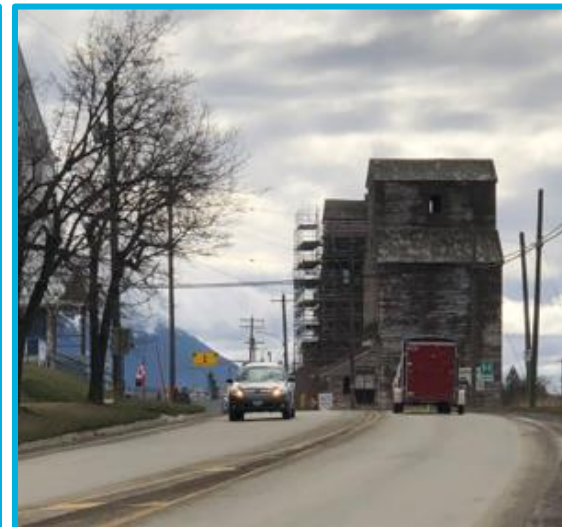
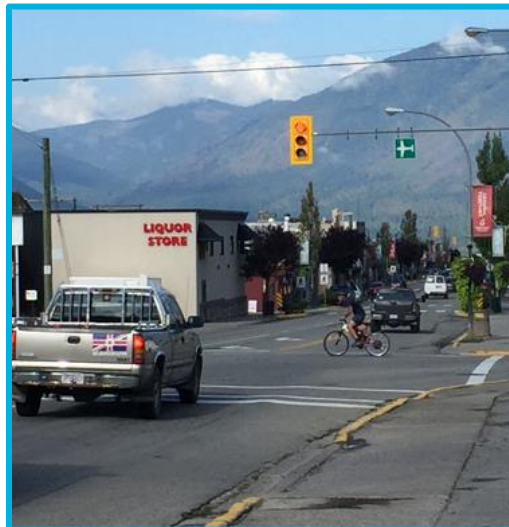


Creston Multi-Modal Transportation Plan Scoping Report

Town of Creston



WATT CONSULTING GROUP
December 22, 2021

WATT OKANAGAN
#305 – 1350 St. Paul Street
Kelowna, BC V1Y 2E1
(778) 313-1014

WATT VICTORIA

#501, 740 Hillside Avenue
Victoria, BC V8T 1Z4
(250) 388-9877

WATT VANCOUVER

550 – 888 Dunsmuir Street
Vancouver, BC V6C 3K4
(778) 309-1253

WATT OKANAGAN

#305 – 1350 St. Paul Street
Kelowna, BC V1Y 2E1
(778) 313-1014

WATT EDMONTON

500 Empire Building,
10080 Jasper Avenue
Edmonton, AB T5J 1V9
(780) 800-2957

WATT LLOYDMINSTER

201B 5004 18th Street
Lloydminster, AB T9V 1V4
(780) 870-4338

WATT CALGARY

#310, 3016 – 5th Avenue NE
Calgary, AB T2A 6K4
(403) 273-9001



CRESTON MULTI-MODAL TRANSPORTATION PLAN

Scoping Report

Date: December 22, 2021

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1.0 OVERVIEW

This scoping report has been prepared based on the current state of transportation, transportation trends, and Creston policies, plans, and bylaws. Initial public and stakeholder engagement feedback will be coupled with the technical findings of this report to create the framework for the Multi-Modal Transportation Plan (MMTP).

It aims to identify and align the principles, vision, goals, and objectives for all transportation options within Creston. It also illustrates the baseline conditions, the current state of modal splits. It provides additional comments on the existing experience for each main user group and mode of travelling around Creston. The outcome of this report will be the basis for setting achievable targets for modal shift and more broadly, reach the greenhouse gas (GHG) targets set out in Creston's Official Community Plan. This report provides summaries of many of the tasks completed to date and illustrates the baseline conditions, including:

- Section 4.0 (What We Heard From the Community)
- Section 5.0 (Pedestrian & Trail Network Conditions)
- Section 6.0 (Cycling Network Conditions)
- Section 7.0 (Transit Network Conditions)
- Section 8.0 (Street & Traffic Conditions)
- Section 9.0 (Parking)
- Section 10.0 (Emerging Trends)



Section 2 – Community Profile



2.0 COMMUNITY PROFILE

The Town of Creston is a growing municipality that witnessed 1.3 percent growth from 2011 to 2016 and has a population approaching 5,350 individuals. The Town is located within the traditional territory of the Lower Kootenay Band and the Yaqan Nukiy people and has a rich and storied history. It was incorporated in 1924 but settlement began in the late 1800s when the Canadian Pacific Railway and Great Northern Railroad built tracks through the valley. Home to an abundance of farmland, Creston is predominantly a rural community with central population in the town center that relied on motorized vehicles for transportation needs. An Urban Growth Boundary and Agricultural Land Reserve exists to protect farms and guide where growth should occur.



2.1 LOCATION

Today, Creston sits at the crossroads of the Crowsnest (Highway 3) east/west, Highway 21 to the USA boarder to the south, and Highway 3A to the north. It is the hub of the communities in the Creston Valley and is the largest town between Cranbrook and Castlegar. The hilly nature of Creston is similar to that of other Kootenay town's such as Nelson. See **Figure 1** for an overview map of the Creston Valley.

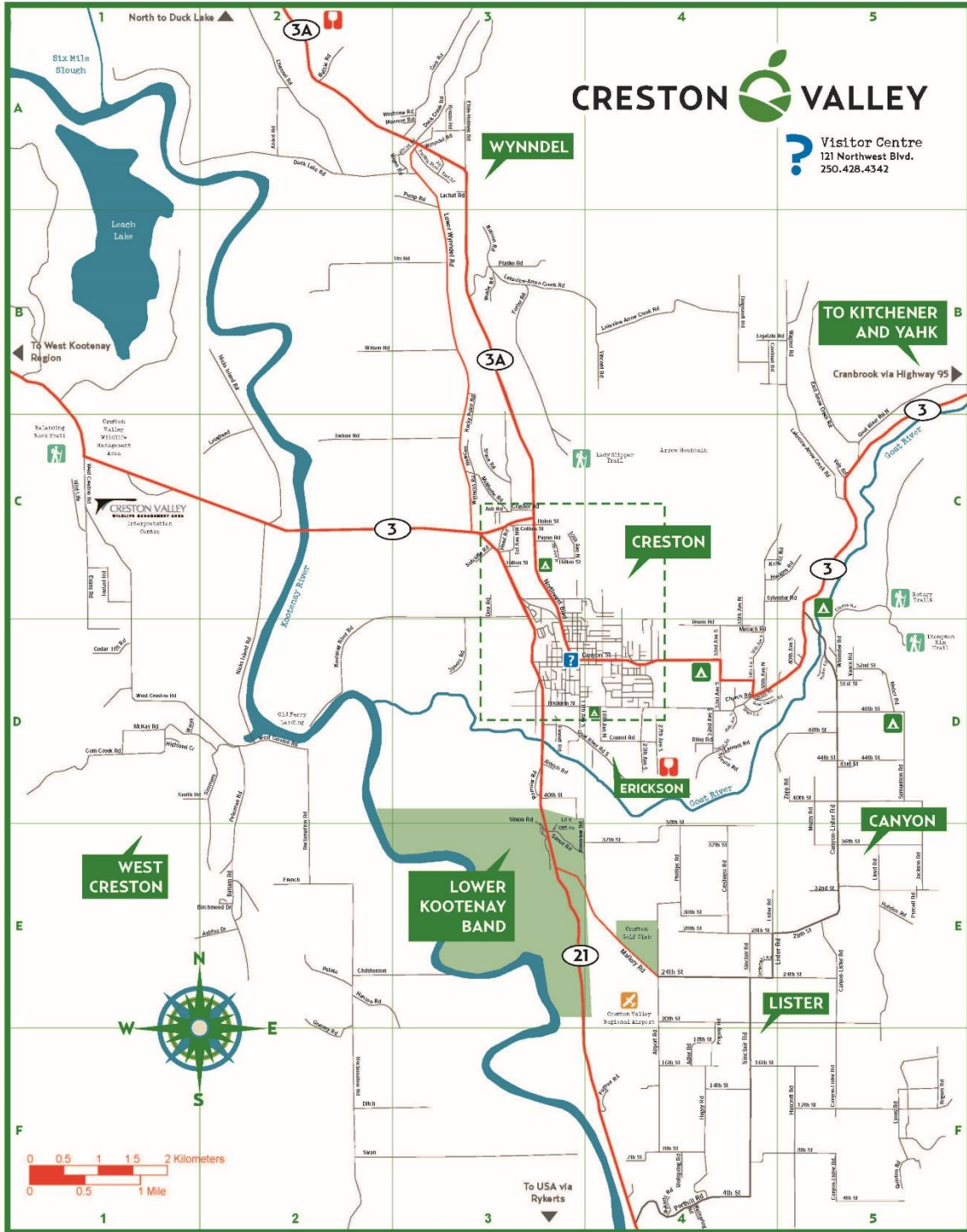


Figure 1: Creston Valley Map Retrieved From: <https://www.creston.ca/DocumentCenter/View/1161>



Creston has a historic downtown that is highly walkable. The municipality is surrounded by the Skimmerhorn and Purcell mountain ranges and offers many recreational opportunities with the local mountain, lakes, rivers, and marshes. The Town limits are confined at 81.6 Ha. The urban core is dissected by the Crowsnest Highway and is bounded in the north by the Arrow (Goat) Mountain and by the farmland on the other three flanks.

2.2 DEMOGRAPHIC SUMMARY

According to the Statistics Canada 2016 census, the Town of Creston has a population of 5,351. The population has grown by almost 12% since 2001 when there were about 4,795 residents (approximately 1% per year increase). The overall Creston Valley has a population of 16,000. According to population projections, over the next 10 years, the population is projected to reach 6,212 by 2031—a 30% increase from 2016, which is a significant amount of growth at an anticipated rate of 1% per year.

The Town's 2011 median population age is 55.2 years. This is 15 years older than the Canadian average. It is of note that this trend might be reversing as there was a 33% increase of households with children between 2006 and 2011. This is evident by the associated growth in the young adult population of 24% for the 20-34 year old age group.

The demographic trends underscore the importance of building a transportation network that is inclusive for all ages and abilities—particularly for the senior population and younger kids.

2.3 TRANSPORTATION MODE SHARE

A comparison between commuter transportation mode share in Creston and the provincial average based on the 2016 Statistics Canada Census was completed as is shown in **Table 1** and **Figure 2**. The data indicates that Creston is currently an auto-dependent community with approximately 83% of commutes occurring by car, which is 8% higher than the provincial average. Creston does have a healthy walking split. 13% walk to work in Creston whereas the Provincial average, Cranbrook, Castlegar, and



Kimberly are in the 7-9% range. Nelson is the leader in the region as far as active mode share goes. 31% of Nelson commuter trips are done by walking or bicycle. As such, Nelson is the best benchmark in the region and shows what is possible as far as targets go if active transportation is a key focus for the town. Creston, like Nelson, has a beneficial compact core but also has significant topography challenges. One key difference between Nelson and Creston is their respective median ages. Nelson’s median age is 42 whereas Creston’s is 55, 13 years higher. Any active transportation improvements must be made with the consideration for older folks in mind.

TABLE 1: MODE SHARE: CRESTON VS. SURROUNDING JURISDICTIONS¹

	Creston	British Columbia	RDCK	Nelson	Cranbrook	Castlegar	Kimberley
Vehicle - Driver	77%	70%	78%	60%	79%	81%	79%
Vehicle - Passenger	6%	5%	6%	6%	7%	6%	5%
Public Transit	1%	13%	1%	1%	1%	2%	2%
Walked	13%	7%	11%	26%	9%	7%	9%
Bicycle	1%	2%	2%	5%	2%	2%	1%
Other Method	2%	2%	2%	2%	2%	1%	3%

¹ Data Retrieved From Statistics Canada on September 28, 2021.

