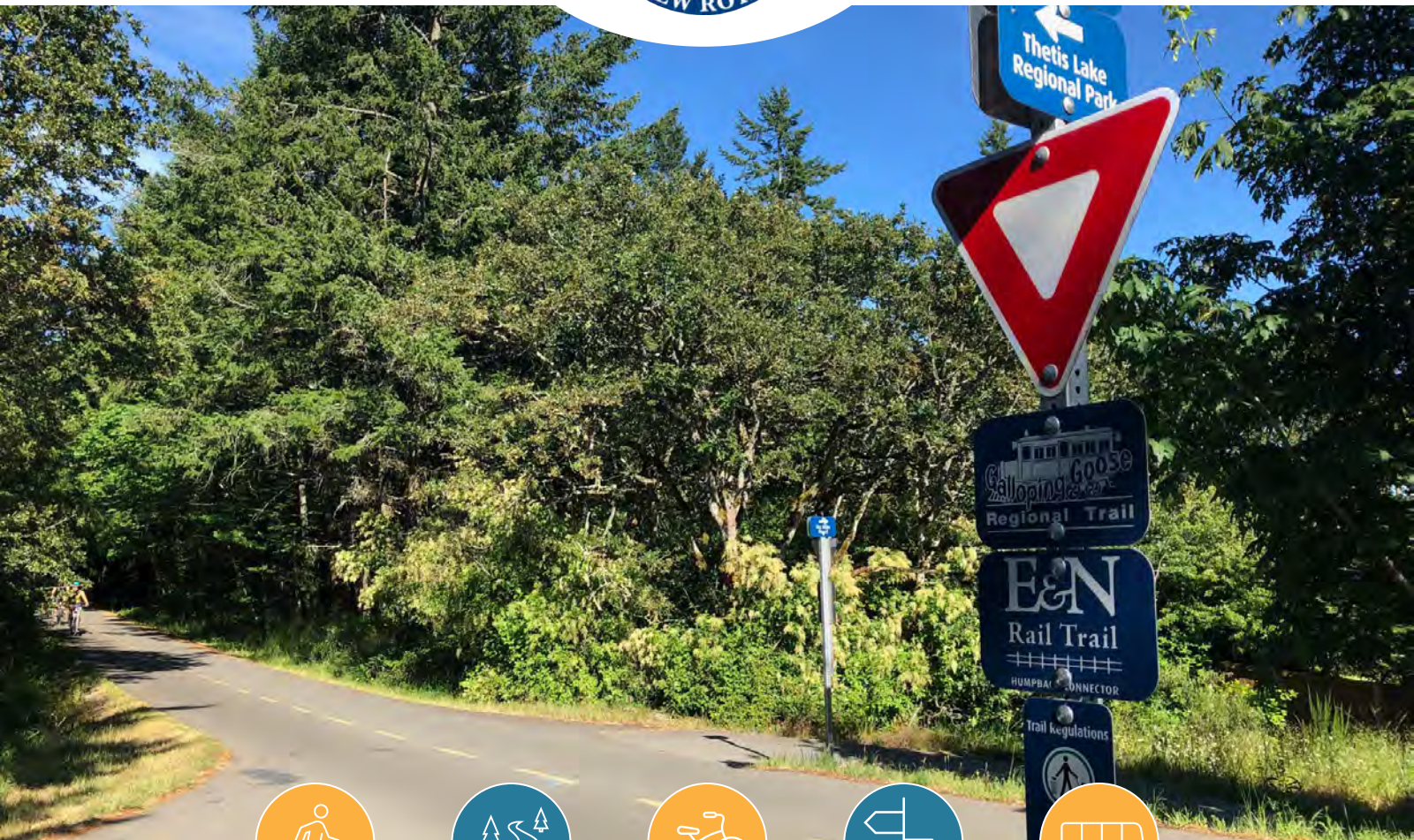




TRANSPORTATION MASTER PLAN

Existing Conditions Summary Report

Version 1

Corporate Authorization

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1. INTRODUCTION

The Transportation Master Plan will rely on a strong understanding of View Royal's existing conditions. This document summarizes the existing conditions analysis, which covers previous planning frameworks, existing transportation networks, mobility patterns, key corridors, and the state of road safety in the Town. The following section provides the overall context of the Transportation Master Plan and the background studies that will inform its direction.



1.1 INTRODUCTION

The Town of View Royal has retained Bunt & Associates Engineering Ltd. (Bunt) to prepare an updated Transportation Master Plan (TMP). The Plan aims to address the Town's existing and future transportation needs, including strategic goals, policy frameworks, strategic capital planning priorities, cost estimates, and design guidelines.

The TMP is being developed in four phases to shape a safe, efficient, and accessible transportation network that meets the needs of all users over the next 10 years. This Existing Conditions Assessment Report represents the end of the first phase of the TMP update.

This report includes a review of existing plans and policies, current transportation network conditions, preliminary corridor analysis, road safety issues, and identification of challenges and opportunities.

1.2 BACKGROUND STUDIES

1.2.1 Town of View Royal Policies and Plans

Existing documents and plans created by the Town of View Royal will significantly inform the Transportation Master Plan preparation. The TMP aims to incorporate and expand on the findings and recommendations of these studies to address the community's previously expressed needs and align with the Town's development goals. Below is a summary of several studies and their relevance to the TMP.

View Royal 2050 Official Community Plan (OCP)

View Royal's Official Community Plan (OCP) outlines the Town's long-term vision for growth and development, guiding decisions on land use, housing, transportation, parks, climate change, economic development, and infrastructure. In late 2024, the Town initiated a comprehensive review of the current OCP, which was last updated 15 years ago. Early phases of the Plan development process focused on establishing a vision and guiding principles, followed by extensive public engagement to gather input on growth scenarios and climate action strategies. Public involvement continued through 2025 to refine policy directions, with the Draft OCP scheduled for Council consideration in 2026.

The Plan considers alternative growth scenarios, acknowledging regional population growth trends and evolving community needs. It aims to address future development by focusing on sustainable land use, housing affordability, economic diversification, and infrastructure improvements to accommodate anticipated changes. The policies and land use planning set out in the OCP are informed by the medium growth scenario (out of the three alternative growth scenarios: low, medium, and high). The future transportation modelling in the TMP is also based on this medium growth scenario.

The OCP’s policies will directly inform updates to the Town’s Transportation Master Plan (TMP), ensuring alignment between land use planning and transportation infrastructure. These transportation and mobility objectives include:

- Building a connected multimodal community
- Strengthen transportation connections and regional destinations
- Equitable, safe, and efficient mobility
- Prioritize resident needs
- Affordable, equitable transportation options
- Climate action through transportation choice

By coordinating these efforts, the TMP will aim to create a cohesive strategy that supports active transportation, reduces congestion, and promotes sustainable mobility options for residents.

Active Transportation Network Plan, 2023

The 2023 Active Transportation Network Plan (ATNP) was developed by the Town of View Royal to promote and enhance active transportation modes of transportation, such as walking, cycling, and rolling, within the community. The Plan aims to enhance the active transportation network to be safe, accessible, and convenient for people of all ages and abilities, supporting active, healthy lifestyles and reducing greenhouse gas emissions. The ATNP set the following objectives:



The ATNP report has been received by the Town of View Royal Council for future project considerations and budget planning.

Transportation Master Plan - Technical Update

In 2016, the Town completed a technical update to the 2008 Transportation Master Plan (TMP) to align with the 2011 Official Community Plan (OCP) and updated growth projections. The update incorporated transportation network improvements completed since 2008 and addressed revised priorities. The update assesses whether the planned transportation network could accommodate projected demand across all modes within identified growth areas.



Transportation Master Plan (2008)

The 2008 Transportation Master Plan established a long-term framework to support the Town of View Royal's vision for a quiet, walkable, and connected community. The Plan emphasized providing greater travel choice by prioritizing walking, cycling, and transit, while improving the safety and efficiency of the existing road network and minimizing the impacts of major regional transportation corridors.

The Plan was informed by engagement and supported by technical analysis of existing conditions and future growth. It identified infrastructure gaps, evaluated anticipated development impacts, and established a prioritized program of projects to improve connectivity across all modes.



2023-2026 Strategic Plan

The 2023-2026 Strategic Plan outlines the priorities identified by View Royal residents through ongoing public input. The Strategic Plan establishes a long-term vision for a dynamic, inclusive, and connected community, where growth is managed to preserve neighbourhood character, promote walkable streets, and advance sustainable development.

Six strategic priorities guide the Town's actions, each supported by a series of goals:

- **Enhance Livability:** Support mobility, housing diversity, community engagement, and heritage conservation.
- **Sustainable Development:** Promote thoughtful growth, local employment, and strategic public realm investment.
- **Climate Action & Environmental Stewardship:** Reduce community greenhouse gas emissions, improve energy efficiency, and build resilience to climate impacts.
- **Financial Sustainability & Service Excellence:** Maintain fiscal health, diversify revenue, plan for future needs, and ensure services provide value to residents.
- **Community Engagement & Good Governance:** Encourage active citizen participation, constructive Council relationships, and collaboration with regional and Indigenous partners.
- **Health, Safety & Security:** Foster a safe, resilient community with effective emergency preparedness and response.

Community Climate Action Strategy

The Town of View Royal Community Action Strategy establishes a framework to reduce community greenhouse gas emissions and support low-carbon choices. It emphasizes the role of residents, businesses, and the Town in shaping sustainable practices, with measures focused on transportation, buildings, waste, and organizational readiness. Infrastructure investments, such as active transportation networks and public charging stations, combined with policy initiatives and engagement programs, aim to support a lower-carbon future while fostering a connected, healthy, and economically resilient community.

1.2.2 Other Policies, Plans, and Studies

BC Transit Esquimalt-View Royal Local Area Transit Plan

This plan, completed in 2021, recommends improvements and changes to bus routes serving the Town of View Royal and the Township of Esquimalt. The plan focuses on connecting to more key destinations and increasing service frequency along major corridors. This highlights the regional effort to increase transit ridership in the CRD and the benefit of integrating transit improvements into the TMP.

The plan also recommends two infrastructure improvements within the Town of View Royal's municipal boundary. The first is a new park-and-ride station near the Island Highway & Six Mile Road intersection,



which would allow area residents to park and connect to frequent transit routes to Downtown Victoria. The second is the development of transit priority measures along Island Highway from Goldstream Avenue to Burnside Road; dedicated bus lanes on this section have been introduced since the Local Area Transit Plan was completed, enhancing service reliability and travel times.

BC Transit Victoria Regional Transit Plan

The Victoria Regional Transit Plan is currently being developed by BC Transit, with input from the CRD and other partners, and is slated for completion in 2026. The plan outlines objectives and recommendations for developing the regional transit system from its current state through 2050. Detailed recommendations from the plan have not yet been finalized, but the TMP will incorporate BC Transit's updated network and route guidelines when considering transit recommendations.

CRD Origin-Destination Survey

The CRD 2022 Origin Destination Household Travel Survey Report compiles survey data from CRD residents on travel behaviour and is updated every five years. The report provides key information on modes of transportation, trip duration, trip origins and destinations, vehicle ownership, ownership type, and other information. This data can then be used to calibrate transportation models and make more informed planning decisions. The CRD Origin-Destination Survey is a key input into TMP development and is discussed in further detail in Section 2.2.

CRD Regional Transportation Plan

The CRD Regional Transportation Plan is currently being developed and is in a preliminary stage as of June 2026. The plan will focus on improving transportation connectivity across the region and will include considerations for Light Rail Transit.

MoTT South Island Transportation Strategy

The South Island Transportation Strategy outlines short-, medium-, and long-term priorities, strategies, and goals for improving transportation on southern Vancouver Island. Among many transit, active transportation, and mobility goals, some priorities relevant to View Royal include supporting transit priority along Island Highway, exploring commuter rail along the Island Rail Corridor, and advancing the installation of new park-and-ride locations.

Reconciliation Corridor Initiative

The Reconciliation Corridor Initiative is a shared visioning effort between the Esquimalt Nation, the Songhees Nation, and municipal and regional governments to realign the Island Rail Corridor so that it no longer bisects the Esquimalt First Nation reserve lands and to explore transit-oriented and economic opportunities for the corridor that can benefit the Nations and the region. A technical feasibility study is planned as the next stage of this process. The TMP may consider the Island Rail Corridor as a potential



means of shifting regional transportation patterns; however, with the feasibility study not yet underway and the corridor's future uncertain, it is unlikely this will significantly affect the TMP recommendations.

West Shore Light Rail Transit (LRT) Technical Review

This study, completed in September 2025, reviews the feasibility and travel demand implications of introducing a Light Rail Transit (LRT) service between the West Shore communities and downtown Victoria. The projected route of the future LRT line runs along Goldstream Avenue, Island Highway (from Goldstream Avenue to Burnside Road), Highway 1, and Douglas Street. Three stations are contemplated within View Royal: at Island Highway & Wilfert Road, at Island Highway & Six Mile Road park-and-ride, and at Highway 1 & Helmcken Road. A future LRT line is anticipated to alleviate traffic congestion between the West Shore and Downtown Victoria and through the Town of View Royal. The implications of this are examined in the TMP.



2. EXISTING TRANSPORTATION

The existing transportation network reflects how people move within and through View Royal. The following section summarizes the networks for vehicles, transit, and active modes. It also discusses the community's mobility patterns—how residents use these networks to fulfill their daily needs. Then, the network's performance is evaluated to identify areas where travel is hindered and could be enhanced.



2.1 EXISTING TRANSPORTATION NETWORK

The road, transit, cycling, and walking networks are the routes and streets that the Town and region use to meet daily travel needs. The following subsections describe each of these networks, focusing on the key considerations for the TMP.

2.1.1 Road Network

The Town of View Royal has a road network consisting of arterial, collector, and local roads that provide connections both within the Town and to surrounding municipalities. In addition to the municipal road network, the provincial Trans-Canada Highway (Highway 1) runs through the Town and serves as an important regional transportation corridor.

Several key corridors within View Royal facilitate travel between neighbourhoods, major destinations, and neighbouring municipalities. **Exhibit 2.1** illustrates View Royal's road network, including these corridors. The existing street classifications are also shown in the exhibit.

- The Island Highway is an arterial road running through the community and provides an important connection between the West Shore and Esquimalt. Traffic volumes vary along the corridor, with the section heading toward Colwood experiencing higher volumes due to nearby commercial and employment uses. Two key generators of traffic on Island Highway are the Canadian Forces Base Esquimalt (CFB Esquimalt), a major employer in the area, and Shoreline Middle School, which generates pick-up/drop-off traffic. Closer to Esquimalt, volumes are lower, and the road provides access to several destinations, including the Community Hall, Public Safety Building, Reading Centre, and Town Hall.
- Helmcken Road is another major arterial corridor that runs north-south through the Town. North of Highway 1, the corridor experiences higher traffic volumes due to nearby destinations such as Victoria General Hospital, Eagle Creek Village, View Royal Elementary School, and surrounding residential areas. The northern section of the corridor also experiences high volumes of regional commuter traffic originating from the Town. South of Highway 1, traffic volumes are generally lower because the surrounding area is primarily lower-density residential, though volumes increase near View Royal Elementary School.
- Admirals Road connects View Royal to neighbouring municipalities, including the Township of Esquimalt. It also connects to the Songhees First Nation and the Esquimalt First Nation. A significant portion of traffic along this corridor is associated with employees travelling to the nearby Canadian Forces Base, the shipyard, and graving dock facilities.
- Atkins Road is an east-west corridor that provides a connection between View Royal and the City of Langford. It serves as a collector road for the numerous homes along its frontage and the



neighbourhoods that connect to it. Atkins Road has two key active transportation crossings for the Galloping Goose Regional Trail.

- Burnside Road West is an east-west corridor that provides connections between View Royal and neighbouring municipalities, including the District of Saanich. The roadway serves nearby residential areas and provides access to Highway 1.
- Watkiss Way is located between Burnside Road West and Helmcken Road and functions as a collector road serving traffic to and from major destinations such as Victoria General Hospital, Eagle Creek Village, and Eagle View Elementary School. The corridor provides an important connection between the surrounding commercial areas and the Highway 1 interchange.
- Six Mile Road serves both local and regional traffic and provides access to Thetis Lake, as well as vehicles accessing the Trans-Canada Highway.

2.1.2 Transit Network

The Town of View Royal is served by 10 transit routes operated by BC Transit as part of the Victoria Regional Transit System. These routes vary in service type, frequency, and schedule span, providing connections within the Town and to surrounding municipalities.

The transit services include regional, frequent, and local routes. Among the routes, Routes 50 and 14 provide the most frequent service, with buses running every 15 minutes or better for most of the day and operating from early morning until late at night. Although it is noted that Route 14 can be impeded by traffic congestion on Island Highway, making it difficult to achieve 15-minute service at peak times. These routes connect to major regional destinations, including downtown Victoria, downtown Langford, Uptown, the University of Victoria, Camosun College, and more. Additionally, Route 15 offers 15-minute service during weekday peak periods to the University of Victoria and other destinations along the McKenzie Avenue corridor in the District of Saanich. The remaining routes support these services, providing connections to local destinations and facilities. Route 40, which provides service between HMC Dockyard and UVic, was introduced in 2026 following requests from the Town of View Royal Council.

Overall, the transit network provides bus stops with coverage throughout View Royal, with higher-frequency routes along major corridors towards other municipalities and lower-frequency routes serving neighbourhood areas. **Exhibit 2.2** illustrates View Royal's transit network, including service types (i.e., regional, frequent, or local) and route numbers.

2.1.3 Cycling Network

View Royal's cycling network includes on-street bicycle lanes, shared lanes, and off-street multi-use pathways. On-street facilities are mostly found along arterial and collector roads such as Helmcken



Road, Island Highway, and Burnside Road West, with a mix of bicycle lanes and shared lanes depending on the corridor.

In addition to the on-street network, the Town is connected to two major regional trails. The Galloping Goose Regional Trail runs along Highway 1 through most of View Royal, providing a continuous off-street route to neighbouring municipalities, recreational areas, and downtown Victoria. The E&N Rail Trail passes through the southeast part of the Town, linking residential areas with nearby employment, commercial, and recreational destinations. Both trails provide separated cycling pathways, offering regional connections that complement the Town's on-street network.

Although most major roads have some form of cycling facility, gaps remain in connecting the on-street network to the regional trails. Many local roads and neighbourhoods lack cycling infrastructure to access regional cycling routes. The 2022 Active Transportation Network Plan Baseline Conditions Report identifies the following existing key active transportation gaps:

- Inadequate sidewalk facilities on Admirals Road, between Hallowell Road and Island Highway
- Lack of crossing opportunities on Admirals Road
- Limited pedestrian and cyclist comfort along Helmcken Road and the Island Highway & Rudyard Road intersection, especially for children attending View Royal Elementary School
- Deficient curb ramps between sidewalks and crossings throughout the Town
- Lack of Leading Pedestrian Intervals (LPIs) and audible pedestrian signals throughout the Town
- Abundance of channelized right turns throughout the Town
- Limited or a lack of cycling infrastructure on Admirals Road, Island Highway, Six Mile Road, Burnside Road, and Helmcken Road
- Limited number of connections to the E&N Rail Trail

Exhibit 2.3 illustrates View Royal's cycling network, including painted bike lanes and regional trails.



2.1.4 Walking Network

The walking network in View Royal comprises several types of facilities, including sidewalks, multi-use pathways, and local trails. The most common of these is concrete sidewalks, which are mostly found on arterial and collector roads within the community. Roads with concrete sidewalks include Helmcken Road, Island Highway, and parts of Watkiss Way. Most local roads in the Town do not have sidewalks. **Exhibit 2.4** illustrates View Royal's walking network, including sidewalks, park and walking trails, and regional trails.