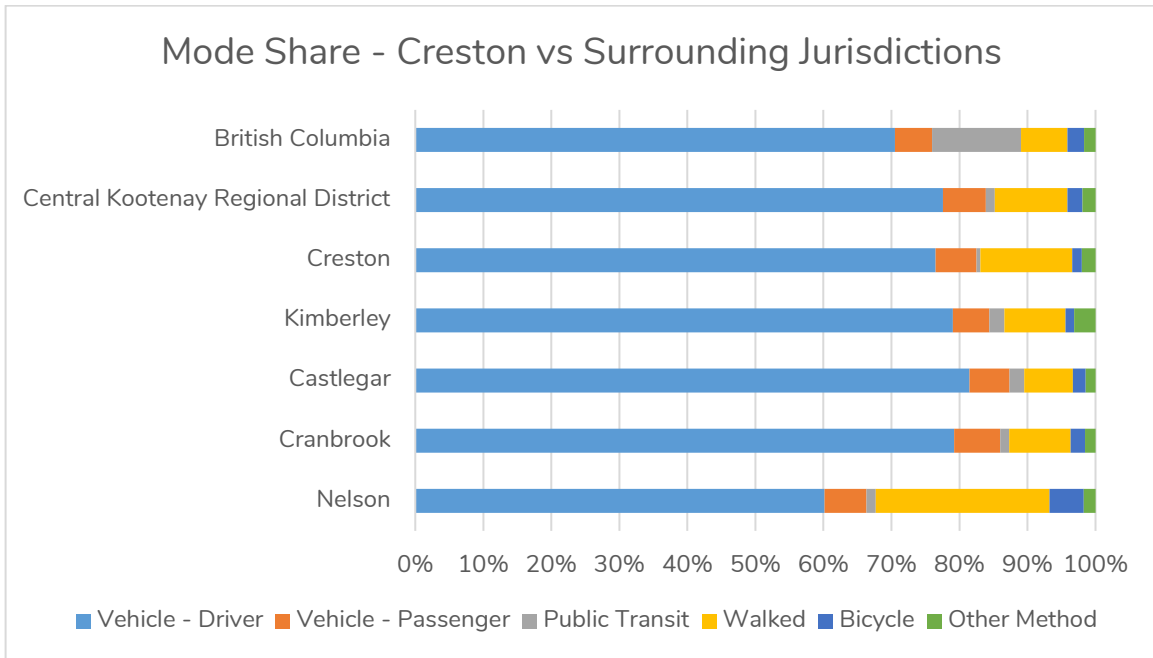


Figure 2: Mode Share - Creston VS. Surrounding Jurisdictions²

Over time the mode share for Creston has shifted more towards the automobile. **Figure 3**, shows this trend. In 1996 the vehicle mode share was 77% and in 2016 the corresponding mode share is now 83%, and an increase of 6%. It is theorized that this increase is due to sprawl outside the Town’s core coupled with the ageing population. Statistics Canada indicates that the median age in Creston has increased from 49 in 2001 to 55 in 2016, an increase of six years. Providing more accessible active transportation routes may serve to lower this ratio for those individuals not comfortable mixing in traffic or for those not in the downtown area.

² Data Retrieved From Statistics Canada on September 28, 2021.

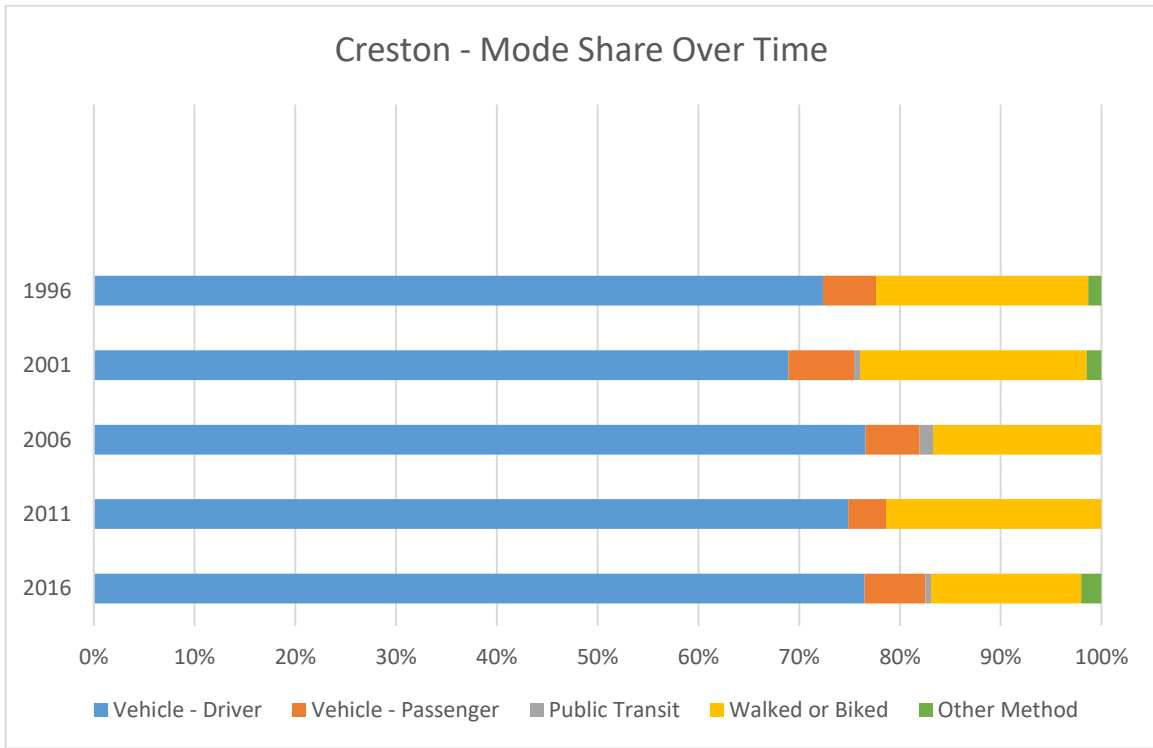


Figure 3: Creston Mode Share Over Time³

³ Data Retrieved From Statistics Canada on September 28, 2021.



Section 3 – Review of Plans & Technical Studies



3.0 REVIEW OF PLANS & TECHNICAL STUDIES

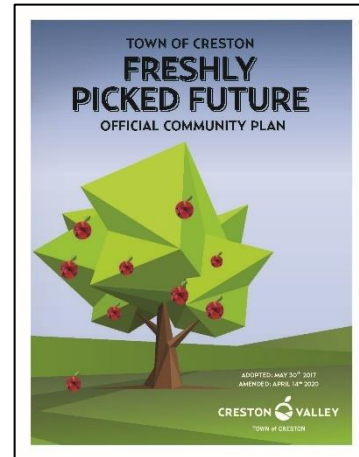
3.1 MUNICIPAL PLANS & STUDIES

Creston Official Community Plan (2017 OCP)

The Official Community Plan (OCP) is a land-use planning tool that is used to guide Town Council in its decisions about growth and development, zoning and services. The OCP was developed with extensive public consultation between 2016-2017. The OCP presents a vision where “Creston is made up of walkable and connected neighbourhoods, including a pedestrian-friendly Downtown Core that acts as a social and economic hub”.

The OCP articulates the following set of Creston Experience Principles that matter to the community:

- Place-based: Rooted in local context
- Principled: Driven by local values
- Pragmatic: Informed, sensible, and effective
- Balanced: Geared towards sustainability
- Inclusive: Designed to benefit all
- Collaborative: Carried out in a spirit of joint responsibility



Six Community Goals emerged from the OCP community engagement process:

- Valley Collaboration;
- Quality of Life & Inclusive Local Identity;
- Neighborhood & Housing;
- Connectivity;
- Economic Prosperity; and
- Downtown Vibrancy.

Connectivity was a focal element of the OCP engagement process, and the Walkability Checklist exercises conducted gathered input on the experience of walking around the community. The OCP speaks to a variety of connectivity and transportation themes and policies, including the completion of the MMTP, that are relevant to the MMTP planning



process. While transportation-related policies are incorporated throughout the OCP, such as in Community Goals & Policies and Energy & GHG Emissions sections, **Table 2** summarizes Land Use policies that apply to the MMTP. A full summary of the policies can be found in the draft of the Community Connectivity Master Plan.

TABLE 2: TRANSPORTATION-RELATED INFRASTRUCTURE LAND USE POLICIES

Actions	
1. General Policies	
1.3	Prepare a <i>Multi-Modal Transportation Plan</i> that prioritizes active transportation and provides for safe and efficient circulation
2. Active Transportation Policies	
2.1	Develop appropriately sized and linked trails, paths and <i>Greenways</i> in accordance with the <i>Greenways & Trails Master Plan</i>
2.2	Include bike travel when developing off-street trail systems
2.3	Design unpaved trails with a surface material that compacts and provides a hard surface to accommodate bikes, scooters and strollers
2.4	Include adequate signage (e.g. “share the road”) to promote bike safety along major roads and highways, working with the Ministry of Transportation & Infrastructure when appropriate
2.5	Consider installation of lighting on trails and sidewalks to promote public safety, where practical and feasible
2.6	Encourage the Ministry of Transportation & Infrastructure to provide public access to the lands dedicated for the <i>Arrow Mountain Highway Bypass</i>
2.7	Encourage and support the establishment of linkages for alternative modes of transportation between the Town of Creston, the Lower Kootenay Band Community, Erickson, Wynndel and other regional amenities
3. Road Way Policies	
3.1	Develop sidewalk and boulevard standards to promote safe, efficient, accessible and enjoyable passage
3.2	Apply traffic calming techniques and strategies to reduce vehicular traffic speeds and to enhance road safety for pedestrians, scooters and cyclists
3.3	Install additional empty conduits when undertaking municipal roadway and sidewalk construction, to allow for easy installation of future infrastructure improvements and amenities, within the <i>Public Realm</i>



3.4	Enhance crosswalk visibility through a fiscally sustainable combination of lighting, pavement markings, curb extensions and clear sight lines
3.5	Prepare <i>Alternative Development Standards</i> for roadways that are consistent with the <i>Multi-Modal Transportation Plan</i> objectives
3.6	<i>Complete Streets Guidelines</i> shall be incorporated into the Town of Creston Works and Services Bylaw
3.7	Transform roads designed exclusively for cars into roads that serve <i>Multi-Modal Transportation</i> including bikes and scooters

Several transportation-related implementation recommendations were outlined in the OCP, including prioritizing one key sidewalk in the municipal work plan and budget, per year to construct or significantly upgrade as well as working with neighboring local governments to develop a robust *Wayfinding Strategy*.

Community Connectivity Plan (2018 Draft)

The Community Connectivity Master Plan (CCMP) is intended to serve as the Town's long-term strategy for creating a connected and walkable community. The community engagement process undertaken for the 2017 OCP was the impetus for the CCMP, and the draft builds off the results of the Trails & Connectivity Workshop held in July 2016. The work already undertaken for the CCMP draft will lead into and directly inform the MMTP.

The CCMP articulates high-level strategies for eight aspects of connectivity for consideration:

- Accessibility, Safety & Comfort;
- Green Streets;
- Sidewalks;
- Trails;
- Cycling & Shared Streets;
- Parks & Greenspace;
- Neighbourhood Connectivity; and,
- Connectivity Corridors.

The plan also presents key design standards to support good connectivity that should be incorporated into the MMTP:

- Universal Design Standards;
- Green Streets Standards;
- Sidewalks Standards;



- Trails Standards;
- Cycling & Shared Streets Standards;
- Neighbourhood Connectivity Standards; and,
- Connectivity Corridor Standards.