EXHIBIT 2.1: EXISTING ROAD NETWORK AND STREET CLASSIFICATIONS

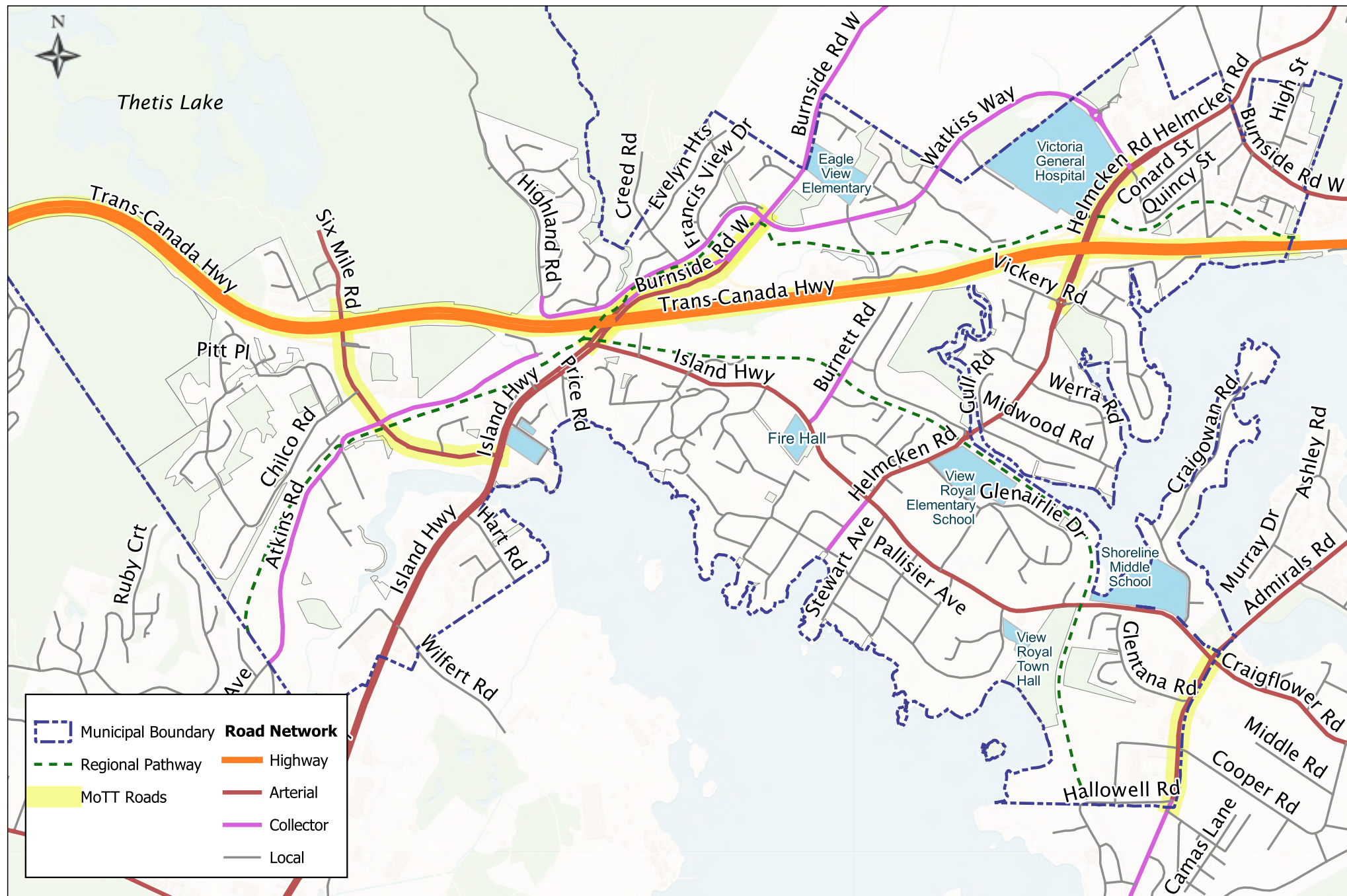




EXHIBIT 2.2: EXISTING TRANSIT NETWORK

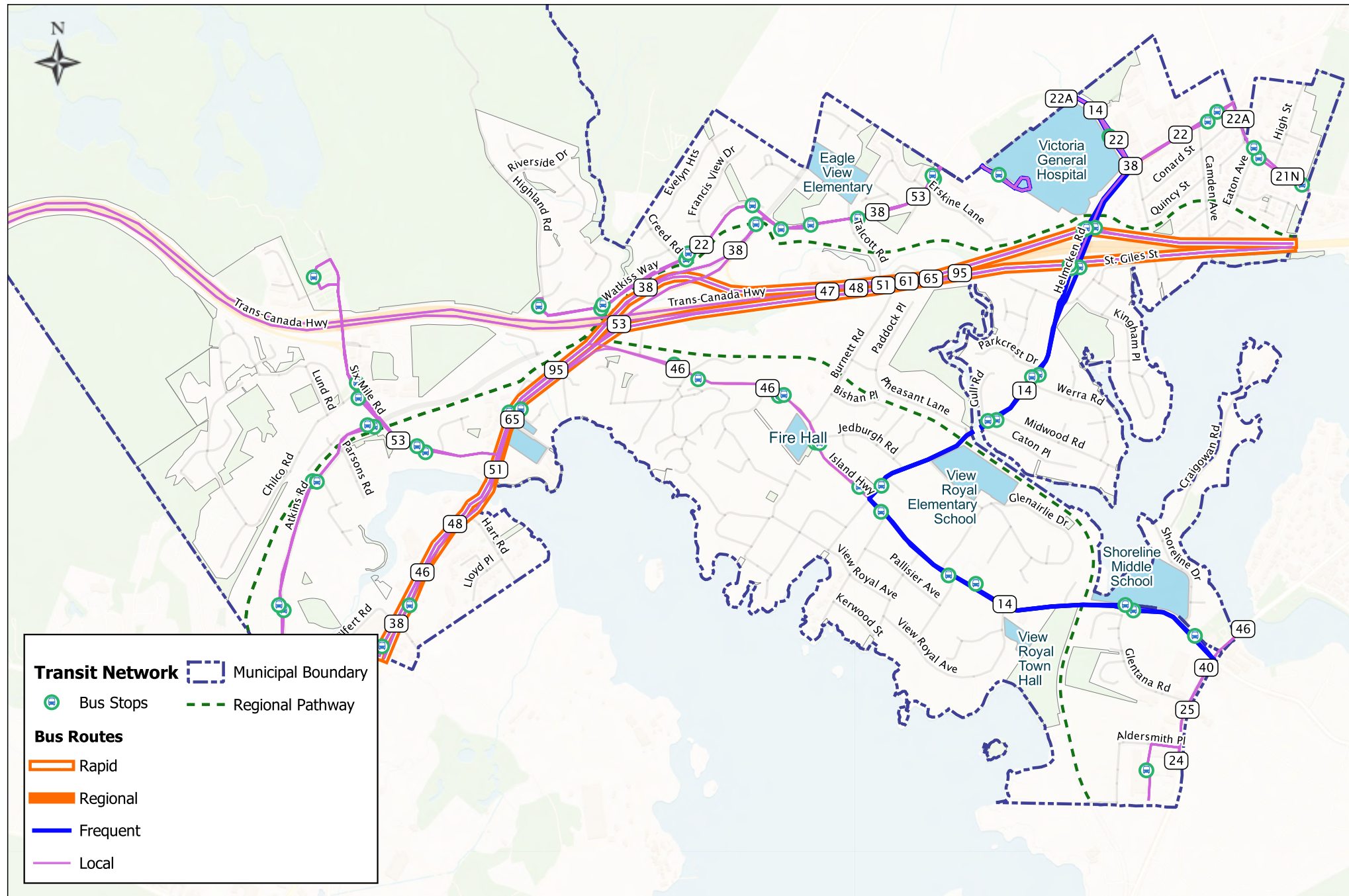




EXHIBIT 2.3: EXISTING CYCLING NETWORK

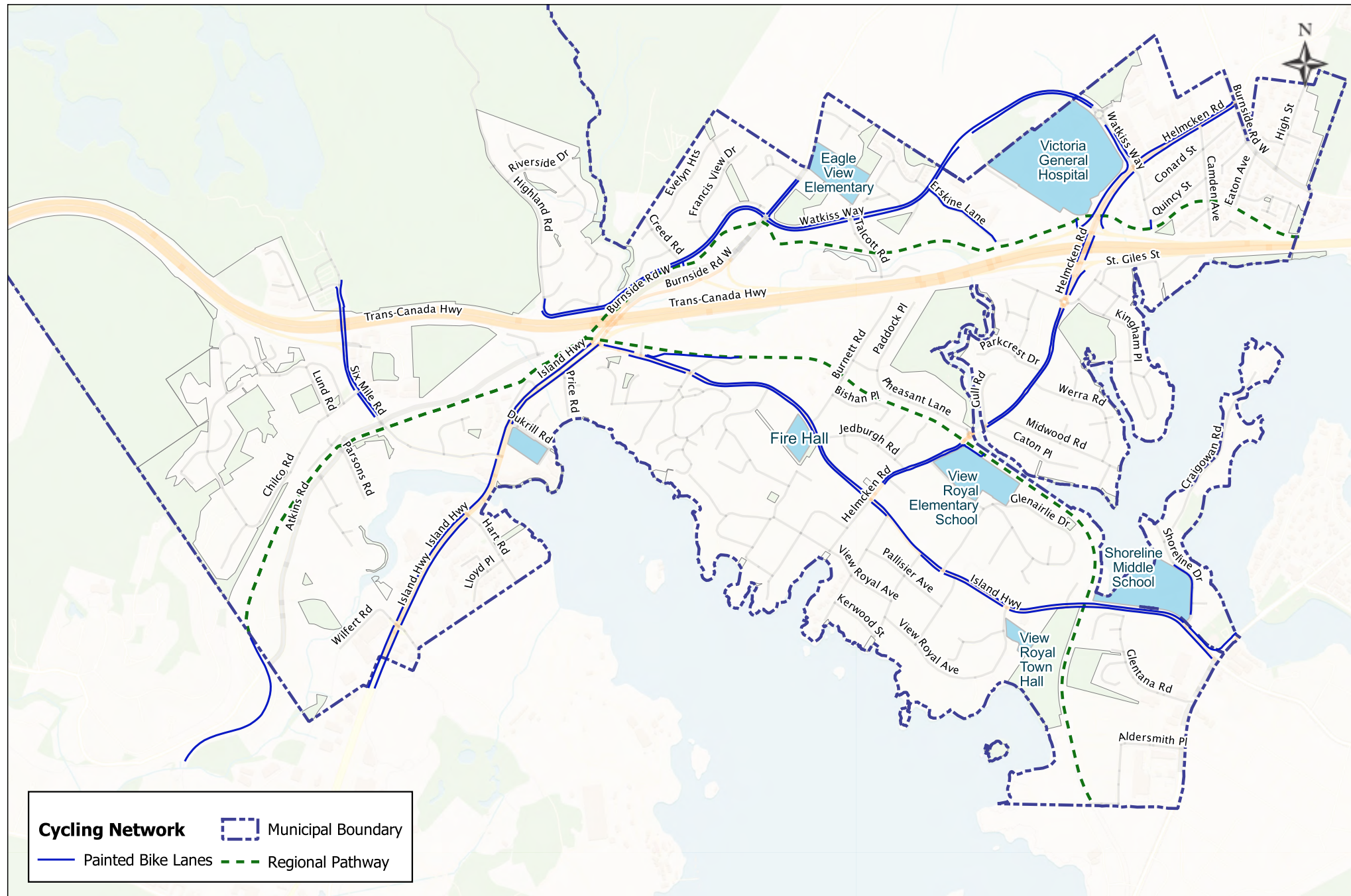
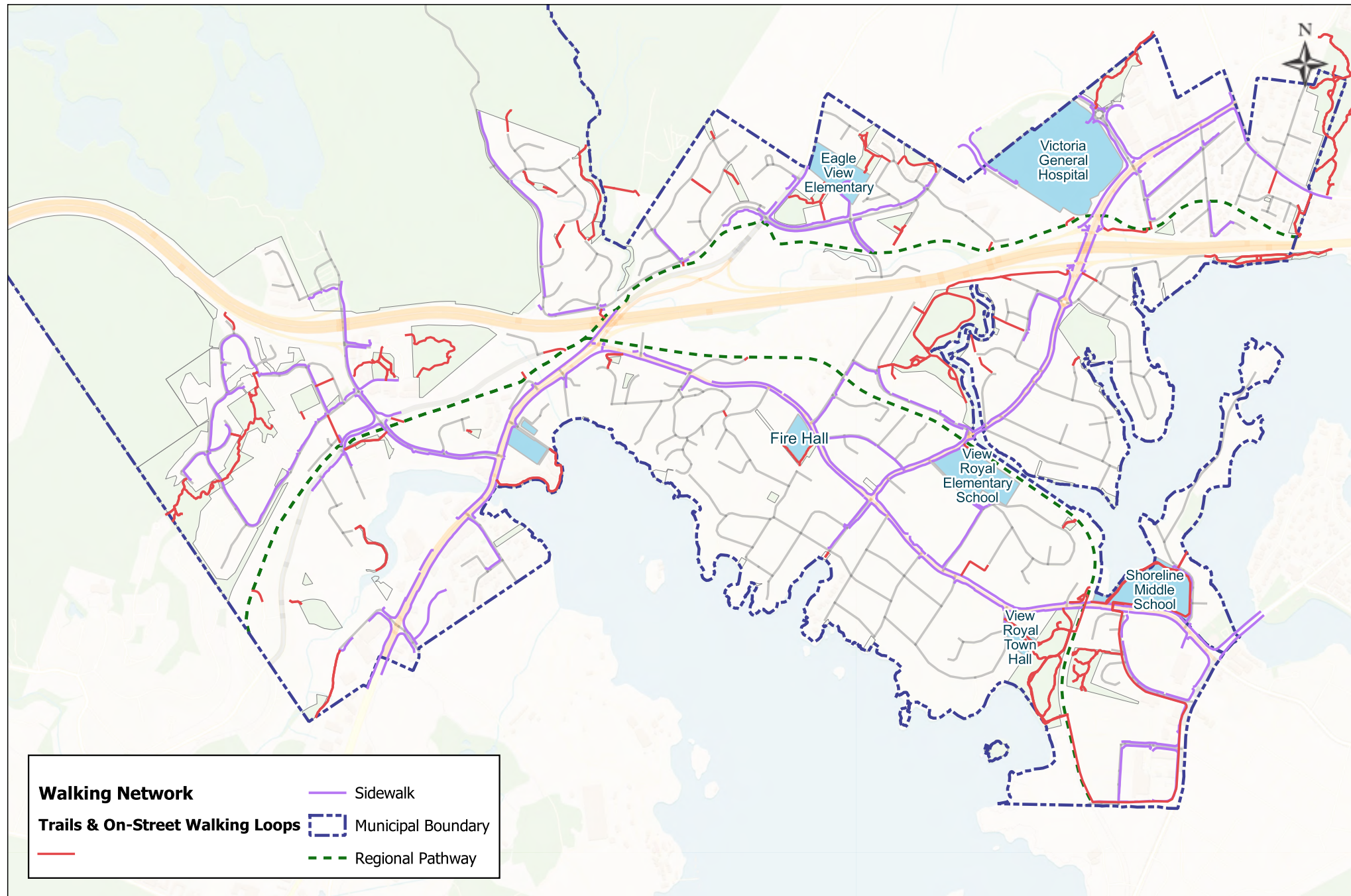




EXHIBIT 2.4: EXISTING WALKING NETWORK



2.2 MOBILITY PATTERNS

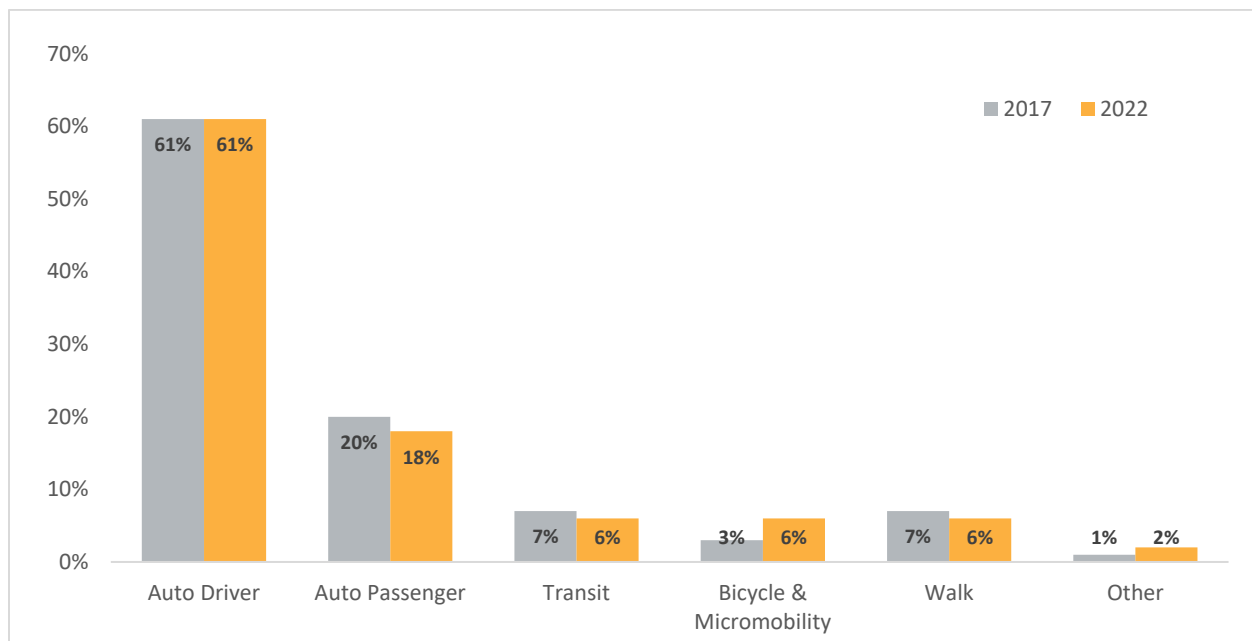
The Capital Regional District conducts an Origin Destination (O-D) Household Travel Survey every five to six years to profile regional travel patterns throughout a standard weekday. The most recent O-D Survey was conducted in 2022, and trip information for View Royal (including Esquimalt Nation and Songhees First Nation) has been summarized in the following sections.

2.2.1 How We Travel

Mode Split

Mode split represents the distribution of transportation modes used by travellers for their daily trips - including private vehicles, public transit, cycling, and walking. It provides insight into travel choices and indicates which modes of transportation are most preferred or commonly used. **Figure 2.1** illustrates the daily mode shares for View Royal residents.

Figure 2.1: Daily Mode Shares (2017 & 2022)



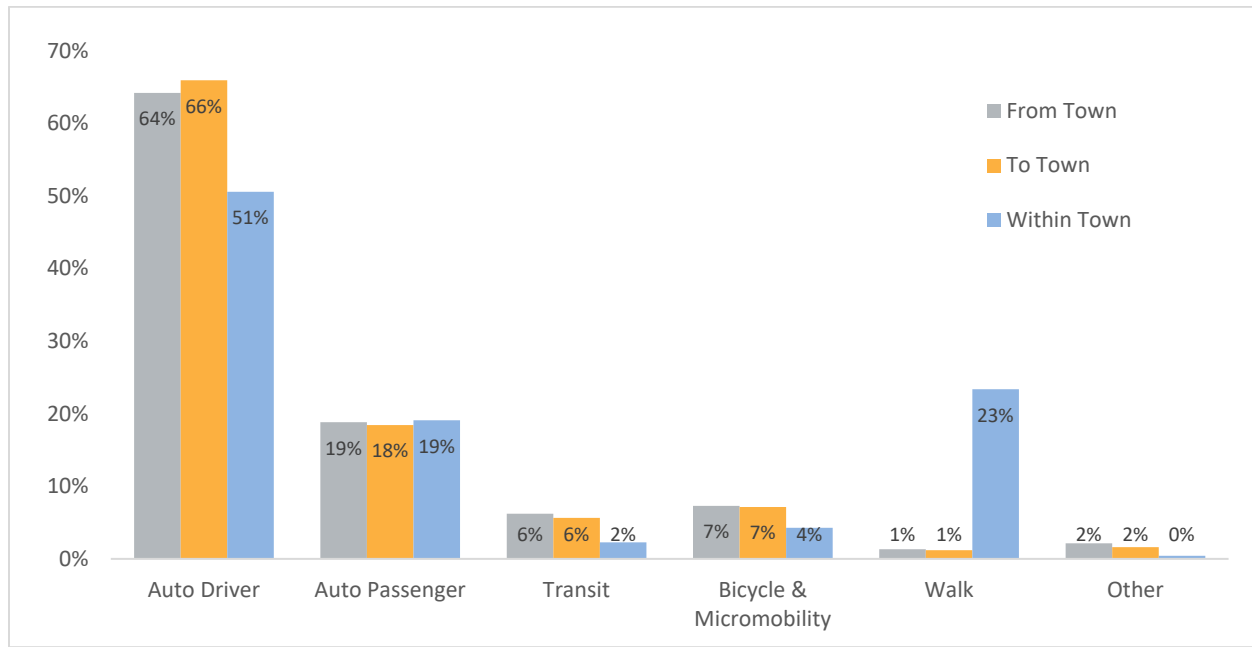
Key insights from the mode share review are provided below:

- Private automobile usage (including drivers and passengers) remains the predominant travel mode for View Royal residents, accounting for approximately 80% of all trips.
- Sustainable travel modes of public transit, cycling/micromobility, and walking all possess a similar 6% mode share in 2022.
- Bicycle and Micromobility usage has doubled between 2017 and 2022.

Mode Split by Trip Type

As presented in **Figure 2.2**, the CRD Travel Survey also presented mode splits for all trips starting and/or ending within the Town.

Figure 2.2: Mode Shares by Trip Type (2022)



Trips that are contained within View Royal (i.e., both start and end within the Town) exhibit significantly lower automobile use and a higher prevalence of walking. This illustrates how shorter travel distances promote sustainable travel choices. However, the “Within Town” trips comprise only 13% of the total trips occurring in View Royal, meaning 87% of trips either start or end outside of the Town.

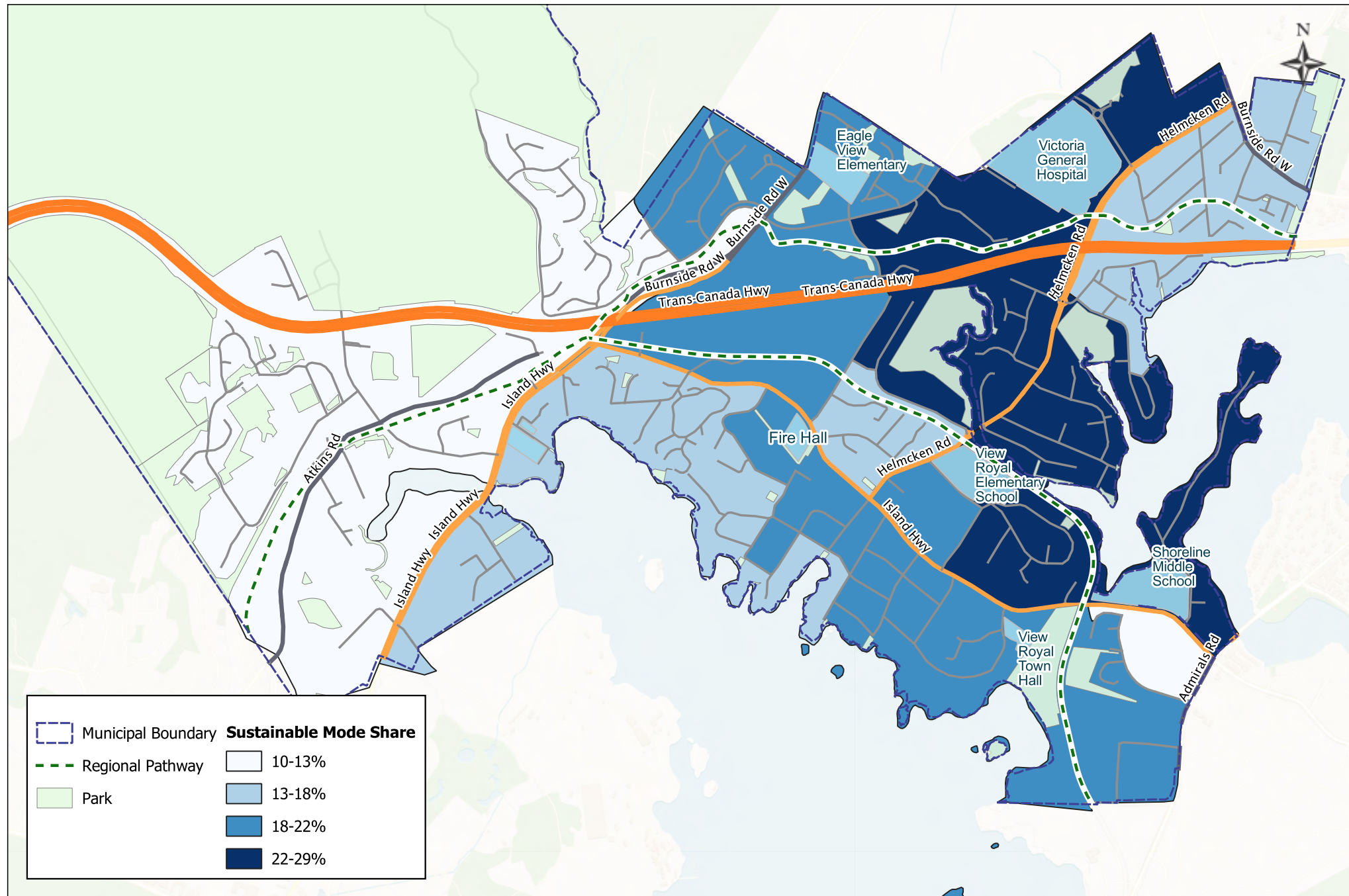
Mode Split by Neighbourhood

Different areas within View Royal also exhibit different travel behaviours. **Exhibit 2.5** illustrates the sustainable travel (transit, walking, and cycling) mode share for typical commutes to work as reported within the 2021 Census.

Sustainable mode share is higher in the eastern portion of the Town, where transit access is better, and employment concentrations are greater.



EXHIBIT 2.5: SUSTAINABLE MODE SHARES



2.2.2 Who is Travelling

Table 2.1 summarizes key transportation indicators for View Royal residents.

Table 2.1: Daily Travel Origins and Destinations

Indicator	2017	2022
Daily Trips per Person 5+	3.16	2.76
Vehicles per Person	0.67	0.78
Number of Persons per Household	2.32	2.26
Daily Trips per Household	6.51	5.68
Vehicles per Household	1.54	1.76
Adult Bicycles per Household	1.35	1.60

Between 2017 and 2022, the number of daily trips per person and per household decreased by approximately 13%. This is likely due to an increase in telecommuting and work-from-home arrangements. Despite this decrease in daily trips, the number of vehicles and bicycles per household has both increased since 2017.

2.2.3 Where We Travel

Table 2.2 summarizes the destinations of trips starting in View Royal and the origins of trips ending in View Royal.

Table 2.2: Daily Travel Origins and Destinations (2022)

District	Destination of Trips from View Royal	Origin of Trips to View Royal
North Saanich	0%	1%
Central Saanich	2%	1%
Saanich	23%	24%
Victoria	17%	16%
Oak Bay	1%	1%
Esquimalt	8%	7%
View Royal	22%	23%
Highlands	1%	1%
Langford	14%	13%

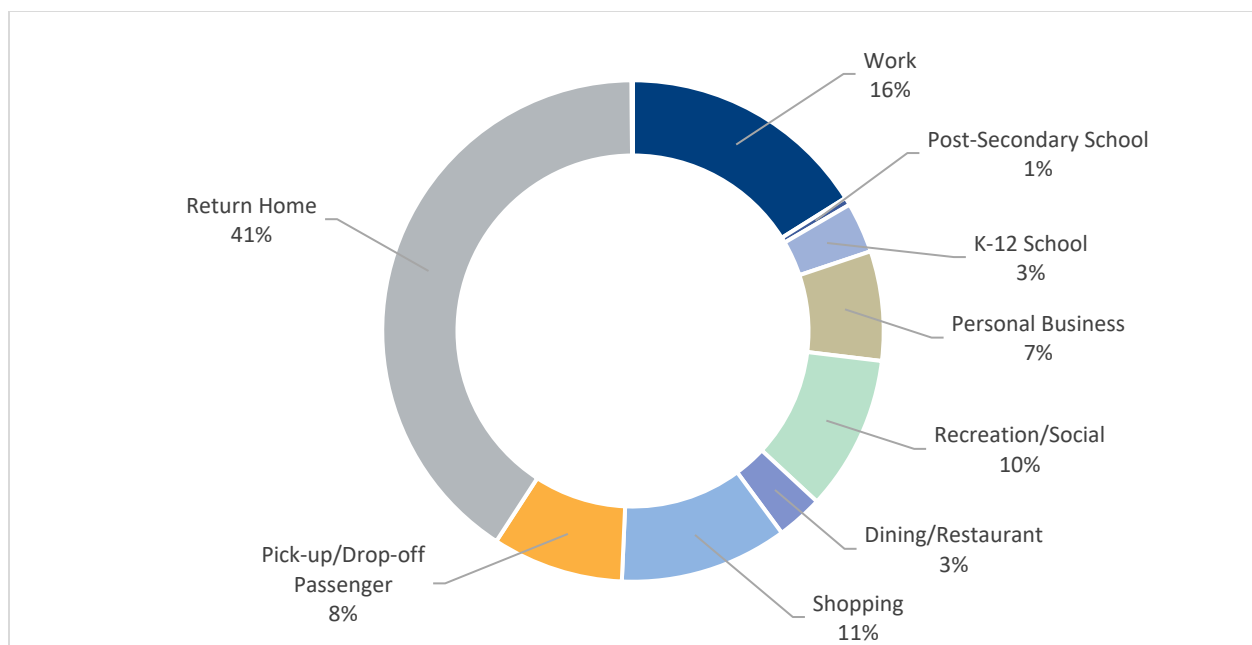
Colwood	7%	9%
Metchosin	1%	1%
Sooke	1%	1%
Other	1%	2%
Total	100%	100%

For trips that start or end outside View Royal, the dominant flows are to/from the east (e.g., Saanich and Victoria), accounting for approximately half of daily travel. For comparison, the West Shore communities account for about one-quarter of the daily trips that start or end within the Town.

2.2.4 Why We Travel

Figure 2.3 presents the proportion of View Royal trips broken down by trip purpose.

Figure 2.3: Daily Trip Purposes (2022)



There are a variety of reasons people take trips, with work trips being the most common purpose aside from returning home.

There is also a large time-of-day variation in trip purposes, as the AM peak period is dominated by typical commuter trips to work or school, while the PM peak period includes a high volume of trips returning home and a higher proportion of discretionary shopping/dining/social trips.



2.3 TRAFFIC VOLUMES

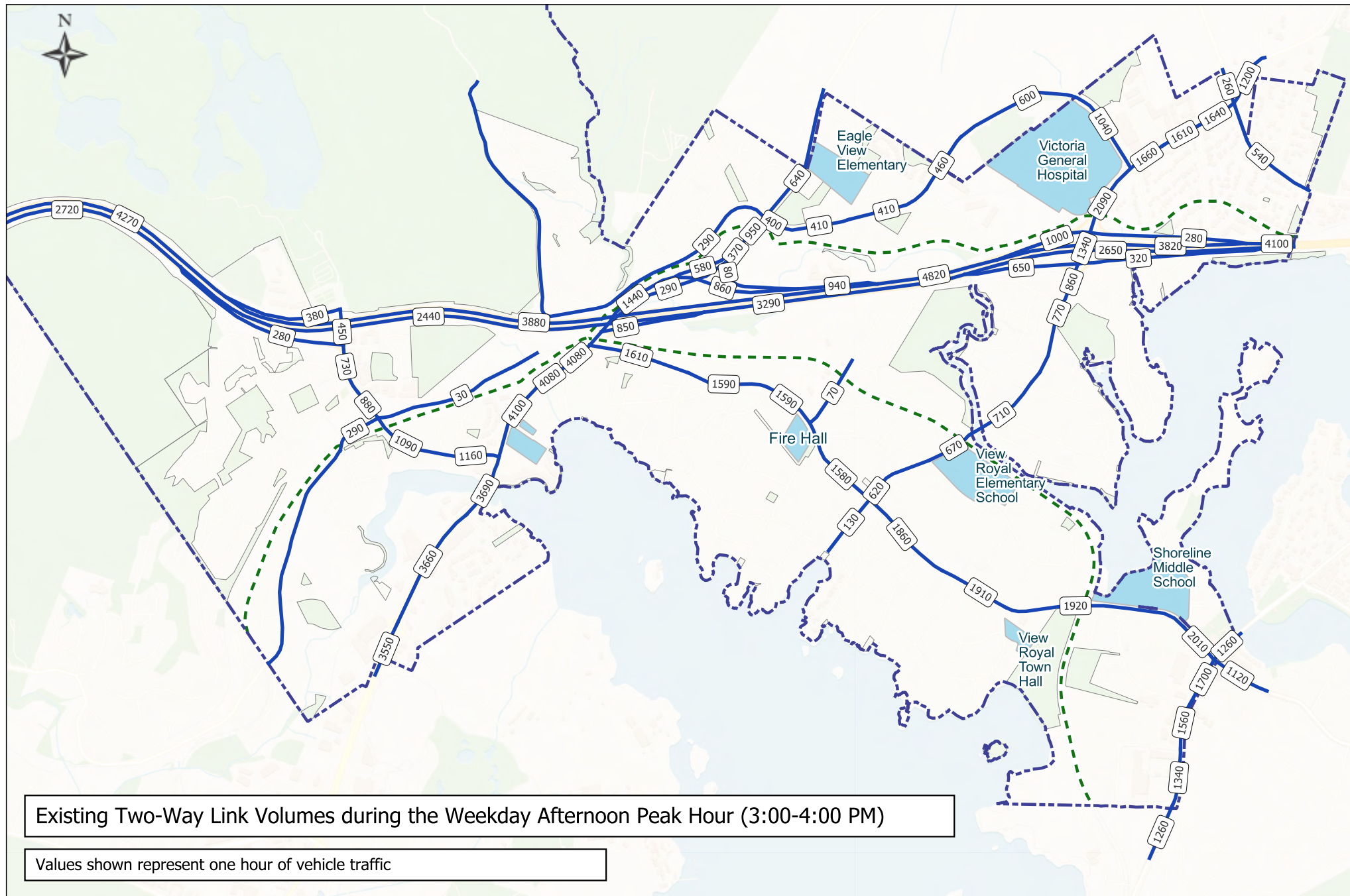
2.3.1 Peak Hour Volumes

On a typical weekday, the View Royal road network experiences distinct traffic peaks in the morning and afternoon commuter periods. The morning peak occurs from approximately 7:00 AM to 9:30 AM, as commuters head to school and work. The afternoon has a longer peak period, beginning around 2:30 PM with school pick-up and continuing until about 6:00 PM. There are also localized peaks generated by major employers in the Town. Victoria General Hospital shifts rotate at 7:00 AM and 7:00 PM; this activity extends the peak period of traffic, especially in the evening, on nearby roads such as Watkiss Way and Helmcken Road. Canadian Forces Base Esquimalt (CFB Esquimalt) shifts rotate at approximately 3:00 PM, which combines with after-school traffic and commuter traffic along Admirals Road and Island Highway.

The overall peak hour of traffic was found to be 3:00-4:00 PM. These volumes are illustrated in **Exhibit 2.6**. Subsequent traffic modelling and analysis were conducted based on these peak hour conditions to capture the critical period of traffic operations.



EXHIBIT 2.6: EXISTING PEAK HOUR TRAFFIC VOLUMES





2.3.2 Impact of Regional Traffic

Regional mobility has a large impact on View Royal’s transportation network, as major high-volume thoroughfares such as Highway 1 and the Island Highway run through the Town and serve as the main east-west regional routes connecting Victoria to the West Shore and beyond.

For reference, there were approximately 62,000 daily two-way vehicle trips between the West Shore and Core areas (incl. Saanich, Victoria, Esquimalt, and Oak Bay but excluding View Royal) in 2022. The overwhelming majority of these vehicles drive through View Royal to get to/from the surrounding municipalities.

This highlights the road network’s role of providing both local access and regional mobility, especially if the regional traffic spills into residential streets and/or impacts the ability of View Royal residents to access local destinations.