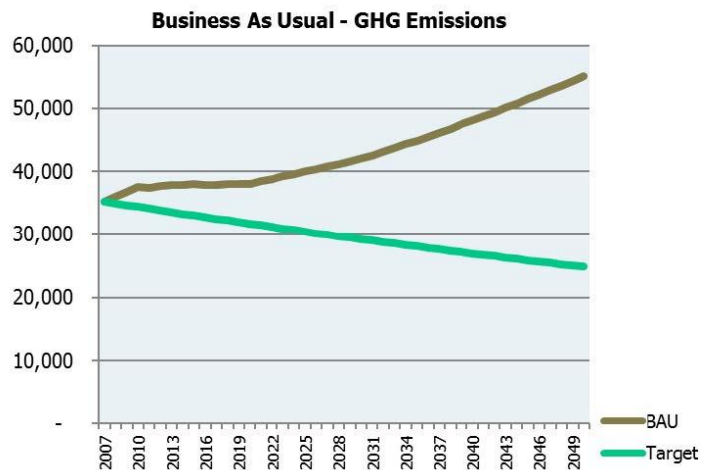
The draft CCMP includes an extensive implementation section where specific action items and locations are proposed for the following networks:

- Pedestrian Network
 - proposed sidewalks/trails, identified sidewalks/roads with accessible barriers, challenges and possible solutions, identified priority locations for improved street lighting;
- Cycling Network
 - proposed cycling route;
- Recreation Network
 - proposed recreation trails and improvements to intra-valley trails; and
- Parks and Green Space Network
 - proposed improvements.

Strategic Community Energy Efficiency Plan (2016)

The Strategic Energy and Emissions Plan (SCEEP) is Creston's comprehensive, long-term plan to improve energy efficiency, reduce greenhouse gas (GHG) emissions, and foster local green energy solutions. Mandated by the Local Government Statutes Amendment Act Bill 27, a SCEEP evaluates a community's existing energy use and GHG emissions to set local targets for reductions.

In 2010, the total community annual energy expenditure was approximately \$20.3 million, and GHG emissions were approximately 37,500 tonnes. The Plan acknowledges that while it is estimated that the plan will result in significant reductions to GHG emissions beyond Business As Usual, there is still a considerable gap to the GHG target, summarized





in **Table 3**, that may require further Federal and Provincial actions as well as technological changes.

TABLE 3: EMISSIONS TARGET SUMMARY

Mode	2016	2020	2030	2050
Total Reduction	-7.1%	-10%	-17%	-30%
Per-Capita Reduction	-19%	-26%	-41%	-63%
Total GHG	32,784	31,734	29,256	24,864
Per-Capita GHG	5.7	5.2	4.1	2.6

The major actions for Creston, listed by impacts in terms of annual GHG savings in the year 2020 are:

- 5.2 – Land use suite “enhanced”: 613 tonnes / year
- 1.2 – District Energy / Renewable energy systems: 488 tonnes / year
- 5.5 – Variable DCC’s to encourage infill development: 392 tonnes / year

Notably, approximately 58% of Creston’s 2010 GHG emissions are generated by transportation (passenger and heavy duty vehicles using gasoline and diesel fuel) and about 38% from residential, commercial, institutional and industrial buildings. Given this breakdown, actions to reduce GHG emissions in the community are heavily focused on changes to transportation and buildings. The key transportation-related action items relevant to the MMTP policy framework are highlighted below:

TABLE 4: TRANSPORTATION-RELATED ACTION ITEMS

Actions	
4. Light Duty Vehicle Transportation – Urban Form	
5.1/5.2	Land use suite lite and enhanced
5.3	Street design
5.4	Implement 30km/hr speed limit in parts of the community
5. Vehicle Transportation – Infrastructure & Collaboration	
6.1	Active transportation planning
6.2	Improve active transportation infrastructure
6.3	Anti-idling campaign

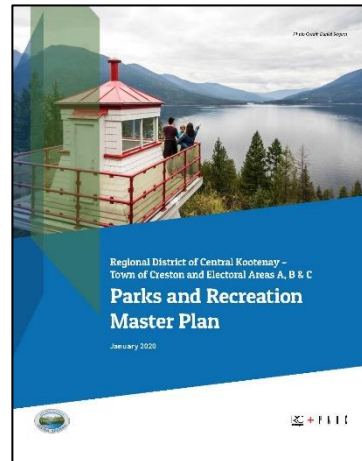


6.4	Special event planning
6.5	Collaborate with major employers on work-related transportation
6.6	Transit suite
6.7	Intercommunity transit services
6.8	Support car share cooperatives
6.9	Raising awareness of ride sharing and guaranteed ride home programs
6.10	Low carbon and electric vehicle fuelling / charging stations
6.11	Electric vehicle & e-bike awareness event
6.12	Natural gas vehicle collaboration

Parks and Recreation Master Plan for the Town of Creston and Electoral Areas A, B and C (2020)

Regional District of Central Kootenay recently developed the Parks and Recreation Master Plan to guide the provision of parks, recreation, culture and trail services for the next ten to fifteen years. The vision of the Parks and Recreation Master Plan is that residents live active and creative lifestyles through quality parks and recreation opportunities. In achieving this vision, the desired outcomes of the Parks and Recreation Master Plan are as follows:

- Residents are living a healthy lifestyle;
- Residents have access to and participate in recreational and parks activities both indoors and outdoors; and
- Communities are strong and caring.



High-level research and engagement findings from the planning process revealed that 11% percent of respondents to the household survey identified transportation as a barrier to participation in recreational opportunities in the study area. Additionally, expanding the trail network within the study area was ranked the highest in the preliminary list of infrastructure priorities. The trail network is used for health purposes, as recreation outlets and as active transportation corridors for non-motorized means of transport. Therefore, it



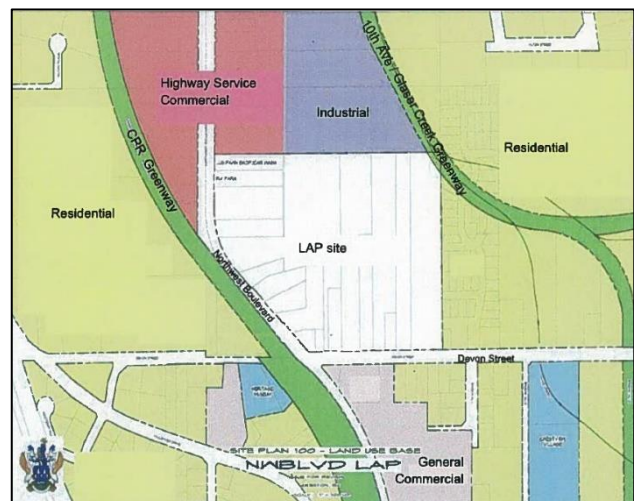
is important that the Town's MMTP addresses its network and improvements in a way that provides continuity and complements the Parks and Recreation Master Plan.

Of the 19 key recommendations developed under the three core themes of: 1) programming and events; 2) parks and recreation infrastructure; and 3) service delivery, Recommendation 11: Enhance the Existing Non-Motorized Trail Network in the Area is of particular importance to the MMTP. The following considerations should be incorporated into the transportation planning process:

- Ensure the existing trail system is mapped and this map is shared with the community and tourists;
- Utilizing community feedback, identify the priority areas that need enhancing. This could mean gaps in existing trail connections in town, from town to rural, from community to community or in the wilderness;
- Develop a priority list for addressing the needs and solicit partners to help.
- While the Creston Valley Wildlife Management Area has a network of trails, its mandate of wildlife and habitat conservation is paramount to its recreational use; and
- Meet with members of the Lower Kootenay Band to discuss opportunities for cooperation in trail siting and development.

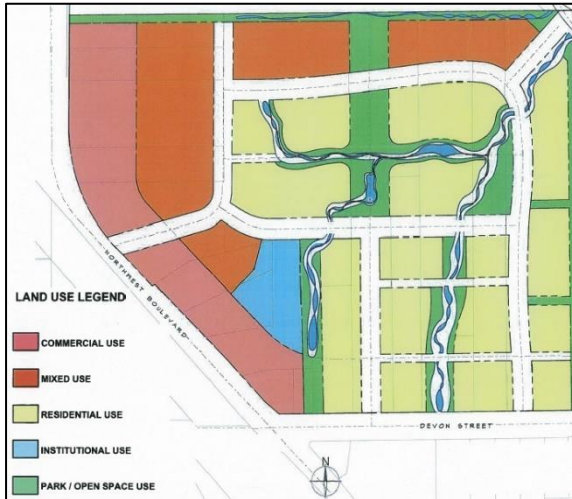
Northwest Boulevard Local Area Plan (2016)

The Northwest Boulevard Local Area Plan (LAP) is part of a larger neighbourhood in northern Creston centred on the Creston Valley Mall. The vision for this community is a mix of land uses with commercial along Northwest Boulevard and then transitioning to mixed-use and residential further from the highway. The plan sets out and describes four key sustainability principles including:





resiliency, connectivity, complete & compact neighbourhoods, and sense of place.



It is envisioned as a compact, walkable, community with active transportation corridors along the linear parks and connections to the surrounding network. One of those key connections is made to the Glaser Creek Greenway, just east of the study area. New local roads are proposed as well as improvements to the Devon Street intersection with Northwest Boulevard. The document provides specific

guidelines designing the public realm for pedestrian comfort and safety, which includes the following:

- Sidewalks are located on both sides of the streets and are wide enough to accommodate mobility scooters / strollers;
- Curb bulbing and crosswalks at all intersections encourages pedestrian safety because traffic is slower; and
- Sidewalks and trails connect throughout the site, and to the wider community.

The guidelines are specific to the Northwest Boulevard Neighbourhood, they provide design guidance for the Town as a whole and have benefits for the MMTP.

Cultivating Creston: Integrated Community Sustainability Plan (2013)

Cultivating Creston articulates the community’s shared vision for a successful and sustainable future to the year 2030. At the time of its development, Cultivating Creston served as the community’s highest-level policy and decision-making framework that ultimately laid the groundwork for the community’s 2017 OCP.

The Plan developed four core sustainability objectives for reducing and eliminating local contribution to:

- Socio-cultural and economic conditions that undermine people’s ability to meet their basic needs;



- The ongoing physical degradation of nature;
- The ongoing build-up of synthetic materials produced by society; and
- The ongoing build- up of materials extracted from the earth's crust.



Five local priorities provide a high-level focus on what must be achieved to create a successful future for the Creston community

At the time, 81% of the employed labour force in Creston used private vehicles as their primary transportation mode. Additionally, citizen satisfaction regarding transportation and traffic in 2009 had an average rating of 56 on the 100-point scale, lower than the average rating of 81 points placed on the importance of these services. In order to bridge the gap between the current transportation realities, the following desired outcome statements describe what success and sustainability in transportation will look like in Creston by the year 2030 and

provides direction for more detailed transportation planning and decision making:

- Creston prioritizes preferred modes of transportation in the following order: 1) pedestrian, bike, scooters and strollers; 2) transit and movement of goods; 3) private vehicles (high occupancy and low-impact technologies); 4) private vehicles (single occupant and traditional technologies);
- Transportation options are convenient, reliable, innovative, safe, affordable, and accessible, meeting the needs of residents and visitors;
- Creston's streets are people friendly, accessible, safe, visually appealing and enjoyable, offering places for people to rest and interact with others;
- The transportation system is transitioning toward the use of renewable energy sources and non-motorized options, eliminating emissions into the natural environment, and maintaining ecosystem integrity;



- Creston is connected to the valley, neighbouring communities and non-local health services by affordable, convenient, comfortable and accessible transportation options;
- The transportation system is cost effective and supports the local economy by enabling efficient and affordable movement of people and products to and from Creston and the region; and
- Communications infrastructure is affordable and available for use as a convenient alternative to transportation.