2.4 EXISTING OPERATIONS

2.4.1 Performance Thresholds

Traffic operations were assessed using standard performance measures: Level of Service (LOS), volume-to-capacity (V/C) ratio, and 95th percentile queue lengths. The LOS, V/C, and 95th percentile queue values at which mitigation measures should be considered are referred to as “performance thresholds”.

Level of Service

The LOS rating is based on average vehicle delay and ranges from “A” to “F,” reflecting the quality of operation at the intersection. LOS “A” represents optimal, minimal delay conditions, while a LOS “F” represents an over-capacity condition with considerable congestion and/or delay. Delay is calculated in seconds and is based on the average intersection delay per vehicle. **Table 2.3** summarizes the LOS thresholds for the six Levels of Service for both signalized and unsignalized intersections.

Table 2.3: Intersection Level of Service Thresholds

Level of Service	Average Control Delay per Vehicle (Seconds)	
	SIGNALIZED	UNSIGNALIZED
A	≤10	≤10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	>80	>50

Source: Highway Capacity Manual



Volume-to-Capacity Ratio

The V/C ratio represents the relationship between demand volume and available capacity at an intersection or a particular turning movement. A V/C ratio:

- Less than 0.85 indicates that there is sufficient capacity to accommodate demands and generally represents reasonable traffic conditions in suburban settings.
- Between 0.85 and 0.95 indicates an intersection is approaching practical capacity; a V/C ratio over 0.95 indicates that traffic demands are close to exceeding the available capacity, resulting in saturated conditions.
- Over 1.0 indicates a very congested intersection where drivers may have to wait through several signal cycles. In downtown and Town Centre contexts, during peak demand periods, V/C ratios of 0.90 or higher, and even 1.0, are common.

95th Percentile Queue

The 95th percentile queue is defined as the vehicle queue length with a 5-percent probability of being exceeded during the analysis period. It is a useful parameter for determining the appropriate length of turning storage bays, but it is not typical of what an average driver would experience. Reported queues have been rounded to the nearest 5m.

Performance Thresholds

A performance threshold is a traffic operations criterion used as a trigger point for considering mitigation or further study. Performance thresholds for this TMP were set based on industry best practices. Roadway or traffic control improvements should be considered if performance is not within any of the following thresholds:

- Overall intersection Level of Service = LOS D or better;
- Overall intersection V/C ratio = 0.85 or less;
- Individual movement Level of Service = LOS E or better; and,
- Individual movement V/C ratio = 0.90 or less.

In **Table 2.4** below, intersections or individual movements approaching these thresholds are shown in brown, while those exceeding them are shown in red.

2.4.2 Existing Peak Hour Operations

Intersection operations analysis was conducted for all signalized and roundabout-controlled intersections within the Town that are under Town jurisdiction. Signalized intersections were assessed using the methods outlined in the 6th Edition of Highway Capacity Manual (HCM) using Vistro 2026



software, while roundabouts were reviewed using Sidra 9 software. Table 2.4 presents operation outputs for the overall intersection and also the most critical movements within the intersection.

Table 2.4: Existing PM Peak Hour Traffic Operations

Intersection	Movement	LOS	V/C	95 th Q (m)
Six Mile Road & Atkins Road	OVERALL	A	-	-
	NBLTR	A	0.47	30
Island Highway & Wilfert Road	OVERALL	B	0.61	-
	EBL	D	0.32	20
Island Highway & Hart Road	OVERALL	A	-	-
	WBR	E	0.20	5
Island Highway & Six Mile Road	OVERALL	D	0.68	-
	NBL	F	1.01	90
	SBT	D	1.01	300
	EBLTR	F	0.57	10
Island Highway & Atkins Road	OVERALL	A	0.67	-
	EBLR	E	0.28	15
Island Highway & Burnside Road	OVERALL	C	0.66	-
	WBL	D	0.90	155
Burnside Road & Watkiss Way	OVERALL	C	0.43	-
	SBLTR	C	0.80	80
Watkiss Way & Talcott Road	OVERALL	A	0.21	-
	NBLTR	B	0.12	<5
Watkiss Way & Erskine Lane	OVERALL	A	0.15	-
	NBLTR	A	0.11	<5
Watkiss Way & Hospital Roundabout	OVERALL	A	-	-
	EBLTR	A	0.36	15
Helmcken Road & Burnside Road	OVERALL	B	0.66	-
	EBTR	B	0.94	60
	WBTR	B	0.97	65
Helmcken Road & Watkiss Way	OVERALL	D	0.78	-
	SBR	E	0.87	120
	WBTR	D	0.90	265
Helmcken Road & Highway 1 WB Ramps	OVERALL	C	0.52	-
	NBT	D	0.91	85
Helmcken Road & Highway 1 EB Ramps	OVERALL	D	0.55	-
	EBLT	E	0.90	100
	OVERALL	A	-	-



Helmcken Road & Vickery Road	SBLTR	A	0.30	15
Helmcken Road & Pheasant Lane	OVERALL	A	-	-
	SBLTR	A	0.25	10
Island Highway & Kislingbury Lane	OVERALL	A	0.47	-
	NBR	B	0.17	<5
Island Highway & Helmcken Road	OVERALL	C	0.59	-
	SBL	C	0.45	60
	WBT	C	0.88	180
Island Highway & Stormont Road	OVERALL	A	0.59	-
	SBLR	E	0.26	15
Island Highway & View Royal Road	OVERALL	A	0.64	-
	NBL	E	0.16	5
Island Highway & Admirals Road/Craigflower Road	OVERALL	C	0.61	-
	SBL	C	0.47	60
	SBT	D	0.88	120
Admirals Road & Glentana Road	OVERALL	A	0.57	-
	EBL	B	0.37	15
Admirals Road & Hallowell Road	OVERALL	B	0.47	-
	NBT	B	0.89	55

Note: Red values indicate the intersection/movement is exceeding acceptable performance thresholds, while yellow values indicate it is approaching performance thresholds.

Most of the study intersections were found to operate within acceptable performance thresholds during the afternoon peak hour. However, a few pinch points were identified as major contributors to the significant peak period queuing and congestion experienced throughout the road network. Further discussion regarding these pinch points and other key intersections is provided in the following subsections.

Island Highway & Six Mile Road

The southbound through movement on Island Highway was found to be overcapacity, resulting in unstable traffic flow, extended delays and queues. The southbound queues were observed to spill back and impede operations of the upstream intersections at both Atkins Road and Burnside Road, leading to southbound congestion not only on Island Highway but also extending to Burnside Road past the Trans-Canada Highway.

The northbound left from Island Highway and eastbound movements from Six Mile Road were also found to operate at LOS 'F' – which is reflective of the long cycle length and high vehicle delays at this intersection.



Island Highway & Burnside Road



The westbound left turn was shown to operate near its practical capacity with a V/C ratio of 0.90. As discussed above, southbound queues on Island Highway was also observed to occasionally spill back into the Island Highway & Burnside Road intersection, starving the southbound movement of green time.

It should be noted that the intersection results presented above do not reflect this occurrence, as this operations analysis reviewed each study intersection independently to isolate the key pinch points in the existing network. This means that the Island Highway & Burnside Road intersection has

sufficient theoretical capacity to accommodate the observed traffic demands; however, downstream effects from adjacent intersections on Island Highway reduce its practical capacity during the PM peak period.

Helmcken Road & Watkiss Way

During Round 1 of the Public Engagement, the Helmcken Road/Watkiss Way/Burnside Road area was the most cited location for road congestion. The westbound approach at the Helmcken Road & Watkiss Way intersection (with Helmcken Road assumed to be oriented east-west) was found to operate near its practical capacity, leading to long westbound queues on Helmcken Road that extended back to Burnside Road and beyond.

This was reflected in the traffic analysis, which showed the westbound through movement operating with a V/C ratio of 0.90 and 95th percentile queues exceeding 250m.



Helmcken Road & Burnside Road



With a high V/C ratio of 0.97, the vehicle demands on the westbound through/right movements at the Helmcken Road & Burnside Road intersection were found to approach the lane's capacity – even without considering the impacts of downstream westbound queueing on Helmcken Road.

The congestion on Helmcken Road compounds this issue by further reducing available capacity at the Burnside Road intersection, as vehicles looking to travel westwards on Helmcken (the southbound right, westbound through, and northbound left movements)

occasionally cannot do so due to vehicle queues. This leads to additional delays at this intersection, particularly on the westbound and northbound approaches.

Island Highway & Helmcken Road

The section of Island Highway between Helmcken Road and Admirals Road carries high traffic volumes, with over 1,000 vehicles in each direction during peak hours. This level of traffic volume approaches the maximum volume which can be sustained by a single travel lane in urban areas.

In the afternoon peak hour, westbound traffic is the dominant flow on this portion of Island Highway. At the Helmcken Road intersection, the westbound through movement was found to operate with a V/C ratio of 0.88 and with 95th percentile queues of 180m.

These modelled queues may be underestimated, as field observations and community feedback both reported high westbound congestion along the entire corridor between Helmcken Road and Admirals Road.



Island Highway & Admirals Road/Craigflower Road



The Island Highway & Admirals Road/Craigflower Road intersection is severely impacted by the aforementioned westbound queueing on Island Highway, which limits the throughput of the southbound right, westbound through, and northbound left movements at this intersection. The counted traffic volumes and subsequent traffic operations analysis, therefore, underrepresent the true traffic demand and congestion occurring at this intersection.

It is understood that long northbound queues originating at Island Highway and stretching along the Admirals Road corridor are commonplace during the afternoon peak period, with queues extending back to (and being partially caused by) CFB Esquimalt.



3. CORRIDOR ANALYSIS

The Town features several important transportation corridors that handle significant local and regional traffic. The TMP aims to identify ways to enhance traffic flow and road safety along these crucial routes. The initial phase of corridor analysis consists of confirming existing operating characteristics, such as speed, volume, and travel patterns.



3.1 KEY CORRIDORS

There are several corridors within the Town that serve important functions. The following subsections provide brief descriptions of these corridors, including their main characteristics, potential issues, and considerations.

View Royal Avenue

View Royal Avenue is a local road that provides access to single-family homes. The road is narrow, with limited shoulders, limited sightlines, and changes in horizontal and vertical curvature. As such, View Royal Avenue is conducive to low traffic volumes and speeds for its residential access function.

Residents have reported that View Royal Avenue experiences higher traffic volumes when the Island Highway is congested; there is potential that this “shortcutting” traffic is increasing volumes and speeds beyond the roadway’s design limits.

Island Highway

Island Highway is an arterial road used both by View Royal residents and regional traffic as an alternative east-west route to Highway 1. The roadway has significant changes in horizontal and vertical curvature, which limit sightlines in certain areas. Island Highway is often congested during peak periods, with delays and queuing common at many of its signalized intersections.

Chilco Road

Chilco Road is a local road that provides access to a large subdivision of single-family homes. The eastbound approach to the Six Mile Road & Chilco Road intersection is often delayed during the AM peak period due to high traffic volumes on Six Mile Road and at the Six Mile Road & Atkins Road intersection.

Admirals Road

Admirals Road is a major arterial road that serves as a regional corridor and a key route to schools and employers, including Shoreline Middle School and CFB Esquimalt. It also provides access to Esquimalt First Nation and Songhees First Nation lands. Admirals Road features a wide cross-section and generally lacks active transportation facilities and crossing opportunities. The corridor can be congested for extended periods due to overlapping peak periods for school, employment, and regional traffic generators.

Atkins Road

Atkins Road is a collector road that provides direct access to numerous homes and other local residential neighbourhoods. It can also be used as an alternative route to avoid sections of Highway 1 or Island Highway during periods of congestion. Residents have reported high speeds and traffic volumes on Atkins Road, attributed to traffic using the road to “shortcut” around these busy corridors.



Helmcken Road

Helmcken Road is an arterial road serving as a major regional corridor and route to employers like Victoria General Hospital. The corridor experiences traffic congestion from both local and regional traffic, and there are potential sightline and operations issues at its key intersections.

3.1.1 Selected Corridors for Speed, Volume, and Shortcutting Assessment

The following three corridors were selected for further assessment based on their importance as key routes or the prevalence of community input:

- **Admirals Road**
- **Atkins Road**
- **Helmcken Road**

Exhibit 3.1 illustrates these three corridors within the Town.

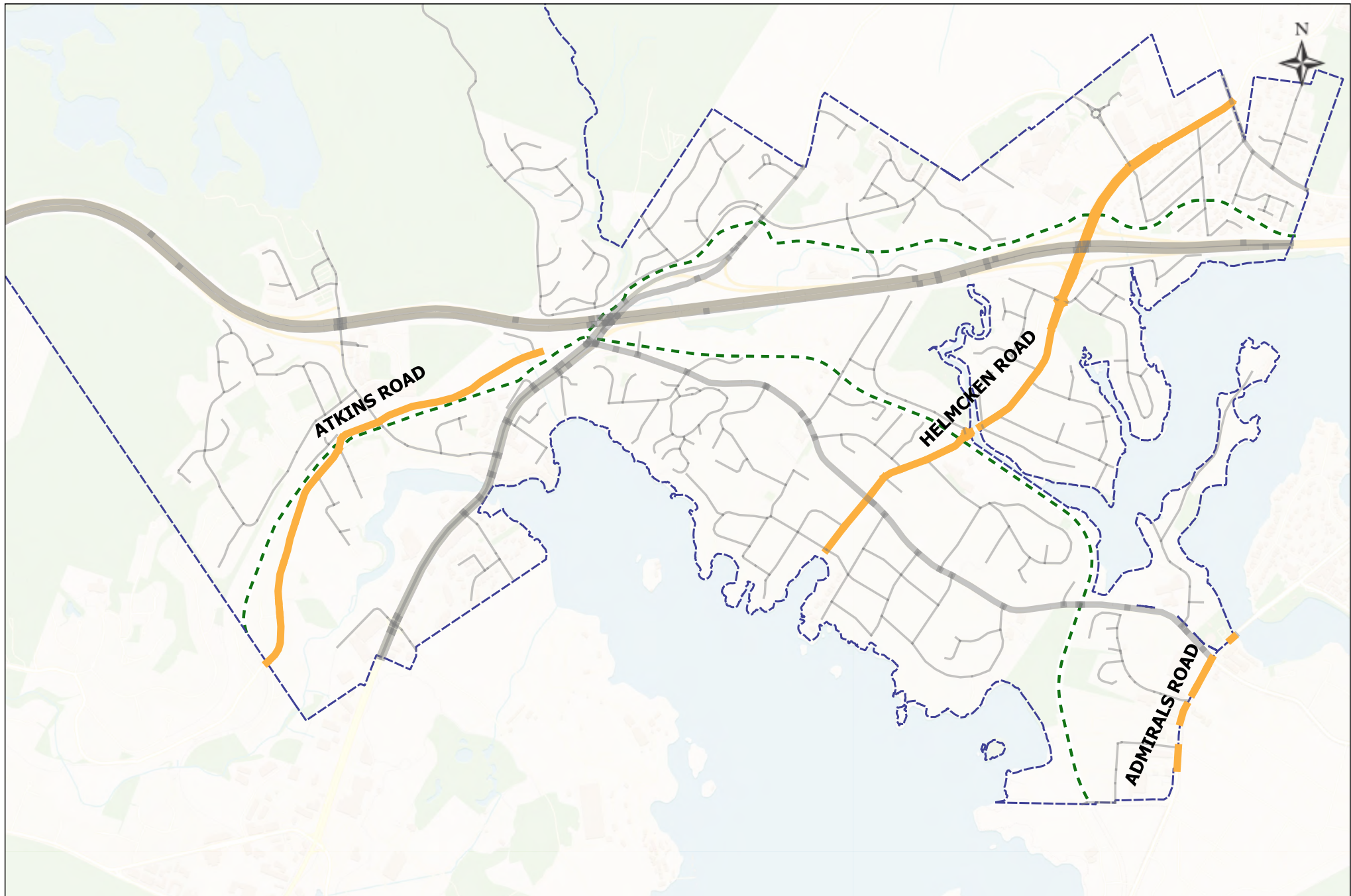
The following corridors were excluded from a speed, volume, and/or shortcutting analysis. This does not mean they are excluded from consideration for recommendations in the TMP, only that they may be reviewed as part of other study tasks:

- **View Royal Avenue**
- **Island Highway**
- **Chilco Road**

For all three corridors, congestion or shortcuts have been reported due to poor traffic operations. Therefore, the View Royal Avenue corridor will be examined as part of the TMP's traffic operations analysis component, instead of in a separate speed and volume analysis.



EXHIBIT 3.1: VIEW ROYAL ANALYSIS CORRIDORS





3.2 EXISTING ROAD CLASSIFICATIONS

3.2.1 How Roads are Classified

Road classification is the “orderly grouping of roads into systems according to the type of service that they provide to the public.”¹ The most common system in Canada specifies the following classifications for urban roads:

- **Local** – local roads are primarily used for property access, carrying low volumes of slow-moving traffic.
- **Collector** – collector roads “collect” traffic from local roads and funnel it to arterial roads, providing a balance between property access and traffic movement.
- **Arterial** – arterial roads move large volumes of traffic between important areas, prioritizing traffic flow while minimizing direct property access.
- **Highway** – highways are used for long-distance travel at high speeds, with no direct property access.

Road classification is among the first criteria used to determine a road’s physical features, such as the number of travel lanes and lane widths, level of separation for active transportation (e.g., painted vs. protected bike lanes), traffic control, transit accommodations, and more. As such, it is important that a road’s classification be consistent with its intended function. A mismatch can lead to an inefficient road design (e.g., unable to support demand) or a hazardous one (e.g., unsafe speeds).

The Transportation Association of Canada (TAC) *Geometric Design Guide for Canadian Roads, 2017 Edition*, lists the following factors that are considered when determining road classification:

- **Land Use** – land uses adjacent to the road impact the level of access, access volumes, and the types of vehicles entering and exiting the roadway.
- **Service Function** – service function is whether the road provides access to land, promotes traffic flow, or both.
- **Traffic Volume** – the amount of vehicle traffic the road experiences.
- **Flow Characteristics** – flow is the level of interruption vehicles experience while travelling. For example, a highway or rural arterial has uninterrupted flow because there are few accesses and intersections, while a local road is often interrupted by other road users entering the roadway.
- **Operating Speed** - operating speed is the speed at which vehicles travel on the road, which is impacted by the road condition, traffic control, land access, and vehicle types.

¹ Transportation Association of Canada. *Geometric Design Guide for Canadian Roads*, Chapter 2, Pg. 46. June 2017.



- **Vehicle Type** - vehicle type is the proportion of cars, buses, and trucks on a roadway, which is dependent on the transit network and truck route network.
- **Connections** – connections are the road classifications that the road in question connects to. For example, local roads typically connect to collector roads, which in turn connect to both local roads and arterials.

Each road classification has a typical value or description for each of the above factors.

3.2.2 Corridor Classifications in View Royal

The Town of View Royal *Active Transportation Network Plan (ATNP) Baseline Conditions Report* has a road classification map which illustrates the intended road classifications within the Town. The second column of **Table 3.1** summarizes the current road classifications of Atkins Road, Helmcken Road, and Admirals Road. The remaining columns present the recommended characteristics for these classifications, based on TAC guidance.

Table 3.1: Corridor Existing Road Classifications and Recommended Characteristics

Corridor	Existing Road Classification	TAC Recommended Characteristics						
		Land Use	Service Function	Traffic Volume	Flow	Operating Speed	Vehicle Type	Connections
Admirals Road	Arterial Road	Rigid Access Control	Primarily Movement	5,000 – 30,000 AADT	Uninterrupted except for signals and crosswalks	60-100 km/h (Design) 50-90 km/h (Posted)	All types up to 20% trucks	Collectors, arterials, and highways
Atkins Road	Collector Road	Movement and Access	Movement and Access	<8,000 AADT	Interrupted	50-80 km/h (Design) 30-70 km/h (Posted)	Passenger and Service	Locals, collectors, arterials
Helmcken Road	Arterial Road	Rigid Access Control	Primarily Movement	5,000 – 30,000 AADT	Uninterrupted except for signals and crosswalks	60-100 km/h (Design) 50-90 km/h (Posted)	All types up to 20% trucks	Collectors, arterials, and highways

Based on TAC guidance and the Town’s current road classifications, the operating characteristics of the three corridors should align with those recommended in the Table. The following section will examine the current operating characteristics of the corridors within each category.

3.3 EXISTING OPERATING CHARACTERISTICS

3.3.1 Corridor Speeds

Metrics such as average speed, average free flow speed (i.e., vehicle speed when there is minimal or no traffic congestion), and average 85th percentile speed (i.e., the speed that only 15% of vehicles exceeded) were extracted using Streetlight Data. Streetlight Data is a mobility analytics platform that



aggregates location data from vehicles and mobile devices to generate transportation insights. The speed data for each corridor was aggregated and averaged from available devices from February to April 2022. **Table 3.2** summarizes the speed data for each corridor.

Table 3.2: Corridor Speed Data

Corridor	Average Speed [km/h]	Average Free Flow Speed [km/h]	Average 85 th Percentile Speed [km/h]
Admirals Road	45.1	56.8	54.7
Atkins Road	35.5	41.1	40.8
Helmcken Road	41.8	51.9	52.2

The 85th percentile speed is commonly used as the roadway's operating speed. This speed generally aligns with the average free-flow speed, as seen in the three corridors here, reflecting the speed most drivers find comfortable given the roadway design. Average speed is usually not used because it often reflects vehicle speeds during congestion, which are influenced by traffic rather than road design, and thus offers limited insight into how the design impacts speed. For this study, the 85th percentile speed will be considered as the operating speed.

3.3.2 Corridor Volumes

Average Annual Daily Traffic (AADT) refers to the total two-way traffic volume on a road over a 24-hour period (midnight to midnight) on a typical day of the year. AADT is determined by dividing the total annual traffic volume by 365. However, this method requires continuous counts for an entire year, which are not usually available unless a permanent counter is installed. When limited data is available, a standard method for estimating AADT is to multiply the peak-hour traffic volume by 10. **Table 3.3** summarizes the AADT for each corridor, estimated using this method. The estimates are based on the peak hour of two-way traffic on the road between 7 am and 7 pm on a weekday in early December 2025 or late January 2026.

The Helmcken Road corridor was split into north and south sections, divided by Highway 1, due to substantial differences in traffic volume.



Table 3.3: Estimated Corridor AADT

Corridor	Peak Hour Volume ¹	Estimated AADT
Admirals Road	1,604	16,040
Atkins Road	308	3,080
Helmcken Road (North of Highway 1)	1,640	16,400
Helmcken Road (South of Highway 1)	824	8,240

¹ When there was more than one intersection with traffic data on the same corridor, the average peak hour volume between them were taken.

3.3.3 Operating vs. Recommended Characteristics

Table 3.4 summarizes the operating characteristics of speed and volume, as discussed above, and other qualitative characteristics for each of the three corridors. The table compares these operating characteristics to the TAC-recommended characteristics for each corridor's current road classification. Discrepancies between the operating and recommended characteristics are identified in bold.

Table 3.4: Corridor Operating vs. Recommended Characteristics

Corridor (Existing Classification)	Operating or Recommended?	Land Use	Service Function	Traffic Volume	Flow	Operating Speed	Vehicle Type	Connections
Admirals Road (Arterial)	Operating	Limited Direct Access	Primarily Movement	~16,000 AADT	Uninterrupted except for signals and crosswalks	~55 km/h (Operating)	All types, ~5% HVs	Locals, collectors, arterials
	Recommended	Rigid Access Control	Primarily Movement	5,000 – 30,000 AADT	Uninterrupted except for signals and crosswalks	60-100 km/h (Design) 50-90 km/h (Posted)	All types up to 20% trucks	Collectors, arterials, and highways
Atkins Road (Collector)	Operating	Movement and Access	Movement and Access	~3,100 AADT	Interrupted	~41 km/h (Operating)	Mainly Passenger, ~2-3% HVs	Locals, collectors, arterials
	Recommended	Movement and Access	Movement and Access	<8,000 AADT	Interrupted	50-80 km/h (Design) 30-70 km/h (Posted)	Passenger and Service	Locals, collectors, arterials
Helmcken Road (Arterial)	Operating	Limited Direct Access	Primarily Movement	~8,000- 16,000 AADT	Uninterrupted except for signals and crosswalks	~52 km/h (Operating)	All types, ~3% HVs	Locals, collectors, arterials
	Recommended	Rigid Access Control	Primarily Movement	5,000 – 30,000 AADT	Uninterrupted except for signals and crosswalks	60-100 km/h (Design) 50-90 km/h (Posted)	All types up to 20% trucks	Collectors, arterials, and highways



As shown, most of the corridors' operating characteristics align with the TAC-recommended characteristics. The exception is that both the Admirals Road and Helmcken Road corridors have more local road connections than ideal for traffic flow. However, this is expected since these connections serve older neighbourhoods, indicating they were likely established when the corridor was less prominent as an arterial road.

Overall, this analysis shows that the three corridors align well with their existing road classifications based on TAC guidance. This suggests that issues relating to road safety or congestion along these corridors are more nuanced than only a mismatch between operating characteristics and road classification.

3.4 OTHER CONSIDERATIONS

3.4.1 Perceived Shortcutting on Atkins Road

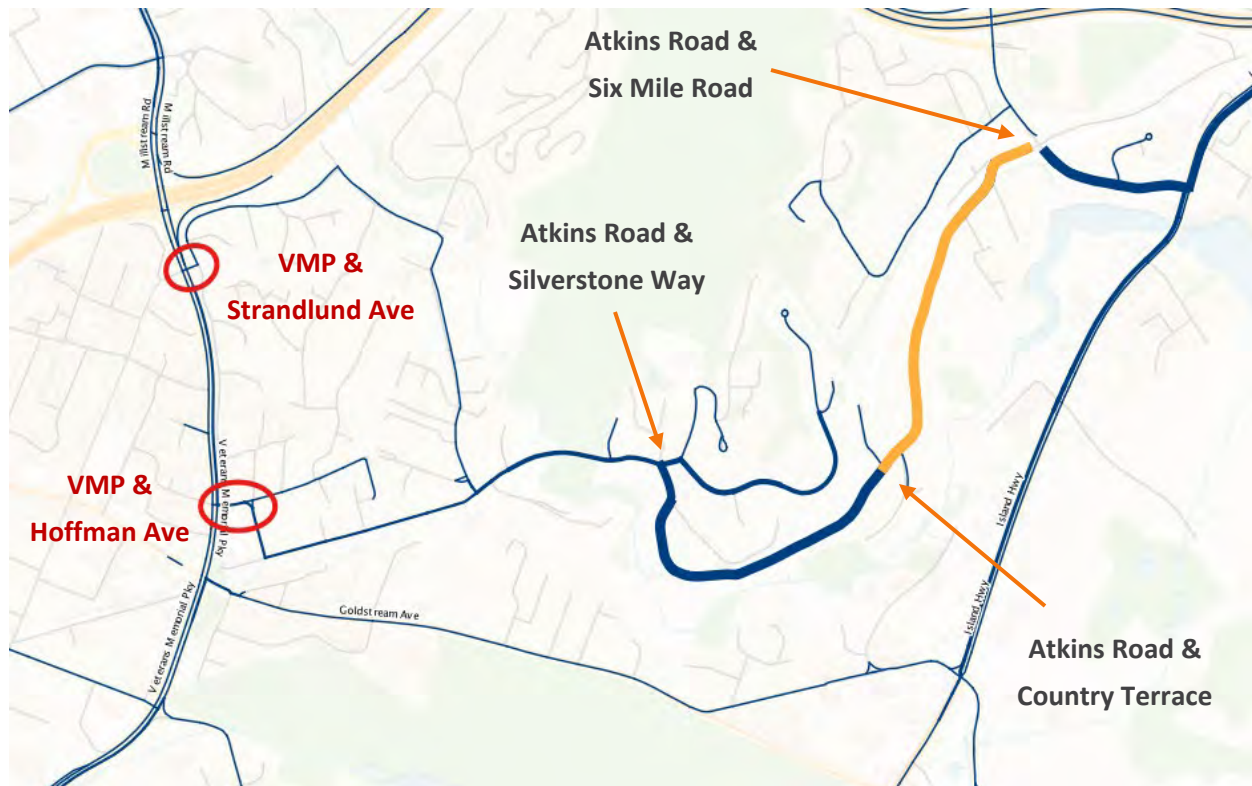
The Atkins Road corridor is narrow, winding, and has numerous direct driveway accesses. There are also numerous traffic calming measures such as speed humps. As a result, its design may feel more like a local road despite its collector function. Because of this, although the road's AADT is well within the recommended value for a collector road, there is concern among residents that traffic volumes on Atkins Road exceed the road's design limits. Residents have reported the high volumes as hazardous, especially for those with direct driveway access, and as creating congestion issues for drivers accessing the Six Mile Road corridor from Atkins Road or the Chilco Road neighbourhood.