Age-Friendly Action Plan (2013)

The Age-Friendly Action Plan process was undertaken as a complementary process to the Integrated Community Sustainability Plan to apply an age-friendly lens to the development of Cultivating Creston planning. The Plan is built around the World Health Organization (WHO) Checklist of Essential Features of Age-friendly



Cities' eight "age-friendly themes" including Transportation. While transportation is a key factor influencing active ageing, WHO's checklist of Essential Features of Age-Friendly Cities highlights items that would benefit the wider community including:

- Roads are well-maintained, with covered drains and good lighting;
- Traffic flow is well-regulated;
- Roadways are free of obstructions that block drivers' vision;
- Traffic signs and intersections are visible and well placed;
- Parking and drop-off areas are safe, sufficient in number and conveniently located; and
- Priority parking and drop-off spots for people with special needs are available and respected.

Two transportation-specific age-friendly actions were recommended as a result:

- Transportation Service for Seniors



- Explore needs, funding and options for a specialized seniors transportation service in the Creston Valley that is affordable, is offered evenings and weekends, and includes trained drivers that can assist seniors.
- Public Transit between Creston and Trail
 - Explore the need for public transit service to Trail

Cultivated Creston and Age-Friendly Action Plan (Update – 2014 ICSP)

In 2014, the Town hosted a participatory planning process to update the action plans developed as part of the ICSP and Age-Friendly Action Plan. Three focus areas were determined to be most important within the 2014 context:

- Economy;
- Food and agriculture; and
- The age-friendliness of the Creston Valley.

The SWOT analysis undertaken for this update highlighted that transportation remains a challenge for seniors in the community. The following additional transportation-specific recommendations were developed:

- Seniors Carpooling
 - Develop a registration system for seniors carpooling (in and out of town)
- Snow Clearing in Rural Areas for Seniors
 - Explore how to provide snow clearing services to seniors in rural areas
- Medical Bus Frequency
 - Increase the trip frequency of the 'medical bus' for medical appointments Regional District of Central Kootenay.



Creston and Area Youth Strategy and Action Plan (2015)

The Youth Strategy and Action Plan engaged local youth (between 13 to 19 years of age) to provide a series of recommendations for a new, positive and inspiring vision for their community. The results of the Youth Strategy and Action Plan complements plans for supporting older residents and highlights the need to involve youth and their unique transportation needs in future transportation planning efforts.



Throughout the planning process, reflections on Creston’s community assets as well as the barriers and challenges that youth face were explored. Of the main themes that emerged, one of the top four priorities identified among youth was “Transportation and Active Transportation to Enhance Youth Safety”. While many Creston citizens experience geographic isolation, it is felt acutely by youth who are often unable to transport themselves and are affected by limited transit service. Surveys and key informant interview results revealed the following key takeaways related to transportation:

- 42% of youth noted they would like to see improved lighting, crosswalks, and sidewalks;
- 19% of youth expressed they could not participate in events because of transportation issues;
- Youth want to participate in development of trails for biking, skateboarding or horses;
- 31% of service providers noted transportation was the top issue that impeded youth participation; and,
- Many parents and adults agreed with the youth assessment of safety and focused on the need for new walking trails and sidewalks (31%); as well as installation of crosswalks and lights (13%).



Greenways and Trails Masterplan (2003)

In response to the 2001 Official Community Plan policy direction, the Town of Creston prepared a Greenways and Trails Master Plan in 2003 with the goal to:

- To establish a comprehensive network of greenways and trails to benefit the environment and citizens of Creston;
- To promote alternative modes of transportation by providing adequate facilities;
- To foster economic development by linking key economic generators within the community; and
- To protect environmentally sensitive areas by enhancing their profile and by directing pedestrian access to appropriate areas only.

The plan determined a recommended list of priority projects based on the analysis of criteria including land ownership, existing conditions, community support, and trail profile. Several trails, such as the Millennium Trail, were completed based on this 2003 Master Plan. This work preceded and informed Creston's new 2017 OCP and draft Community Connectivity Master Plan where residents' desire for a robust greenways and trails network was strongly reaffirmed.

3.2 SURROUNDING JURISDICTIONS

The following section provides a summary of planning / policy direction pertaining to active transportation in the surrounding jurisdictions.

3.2.1 LOWER KOOTENAY BAND

The Lower Kootenay Band Community is one of the five Canadian bands which make up the Ktunaxa Nation. The Lower Kootenay Band has 6,000 acres of community lands located on eight separate reserves in the Creston Valley. The main community is located just four kilometers South of Creston and the Band has a strong working relationship with the Town of Creston as first formalized by the Memorandum of Understanding and Friendship in 2009. As demonstrated by Creston's OCP process, Council to Council collaboration is key to ensuring that the MMTP and its community engagement process advances the Town's reconciliation efforts and respects Yaqaan Nukiy culture and heritage.



Initiated by Creston’s OCP process, the Town of Creston, Reginal District Central Kootenay and Lower Kootenay Band have had informal discussions regarding a Creston Valley Wide Trail Network. This includes utilizing the “dikes” located on reserve land as part of the trail network. Further opportunities to explore additional active transportation connections will likely surface through the MMTP and as the Lower Kootenay Band develops their Comprehensive Community Plan.

Additionally, the following key transportation-related results emerged from the Lower Kootenay Land Use Planning community consultation process in 2016:

- When asked about the importance of improved roads for driving, walking, and cycling, 67% of respondents selected “very important”, 29% “somewhat important”, with only 4% responding “not important”; and
- When asked what environmental issues are most important in Lower Kootenay, 25% of respondents selected “climate change adaption”, 23% “air quality”, and 21% “lowering greenhouse gas emissions”.

3.2.2 CITY OF NELSON

The City of Nelson comprises over 2,000 acres predominantly on the south shore of the Kootenay River with a resident population of over 10,000. As identified earlier in the report, Nelson is the leader in the region in terms of active mode share and illustrates what’s possible for the Town of Creston. Nelson faces shared challenges to active transportation as Creston due to its mountainous topography and winter conditions. Given the already high uptake of active travellers in Nelson, the focus of their Active Transportation Plan is to ensure current infrastructure is maintained to facilitate this trend. Key highlights of the Plan include:

- Transit system to support the active transportation network by providing an alternative route for steep hills or poor weather;
- Transit Strategy to target youth as transit users to secure future ridership;
- Recognizing that few existing roadways in Nelson that can accommodate cycling lanes, there is a focus on shared use cycling lanes on low volume and local roads;



- Continuity of pedestrian infrastructure is an important factor as pedestrians are likely to maintain a linear path as much as possible;
- Snow clearing, covered stairs, and priority plowing of designated cycle routes to combat winter conditions; and
- Grooved ramps, benches along steep sidewalks, and frequent transit service to combat steep terrain.

Notably, Nelson’s Active Transportation Plan recommends setting active transportation benchmarks for sustainable versus non-sustainable modes rather than setting a target for walking or cycling trips. In this approach, sustainable modes would include not only public transit, but carpooling, motorcycles, taxis, and car co-ops as well. This approach is intended to focus on decreasing single occupancy vehicles rather than targeting specific increases in each active transportation mode.

In 2019, a review of the 2010 Active Transportation Plan was conducted to provide Council with a strategy for the next five years. An implementation plan outlining actions, timeframe, method of implementation, grant opportunities and responsibilities were outlined under the following overarching themes:

- Expand and enhance the active transportation network
- Improve wayfinding, signage and trip planning
- Improve education and awareness
- Improve safety and traffic calming
- Provide more bicycle parking and other end-of-trip facilities
- Monitoring active transportation trips, investments and initiatives

3.2.3 CITY OF CRANBROOK

The City of Cranbrook is located on the west side of the Kootenay River and is home to the largest population centre in southeast BC. Cranbrook is slightly more car-dependent than its peers and serves as the distribution hub of the East Kootenay.

Cranbrook’s 2006 Official Community Plan (OCP), amended in 2010, identified preparing a City-wide road network and transportation plan as a priority for the City. “Movement



systems and Connections” was one of the key themes of the OCP, and the importance of multi-modal transportation options was underscored in the 19.2.1 policy to “expand the network of pedestrian and non-vehicular routes including sidewalks, off-street pathways and bicycle lanes”. While a city-wide transportation plan has yet to be developed for the community, the City is currently in the process of undertaking a comprehensive review of the Official Community Plan to guide the next 20 years of growth and development in Cranbrook. This process will update the City’s Greenhouse Gas Reduction targets, policies, and actions and will have implications for their transportation networking planning.

In addition, Council has identified the creation of a Downtown Revitalization Master Plan as a top priority in their 2020-2024 Strategic Plan. In response to development pressures and new development forms emerging in the downtown area, this long-term planning document will incorporate analysis, recommendations and proposals for the downtown including for transportation.

Both of these planning processes will integrate and provide consistency with the City’s existing Parks and Recreation Master Plan that was developed in 2016 to guide City staff and Council on the planning, design and use of parks, trails, recreation facilities, and community programs and services. Multi-use trails are important assets for the community and help to form a network for pedestrian cycling and other non-vehicular uses. Under one of the six overarching goals, “Expand the Trail System and Accessibility”, the Plan outlines the following policies that have implications to transportation planning:

- Provide a connected and accessible trail system that provides loops and links parks, recreation/community centres, schools and other key destinations;
- Improve the trail system quality and infrastructure to increase visitor comfort and safety; and
- Explore opportunities to expand transit service to Moir Centennial Park for evening sports.



3.2.4 DISTRICT OF INVERMERE AND SHUSWAP INDIAN BAND

Another member of the Ktunaxa Nation, the Shuswap Indian Band's main reserve is located just North of Invermere. In 2018, a community-to-community relationship was established between the District of Invermere and the Shuswap Indian Band through a federally sponsored Community Economic Development Initiative (CEDI). As partners of the CEDI, the two communities are currently working together on a Joint Active Transportation Network Plan (ATNP) process that started in 2020.

The ATNP has the following shared vision:

- “As neighbouring communities, we commit to removing barriers by creating a physical and symbolic connection through the development of an active transportation corridor. By respecting and leveraging our unique strengths, this corridor will enhance cross-cultural understanding and create mutually prosperous economic, social and environmental opportunities.”

In pursuit of this vision, elected officials and senior staff from both communities as well as the Columbia Valley Community Economic Development Officer form a working group. The ATNP will enhance active transportation connections within and between the two communities and include the following three main components:

- A long-term active transportation network map for both communities;
- A list of policies and actions to promote and enhance active transportation in both communities; and
- A feasibility review of a new active transportation crossing over the Columbia River, connecting the two communities.

The draft policies are divided into three overarching themes and their corresponding strategies:

- **Connectivity:** network improvements, integration, safety;
- **Experience:** accessibility, maintenance, amenities; and
- **Culture:** great streets, wayfinding, education and encouragement.



3.3 REGIONAL CONTEXT

3.3.1 REGIONAL DISTRICT OF CENTRAL KOOTENAY

The Regional District of Central Kootenay (RDCK) is a local government that consists of 11 electoral areas and nine member municipalities: Castlegar, Creston, Kaslo, Nakusp, Nelson, New Denver, Salmo, Silverton and Slocan. The RDCK provides approximately 170 services to an estimated population of 60,000 residents, including transportation-related services such as street lighting, regional parks, and transit. For instance, the Nelson Salmo Great Northern Trail is a regional multi-use recreational trail that the RDCK has a License of Occupation Agreement with the Province. Additionally, the RDCK together in partnership with BC Transit, has contracted various agencies to operate transportation services within the region.