Town staff and residents noted that one possible reason for high traffic volumes is 'shortcutting.' The hypothesis is that vehicles travelling to and from the City of Langford are using Atkins Road to bypass either the Highway 1 segment between Veterans Memorial Parkway (VMP) and Burnside Road or the Island Highway segment between Goldstream Avenue and Burnside Road, both of which are congested during commute times. The following subsection reviews traffic data to estimate the level of shortcutting traffic on Atkins Road.

Estimated Shortcutting Traffic

Streetlight Data, a platform that aggregates traffic data from drivers' mobile devices, can provide origin-destination information for a specific road segment. **Figure 3.1** provides an example. The yellow segment represents northbound traffic on Atkins Road during the PM peak hour between Country Terrace and Six Mile Road, while the blue segments represent the roads from which this traffic is coming (i.e., origin) and the roads it is going to (i.e., destination). The thicker the line segment, the larger the share of the traffic. The two red circles represent the two locations where "shortcutting" traffic could be coming from and going to: Veterans Memorial Parkway & Hoffman Avenue, and Veterans Memorial Parkway and Millstream Road / Strandlund Avenue.

Figure 3.1: O-D Distribution (PM Peak Hour, Northbound from Country Terr to Six Mile Rd)



The figure illustrates that most traffic originates from roads and accesses that connect directly to Atkins Road, as indicated by the difference in line thickness in the segments on either side of the Atkins Road & Silverstone Way intersection. This means that most traffic originates from residents on or near Atkins Road. The shortcutting traffic is represented by the thin blue lines extending east from the two red circles.

The process used to create Figure 3.1 was repeated for the AM peak, PM peak, and daily periods, covering both northbound and southbound traffic on the yellow-highlighted segment of Atkins Road. The percentage of traffic with an origin or destination to/from either of the red-circled locations in Figure 3.1 was then calculated. **Table 3.5** presents the results of this analysis.

Table 3.5: Atkins Road Shortcutting

Time Period	% of Trips Coming From/Going To VMP	
	Northbound	Southbound
AM Peak	16%	0%
PM Peak	19%	16%
Daily	10%	16%

It is estimated that 10% of northbound trips and 16% of southbound trips use Atkins Road as a shortcut route on a typical day. Based on the estimated AADT for Atkins Road calculated in Section 3.2.2, this represents approximately 300–500 vehicle trips per day, or 30-50 vehicle trips during peak hours.

Atkins Road Shortcutting Preliminary Findings

Based on the analysis above, the preliminary results of the shortcutting analysis are as follows:

- 10-16% of daily traffic on Atkins Road is expected to be shortcutting from the City of Langford. This equates to approximately 300–500 vehicle trips per day, or 30-50 vehicle trips during peak hours based on estimated two-way AADT.
- Atkins Road AADT is not near a threshold for reclassification based on volume. Even without shortcutting traffic, the AADT would still be above the threshold for a local road (which is <1,000 AADT) and below the threshold for an arterial road (which is >8,000 AADT). This may indicate that shortcutting traffic is not influencing traffic volumes on Atkins Road to the point of operating outside its design parameters.

The analysis for the Atkins Road corridor in the next stage of TMP development will focus more on how the road geometry and infrastructure can be updated to better align with its collector road classification.

3.5 CORRIDOR ANALYSIS - PRELIMINARY FINDINGS

3.5.1 Summary of Preliminary Findings

The following are the preliminary findings of the corridor analysis:

- The three corridors of Admirals Road, Atkins Road, and Helmcken Road are classified as Arterial, Collector, and Arterial roads, respectively. Their operating characteristics, estimated using Streetlight Data and a qualitative assessment, are well aligned with the TAC-recommended characteristics for these classifications.
- Because the roads are anticipated to be classified consistently with industry standards, the existing congestion and road safety issues on the corridors are expected to result from factors



like road design details or network performance at specific locations, rather than from the road classification or its overall function.

3.5.2 Next Steps

The upcoming preliminary Transportation Master Plan report will outline key findings and recommendations concerning the road network, focusing on traffic flow and safety. It will include traffic demand and operations analysis that builds on the discussion in Section 2, identifying potential improvements such as signal control adjustments, new road connections, and traffic calming measures. The road safety analysis, extending from Section 4, will provide suggested mitigations for safety issues. Collectively, these sections aim to address specific challenges along the three previously discussed corridors, offering more detailed insights. For example, the road safety analysis will identify specific safety issues along the northern section of Helmcken Road, the Admirals corridor, and at the Galloping Goose Trail crossings on Atkins Road.



4. ROAD SAFETY REVIEW

Road safety is a priority in the community. The TMP includes a detailed safety review of the Town's most at-risk intersections, pinpointing safety concerns and developing potential mitigations to enhance safety for all road users. The initial phase includes a network screening to identify key locations for improvement, followed by an in-depth analysis of collision and safety issues at each study intersection.



4.1 NETWORK SCREENING

Network screening is “the process by which the safety performance of the road network is evaluated at the macro level to identify the most critical locations for detailed analysis.”² Network screening for this study was completed using GIS software and ICBC collision data. The following subsections describe how GIS was used to map key collision metrics in the Town of View Royal and identify the most critical intersections that should proceed to detailed collision analysis.

4.1.1 Collision Frequency

The network screening process started with a dataset of all ICBC-reported collisions in the Town of View Royal from January 2019 to December 2024 (a six-year period). A total of 2,359 collisions were reported to ICBC in the Town during this time. Using QGIS, each collision was plotted on a map using its associated latitude and longitude. **Exhibit 4.1** illustrates all ICBC-reported collisions in the Town of View Royal from 2019 to 2024. The size and colour of the circles indicate more collisions at that location (yellow being the lowest and red being the highest), with the total number of collisions at each location also displayed.

4.1.2 Collision Severity

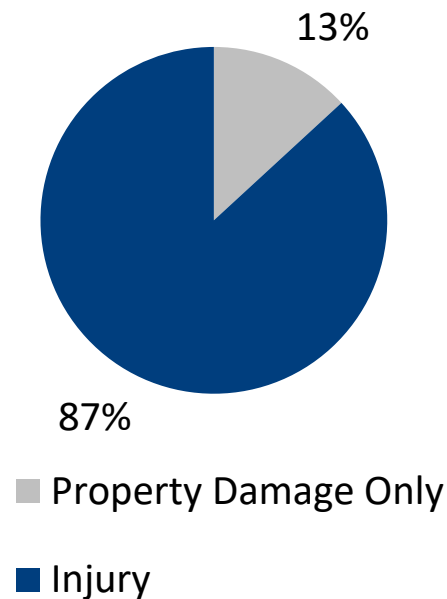
The ratio of injury-related collisions to total collisions is an indicator of risk at a location. To visualize this, the injury-related collisions were extracted from the dataset and displayed independently. **Exhibit 4.2** illustrates the injury collisions in the dataset as orange dots. The size of the clusters indicates a higher number of injury collisions at that location.

4.1.3 Vulnerable Road Users

Pedestrians and cyclists are considered ‘vulnerable road users’ as they are much more likely to sustain severe injury or be killed in a collision. **Figure 4.1** displays the proportion of injury vs. property damage collisions involving pedestrians or cyclists. For these road users, 87% of collisions in the 2019-2024 dataset resulted in injury. As such, locations with a history of pedestrian or cyclist collisions are given additional consideration when identifying study intersections. Exhibit 4.2 illustrates locations that have had at least one pedestrian or cyclist collision in the six-year dataset with a blue square.

² Transportation Association of Canada. “The Canadian Guide to In-Service Road Safety Reviews”, 2004, pg. 45

Figure 4.1: Collision Severity for Cyclists and Pedestrians



4.1.4 Fatal Collisions

Fatal collisions are examined seriously. Locations with fatal collisions are given high priority when identifying study intersections. Exhibit 4.2 illustrates the single location with a fatal collision in the dataset with a red square.

4.1.5 Injury Ratio

The ratio of injury-related to property damage collisions is an important indicator of collision risk. Higher ratios may indicate that the location has high-risk safety issues, such as higher collision speeds or hazardous collision configurations (e.g., left turn conflicts). As such, these locations are often identified for collision analysis and mitigation. **Exhibit 4.3** illustrates the ratio of injury-related collisions to total collisions. The greater the proportion of orange points to blue points, the greater the ratio of injury-related collisions.

EXHIBIT 4.1: ALL ICBC-REPORTED COLLISIONS (2019-2024)

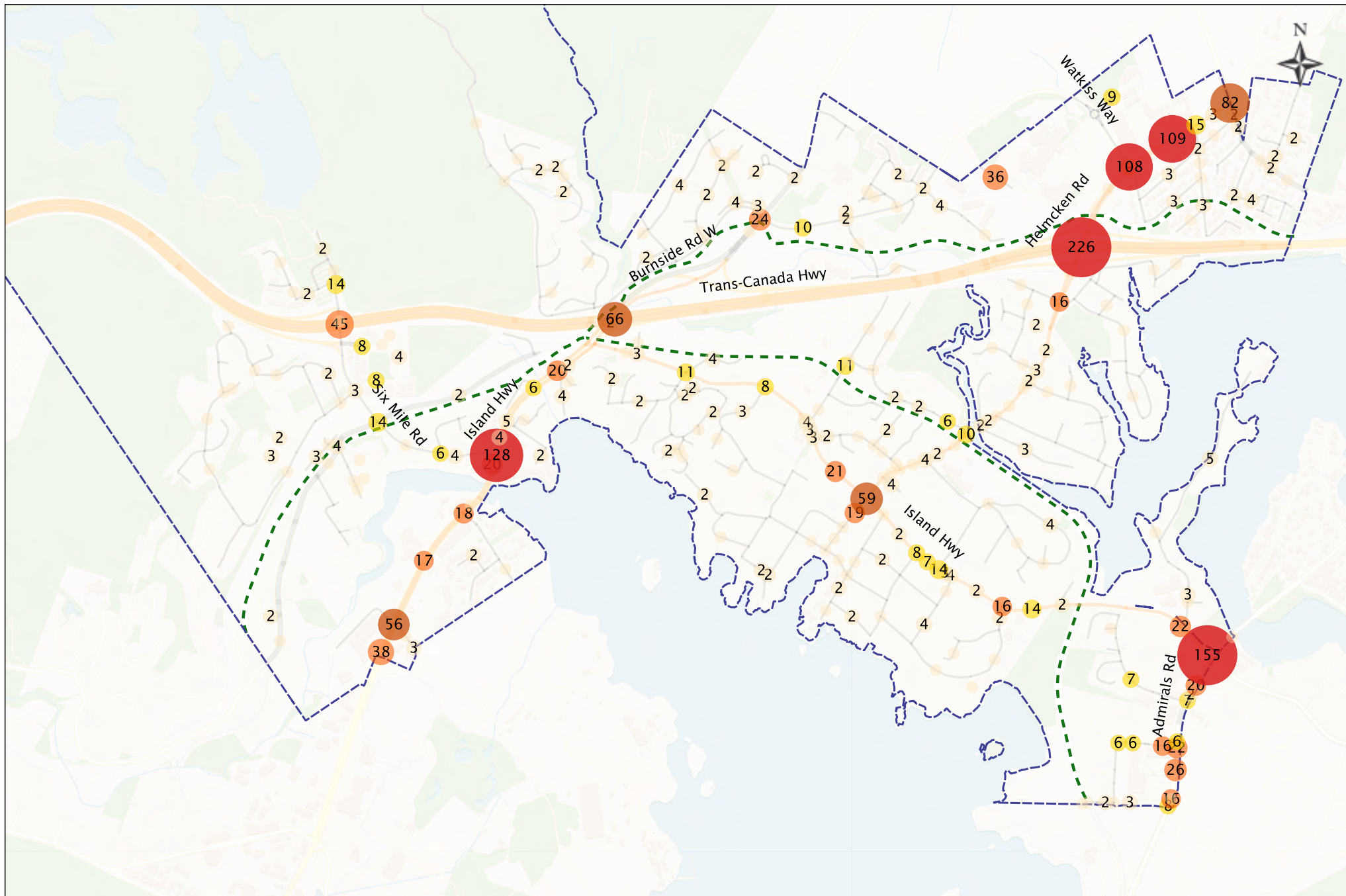




EXHIBIT 4.2: INJURY AND ACTIVE TRANSPORTATION COLLISIONS (2019-2024)

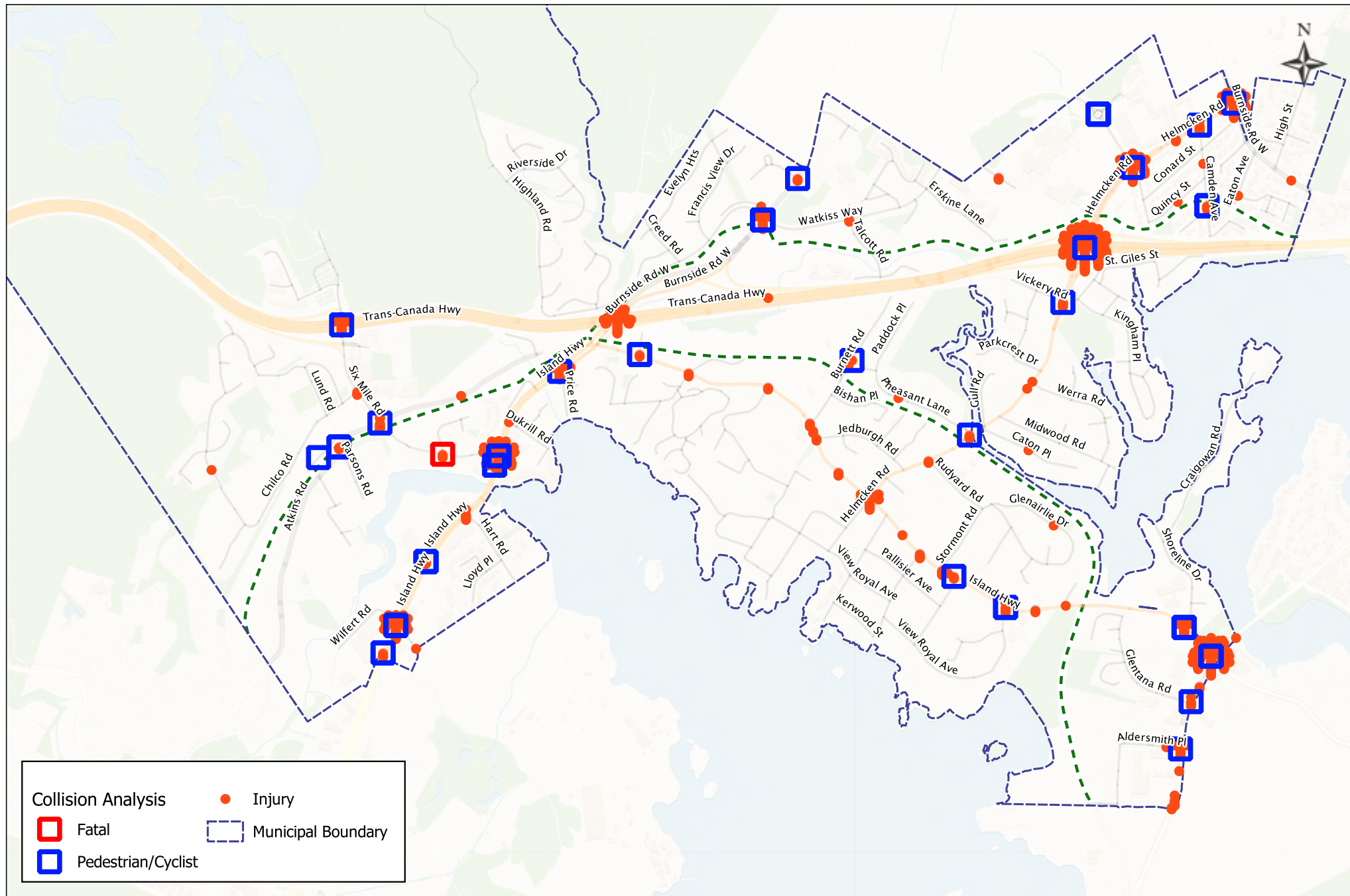
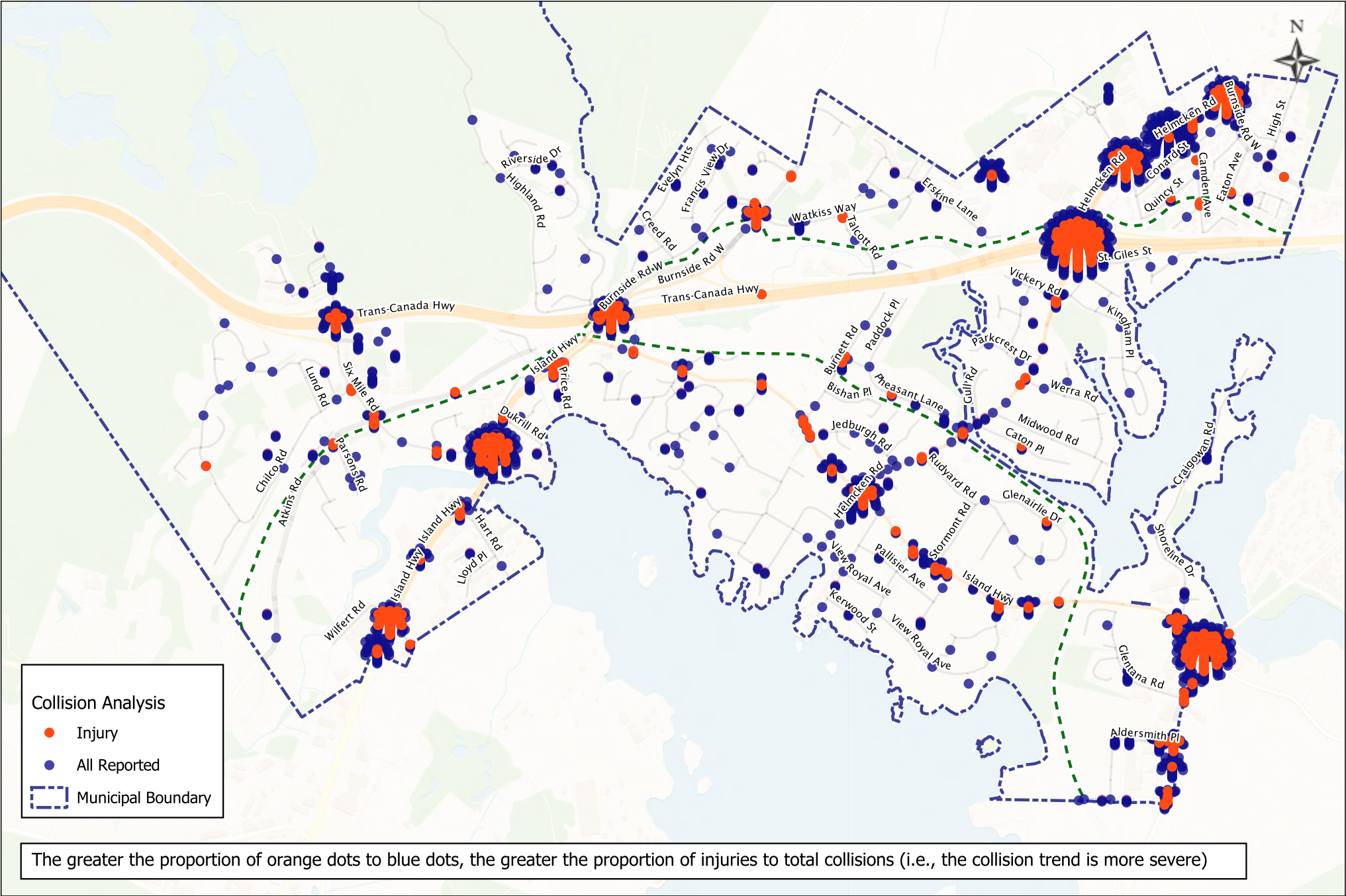




EXHIBIT 4.3: INJURY-TO-TOTAL RATIO (2019-2024)





4.2 COLLISION METRICS

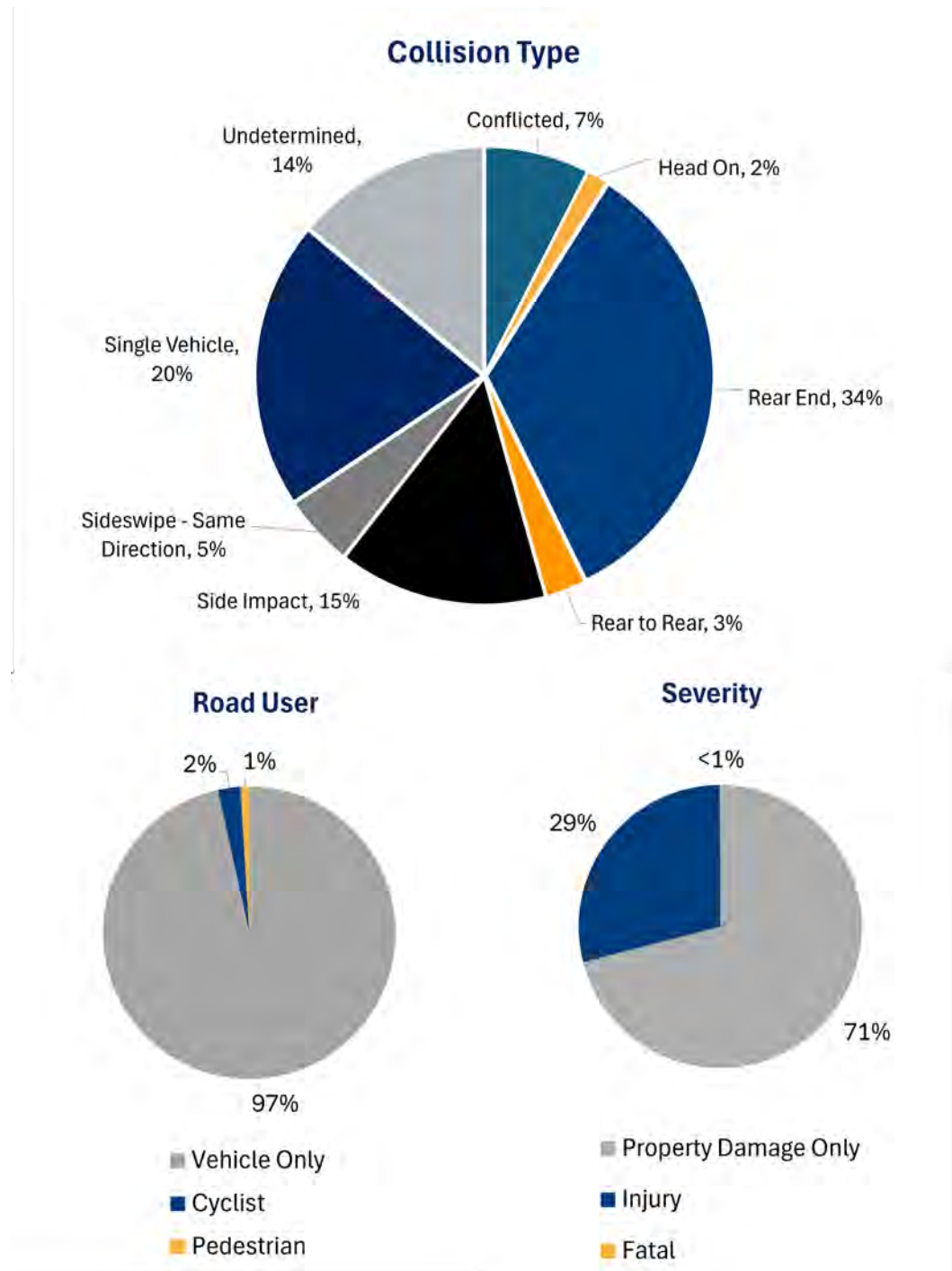
Collision metrics are information about the collisions in the dataset that can be used to identify patterns, such as:

- Collision type (e.g., rear end)
- Time of day
- Day of week
- Month
- Year
- Severity rating (Fatal, Major Injury, Injury, or Property Damage Only)
- Road user type(s) involved (e.g., cyclist)

These metrics can provide insight into potential safety issues, especially when comparing them across locations and with the entire dataset. For example, if an intersection experiences an unusually high number of collisions between 2:30 and 3:30 pm, it may indicate a risk associated with a specific activity, such as school pick-up/drop-off. **Figures 4.2 to 4.8** provide the breakdown of collision details (collision type, road users involved, and severity), time of day, lighting conditions, day of week, month, year (all collisions), and year (injury collisions) for all collisions in View Royal from 2019 to 2024.

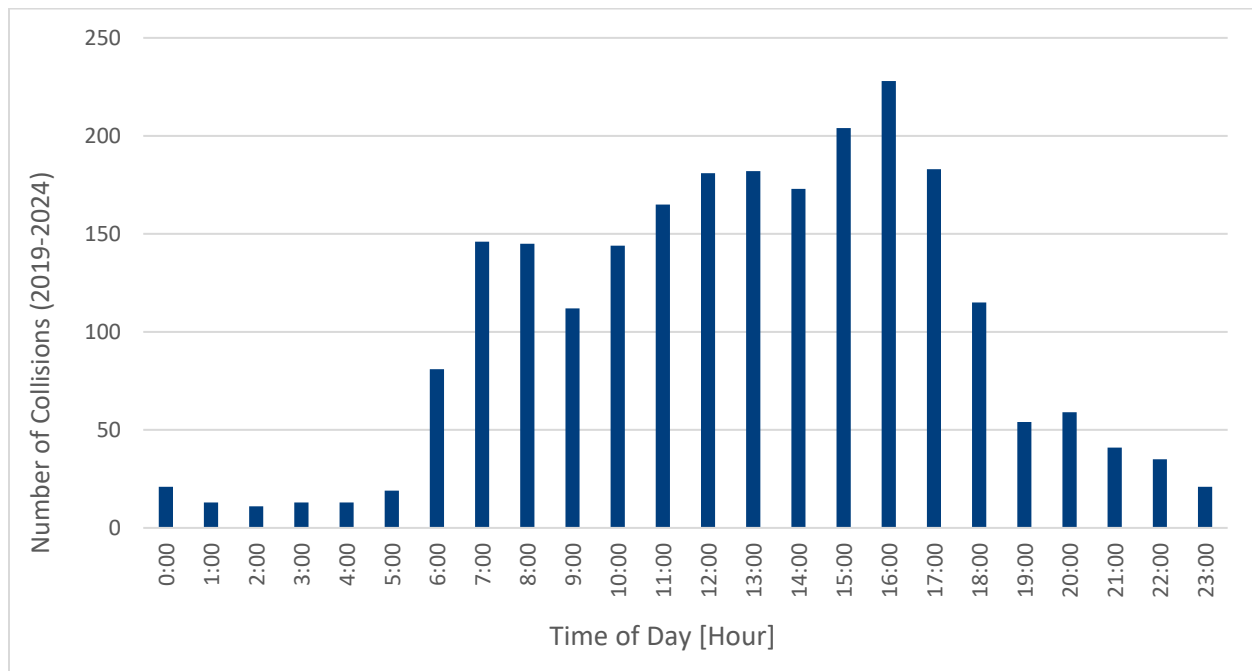
These metrics can be compared to those of individual locations or areas to identify unusual patterns. For example, if a location has a higher proportion of side-impact collisions than the Town-wide average, there may be a safety issue driving this type of collision.