In April 2019, the RDCK declared a climate action imperative for all orders of the government to take a climate lens into building construction, energy systems, resource recovery, land use and transportation. RDCK's Climate Action Report sets a risk reduction goal to be 100% renewable and carbon neutral by 2050 and reduce its GHG emissions by 45% by 2030. Risk reduction is divided into five identified pathways:

- Land Use/Planning
- Mobility
- Buildings
- Energy
- Resource Recovery

The goal for Mobility in the RDCK is to have a “regional transportation network seamlessly incorporated to create complete communities through active transport lanes and zero emission vehicles / low carbon fuel transportation (buses, scooters/bikes, trains, ferries) within/between municipalities and with other electoral areas”. The following objectives and targets are outlined in pursuit of this goal:

- Keep track of the implementation of new bus routes, bike lanes and trails added to the RDCK while promoting and supporting mobility for the vulnerable communities through local initiated modal programs;



- By 2040, plan to shift all new cars sold to be zero emission vehicles, which aligns with the provincial CleanBC goal, while making the transition from diesel large sized vehicles (garbage trucks, school buses, commercial trucks) to run on low-carbon fuels; and
- Monitor transportation GHG emissions and transportation GHG emissions/capita (tCO₂e every 2 years).

3.3.2 BC TRANSIT CRESTON TRANSIT FUTURE PLAN

The Creston Valley Future Transit Future Service Plan is currently under development and includes background research and community engagement to guide future decision-making for the transit service in the valley. Engagement on the plan has just wrapped up as of September 2021, and the final steps are being undertaken to finalize this plan. The Future Transit Service plan builds on the 2012 System Restructure that was an outcome of the 2012 Service Review of the Creston Valley Transit System. Some of the key areas of focus are improving the by-request service and enhancements for additional inter-regional connections to Cranbrook, East Shore of Kootenay Lake, and the West Kootenay's.⁴

⁴BC Transit. (2021). Creston Valley Transit Future Service Plan. Available online at: <https://engage.bctransit.com/21710/widgets/87498/documents/64943>



Section 4 – What We Heard From The Community



4.0 WHAT WE HEARD FROM THE COMMUNITY

Through a collaborative process involving community engagement, the plan will identify action-oriented priorities for the short term while also mapping a longer-term vision for the transportation network to support the Town’s sustainability and success into the future. The first round of engagement for this project invited Creston residents, visitors, and community groups to share their transportation experiences using all modes—including walking, rolling, cycling, taking transit, and driving—and help identify solutions for improving those experiences.

This section provides a brief summary of the first round of engagement and it’s key findings. The complete report is titled: Creston Multi-Modal Transportation Plan (MMTP) Round 1 Engagement – What We Heard Report.

The key objectives of Round 1 engagement were:

- To inform the community and introduce the MMTP process;
- To gather current community transportation experiences; and
- To understand community priorities and visions for a future transportation network.

4.1 WHAT WE DID

The first round of engagement took place from September 15 to October 17, 2021, and involved:

A **public online survey** made available to all members of the public on the *Let’s Talk Creston* engagement website;

The opportunity to **ask questions and provide additional ideas** on the *Let’s Talk Creston* engagement website; and

Engagement by the numbers:



682 engagement site visitors



436 surveys completed



22 DIY Mobility Mapping activity sheets completed



Do it Yourself (“DIY”) Mobility Mapping activity sheets that allowed community members to map out an active transportation trip they took in town and provide details about the experience.

As an incentive, participants in the online survey and DIY Mobility Mapping exercise were each given the opportunity to enter to win one of five \$50 gift certificates to a local restaurant of their choice.

4.2 KEY TAKEAWAYS

The list below outlines the key takeaways from the Round 1 Engagement activities:

- **The top barriers to transportation** are lack of safe pedestrian infrastructure and lack of safe bicycle infrastructure.
- **The top destinations** for Creston residents are the downtown core, the Creston & District Community Complex (Rec Centre), Creston Valley Mall, Northwest Boulevard Commercial Corridor, and Pealow’s Your Independent Grocer.
- **The highest priority improvements** are related to sidewalks, pathways, roadways, and trails, as well as traffic calming through the downtown core and active transportation.
- **Vision for the future:** Survey respondents envision a future Creston that has a more accessible active transportation network; is pedestrian oriented; allows better mobility for youth, seniors, and people who use mobility aids; and has safer streets. The desired future community is also healthy, vibrant, connected, economically prosperous, and has better public transit.
- **Mapping out ideas for improvement:** 40% of participants in the DIY Mobility Mapping exercise rated their trip below 5, indicating a more negative experience. When asked what improvements the Town could make, participants indicated a need for more sidewalks and bike lanes, more/better crosswalks, better accessibility for strollers and mobility aids, improved safety for cyclists and pedestrians, reduced vehicle traffic in the downtown core, and more bus stops and signage.



Section 5 – Pedestrian & Trail Network Conditions



5.0 PEDESTRIAN & TRAIL NETWORK CONDITIONS

5.1 OVERVIEW

The Town recognizes that an integrated approach to transportation planning is critical for supporting all modes of transportation including walking trips. The Town's 2017 OCP specifically contains policy direction that is focused on accommodating pedestrians, as follows:

- Policy 2.1 (Connectivity) | Adopt and implement an updated Greenways & Trails Master Plan;
- Policy 2.2 (Connectivity) | Target enhanced community connectivity by improving and completing road, sidewalk and trail connections between residential areas, the Creston Valley Library, the Creston & District Community Complex, the Creston Valley Mall, businesses along Northwest Boulevard, the Downtown Core, schools and parks;
- Policy 2.3 (Connectivity) | Encourage pedestrian trails and sidewalk routes between residential neighbourhoods and schools to be efficient and prioritized in neighbourhood development;
- Policy 2.4 (Connectivity) | Consider development of Glaser Drive as a safe pedestrian route, in order to facilitate an alternative to walking on Northwest Boulevard;
- Policy 2.5 (Connectivity) | Encourage Residential Infill Development within the Residential Growth Containment Area (RGCA) to increase the proportion of residents living within walkable distances of work, school, recreation facilities, and other services; and
- Policy 4.2 (Connectivity) | Encourage the construction of continuous sidewalks to provide ease of pedestrian passage.



5.2 SIDEWALK NETWORK

The overall sidewalk network consists of approximately 17 km of sidewalk facilities. As shown in **Map 1**, sidewalks are largely concentrated in the downtown area and its surrounding neighbourhoods.

Residents living north of the downtown can use sidewalks on 10th avenue and 16th Avenue to access destinations in the downtown area. Other streets with sidewalk coverage include Hillside Street, 12th Avenue, 15th Avenue, and Canyon Street.

Even though the Town does not classify its pedestrian facilities, field observations confirmed that Creston's sidewalk network is comprised of non-separated sidewalks, as shown in the photo below. More information about the Town's pedestrian facilities is in **Section 3.6**.



Example of a non-separated sidewalk on 9 Avenue N

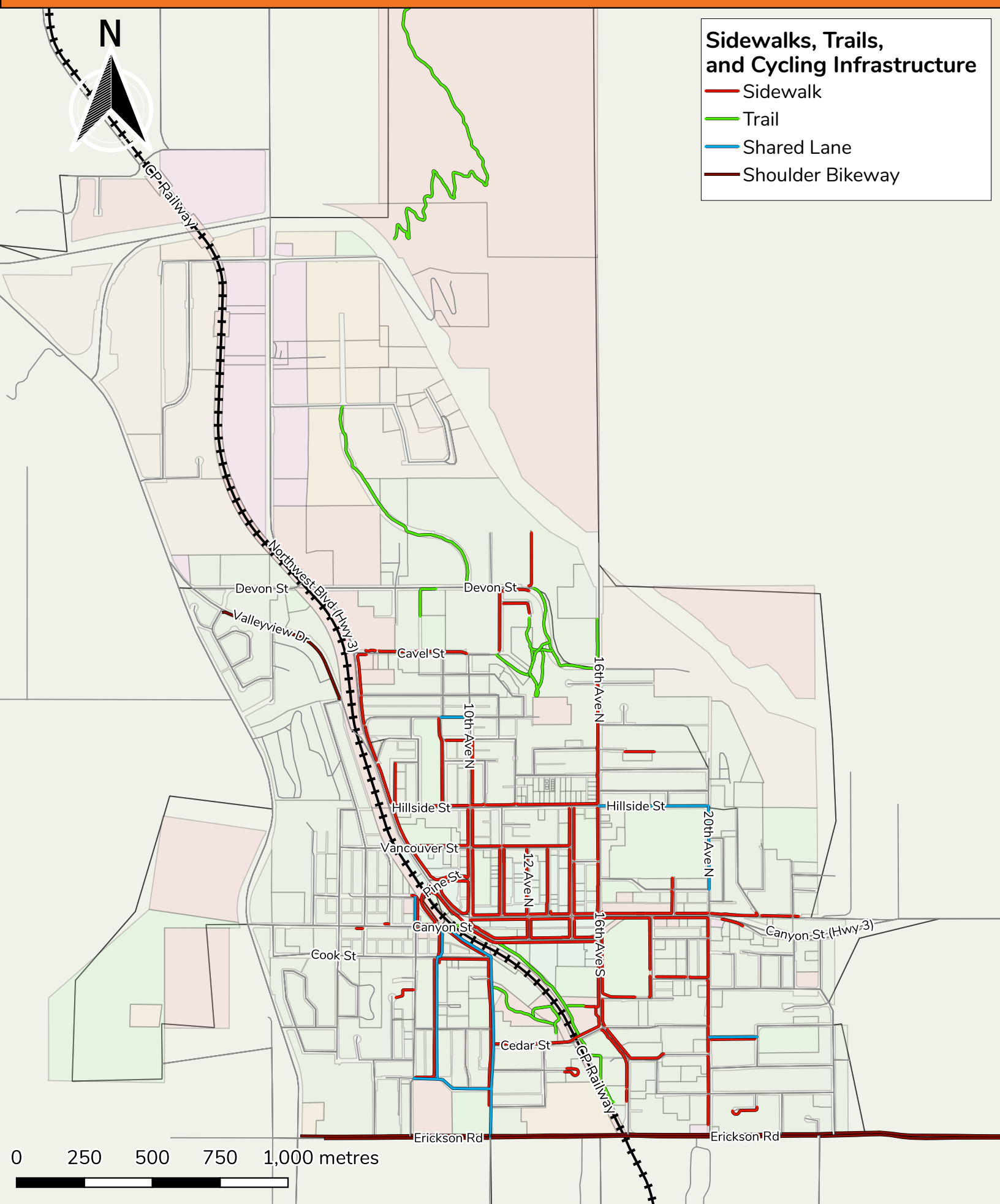
WHAT IS A WALKABLE ENVIRONMENT?

According to the BC Active Transportation Design Guide, the following characteristics can help create comfortable and desirable walking environments:

- **Physical separation** from other road users;
- Adequate **clear width** to allow more than one person walking or using a mobility device to pass each other;
- **Firm, smooth, and even surfaces**;
- Sufficient **pedestrian crossings** opportunities;
- **Short distances** between destinations;
- **Continuous and direct routes** between destinations that reflect pedestrian desire lines;
- **Buildings** that orient towards the road;
- **Diverse land uses** that create a varied and interesting walking experience;
- **Wayfinding** that makes it easy to navigate between destinations;
- **Street trees** and other vegetation;
- **Weather protection** elements for rain and snow;
- Adequate **lighting** for safety, security, and visibility;
- Pedestrian **amenities** such as landscaping, water fountains, washrooms, garbage and recycling receptacles; and
- **Maintenance** of pedestrian facilities throughout the year.

Retrieved From: BC Active Transportation Design Guide Chapter C (Pedestrian Facilities)

Map 1. Active Transportation Network



Sidewalks, Trails, and Cycling Infrastructure

- Sidewalk
- Trail
- Shared Lane
- Shoulder Bikeway

0 250 500 750 1,000 metres



5.3 PEDESTRIAN COUNTS

Peak hour pedestrian counts were collected as part of the August 2021 Data Collection Plan (**Appendix A**) at specific intersections confirmed by the Town. These counts were not explicitly targeted at collecting pedestrian traffic but can still assess existing pedestrian conditions. **Table 5** shows the top five locations for pedestrian activity based on collected data. The downtown count location (Cook Street and 15th Avenue S) had the highest pedestrian activity with 37 pedestrians in the peak hour. Devon Street and Northwest Boulevard had the second highest level of pedestrian activity among the 11 locations. This is likely due to short distances in the vicinity between trip generators such as single-family homes and trip attractors such as the Creston Valley Mall and Tim's Fish & Chips. In the areas with greater distance between residential and commercial land uses the number of pedestrians observed was lower.