Figure 4.2: Collision Details – Town of View Royal (2019-2024)



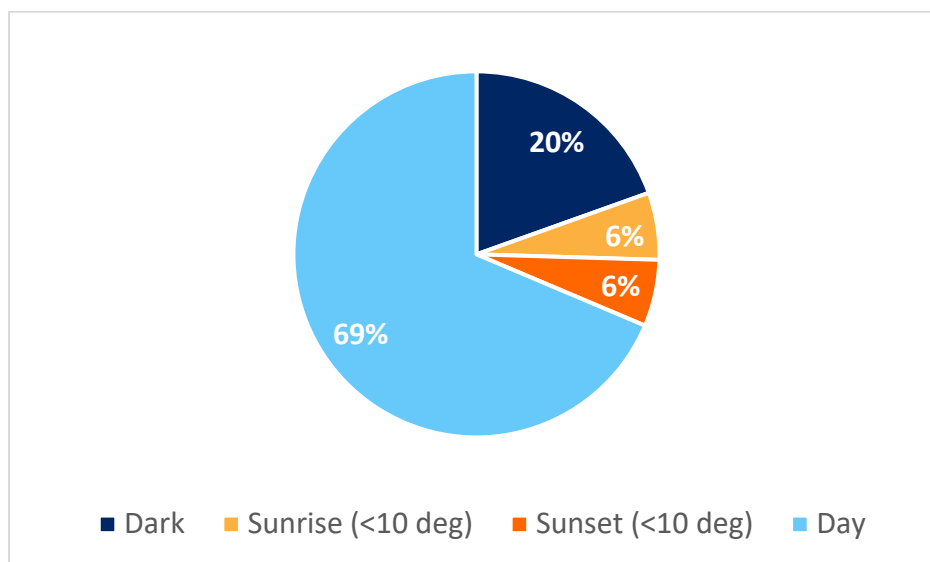
The most common type of collision in the dataset is a rear-end collision, which is consistent with other municipalities in BC. Across the Town, from 2019 to 2024, 29% of collisions resulted in at least one injured party.

Figure 4.3: Collisions by Time of Day – Town of View Royal (2019-2024)



As expected, most collisions occur during commute times and business hours, around 6:00 am to 6:00 pm. The hour with the most collisions is 4-5 pm, which coincides with school pick-up activity and the post-work commute. This illustrates the effect of exposure (i.e., higher volumes of traffic tend to create higher collision numbers) on increasing collisions.

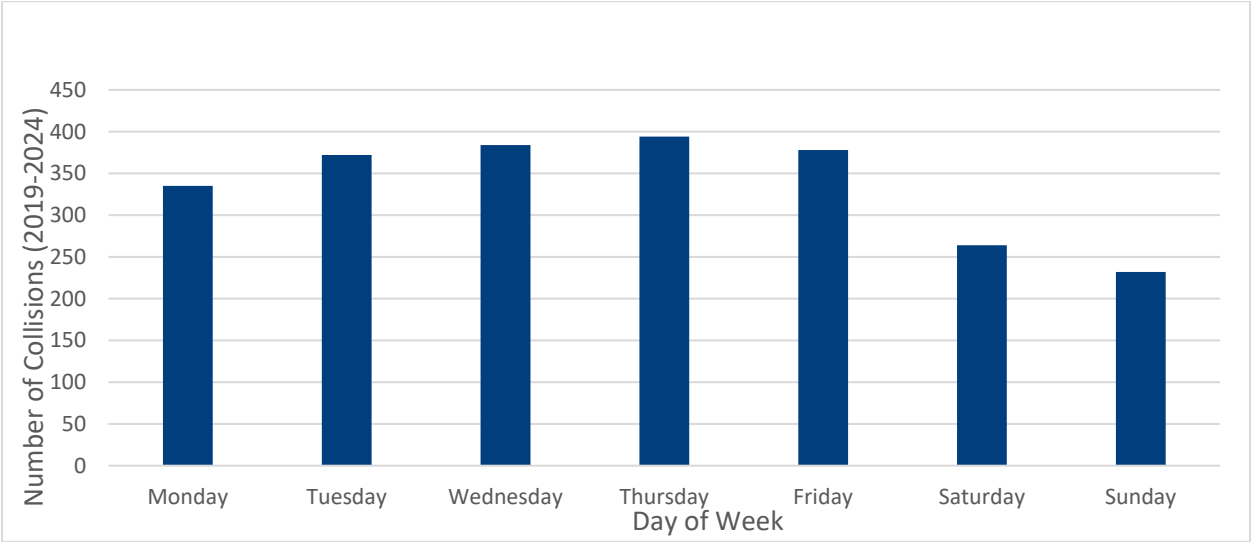
Figure 4.4: Collision Breakdown by Lighting Conditions – Town of View Royal (2019-2024)





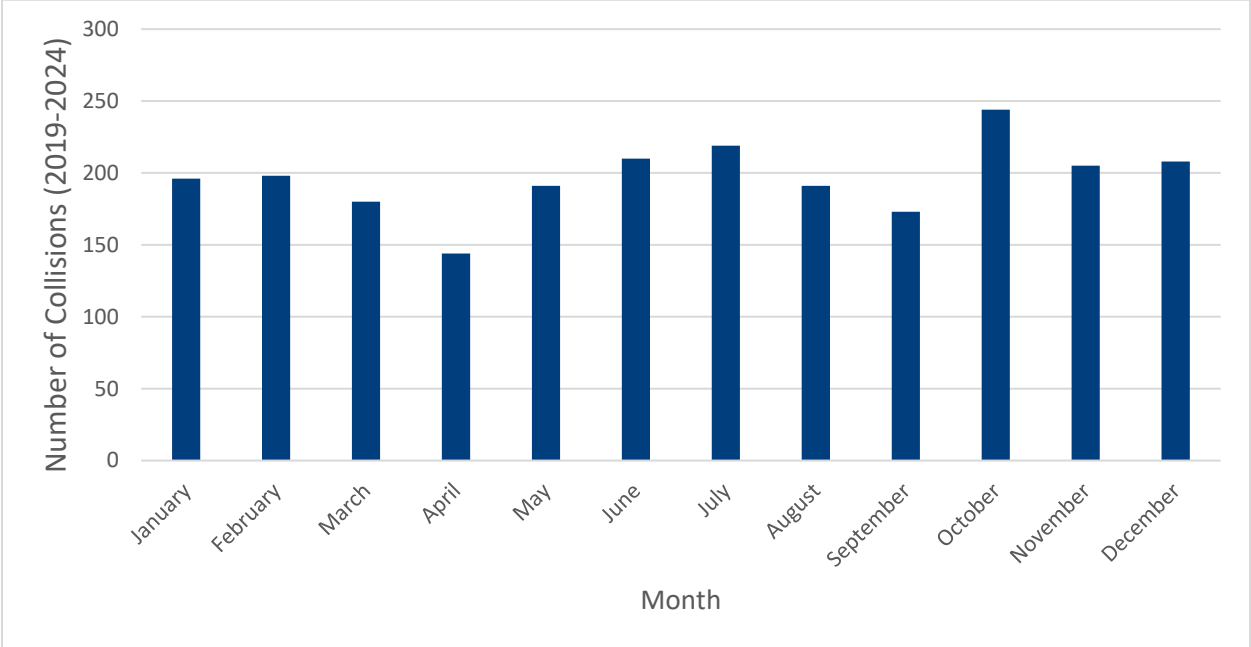
32% of collisions occurred in darkness or low lighting. Collisions are more likely and more hazardous in these conditions because other road users are less visible. The high percentage of collisions during the day reflects the higher traffic volumes in daylight hours.

Figure 4.5: Collisions by Day of Week - Town of View Royal (2019-2024)



Collisions are relatively uniform across the days of the week, with slightly fewer on weekends. This is likely due to differences in commuter and school traffic, which peak in the morning and evening on weekdays, resulting in congestion (which is a higher risk for collisions).

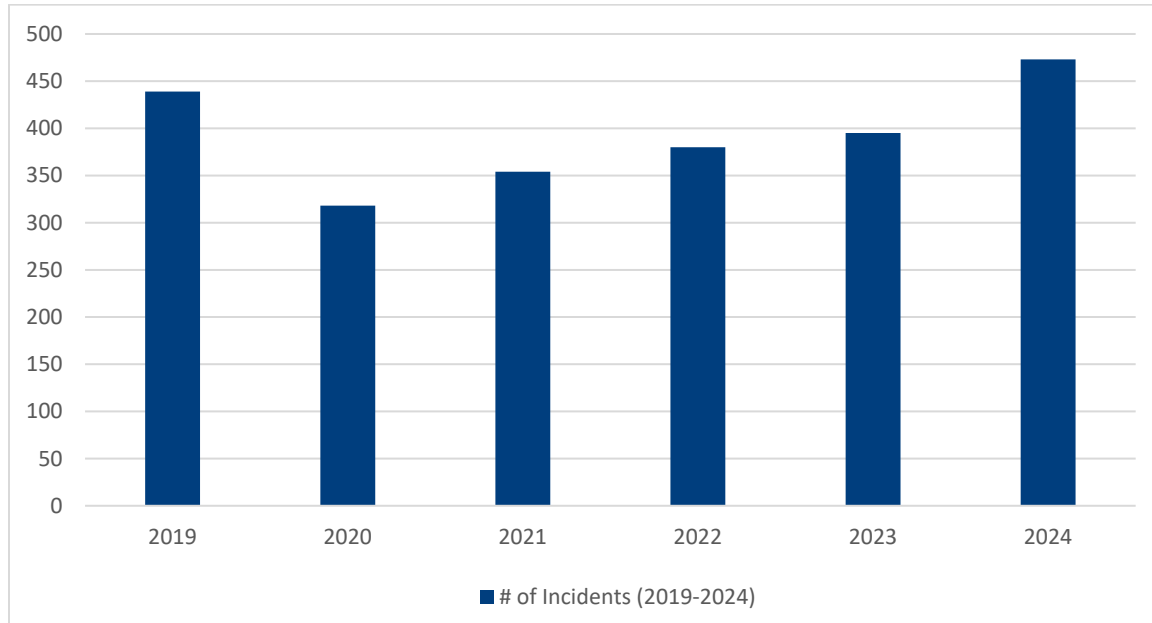
Figure 4.6: Collisions by Month - Town of View Royal (2019-2024)





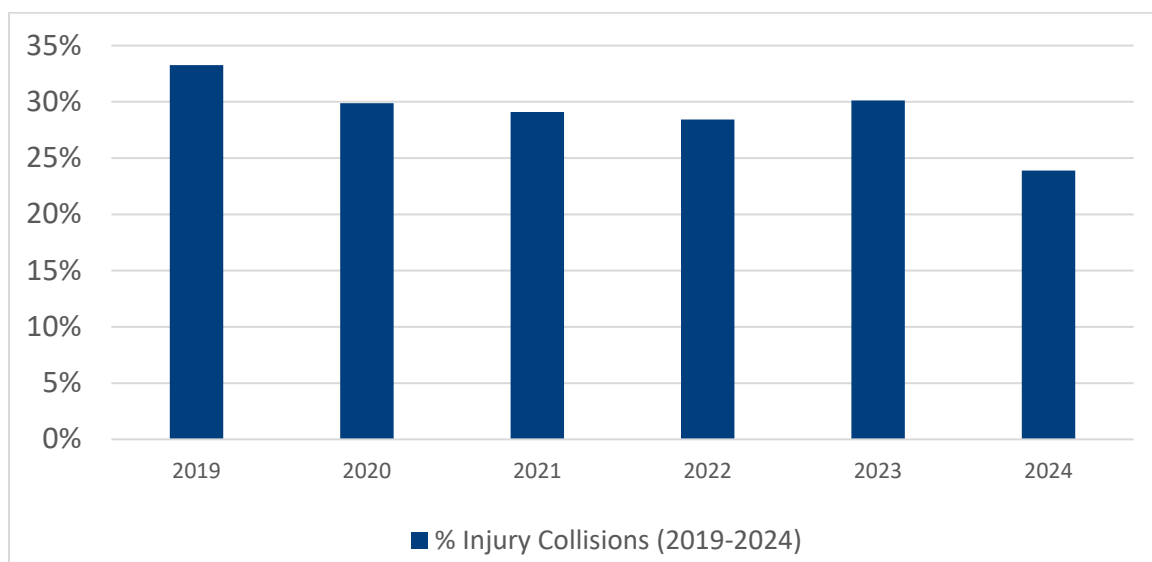
Collisions do not display a distinct pattern by month of the year, with holiday and summer seasons consistent with other times.

Figure 4.7: Collisions by Year - Town of View Royal (2019-2024)



The number of collisions per year does not display a distinct pattern. The year with the highest number of collisions was 2024, followed by 2019, 2023, 2022, 2021, and 2020.

Figure 4.8: Percentage of Injury Collisions by Year – Town of View Royal (2019-2024)





Despite 2024 having the most collisions out of the years in the dataset, it has the lowest injury rate at 24%. This is encouraging from a safe systems perspective, as the objective of the Safe Systems Approach is to reduce and eventually eliminate injury and fatal collisions.

4.2.1 Corridor Collision Statistics and Collision Rates

One metric for identifying the most critical areas is the *collision rate*. Collision rate is defined as the “annual collisions per million vehicle kilometres”³. The collision rate is calculated as follows:

$$CR = \frac{N * 10^6}{L * AADT * t * 365}$$

Where:

N = number of collisions during time t,

L = segment length (km),

AADT = Average Annual Daily Traffic (entering)

t = observation period (years)⁴

The collision rate is a measure of collision risk for the individual road user that accounts for both the number of vehicles using the roadway and the length of the segment being analyzed, with exposure (traffic volume and segment length) normalized. The higher the collision rate, the greater the road user's approximate exposure to collision risk at that location/area. **Table 4.1** summarizes collision statistics for the key corridors in the Town of View Royal, sorted from highest to lowest collision rate. Also included are the percentages of injury, pedestrian, and cyclist collisions, which are key metrics as noted in Section 4.1 above. The first row of the table provides metrics for the entire dataset; these values serve as a useful baseline for comparison with the other corridors.

³ Transportation Association of Canada. “The Canadian Guide to In-Service Road Safety Reviews”, January 2004.

⁴ t = 6 years for this study (2019-2024)



Table 4.1: Corridor Collision Statistics

LOCATION	ESTIMATED TWO-WAY AADT	APPROX. SEGMENT LENGTH	NUMBER OF COLLISIONS (2019-2024)	COLLISION RATE	% INJURY OR FATAL	% PEDESTRIAN	% CYCLIST
ALL	-	-	2,359	-	29%	1%	2%
View Royal Ave*	1,000	1.3	45	15.81	<1%	<1%	2%
Admirals Road	16,000	0.5	264	15.07	36%	<1%	3%
Helmcken Road (north of Hwy 1)	16,500	0.7	327	12.93	28%	1%	2%
Watkiss Way	6,000	1.0	156	11.87	38%	2%	8%
Six Mile Road	11,000	1.0	227	9.42	36%	2%	1%
Helmcken Road (south of Hwy 1)	8,000	1.1	110	5.71	28%	1%	7%
Atkins Road	3,000	1.0	33	5.02	30%	<1%	6%
Island Highway (Burnside – Admirals)	17,500	2.6	378	3.79	36%	<1%	3%
Island Highway (Wilfert – Burnside)	38,000	1.3	316	2.92	37%	2%	4%
Burnside Road	10,000	0.9	27	1.37	67%	4%	26%



The following considerations were identified based on the corridor collision statistics:

- View Royal Avenue has the highest collision rate, at 15.81, of all those reviewed. However, it also has the lowest injury rate. This aligns with field observations that found the road geometry and sight lines along View Royal Avenue are poor, with many driveways hidden from view. Yet, vehicle speeds are low; this combination typically results in a high number of low-speed and parking/access-related collisions, which are often low risk from a safe systems perspective.
- Admirals Road has the second-highest collision rate, at 15.07. The injury rate is also higher than the Town's average, at 36%. Based on this, the Admirals Road corridor is a critical segment for collision analysis and mitigation.
- Following Admirals Road, the corridors with the next-highest collision rates (in descending order) are: Helmcken Road (north of Highway 1), Watkiss Way, and Six Mile Road. Similar to Admirals Road, these corridors have injury rates above the Town's average and are candidates for further safety review.
- Helmcken Road (south of Highway 1) and Atkins Road both have a high percentage of cyclist collisions relative to the Town's average. On Helmcken Road, the painted bike lanes on both sides are expected to increase cyclists' exposure and, in turn, their collision risk. The cyclist collisions on Atkins Road are mainly attributed to the Galloping Goose Trail crossing.
- Burnside Road, despite having the lowest collision rate, exhibits the highest injury ratio among the reviewed corridors. It also has the highest percentage of cyclist collisions, at 26%. This is primarily due to the Burnside Road & Watkiss Way intersection, which includes a major crossing for the Galloping Goose Regional Trail. In July 2023, the intersection was improved for active transportation safety by adding a protected crossing for the Galloping Goose Trail. All cyclist collisions in the dataset occurred before this enhancement, suggesting the mitigation was effective. More data and time are necessary to determine if additional measures are needed; however, given the recent upgrade and the decrease in cyclist collisions following it, the corridor has not been identified for further analysis.

4.2.2 Identified Study Intersections

Thirteen study intersections were identified by considering the factors discussed in Sections 4.1.1-4.1.3 above. **Table 4.1** summarizes each study intersection's traffic control type and its estimated Annual Average Daily Traffic (AADT).



Table 4.1: Collision Analysis Study Intersections

ID	INTERSECTION	TRAFFIC CONTROL TYPE	ESTIMATED AADT ¹
1	Six Mile Road & Island Highway	Traffic Signal	44,700
2	Island Highway & Highway 1 On-Ramp	Traffic Signal	39,400
3	Atkins Road & Galloping Goose Trail	RRFB ²	3,100
4	Island Highway & Helmcken Road	Traffic Signal	19,700
5	Island Highway & Stormont Road / Plowright Road	Traffic Signal	19,300
6	Island Highway & Shoreline Road	Minor Leg Stop Control	20,000
7	Admirals Road & Island Highway / Craigflower Road	Traffic Signal	30,800
8	Admirals Road & Glentana Road	Traffic Signal	18,400
9	Admirals Road & Aldersmith Place / Cooper Road	Minor Leg Stop Control	16,700
10	Admirals Road & Hallowell Road	Traffic Signal	15,200
11	Watkiss Way & Helmcken Road	Traffic Signal	24,300
12	Helmcken Road & Camden Avenue	Minor Leg Stop Control	16,500
13	Helmcken Road & Burnside Road West	Traffic Signal	18,200

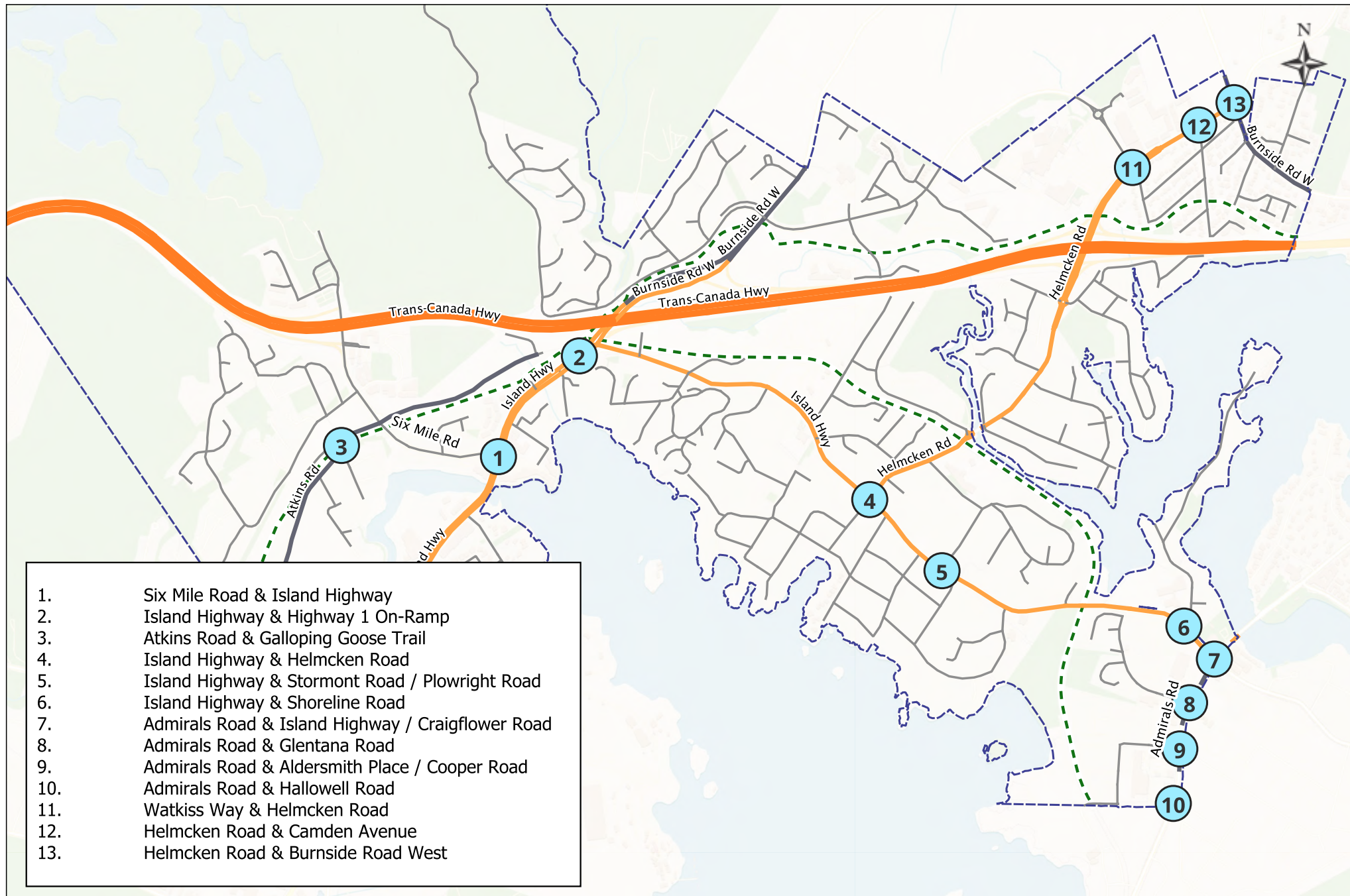
¹ AADT; Annual Average Daily Traffic, estimated by multiplying the peak hour traffic by 10

² RRFB: Rectangular Rapid-Flashing Beacon

These are the locations where collision analyses were conducted to identify safety issues and potential mitigation measures. **Exhibit 4.4** illustrates the location of each study intersection.



EXHIBIT 4.4: SAFETY REVIEW STUDY INTERSECTIONS





Exclusions

Not all locations can be included in a detailed road safety review. Many were excluded due to low collision frequency. Some locations that may have seemed strong candidates for further review, based on the maps presented in Exhibits 4.1 and 4.2, were excluded for various reasons. The excluded locations or corridors, and the reasons for their exclusion, are summarized below.

Atkins Road

Atkins Road is a known shortcut route for regional traffic during peak commuting times. The collision history on Atkins Road, based on 2019-2024 data, does not appear to be significantly higher than that of other locations in View Royal. The exception is at the two Galloping Goose Trail crossings, which may be examined in the final Transportation Master Plan report.

Six Mile Road & Damon Drive

This intersection has the only fatal collision in the six-year dataset. The collision was reported as a result of illegal speeding that exceeded the road's design limit. Since this type of collision is not attributable to road design or system failure, the location is deemed not to warrant further review and, therefore, is excluded from a detailed safety analysis.

Island Highway & View Royal Avenue

This intersection signal timing was recently upgraded to include Leading Pedestrian Intervals (LPIs). The Town anticipates this upgrade to mitigate the risk of conflicts between turning vehicles and pedestrians. Therefore, Island Highway & View Royal Avenue was not included as a study intersection because more time is needed (i.e., several years of collision data after the LPIs were installed) to determine whether annual collision trends benefited from the LPIs or require further mitigation.

Trans-Canada Highway

Collision analysis on the Trans-Canada Highway was excluded for several reasons:

- The highway is within MoTT jurisdiction and is therefore outside of the scope of this Transportation Master Plan.
- The highway is a major regional route with high traffic volumes and speeds. Both volume and speed are likely the main contributors to collisions on the highway; however, unlike intersections within the Town, reducing speed and volume through mitigation is not feasible, as the highway functions as a major traffic carrier.

Watkiss Way & Burnside Road West

The Galloping Goose Regional Trail crosses the south leg of this intersection, where a high volume of pedestrians and cyclists use the crossing. This is assumed to be the reason for the many cyclist and



pedestrian-related collisions in the past six years. The Town is aware of the importance of this crossing and its collision history, and has been implementing mitigation measures to address them. These include “elephant’s feet” paint markings for the crossing, an active transportation signal, and a green buffer zone. In addition, the “Highway 1 – Bus on Shoulder” project is currently underway and will alter road geometry and signal timing at the downstream Helmcken Interchange. Because of these ongoing efforts, the intersection is excluded from further detailed safety analysis. It is recommended that the collision trends at this intersection be monitored after these changes have had time to make a measurable impact.

4.3 COLLISION RISK ASSESSMENT

The Transportation Association of Canada (TAC) Collision Risk Assessment methodology is outlined in the *Canadian Guide to In-Service Road Safety Reviews (2004)*. The assessment assigns a risk rating to a location, ranging from A (lowest risk) to F (highest risk), based on two factors:

- 1. Collision frequency, and
- 2. Collision severity.

Both metrics are based on the collision history at the location. Collision frequency is based on the average annual number of collisions at a location. The higher the number, the more frequent collisions are anticipated to be in the future without mitigation.

Collision severity refers to the severity of collisions that may occur without mitigation. Engineering judgment is required to evaluate this metric, as numerous factors can influence it (e.g., pedestrian and cyclist activity levels, collision configurations, and injury-related collision history). For this study, consistency was maintained by defining collision severity as the percentage of fatal or injury-causing collisions among all collisions at a given location. **Table 4.1** summarizes the criteria used to categorize expected collision severity.

Table 4.1: Collision Severity Criteria

COLLISION SEVERITY	CRITERIA
Incapacitating Injury to Fatality	More than 50% of collisions were injury-inducing, or the location has had one or more fatal collisions in a ten-year period
Moderate to Incapacitating Injury	More than 25% of collisions were injury-inducing
Minor to Moderate Injury	More than 10% of collisions were injury-inducing
Property Damage Only	Less than 10% of collisions were injury-inducing



This criterion was used to initially categorize collision severity. However, in some cases, based on engineering judgement, the rating was not considered reflective of the intersection in question. For example, if an intersection were categorized as ‘Moderate to incapacitating injury’ yet most of its injury-related collisions were head-on or side-impact, its collision severity may be increased to ‘incapacitating injury to fatality’ due to the prevalence of these hazardous collision types. The opposite could also occur if most collisions were a less hazardous type, such as rear-end collisions. In addition, collision severity could increase if collisions were “clustered,” meaning that the same scenario led to multiple collisions across the dataset (e.g., many side-impact collisions due to conflicts between the eastbound left-turn and the southbound through movement). Clustered collision patterns typically indicate a clear, identifiable safety issue that can be targeted through mitigation measures.

Table 4.2 is used to convert average annual collisions (for this study, six years of collision data were reviewed) into a frequency rating of ‘rare’, ‘infrequent’, ‘occasional’, or ‘frequent’. Once the collision frequency is categorized, **Table 4.3** is used to convert the collision severity into a severity rating of ‘low’, ‘medium’, ‘high’, or ‘extreme’. Once both collision frequency and collision severity are categorized, **Table 4.4** is used to assign a risk rating (A-F) based on the pairing of the frequency and severity ratings.

Table 4.2: Collision Risk – Frequency Rating

COLLISION FREQUENCY	FREQUENCY RATING
10 or more collisions per year	Frequent
1 to 9 collisions per year	Occasional
Less than 1 collision per year, but more than 1 collision in 10 years	Infrequent
Less than 1 collision per 10 years	Rare

Table 4.3: Collision Risk – Severity Rating

COLLISION SEVERITY	SEVERITY RATING
Incapacitating Injury to Fatality	Extreme
Moderate to Incapacitating Injury	High
Minor to Moderate Injury	Medium
Property Damage Only	Low



Table 4.4: Collision Risk Rating

FREQUENCY RATING	SEVERITY RATING			
	LOW	MEDIUM	HIGH	EXTREME
Frequent	D	E	F	F
Occasional	C	D	E	F
Infrequent	B	C	D	E
Rare	A	B	C	D

Table 4.4 presents the results of the risk assessment, detailing the inputs for the frequency, severity, collision risk ratings, and the collision-to-volume ratio. The risk rating helps identify the required level of mitigation and prioritize actions.