TABLE 5: PEAK HOUR PEDESTRIAN COUNTS

Rating	Intersection	Pedestrians/Hour
1	Cook Street / 15 th Avenue S	37
2	Devon Street / Northwest Boulevard (South Tee)	25
3	Devon Street / Northwest Boulevard (North Tee)	14
4	Hillside Street / 10 th Avenue N	5
5	Hillside Street / 16 th Avenue	5



5.4 CROSSINGS

As per the BC Motor Vehicle Act (MVA) pedestrians have the right-of-way over vehicles at intersections. No signage or markings are required to make it a legal crossing point; however, many people are unaware of this regulation and the public ‘feel’ safer with additional features, such as signs, pavement markings, flashers, to identify crosswalks.

Motor Vehicle Act Definition of a Crosswalk

“(a) a portion of the roadway at an intersection or elsewhere distinctly indicated for pedestrian crossing by signs or by lines or other markings on the surface, or
(b) the portion of a highway at an intersection that is included within the connection of the lateral lines of the sidewalks on the opposite sides of the highway, or within the extension of the lateral lines of the sidewalk on one side of the highway, measured from the curbs, or in the absence of curbs, from the edges of the roadway”

Currently the Town uses the Pedestrian Crossing Control Manual for BC (2nd Edition, 1994) to evaluate requests for crosswalks in the community. This document has been used since 2010, and previously, did not have a standard policy to determine the need for installation of signed and marked crosswalks. As a result, many crosswalks are installed inconsistently. The Transportation Association of Canada (TAC) Pedestrian Crossing Control Guide (3rd Edition) provides a decision support tool to determine the level of pedestrian crossing facilities warranted. The Town should develop a crossing policy that is based on TAC, but with considerations for Creston conditions to systematically install crosswalks at required locations and ensure consistent messaging for improved conspicuity.

The Town has approximately 34 zebra crosswalks (mid-block locations) and 19 Parallel Crosswalks at intersections (total is approx. 50). Furthermore, there are also approximately another 35 additional crosswalks on Hwy 3, Hwy 21 or Erickson Road on Town cross roads. The total number of crosswalks in Creston is 85, including those



crossing or adjacent to MoTI roads within Creston. Most of the crosswalks are marked crossings, which means they include pavement markings (“zebra crossing”) and signage.



Examples of crossings in the Town with a raised crosswalk (top) on 20 Avenue South and a standard crosswalk (bottom) on 11 Avenue North and Canyon Street.



5.5 TRAIL NETWORK

The Town of Creston Greenways and Trails Master Plan (2003) provides trail recommendations within the Town for recreational and transportation purposes. Many of these routes have since been completed such as the Millennium Trail & Park Connector, Steve’s Ride, Library Loop, and Glaser/Devon Trail. Additional trails not part of this plan include Klaus’s Korner and the Cavell St – Schikurski Park trail. The current in town sanctioned trail network consists of 3.5km of gravel and paved trails. This is exclusive of the sidewalk network. These trails are important as many of them can serve as the backbone of the active transportation network. There is still work to be done. For example, a highly desired route identified in

TRAIL NETWORK, BY THE NUMBERS...

6 designated trails

3.5 km off-road trails



the Greenways and Trails Master Plan is along the rail corridor. Another one is a trail along the since abandoned Creston bypass RoW (Truck Route Trail).

Surrounding Creston, there are also many recreational trails in the mountains or along the marsh areas. Potential regional trail connections include south of Erickson Road on 11th Avenue

South, east of the Town’s boundary on Erickson Road, north of 16th Avenue North (to Goat Mountain), west on the dike near Kootenay River Road and west on Highway 3.

5.6 BARRIERS TO WALKING

The barriers to walking in Creston are summarized in the following sections. Barriers in the pedestrian network are broadly defined as facilities that do not meet the needs of all ages and abilities (AAA). AAA facilities make access to transportation more equitable by



allowing active modes to travel safely and comfortable. They are inclusive, age-friendly, accessible, and safe.⁵ The three main barriers to walking in Creston including [a] the lack of separated sidewalks [b] inaccessible intersections / crossings and [c] topography and stairways.

5.6.1 LACK OF SEPARATED SIDEWALKS

Most of the sidewalks in the Town are considered “non-separated”, as shown in the image below. The BC Active Transportation Design Guide defines these facilities as sidewalks that are located directly next to the roadway and is physically separated from the roadway by a curb. Non-separated sidewalks are found on most of Creston’s Arterial and Collector roads including Canyon Street, Cook Street, 15th Avenue North, 20th Avenue South, 16th Avenue North, and 10th Avenue, among others. The Design Guide advises against non-separated sidewalks on collector, arterial, or industrial roads with motor vehicle speeds greater than 30 km/h. On these roads, a separated sidewalk is recommended. Higher motor vehicle speeds and volumes can negatively impact pedestrian safety and comfort.

As shown in **Figure 4** & **Figure 5**, below, some pedestrian facilities meet the criteria for “all ages and abilities” while others are considered supporting facilities. The pedestrian facility selection decision support tool (bottom) illustrates that most road types in an urban environment should be candidates for a separated sidewalk.

⁵ Government of BC. (2019). *British Columbia Active Transportation Design Guide*. Chapter B: Setting the Context. Available online at: https://www2.gov.bc.ca/assets/gov/driving-and-transportation/funding-engagement-permits/grants-funding/cycling-infrastructure-funding/active-transportation-guide-low-res/2019-06-14_bcatdg_section_b_rfs.pdf



Figure 4: Pedestrian Facility Types
 Retrieved From: BC Active Transportation Design Guide

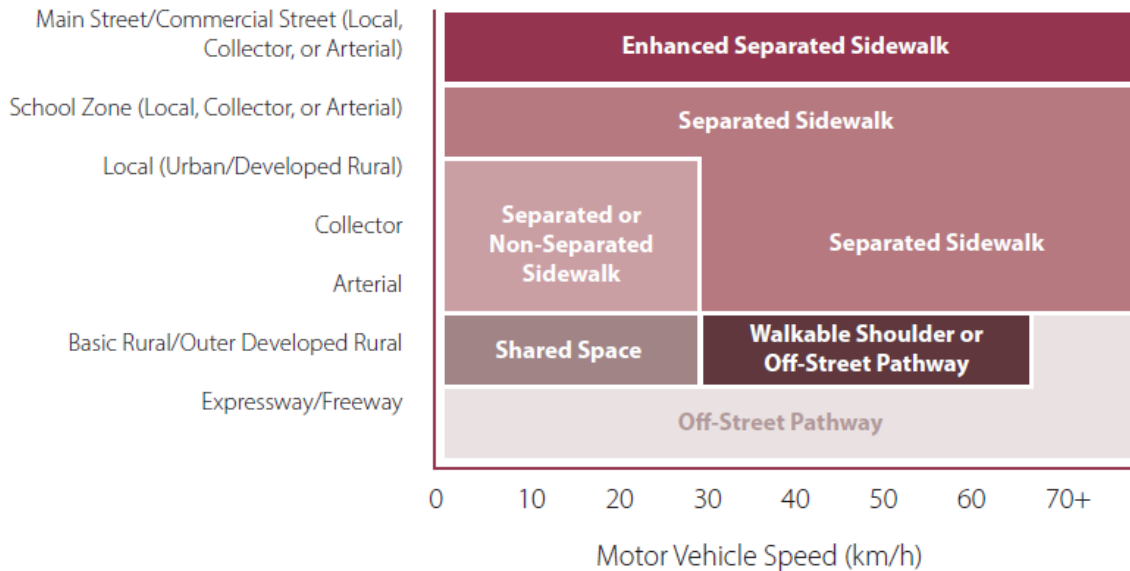


Figure 5: Pedestrian Facility Selection Decision Support Tool
 Retrieved From: BC Active Transportation Design Guide

The Design Guide defines a separated sidewalk as one where the furnishing zone (which provides space for utilities, street, furniture, landscaping, street trees, etc.) separates the sidewalk from the roadway. It provides a buffer and enhances pedestrian safety and



comfort while providing space for sidewalk amenities and utilities.⁶ The guide indicates that separated sidewalks:

- Increase the safety and comfort for people walking due to the larger buffer from motor vehicles;
- Provide space in the Furnishing Zone for utilities and sidewalk amenities such as benches, bicycle racks, street trees, and landscaping, while maintaining an unobstructed sidewalk; and
- Provide an adequate slope area for driveway ramps between the curb and sidewalk.

Based on the Design Guide, the following streets should be considered for a separated sidewalk, either through the development process or through a sidewalk upgrade. Fortunately, many of these streets have widths that would allow for modifications to the Right-of-Way. These street segments were observed to have 85th percentile speeds that were at or exceeded the posted speed limit:

- 10th Avenue N;
- 20th Avenue N;
- Canyon Street (4th Ave – 8th Ave);
- 16th Avenue S (near library);
- Valleyview Drive; and
- Erickson Road.

⁶ Government of BC. (2019). *Active Transportation Design Guide, Chapter C: Pedestrian Facilities*. Available online at: <https://tinyurl.com/y298s6lq>



Based on the BC Active Transportation Design Guide, both 16th Avenue N (top) and 10th Avenue N (bottom) should be candidates for separated sidewalks.



5.6.2 ACCESSIBILITY AT INTERSECTIONS

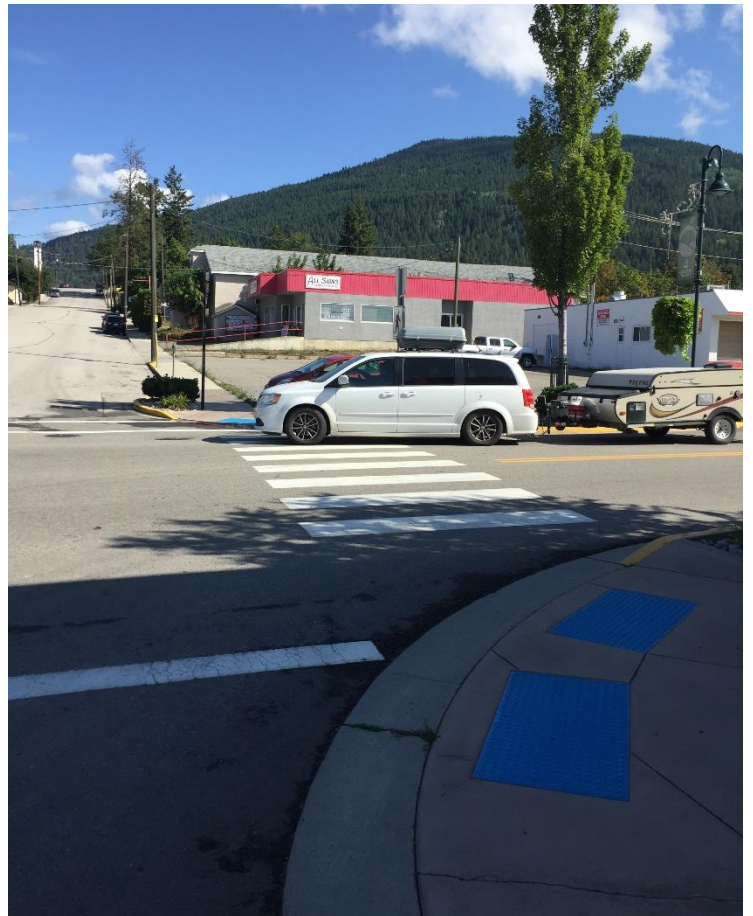
The Town's sidewalk network and relatively short distances between destinations in the downtown area help create a walkable environment. While some sidewalks require more separation (as discussed in **Section 4.6.1**), people walking can still access their destinations safely and efficiently.