Exhibit 4.5 illustrates the results of the risk assessment by showing the collision risk rating for each study intersection.



Table 4.4: Collision Risk Assessment

LOCATION	FREQUENCY		SEVERITY		RISK RATING	RISK RATING RATIONALE
	AVG. COL./YR	RATING	% INJURY	RATING		
Six Mile Rd & Island Hwy	22 / Year	Frequent	42%	Extreme*	F	The highest risk rating was applied based on the number of severe turn-related collisions in the intersection and at the pub access.
Island Hwy & Hwy 1 On-Ramp	3 / Year	Occasional	63%	Medium*	D	The risk rating was reduced as most injury-collisions were rear-end collisions, and the sole cyclist collision was due to an unconventional maneuver.
Island Hwy & Burnside Rd W	<1 / Year	Infrequent	50%	High	D	The moderate risk rating was applied as collisions are infrequent yet often involve vulnerable road users.
Island Hwy & Helmcken Rd	8 / Year	Occasional	37%	Medium*	D	The risk rating was reduced as the signal timing has recently been updated to include protected left turn phases, which are anticipated to mitigate the risk of side-impact collisions that are seen in the dataset.
Island Hwy & Stormont Rd / Plowright Rd	3 / Year	Occasional	33%	Medium*	D	The risk rating was reduced as all collisions were rear ends and, therefore, less severe than other collision types.
Island Hwy & Shoreline Rd	5 / Year	Occasional	37%	High	E	The risk rating reflects the clear safety issue of the merge from two to one lane.

* Indicates the severity rating was adjusted. A brief note on why the adjustment was made is provided next to the risk rating.

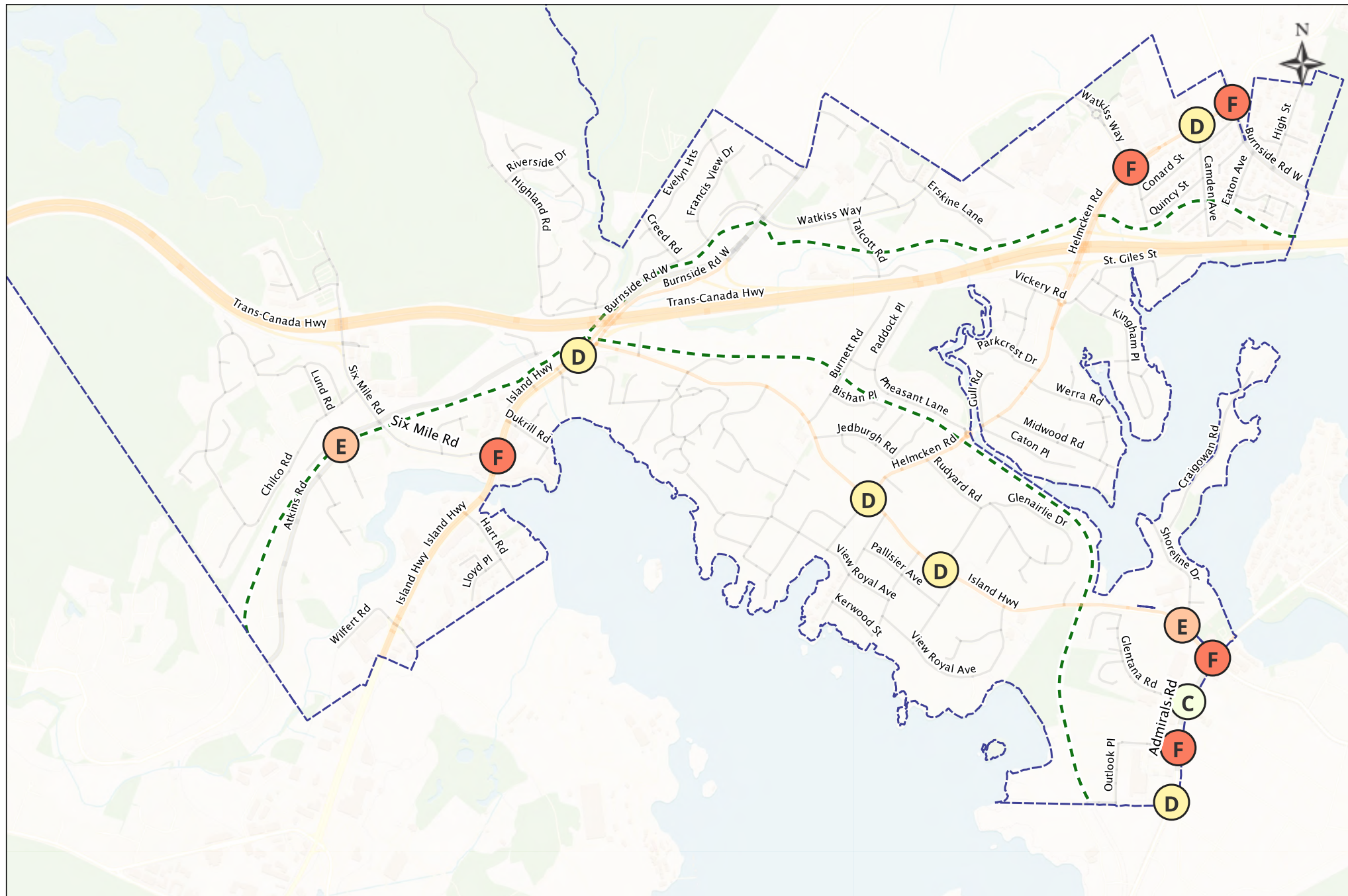


LOCATION	FREQUENCY		SEVERITY		RISK RATING	RISK RATING RATIONALE
	AVG. COL./YR	RATING	% INJURY	RATING		
Admirals Rd & Island Hwy / Craigflower Rd	24 / Year	Frequent	46%	Extreme*	F	The highest risk rating was applied based on the high number of turn-related and severe collisions in the intersection.
Admirals Rd & Glentana Rd	1 / Year	Infrequent	71%	Medium*	C	The risk rating was reduced as there is no discernible collision pattern and as the severe collisions were mostly rear ends.
Admirals Rd & Aldersmith Pl / Cooper Rd	5 / Year	Occasional	36%	Extreme*	F	The risk rating was increased as there is a clear sight line issue leading to severe turn-related collisions.
Admirals Rd & Hallowell Rd	3 / Year	Occasional	40%	Medium*	D	The risk rating was decreased as there is no discernible collision pattern, and most severe collisions were rear ends.
Watkiss Way & Helmcken Rd	15 / Year	Frequent	43%	High	F	The highest risk rating was applied based on the frequency of injury collisions and the two cyclist-related collisions.
Helmcken Rd & Camden Ave	3 / Year	Occasional	60%	Medium*	D	The risk rating was decreased as there is no discernible collision pattern, and most severe collisions were rear ends.
Helmcken Rd & Burnside Rd W	14 / Year	Frequent	46%	High	F	The highest risk rating was applied based on the frequency of collisions on intersection approaches.

* Indicates the severity rating was adjusted. A brief note on why the adjustment was made is provided next to the risk rating.



EXHIBIT 4.5: COLLISION RISK ASSESSMENT



4.4 SITE VISIT

A site visit was conducted on April 1, 2026, to observe and document safety issues and discuss potential mitigations. The project team visited each of the thirteen study intersections over the course of the morning (approximately 9:30 AM - 1:00 PM). The weather was cloudy with occasional light showers, but visibility was good, and the roads were mostly dry throughout the site visit.

Figures 4.9 to 4.12 below are photos taken during the site visit. Each photo is accompanied by a description of a safety issue that was observed. Some of these safety issues were already identified in a desktop review prior to the site visit, while others were identified for the first time during the site visit. These photos represent only a sample of the safety issues identified; a more detailed summary of all identified safety issues is provided in Section 4.5.

Figure 4.9: Site Visit Photo – Parked Vehicle Obscuring Sight Line at Island Highway & Stormont Road



The site visit team observed that the sight line for a vehicle at the southbound approach to Island Highway & Stormont Road can be obscured by a parked vehicle. Specifically, when a vehicle is parked in the on-street space on the near side of Island Highway at Stormont Road (i.e., the white truck in this

image). Short sight distances are hazardous because they limit drivers' ability to perceive gaps in traffic when turning onto the roadway.

Figure 4.10: Site Visit Photo – Challenging Left Turn at Admirals Road & Aldersmith Place



The intersection of Admirals Road & Aldersmith Place/Cooper Road poses hazards for vehicles making left turns from the minor approaches. It is stop-controlled, while Admirals Road has free-flow traffic. This stretch of Admirals Road experiences high traffic volumes and speeds, featuring a four-lane cross-section. In the photo, the silver truck driver has edged past the stop bar and crosswalk markings to improve their sightlines in both directions. Despite this, the site visit team saw the driver wait a considerable time before turning and then accept a risky gap to enter the intersection.

Figure 4.11: Site Visit Photo – ‘Do Not Block’ Paint Markings on Six Mile Road



The ‘do not block business access’ sign and the accompanying paint markings are considered a safety issue on a roadway as highly trafficked as Six Mile Road. The paint markings are also within the functional area of the intersection, meaning queues frequently extend past the ‘do not block’ zone.

Figure 4.12: Site Visit Photo – Faded Turn Arrow Paint Marking at Island Highway & Shoreline Road



The site visit team noted that the paint markings for the right-turn-only lane at Island Highway & Shoreline Road were faded. Additionally, there is only one right-turn lane marking placed just before the westbound lanes reduce from two to one. As a result, drivers might not recognize they are in a turn lane or that they need to merge into the other lane to proceed on Island Highway until they reach the intersection. This delay can cause last-minute lane changes and rear-end collisions.



4.5 COLLISION ANALYSIS

4.5.1 Collision Data Processing

Using the 2019-2024 ICBC collision data, the following parameters were extracted from the dataset for each collision at each study intersection:

- Approximate location, via the incident description
- Collision type (e.g., rear end, side impact, etc.)
- Severity rating (Fatal, Injury, or Property Damage Only)
- Road user type(s) involved (e.g., cyclist)

4.5.2 Collision Analysis Methodology

The parameters extracted from the collision data were used to create collision diagrams and infographics. The following methodology was applied:

- Map the approximate location of each collision by reading the incident description. The descriptions often include the direction of travel, the lane where the incident occurred, and a brief description of the incident (e.g., cut off and sideswiped). If the description was incomplete or unclear, the location was either inferred or omitted based on judgment.
- Apply a symbol to each collision by type (e.g., two stacked arrows for a rear-end collision), severity rating (property-damage collisions are black, injury-related collisions are bolded and orange), and road user type(s) involved (cyclists represented by a 'C', pedestrians by a 'P'); and,
- Create Severity, Collision Type, and Road User Type infographics for each location.

The collision diagrams and infographics were used to assess if safety issues identified during site visits translated into collisions, and to identify any potential safety issues that may not have been observed during visual inspections. The collision analysis provided essential information for determining safety issues.

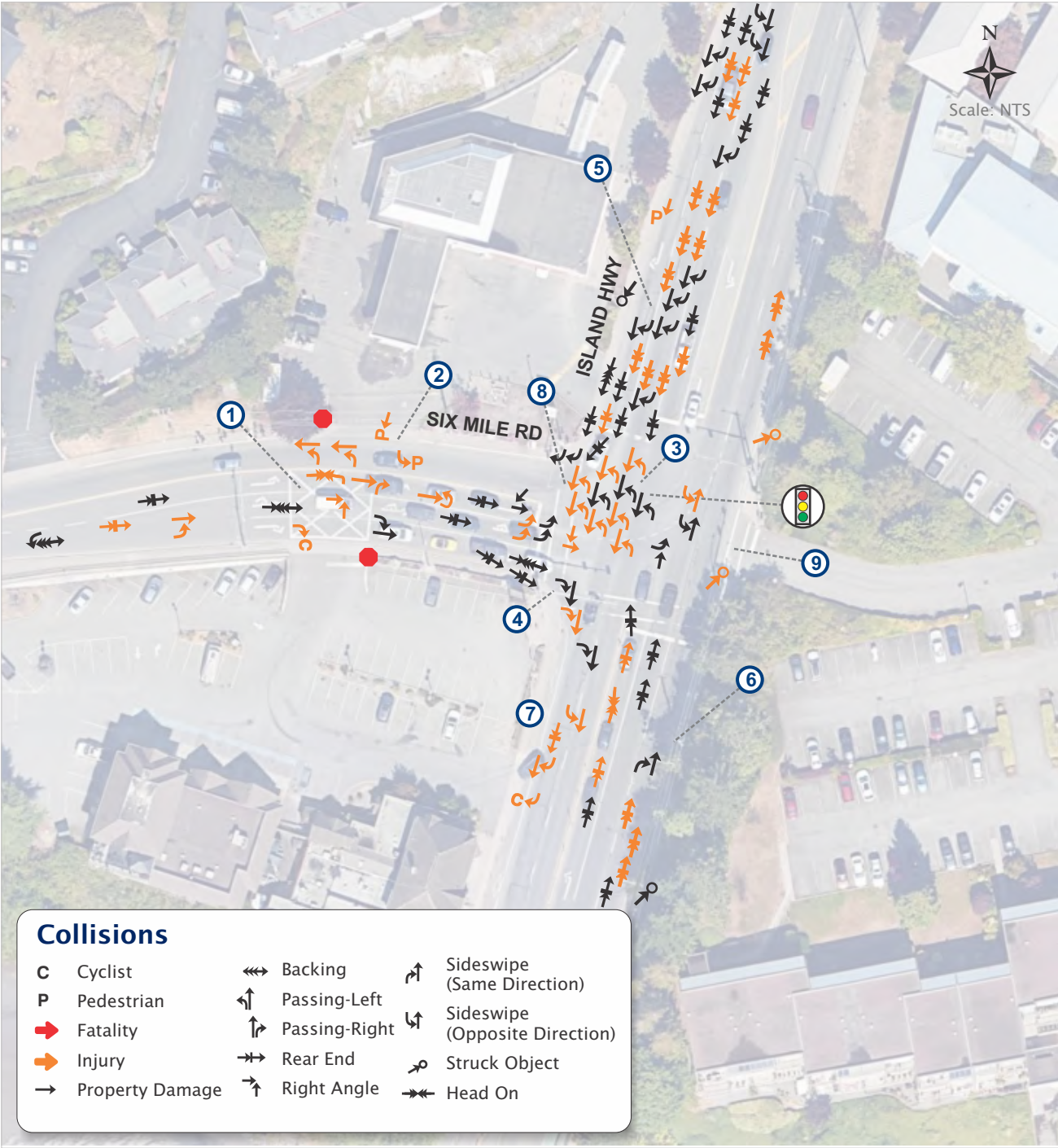
4.5.3 Potential Safety Issues

Based on the collision analysis, site visits, and engineering judgement, potential safety issues were identified for each study intersection. The safety issue descriptions and the approximate locations they refer to accompany the collision diagrams.

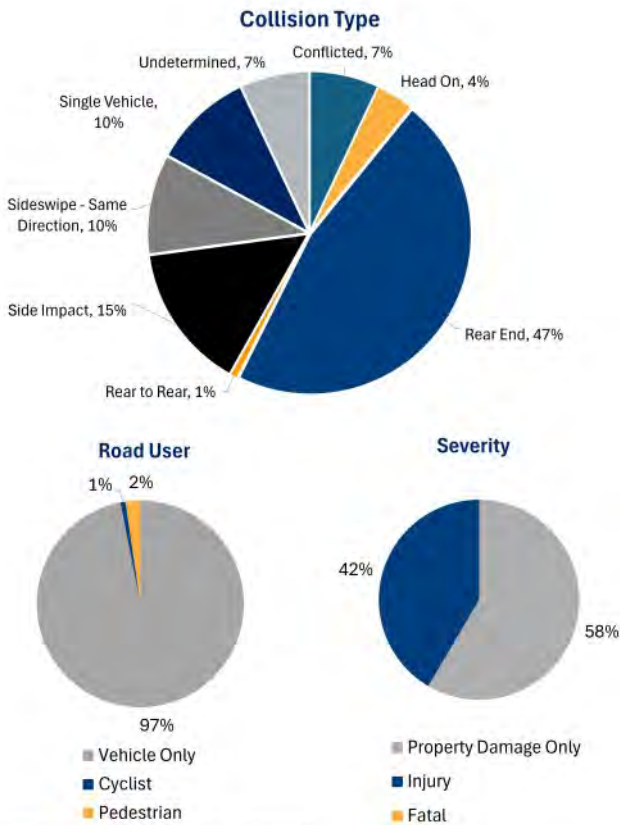
4.5.4 Collision Diagrams

The collision diagrams and identified safety issues for each study intersection are provided in **Exhibits 4.6 to 4.18**.

EXHIBIT 4.6: COLLISION ANALYSIS - SIX MILE ROAD & ISLAND HWY



Collisions (2019-2024): 130 Incidents (22 / Year)



FREQUENCY RATING	SEVERITY RATING			
	Low	Medium	High	Extreme
Frequent	D	E	F	F
Occasional	C	D	E	F
Infrequent	B	C	D	E
Rare	A	B	C	D

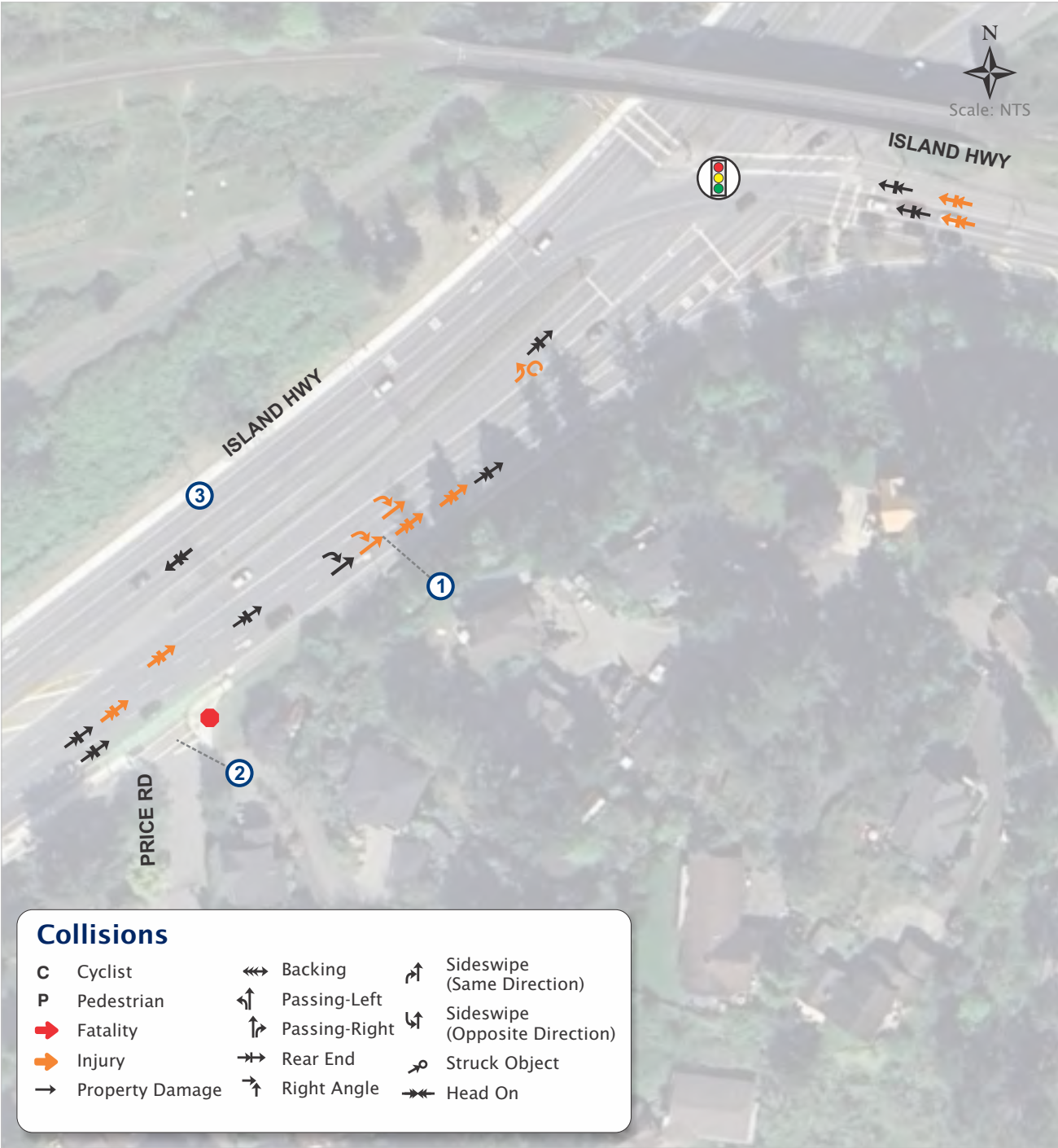
Collision Risk Level: F (Highest Risk Level)

Six Mile Road & Island Highway

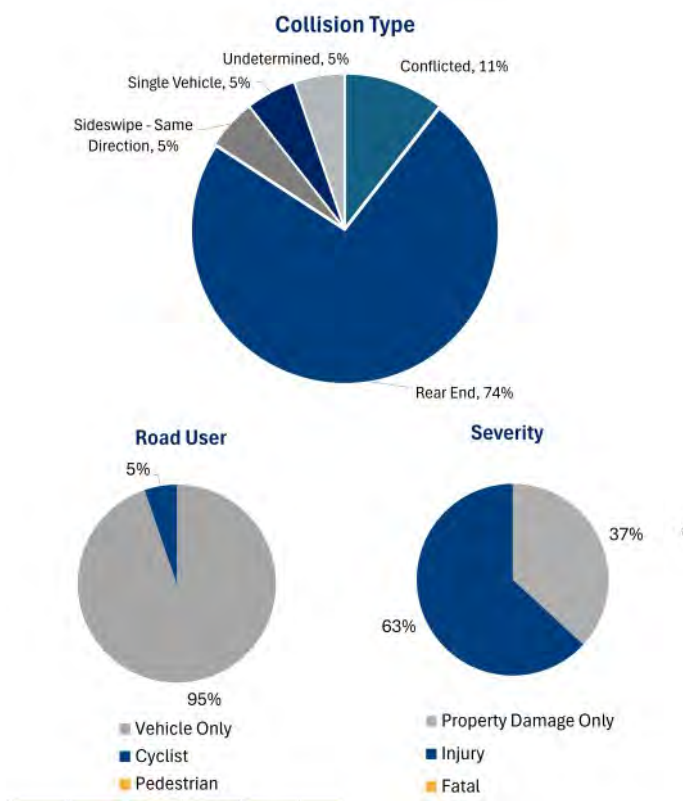
The following safety issues were identified:

1. The painted 'no stopping' zone in front of the Six Mile Pub access, in combination with the access being a full-movement intersection, is considered a potential safety issue. There have been 5 collisions (100% injury-related) due to northbound left turns from the access colliding with eastbound or westbound vehicles on Six Mile Road. When eastbound vehicles are queued past the 'no stopping' zone on Six Mile Road, drivers exiting the access have limited visibility to traffic. The right-of-way for vehicles at the access intersection is also unintuitive, leaving drivers unsure whether a gap is being created for them, which has led to drivers entering the same space at the same time and colliding.
2. Historically, there have been illegal southbound left turns from the gas station access onto Six Mile Road. The dataset shows two collisions involving pedestrians, both resulting in injuries, caused by this movement. The absence of physical restrictions to prevent the left turn is seen as a potential safety concern. It is noted that the width of the access and letdown from the gas station may be constrained by the need to accommodate fuel trucks.
3. The permitted northbound left turn phase at Island Highway & Six Mile Road is a potential safety issue. Both southbound traffic and northbound left-turn traffic are proceeding through their yellow lights, as the intersection is near capacity during peak periods and many vehicles are attempting to avoid waiting another cycle. This creates scenarios in which both the permitted northbound left-turning traffic and the southbound through or right-turning traffic proceed simultaneously, leading to a collision. There have been 26 collisions (52% injury-related) due to this conflict.
4. There are 7 collisions (29% injury-related) due to the eastbound right-turn-on-red. It can be difficult to find a gap for the right turn due to high southbound traffic volumes, leading to hesitancy and sudden stops (rear-end collisions) or to accepting inadequate gaps (merging collisions). The eastbound right-turn-on-red condition is considered a safety issue.
5. The collision history indicates that the southbound lane configuration may be unclear, leading to last-second lane changes. There are 27 collisions (47% injury-related) caused by sudden lane changes, resulting in rear-end and sideswipe collisions. A lack of clarity regarding lane configuration is considered a potential safety issue. It is noted that the lane configuration has recently changed due to the introduction of bus lanes on Island Highway, meaning that drivers may be less likely to be in the southbound right turn lane unintentionally. It is recommended that collision trends be monitored to assess if this change reduces the rate of rear-end and side-impact collisions for the southbound approach.
6. The lack of protection for cyclists on Island Highway can be considered a potential safety issue. In addition, the painted bicycle lane on the northbound approach transitions into a shared lane with vehicles. There is also no signage indicating this transition point.
7. The lack of a buffer zone between sidewalks and the vehicle lane is considered a potential safety issue. However, the introduction of bus lanes in 2025 decreases the amount of vehicle traffic near the sidewalks.
8. Southbound cyclists travelling on Island Highway and passing through the intersection are exposed to high turning volumes (southbound right and northbound left).
9. The long cycle length of the intersection may result in pedestrian jaywalking, particularly on the east leg.