An important part of the walking experience is navigating through a safe and accessible intersection. As shown below, the Town and MOTI have already taken steps to enhance the accessibility of the intersections along Canyon Street in the downtown. For example, the Canyon Street and 12th Avenue intersection has the following accessibility features:

- **Double curb ramp** | Provides a dedicated curb ramp for each individual crosswalk. They also provide full universal access by landing pedestrians directly in the crossing area and in the desired direction of travel, rather than entering the road at an angle and having to reorient themselves;
- **Marked Crossings** | all legs of the intersection have pavement markings which makes the crosswalk more visible to all road users. This can increase motorist yielding behaviour and help guide pedestrians across the road in the safety and most direct location;
- **Tactile Attention Indicator** | all corners of the intersection have a blue tactile attention indicator that alert people of an impending change in elevation, conflicts with other transportation modes, and/or other potential hazards; and
- **Audible Pedestrian Signal** | signals that make sounds to indicate when to cross a road. They help visually impaired people to safely navigate intersections.



Example of a marked crossing at Canyon Street & 11th Ave (top) and a double curb ramp with tactile attention indicators at Canyon Street and 15th Avenue (bottom)





The Town also has several inaccessible intersections that may result in barriers for people using mobility devices such as wheelchairs, walkers, and strollers. An example of an inaccessible intersection is Canyon Street / 10th Avenue North. There are two main barriers at this intersection, as follows:

1. The cut through median / island at the northwest part of the intersection does not have an adequate curb ramp. The curb ramp width is on the lower side (1.5 metres based on a coarse estimate) and the cross slope is too steep. Further, the top landing area is also constrained, making it difficult for more than one person using a mobility device to stand on the island; and
2. The sidewalk at the southeast corner of the intersection is too narrow, especially for persons who are using a mobility device.



Narrow sidewalk at southeast corner of Canyon Street and Cook Street (left) and poorly designed cut through median / island at the northwest corner (right).



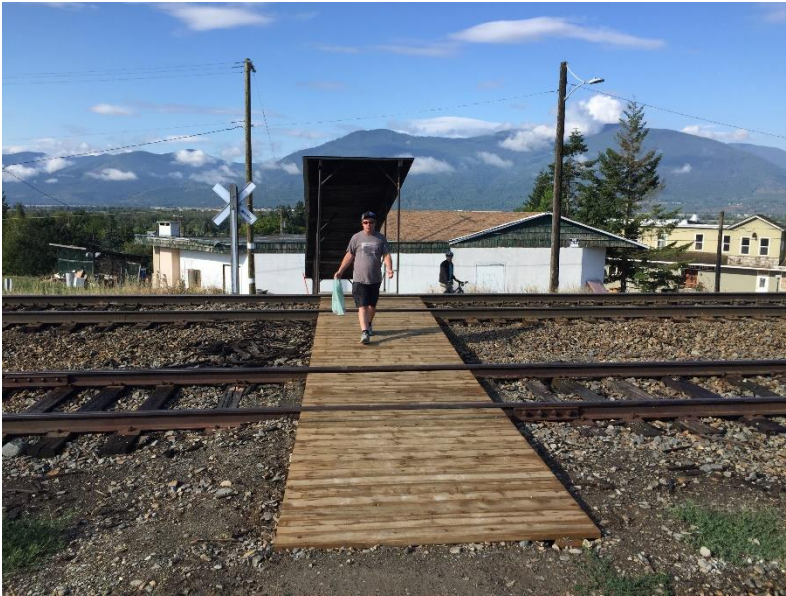
5.6.3 TOPOGRAPHY, RAMPS & STAIRCASES

Creston, like many communities in the Creston Valley, has mountainous topography. This can pose challenges in providing an accessible and connected pedestrian network. Even though Creston residents are largely accustomed to the community's steep topography, some residents may avoid walking altogether because of the hilly terrain, lack of ramps, and challenging staircases.

The Town has stairways in place, which help maintain connectivity in the network. Further, they are effective in traversing significant vertical distances in a limited horizontal distance, making them a space-efficient means of accessing grade separated facilities.⁷ However, they are not universally accessible as they cannot be utilized by those with mobility devices. As outlined in the BC Active Transportation Design Guide, stairways can be made more accessible by increasing stairway width, stair rise and run, handrails, and the provision of landing areas. In addition, where possible, pedestrian ramps should be provided to allow those using a mobility device to comfortably access grade separated facilities and crossings.⁸

⁷ Government of BC. (2019). *Active Transportation Design Guide, Chapter G: Intersections + Crossings*. Available online at: https://www2.gov.bc.ca/assets/gov/driving-and-transportation/funding-engagement-permits/grants-funding/cycling-infrastructure-funding/active-transportation-guide-low-res/2019-06-14_bcatdq_section_g_rfs.pdf

⁸ *Ibid.*



Examples of inaccessible stairways linking pedestrians from Cook Street to Canyon Street across the CP Railway.





The BC Active Transportation Design Guide includes several mitigation strategies⁹ for communities with steep topography, as follows:

- **Maintenance:** ensuring sidewalks are clear of snow, ice, gravel and wet leaves as they can create more dangerous slipping hazards;
- **Rest Areas:** providing frequent flat landing area with benches and seating to allow people to walk uphill in stages;
- **Railings:** adding railings to help people when navigating steep slopes;
- **Circulating Shuttle:** a shuttle that connects to key destinations can lessen the impact of steep topography;
- **Adding Switchbacks:** curves or switchbacks can be added to the pedestrian facility if space permits to help minimize grade;
- **Accessible Ramps:** if the grade is steeper than 8.3%, an accessible ramp may be provided;
- **Ladder Sidewalks:** this includes concrete bars in the sidewalk on some of the steepest roads to provide additional traction for pedestrians; and
- **Stairways:** stairways can maintain connectivity where standard sidewalks or accessible ramps are not feasible. While they are not accessible for people using mobility devices, they provide railings and intermittent landing areas that allow people to rest.



Example of a ladder sidewalk.
Retrieved From: BC Active
Transportation Design Guide

⁹ Government of BC. (2019). *British Columbia Active Transportation Design Guide*. Chapter B: Setting the Context. Available online at: https://www2.gov.bc.ca/assets/gov/driving-and-transportation/funding-engagement-permits/grants-funding/cycling-infrastructure-funding/active-transportation-guide-low-res/2019-06-14_bcatdq_section_b_rfs.pdf



Hillside Street shown above, where pedestrians are using the roadway due to missing sidewalk links



Section 6 – Cycling Network Conditions



6.0 CYCLING NETWORK CONDITIONS

6.1 OVERVIEW

Creston's cycling infrastructure is limited and the bike facilities that are available are generally not suitable for all ages and abilities. Even though the network is currently underdeveloped, the Town has strong policy direction in its 2017 OCP to develop and enhance its cycling infrastructure. The OCP contains the following policies that are specific to accommodating cyclists:

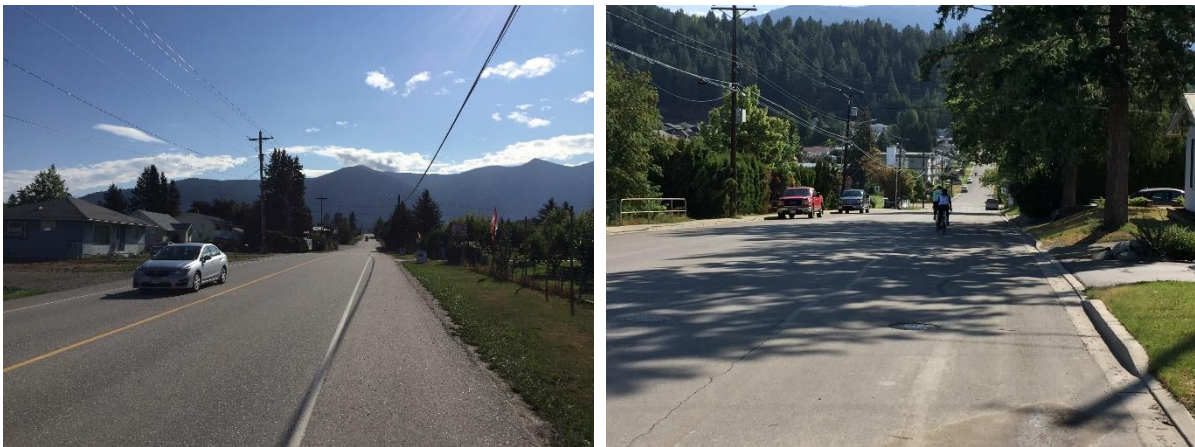
- Policy 2.2 (Infrastructure) | Include bike travel when developing off-street trail systems;
- Policy 2.3 (Infrastructure) | Design unpaved trails with a surface material that compacts and provides a hard surface to accommodate bikes, scooters and strollers;
- Policy 2.4 (Infrastructure) | Design unpaved trails with a surface material that compacts and provides a hard surface to accommodate bikes, scooters and strollers;
- Policy 2.5 (Infrastructure) | Include adequate signage (e.g. "share the road") to promote bike safety along major roads and highways, working with the Ministry of Transportation & Infrastructure when appropriate;
- Policy 5.1 (Connectivity) | Improve the design of new and retrofitted streets to: enhance Connectivity; allow multiple modes of travel; and, promote enhanced pedestrian, scooter and cycling opportunities and safety;
- Policy 5.2 (Connectivity)| Work with MOTI to include bike lanes and appropriate signage along Northwest Boulevard and Cook Street in any street re-design or improvements; and
- Policy 3.3 (Downtown Vibrancy) | Provide a range of transportation options and facilities in the Downtown Core such as enhanced sidewalks, trails and bike lanes.



6.2 CYCLING FACILITIES + INFRASTRUCTURE

The Town's existing cycling network has two facility types: (1) bike lane and (2) shared lanes. As shown in **Map 1**, there are "shared lanes" on some of the roads including Hillside Avenue, 9th Avenue, and 11th Avenue. These existing street facilities were identified in the 2018 Community Connectivity Master Plan¹⁰. A shared lane is defined as a general purpose lane that has sufficient width to facilitate sharing of the lane by motorists and a narrow range of cyclists.¹¹ Shared use lanes are typically designed to allow sufficient width for a motor vehicle to safely overtake a cyclist, without crossing over into the adjacent or oncoming motor vehicle lane. There is approximately 2.9 kilometres of shared lanes in the Town's active transportation network.

There is also shoulder bike lanes that provide north-south and east-west connectivity. A shoulder bikeway facility is on Valleyview Drive north of 6th Avenue that runs 575 metres. Erickson Road also has shoulder bike lanes that runs two kilometers from the western boundary of the Town to the eastern boundary. Railway Boulevard between Northwest Boulevard and Canyon Street.



Example of a shoulder bike lane on Erickson Road (left) and a shared lane facility on Hillside Street (right)

¹⁰ Map 2: Cycling Network – Town of Creston Community Connectivity Master Plan – Draft Copy – February 23, 2018

¹¹ Transportation Association of Canada. (2017). *Geometric Design Guide for Canadian Roads: Chapter 5 Bicycle Integrated Design*.



The Town's Draft 2018 Community Connectivity Plan proposes four types of bike facilities, as follows:

- **Dedicated cycle lanes** | these facilities would be on major roads (e.g., arterials, collectors) and intended for commuting from one end of town to the other. These roads provide the most direct route/s with the least gradient change;
- **Enhanced shoulders** | on major roads (such as Hwy 21) where lanes are not possible, and which are used primarily for travelling from community to community;
- **Cycle lanes on secondary roads** | intended more for recreational cycling and for connecting to public facilities such as the Creston & District Community Complex; and
- **Shared streets** | in residential areas characterized by wide streets (10.5m or greater), a less expensive alternative to a new sidewalk, that may be considered, is a "shared street". On a "shared street," parking is removed from one side of the street and replaced with a shared pedestrian/cycling lane.