EXHIBIT 4.7: COLLISION ANALYSIS - ISLAND HWY & HWY 1 ON-RAMP



Collisions (2019-2024): 19 Incidents (3 / Year)



FREQUENCY RATING	SEVERITY RATING			
	Low	Medium	High	Extreme
Frequent	D	E	F	F
Occasional	C	D	E	F
Infrequent	B	C	D	E
Rare	A	B	C	D

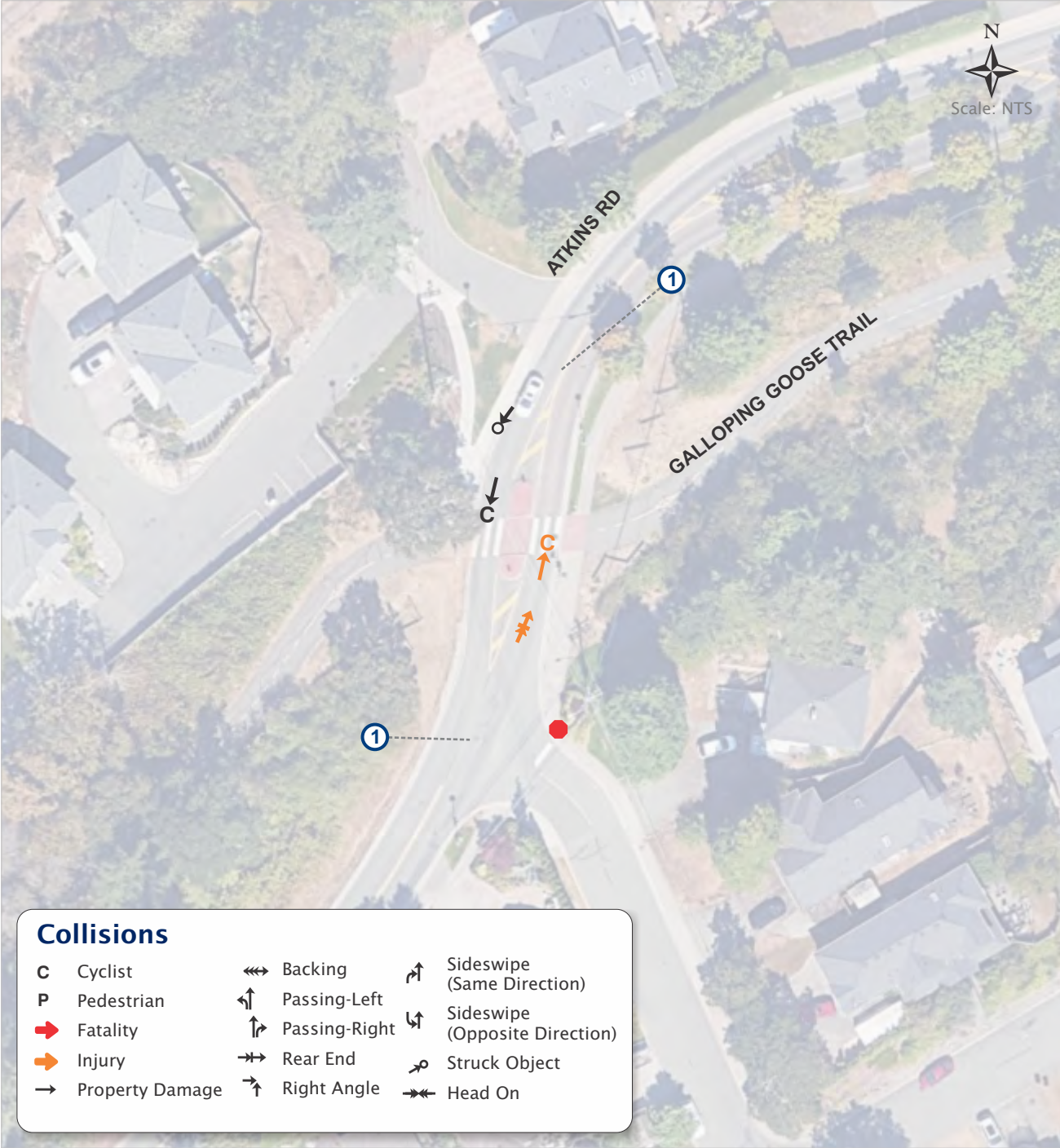
Collision Risk Level: D (Moderate Risk Level)

Island Highway & Highway 1 On-Ramp

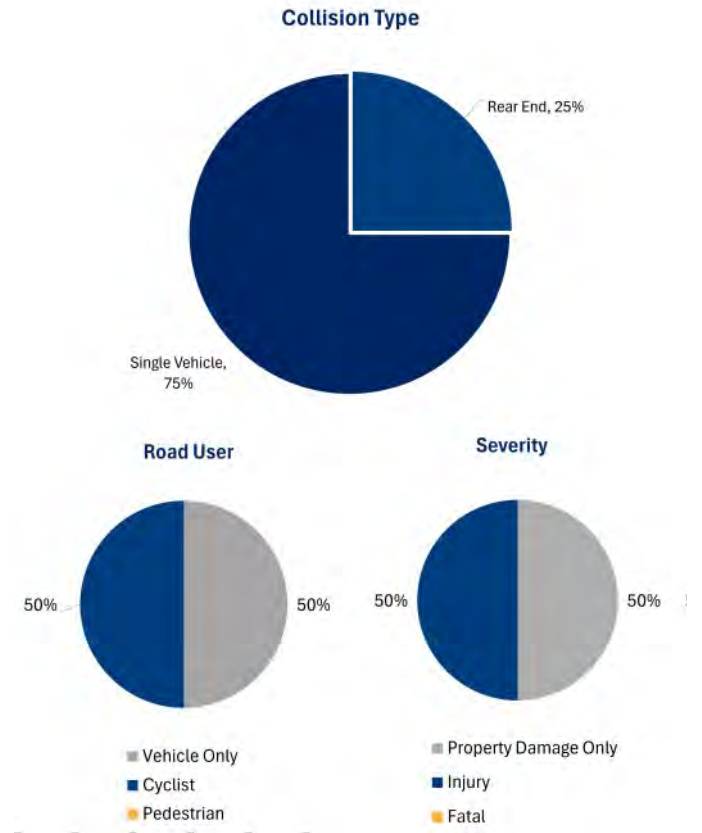
The following safety issues were identified:

1. There have been 6 collisions (67% injury-related) caused by sudden lane changes into the northbound right turn lane heading towards View Royal via Island Highway. This may be due to the length of the right turn lane, which is also a dedicated bus lane until the intersection with Price Road. The long lane allows for less predictable lane changes, as drivers have more choice of when to enter the lane, potentially leading to sideswipe and rear-end collisions.
2. The northbound approach at Island Highway & Price Road is unsignalized and allows full turning movements. This is considered a potential safety issue as there are seven vehicle lanes on Island Highway with high volumes, making it difficult to find a safe gap for left turns. This may lead to drivers accepting inadequate gaps, leading to a collision.
3. Lack of physical separation for cyclists on Island Highway is a potential safety issue considering the vehicle volumes and speeds.

EXHIBIT 4.8: COLLISION ANALYSIS - ATKINS ROAD & GALLOPING GOOSE TRAIL



Collisions (2019-2024): 4 Incidents (0.6 / Year)



FREQUENCY RATING	SEVERITY RATING			
	Low	Medium	High	Extreme
Frequent	D	E	F	F
Occasional	C	D	E	F
Infrequent	B	C	D	E
Rare	A	B	C	D

Collision Risk Level: D (Moderate Risk Level)

Atkins Road & Galloping Goose Trail

The following safety issues were identified:

1. The sight line to the crosswalk is short due to horizontal curvature on the approaches to the Galloping Goose crossing. This makes it difficult for drivers to react to vulnerable road users at crosswalks, forcing them to brake suddenly. The dataset includes two collisions with cyclists at the crosswalk and one rear-end collision caused by sudden stopping for a cyclist.

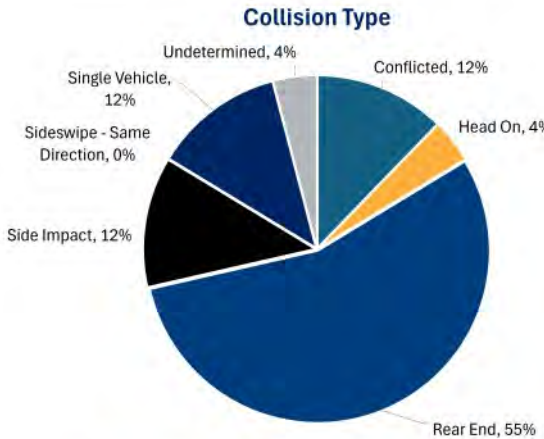
EXHIBIT 4.9: COLLISION ANALYSIS - ISLAND HWY & HELMCKEN RD



Collisions

- C Cyclist
- P Pedestrian
- Fatality
- Injury
- Property Damage
- ↔ Backing
- ↗ Passing-Left
- ↘ Passing-Right
- ↔ Rear End
- ↗ Right Angle
- ↘ Sideswipe (Same Direction)
- ↔ Sideswipe (Opposite Direction)
- ↘ Struck Object
- ↔ Head On

Collisions (2019-2024): 49 Incidents (8 / Year)



Road User



Severity



FREQUENCY RATING	SEVERITY RATING			
	Low	Medium	High	Extreme
Frequent	D	E	F	F
Occasional	C	D	E	F
Infrequent	B	C	D	E
Rare	A	B	C	D

Collision Risk Level: D (Moderate Risk Level)

Island Highway & Helmcken Road

The following safety issues were identified:

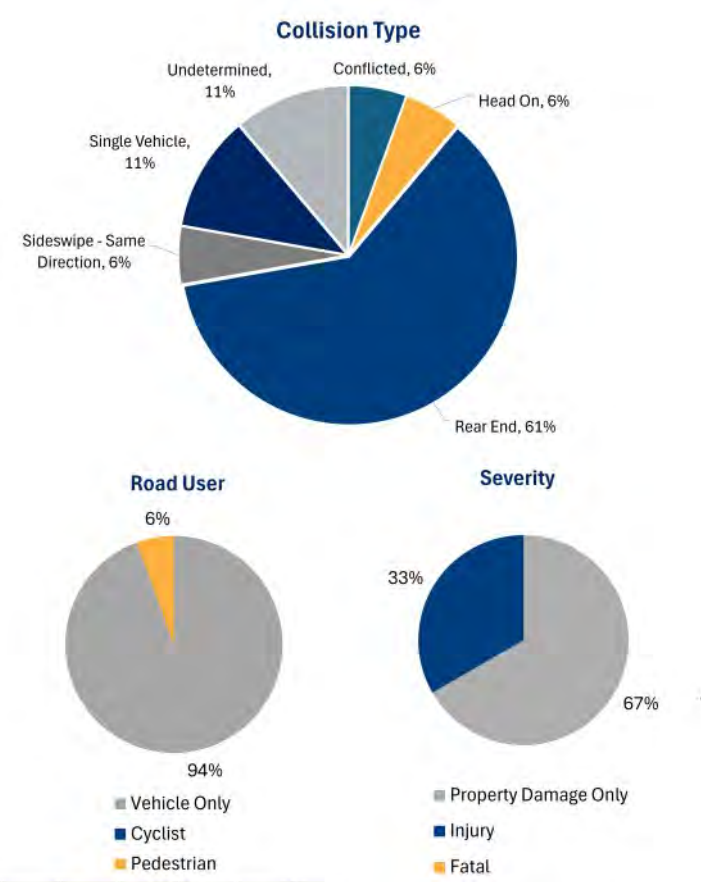
1. Lack of physical separation for cyclists on Island Highway is a potential safety issue considering the vehicle volumes and speeds. In addition, the bike lane on the eastbound approach transitions into a vehicle right-turn lane without signage or paint markings. This may lead to both drivers and cyclists being unaware that they are entering a conflict zone between the two modes.
2. The lack of a buffer zone between sidewalks and the vehicle lane is considered a potential safety issue.
3. There are driveways on the north, south, and east legs that are in the functional area of the intersection.
4. The eastbound bike lane ends on the far side of the intersection, exposing cyclists to vehicle traffic.

It is noted that the signal timing of this intersection was updated in 2024 to add protected left turn phases to all four approaches. This is anticipated to improve safety for turning vehicles and the through movements. There were 5 side-impact collisions (60% injury-related) related to left turn conflicts, and 12 rear-end collisions (25% injury-related) likely related to sudden stopping for oncoming left-turning vehicles. The protected left turn phases are anticipated to mitigate these issues. However, more collision data (i.e., multiple years after the change was implemented) is needed to assess its effect.

EXHIBIT 4.10: COLLISION ANALYSIS - ISLAND HWY & STORMONT ROAD



Collisions (2019-2024): 18 Incidents (3 / Year)



FREQUENCY RATING	SEVERITY RATING			
	Low	Medium	High	Extreme
Frequent	D	E	F	F
Occasional	C	D	E	F
Infrequent	B	C	D	E
Rare	A	B	C	D

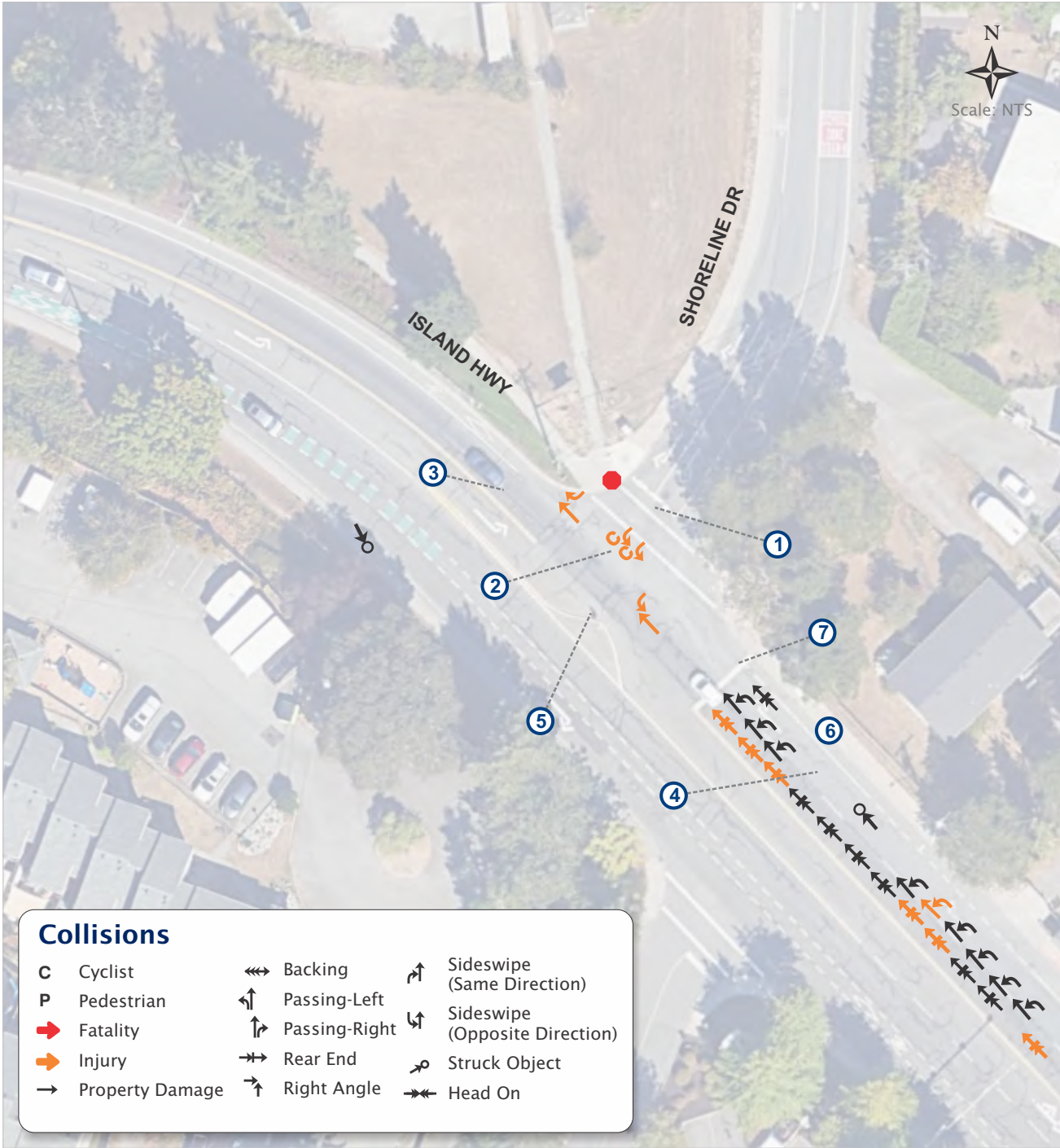
Collision Risk Level: D (Moderate Risk Level)

Island Highway & Stormont Road

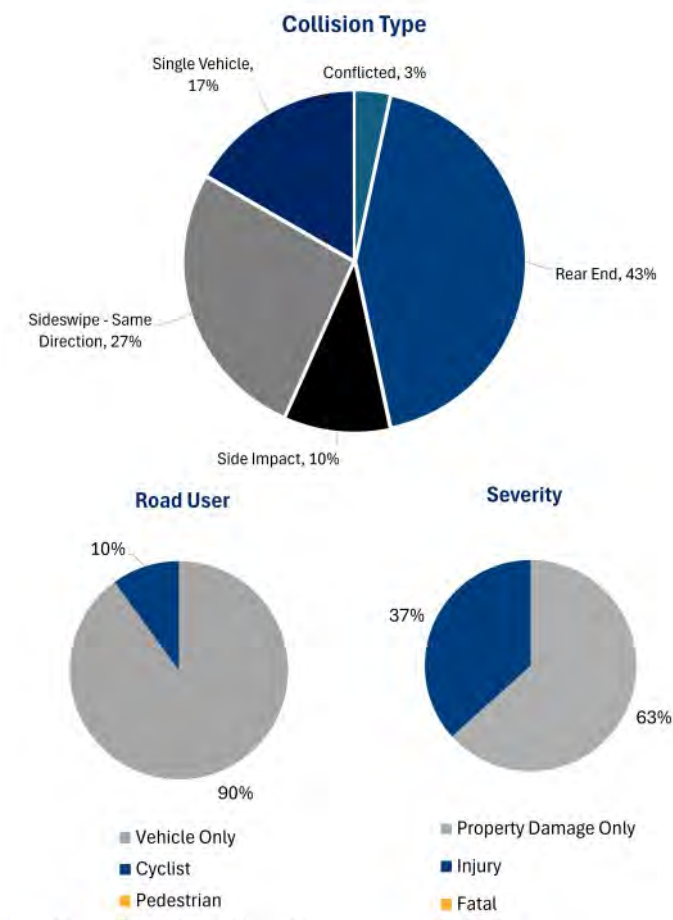
The following safety issues were identified:

1. The sight line for the southbound right turn (when looking left to check for gaps) is poor due to vertical curvature; there is a crest in the road just east of the intersection. In addition, the parking space on Island Highway at the northeast corner of the intersection further significantly obstructs this sight line.
2. Lack of physical separation for cyclists on Island Highway is a potential safety issue considering the vehicle volumes and speeds.
3. The uncontrolled driveway access that acts as the south leg of the intersection is potentially hazardous, as drivers may not be aware that a vehicle could be entering or exiting from the access.
4. There is a conflict between the southbound right turn and the west leg pedestrian crossing.
5. The lack of pedestrian countdown timers is considered a potential safety issue.
6. The sight line for the eastbound left turn appears limited by the road curvature and vegetation.
7. The lack of a buffer zone between sidewalks and the vehicle lane is considered a potential safety issue.

EXHIBIT 4.11: COLLISION ANALYSIS - ISLAND HWY & SHORELINE RD



Collisions (2019-2024): 30 Incidents (5 / Year)



FREQUENCY RATING	SEVERITY RATING			
	Low	Medium	High	Extreme
Frequent	D	E	F	F
Occasional	C	D	E	F
Infrequent	B	C	D	E
Rare	A	B	C	D

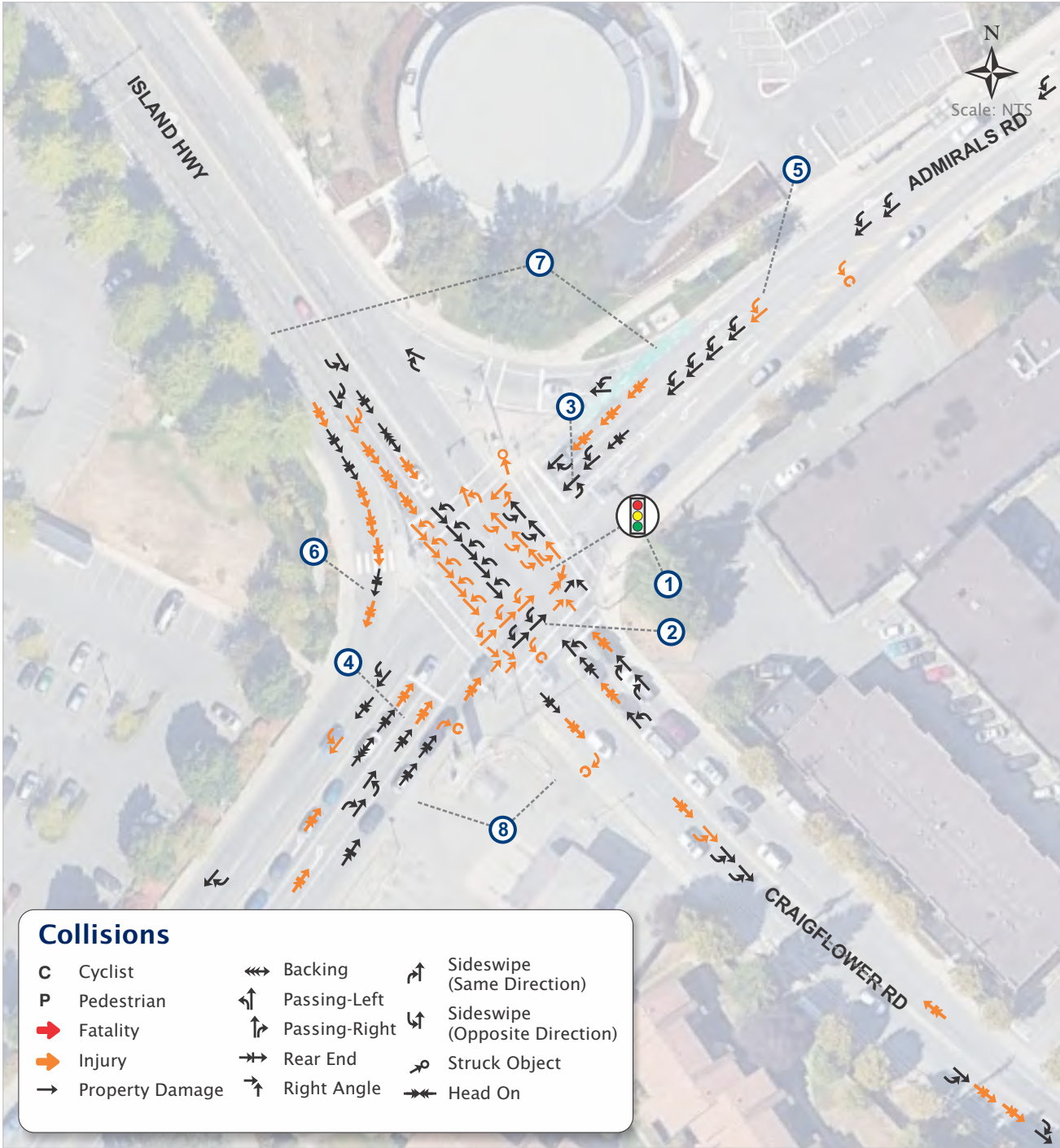
Collision Risk Level: E (High Risk Level)

Island Highway & Shoreline Road

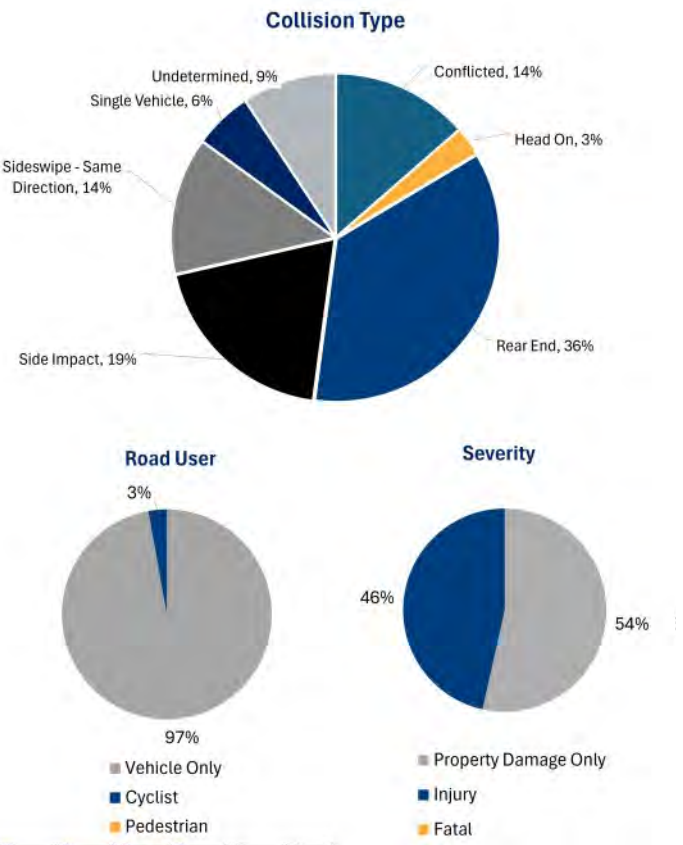
The following safety issues were identified:

1. The intersection is highly congested, especially for the southbound left turn onto Island Highway. This may be influencing drivers to accept unsafe gaps to make their turn. The queue of westbound traffic often extends from west of the Shoreline Drive intersection through to Admirals Road. At the beginning and end of the school day, pick-up/drop-off drivers attempting to turn onto Island Highway often rely on westbound vehicles to wave them through the intersection. This creates confusion, as drivers are unsure whether they are being let in by both westbound lanes simultaneously and how many vehicles are being let in at once. Overall, the congestion, combined with the lane configuration, is considered a potential safety issue.
2. There have been 2 collisions with cyclists (100% injury-related) in the dataset, both between westbound cyclists and the southbound left turn. The volume of vehicle traffic at the intersection may be distracting, making it harder for drivers to see cyclists passing through. The lack of measures to indicate cyclists' presence is considered a potential safety issue.
3. There are two westbound approach lanes and only one westbound receiving lane, meaning that vehicles are forced to merge into the second lane before passing through the intersection. This approach is also highly congested during peak periods, so drivers are often forced to be aggressive when changing lanes. As the first lane is not a merge lane but a right-turn-only lane, drivers in the second lane are sometimes reluctant to let vehicles in, as they may feel drivers in the first lane have made a mistake by not merging earlier. This leads to confusion, as drivers are unsure whether a lane change will occur and whether they will yield if it does. There have been 22 collisions (32% injury-related) related to this issue, including sideswipes from aggressive lane changes and rear-end collisions caused by being forced to stop for a lane change.
4. The faded pavement markings, especially for the westbound right turn lane, are considered a safety issue. It may be difficult for drivers to see that they are in a right-turn-only lane, leading to last-second lane changes.
5. The median is missing an object marker that faces the southbound approach. Drivers may not be aware of an upcoming median, increasing the likelihood of a single-vehicle collision.
6. The lack of a buffer zone between sidewalks and the vehicle lane is considered a potential safety issue.
7. There are stop bars on the westbound approach to the intersection, but no stop sign or signal. This is a safety issue because it leads to driver confusion: some drivers may think it is an all-way stop and yield to vehicles entering from Shoreline, while others may drive through the intersection without stopping.

EXHIBIT 4.12: COLLISION ANALYSIS - ISLAND HWY & ADMIRALS RD



Collisions (2019-2024): 142 Incidents (24 / Year)



FREQUENCY RATING	SEVERITY RATING			
	Low	Medium	High	Extreme
Frequent	D	E	F	F
Occasional	C	D	E	F
Infrequent	B	C	D	E
Rare	A	B	C	D

Collision Risk Level: F (Highest Risk Level)

Island Highway & Admirals Road

Note that Admirals Road is considered the north-south road in this analysis. The following safety issues were identified:

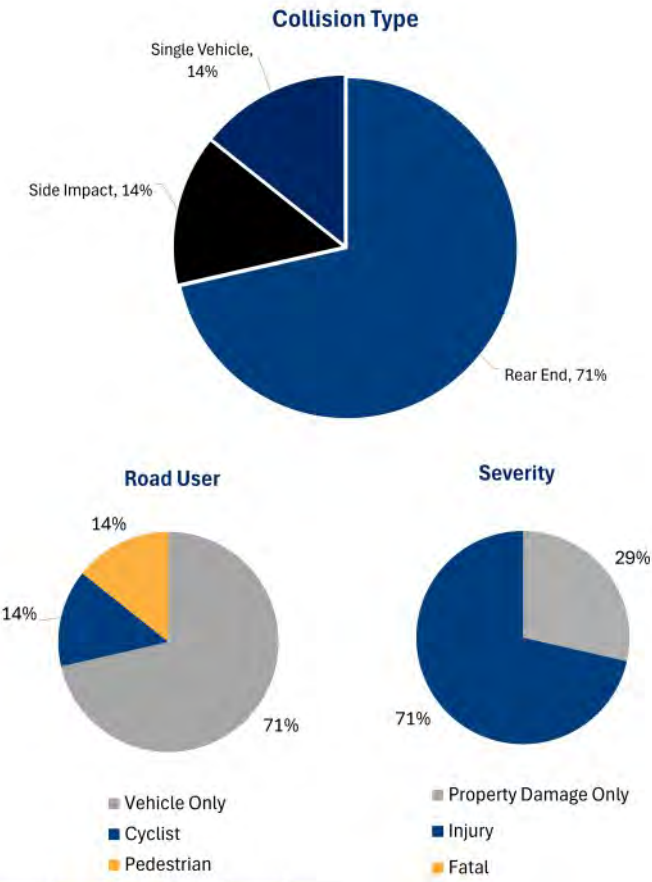
1. The intersection is highly congested, especially during peak periods. This is considered a potential safety issue. All permitted left turns and right-turn-on-red conditions are more hazardous as drivers and active transportation users are contending for space, processing more information, and attempting to enter the intersection during yellow time to avoid waiting another cycle.
2. The sight line between the westbound left turn and the eastbound through movement is limited due to eastbound vehicles queuing in the shared through/left lane. The intersection often experiences congestion, causing both eastbound through traffic and westbound left-turn vehicles to try to enter during yellow lights. In addition, the offset between the eastbound and westbound left-turn lanes exacerbates sight-line issues. The permitted left turn, combined with poor sight lines, is considered a potential safety issue. The dataset shows 14 collisions (64% injury-related), including 10 side-impact crashes.
3. The sight line between the southbound left turn and the northbound through movement is obscured by northbound left turn vehicle queues. This is a safety issue because vehicles cannot judge safe gaps before entering the conflict zone. There are 10 collisions (70% injury-related) in the dataset related to this issue.
4. The northbound left turn is at capacity during peak hours, despite having two dedicated lanes. Insufficient capacity in the receiving lanes causes vehicles to stop midway through their turns at the intersection. This creates a potential safety concern because, although an advanced green arrow signals drivers to go, the limited space means they can't always complete their turn. As a result, confusion arises when vehicles in the queue see the green arrow and proceed, while those ahead yield because there is no space in the receiving lane. There are 5 rear-end collisions (40% injury-related) in the dataset related to this issue.
5. The lack of lane designation signs for the southbound approach is considered a potential safety issue. The dataset shows that drivers are making late lane changes from the first to the second lane. There are 5 sideswipe collisions in the dataset (20% injury-related) related to this issue.
6. The eastbound channelized right turn lane is considered a potential safety issue as it encourages drivers to treat the right turn as a free-flow merge condition rather than a yield condition. Drivers may not be expecting to stop in the channelized lane; however, they are often required to do so due to high traffic volumes on Admirals Road. There are 8 rear-end collisions (63% injury-related) in the channelized lane related to this issue.
7. Both the east and north legs feature painted bike lanes, but there are no bike lanes on the west or south legs. Additionally, there are no bike facilities through the intersection to increase drivers' awareness of cyclists. This is considered a safety issue, especially for eastbound or southbound cyclists approaching the intersection, as they are directed into a busy area and roadway while losing their dedicated cycling space. There are 3 collisions with cyclists (100% injury-related) in the dataset.
8. The gas station driveway access location is considered a potential safety issue as it is busy and in the functional area of the intersection.

Note that the Town of View Royal has a concept plan for upgrades to this intersection that may address some of these potential safety issues. These upgrades are included in the 5-year capital plan.

EXHIBIT 4.13: COLLISION ANALYSIS - ADMIRALS RD & GLENTANA AVE



Collisions (2019-2024): 7 Incidents (1 / Year)



FREQUENCY RATING	SEVERITY RATING			
	Low	Medium	High	Extreme
Frequent	D	E	F	F
Occasional	C	D	E	F
Infrequent	B	C	D	E
Rare	A	B	C	D

Collision Risk Level: C (Moderate Risk Level)

Admirals Road & Glentana Road

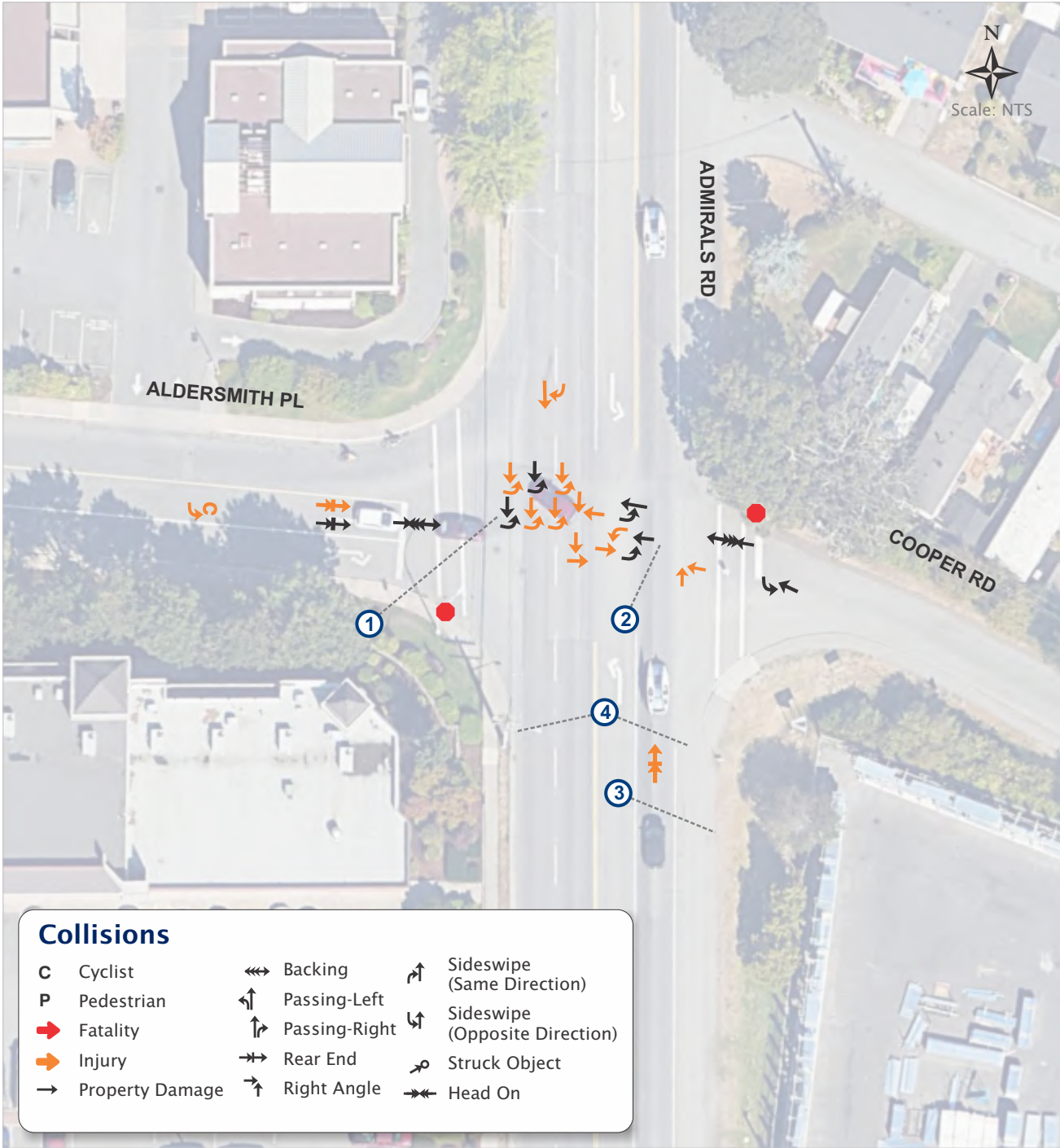
The following safety issues were identified:

1. The uncontrolled driveway access that acts as the east leg of the intersection is potentially hazardous, as drivers may not be aware that a vehicle could be entering or exiting from the access.
2. There is a conflict between the eastbound right turn and the south leg crosswalk.
3. The lack of a buffer zone between sidewalks and the vehicle lane is considered a safety issue.

It is noted that an ongoing traffic study for the intersection is anticipated to introduce a signal head and signal phasing for the westbound leg. While the timeline of this mitigation is unknown, this is anticipated to address safety issue #1 above.

This intersection is under the jurisdiction of the Ministry of Transportation and Transit (MoTT). Therefore, any changes to the intersection will need to be completed in coordination with MoTT.

EXHIBIT 4.14: COLLISION ANALYSIS - ADMIRALS ROAD & ALDERSMITH PLACE / COOPER ROAD



Collisions

- C

P

Cyclist

Pedestrian

Fatality

Injury

Property Damage
- Backing

Passing-Left

Passing-Right

Rear End

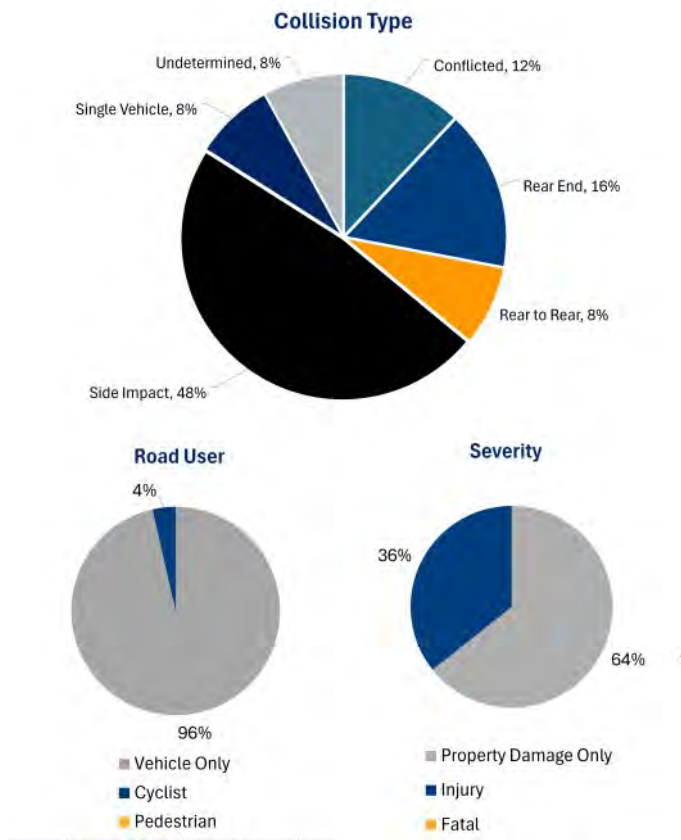
Right Angle
- Sideswipe (Same Direction)

Sideswipe (Opposite Direction)

Struck Object

Head On

Collisions (2019-2024): 28 Incidents (5 / Year)



FREQUENCY RATING	SEVERITY RATING			
	Low	Medium	High	Extreme
Frequent	D	E	F	F
Occasional	C	D	E	F
Infrequent	B	C	D	E
Rare	A	B	C	D

Collision Risk Level: F (Highest Risk Level)

Admirals Road & Aldersmith Place / Cooper Road

The following safety issues were identified:

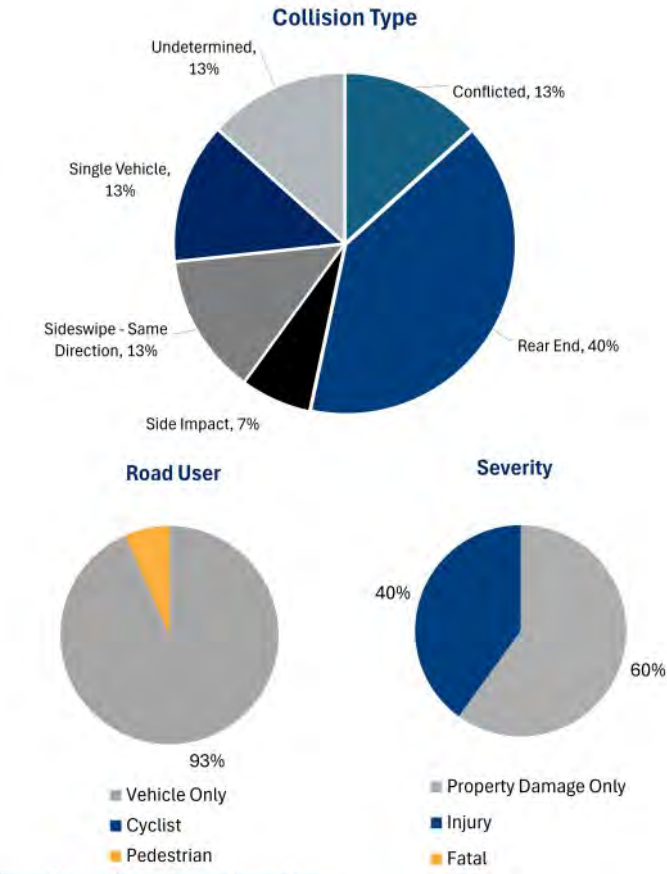
1. The sight line between the eastbound left turn and the southbound through movement is insufficient. Vehicles turning left might accept small gaps because they cannot see when the gap is inadequate. There are 11 collisions (45% injury-related) in the dataset related to this issue, 8 of which are side-impact collisions.
2. The permitted eastbound and westbound through movements are considered potential safety issues as vehicles must cross four lanes of traffic under unsignalized conditions. The high traffic volumes on Admirals Road, combined with vehicle shadowing and poor sightlines, contribute to the risk. There are 6 collisions (50% injury-related) in the dataset related to this issue.
3. The lack of sidewalks on the east side of Admirals Road is considered a potential safety issue as pedestrians are not separated from vehicle or bicycle traffic.
4. The lack of cycling facilities is considered a potential safety issue as cyclists must mix with traffic on a busy corridor.
5. There is a pedestrian crossing desire line at this intersection, especially to access Songhees Nation residential areas. Multiple pedestrians were observed crossing the south leg of the intersection, with no crossing measures in place. Pedestrians are exposed to high traffic volumes over a long crossing distance (four vehicle lanes).

This intersection is under the jurisdiction of the Ministry of Transportation and Transit (MoTT). Therefore, any changes to the intersection will need to be completed in coordination with MoTT.

EXHIBIT 4.15: COLLISION ANALYSIS - ADMIRALS RD & HALLOWELL RD



Collisions (2019-2024): 15 Incidents (3 / Year)



FREQUENCY RATING	SEVERITY RATING			
	Low	Medium	High	Extreme
Frequent	D	E	F	F
Occasional	C	D	E	F
Infrequent	B	C	D	E
Rare	A	B	C	D

Collision Risk Level: D (Moderate Risk Level)

Admirals Road & Hallowell Road

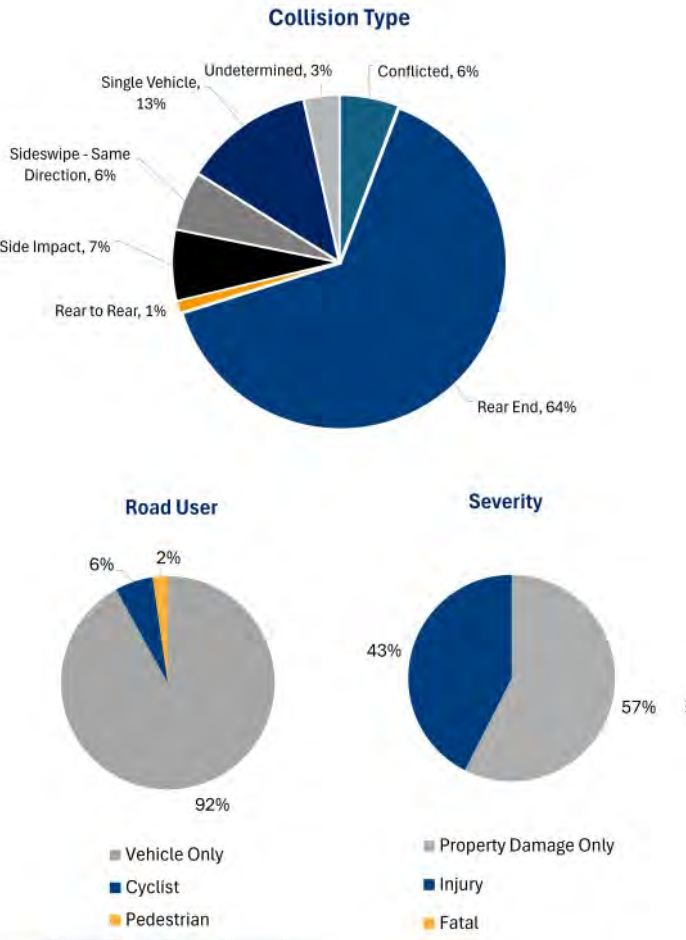
The following safety issues were identified:

1. Lekwammen Drive and Cemetery Road are in the functional area of the intersection.
2. The lack of sidewalks on the east side of Admirals Road is considered a potential safety issue as pedestrians are not separated from vehicle or bicycle traffic.
3. The red-painted raised surface at the southwest corner of the intersection is unconventional. The red colour and letdown indicate that larger vehicles may use the surface for turning, but pedestrians also may use this area to wait to cross the south or west legs. This creates a safety issue, as pedestrians may be waiting in a conflict zone with vehicles.

EXHIBIT 4.16: COLLISION ANALYSIS - WATKISS WAY & HELMCKEN RD



Collisions (2019-2024): 87 Incidents (15 / Year)



FREQUENCY RATING	SEVERITY RATING			
	Low	Medium	High	Extreme
Frequent	D	E	F	F
Occasional	C	D	E	F
Infrequent	B	C	D	E
Rare	A	B	C	D

Collision Risk Level: F (Highest Risk Level)

Watkiss Way & Helmcken Road

The following safety issues were identified:

1. The northbound and southbound shared through/left lanes are offset from each other. This is considered a potential safety issue as the sight line between the two lanes is limited, which may cause drivers to accept inadequate gaps for turning or sudden braking due to an expected oncoming turning vehicle (leading to a rear-end collision).
2. The intersection is at the top of a curve, limiting sight lines for approaches and consequently the perception time of drivers. There are 36 rear-end collisions (39% injury-related) that may be related to this issue.
3. Lack of physical separation for cyclists on Watkiss Way and Helmcken Road is a potential safety issue, considering the vehicle volumes and speeds.
4. The northbound approach has a limited distance to the signal head due to the horizontal and vertical curvature of the road. This is considered a potential safety issue, as drivers may not know what the signal indicates until they are very near the intersection, limiting their time to react.
5. There is a protected southbound left turn phase for the shared through/left lane. This is unconventional, as straight vehicles will block left-turning vehicles, even when there is an advanced green arrow for the left turn. This is considered a potential safety issue because it may cause more left-turning vehicles to miss the protected left-turn phase and must turn under permitted conditions, which are more hazardous for northbound traffic and pedestrians crossing the east leg.
6. The permitted southbound left turn phase conflicts with the east leg crosswalk. Two cyclists in the dataset have been struck by a vehicle making a southbound left turn while on the crosswalk, resulting in injury to both.
7. The right-in/right-out access into Eagle Creek Village is hazardous for cyclists. The concrete island may be creating a channelized right, which appears to drivers as a “slip lane” that has no conflicts with other road

users. There are 3 collisions in the dataset (100% injury-related) in which a right-turning vehicle struck a cyclist while turning into this access.

Note that upgrades are planned at this intersection in the 1-2-year term, which may address some of these potential safety issues.

EXHIBIT 4.17: COLLISION ANALYSIS - HELMCKEN ROAD & CAMDEN AVENUE



Collisions

- C

Cyclist
- P

Pedestrian
- Fatality
- Injury
- Property Damage
- ↔

Backing
- ↗

Passing-Left
- ↘

Passing-Right
- ↔

Rear End
- ↗

Right Angle
- ↗

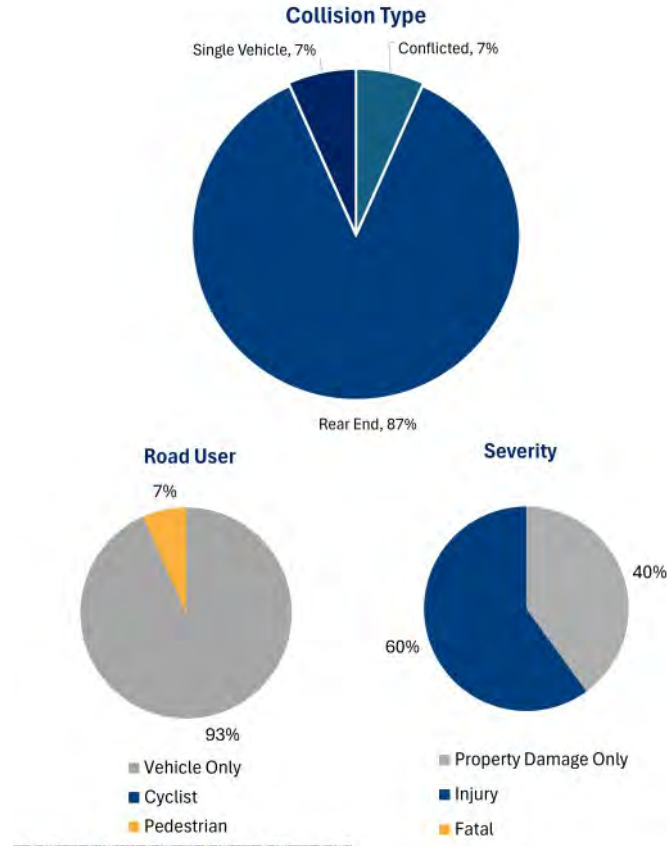
Sideswipe (Same Direction)
- ↘

Sideswipe (Opposite Direction)
- ↘

Struck Object
- ↔

Head On

Collisions (2019-2024): 15 Incidents (3 / Year)



FREQUENCY RATING	SEVERITY RATING			
	Low	Medium	High	Extreme
Frequent	D	E	F	F
Occasional	C	D	E	F
Infrequent	B	C	D	E
Rare	A	B	C	D

Collision Risk Level: D (Moderate Risk Level)

Helmcken Road & Camden Avenue

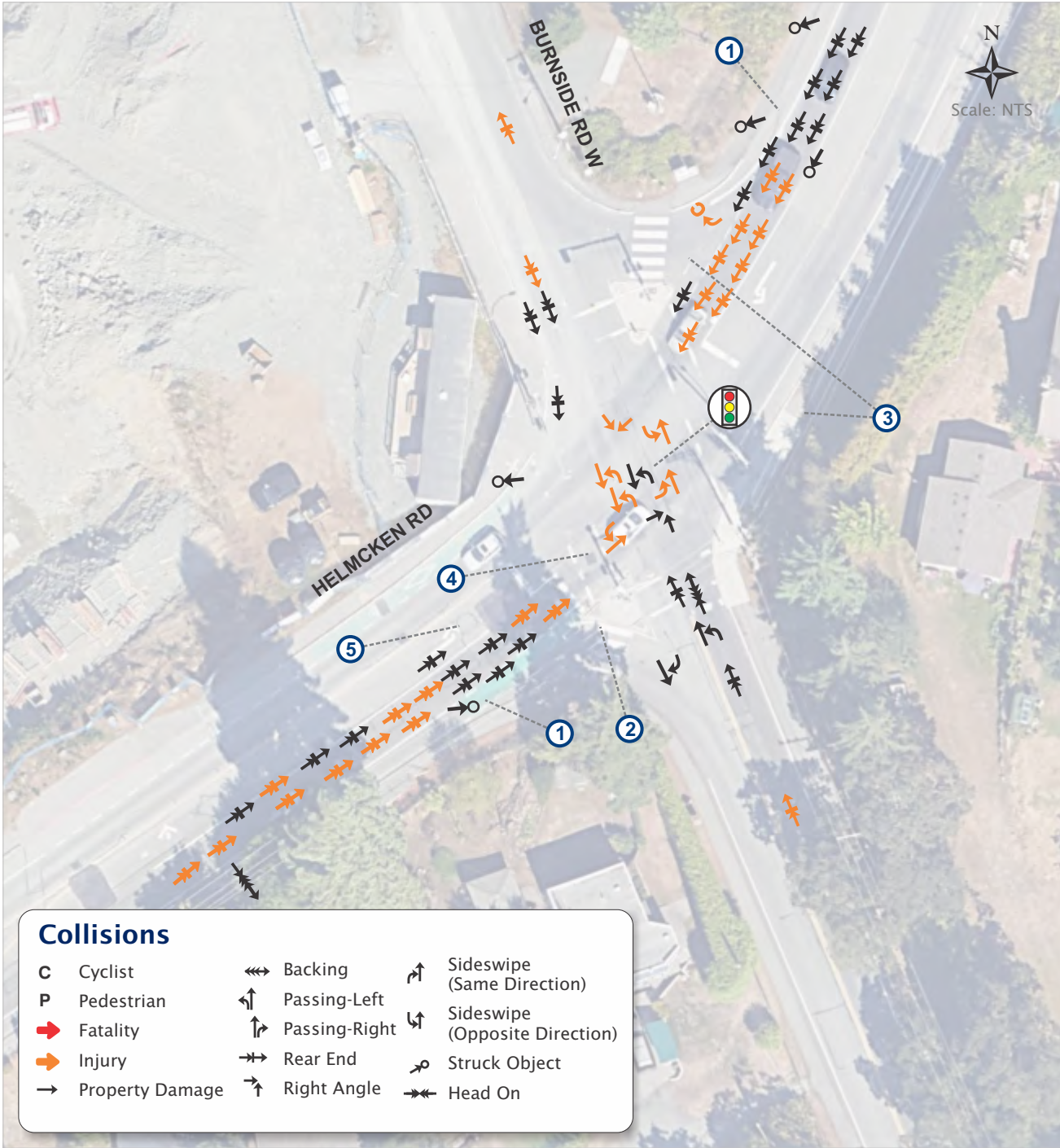
The following safety issues were identified:

1. There are stop bars for the eastbound and westbound approaches at Helmcken Road & Camden Avenue, but no stop signs or signal for these approaches. This is a potential safety issue as it creates driver confusion on whether to stop or continue through the intersection.
2. The southbound approach is missing a stop sign.

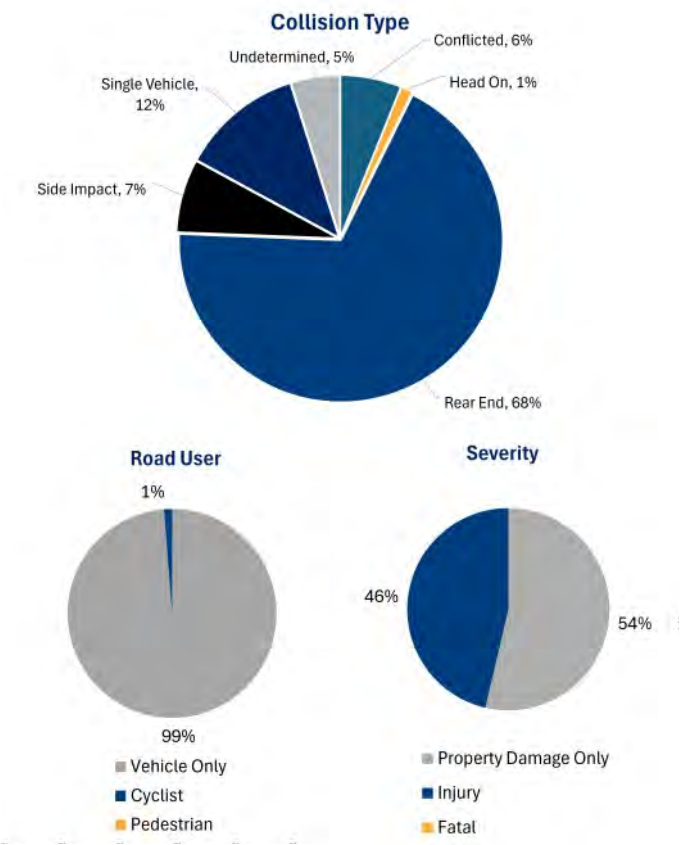
Note that this approach is a private road; therefore, the owner of the road is responsible for signage. However, the Town may be able to advocate for upgrades.

3. Lack of physical separation for cyclists on Helmcken Road is a potential safety issue, considering the vehicle volumes and speeds.

EXHIBIT 4.18: COLLISION ANALYSIS - HELMCKEN ROAD & BURNSIDE ROAD WEST



Collisions (2019-2024): 82 Incidents (14 / Year)



FREQUENCY RATING	SEVERITY RATING			
	Low	Medium	High	Extreme
Frequent	D	E	F	F
Occasional	C	D	E	F
Infrequent	B	C	D	E
Rare	A	B	C	D

Collision Risk Level: F (Highest Risk Level)

Helmcken Road & Burnside Road West

The following safety issues were identified:

1. The sight lines to the intersection are limited due to vertical and horizontal curvature, especially for the eastbound and westbound approaches. This, combined with frequent congestion on Helmcken Road, is likely leading to a high number of rear-end collisions (38 collisions, 53% of which are injury-related). The intersection has long eastbound and westbound queues during peak periods, which drivers may not be able to see.
2. The signal heads mounted mid-post are inconspicuous as they do not have yellow backboards.
3. Lack of physical separation for cyclists on Helmcken Road is a potential safety issue, considering the vehicle volumes and speeds.
4. The sight line between the eastbound left turn lane and oncoming westbound traffic is limited by curvature. Vehicles may be accepting inadequate gaps.
5. Intersection pavement markings are faded, impacting intuitiveness.

This intersection is under the jurisdiction of the District of Saanich. Therefore, any changes to the intersection will need to be completed in coordination with the District of Saanich.