The bike facility classifications above do not broadly meet the definitions in the BC Active Transportation Design Guide. Further, as discussed in **Section 5.5** (Barriers to Cycling), many of the proposed bike facilities would not meet the needs of all ages and abilities.



6.3 CYCLING COUNTS

Peak hour cycling counts were collected as part of the August 2021 Data Collection Plan (**Appendix A**) at specific intersections confirmed by the Town. These counts were not explicitly targeted at collecting bicycle traffic but can still assess existing bicycle traffic conditions. **Table 6** shows the top three locations for bicycle traffic based on collected data. Even though these represent a limited number of intersections, these counts illustrate some bicycle trips are happening on the network with the highest cycling trips in one hour at six.

TABLE 6: PEAK HOUR CYCLING COUNTS AT INTERSECTIONS

Rating	Intersection	Cyclists/Hour
1	Canyon Street / 9 th Avenue N	6
2	Cavell Street / Northwest Boulevard	6
3	Cook Street / 15 th Avenue S	4

6.4 STRAVA DATA

Strava is a mobile app tracking human exercise and incorporates social network features. It is mostly used for cycling and running using GPS data. If an activity is publicly shared, Strava automatically groups activities together, when they occur at the same time and place. Each activity shows users' activity results, including route summary in map view form, elevation, speed, timing, power, and heart rate.

Over the last few years, the share of people subscribing to the Strava app has been increasing. Researchers have found that people using the app are recording both recreational and commuter trips. As a result, Strava has been a useful tool to capture general trends for active transportation, including identifying desire paths and network



gaps. More recently, researchers have been completing spatial and statistical analyses using Strava data to help communities improve their active transportation infrastructure.¹² Traditional approaches to obtaining ridership data can only capture specific segments and lack the potential variation of trips between summer and winter season. Physical activity apps, like Strava, can provide a detailed log of trips per street or intersection and have a significant ridership base that uses it regularly. Even though not everyone utilizes Strava and thus the actual number of cyclists is not going to be representative, it can still represent the relative use of a road within a city.¹³

Strava provides detailed trip activity data for several geographic regions in BC including Central Kootenay. While the data are not disaggregated to the municipal level, they still provide an indication of where people are cycling. As shown in **Figure 6 & Figure 7** below, total cycling trips in the first five months of 2021 far exceeded those same months in 2020. However, the total cycling trips saw a decline from May 2021 to August 2021. However, when comparing 2020 to 2019, total cycling trips increased by 58% and weekend trips increased by 55%. This indicates that cycling activity increased on the whole including commuter and recreational trips.

A similar trend could be observed when looking at the number of individuals recording their trips through the Strava app. In 2019, it was 3,102 people compared to 4,304 people in 2020—an increase of 39%. In 2021 thus far, the total number of people using Strava is 3,930 as of August 2021.

¹² Ferster, C. & Nelson, T. & Laberee, K. & Winters, M. (2021). Mapping bicycling exposure and safety risk using Strava Metro. *Applied Geography*. Vol 127. Retrieved From: <https://doi.org/10.1016/j.apgeog.2021.102388>

¹³ Jestico, B. & Nelson, T. & Winters, M. (2016). Mapping ridership using crowdsourced cycling data. *Journal of Transport Geography*, Vol 52, pp 90-97. Retrieved From: <https://doi.org/10.1016/j.jtrangeo.2016.03.006>



2021 Total	2020 Total	2019 Total
28,428	31,725	20,037

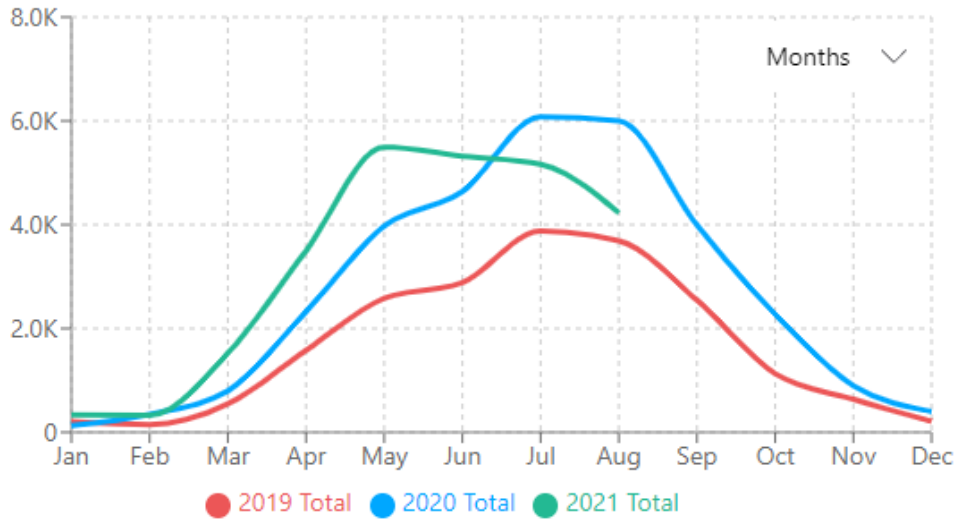


Figure 6: Total Strava Trips Recorded in the Central Kootenay Region for 2019, 2020 & 2021

2021 Total	2020 Total	2019 Total
3,930	4,304	3,102

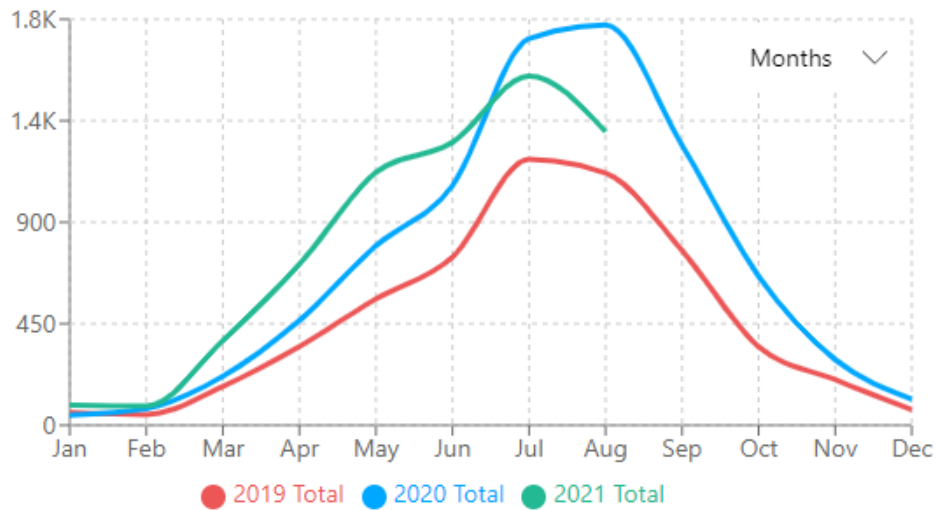


Figure 7: Total people Using the Strata Map in the Central Kootenay Region for 2019, 2020 & 2021



As shown in the heat map below, **Figure 8**, the most active corridors based on total trips in Creston include:

- Canyon Street
- Cook Street
- 16th Avenue
- Hillside Street
- Vancouver Street
- 10th Avenue

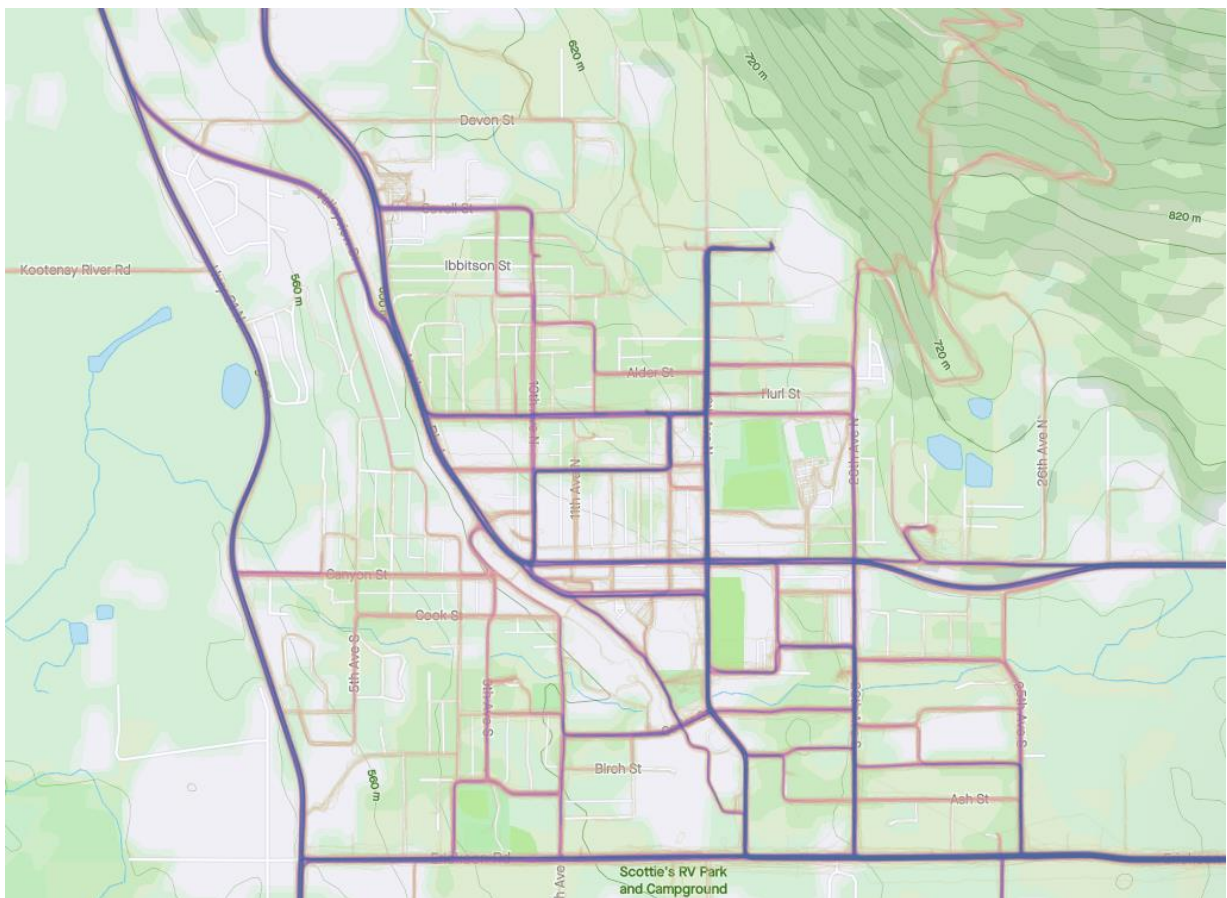


Figure 8: Strava Heatmap in Creston (September 2020 - August 2021)

Although the number of trips is not meant to completely capture the total cycling activity along those corridors, they indicate cycling utilization and which corridors are preferred and perceived as safer or more convenient for users. For instance, 16th Avenue and Canyon Street see by far the most trips in comparison to the other streets.



6.5 BARRIERS TO CYCLING

6.5.1 EXISTING FACILITIES

Creston's existing cycling network does not broadly meet the definitions of all ages and abilities bike facilities. 'All ages and abilities' cycling facilities have become a common term in industry guides and best practices. All ages and abilities (AAA) cycling facilities offer a greater degree of safety and comfort. All ages and abilities is an important principle in the BC Active Transportation Design Guide. The guide emphasizes that planning and designing for people of all ages and abilities is a national and international best practice that should be aspired to for all active transportation facility design and network implementation.

As discussed in **Section 5.2**, much of the existing bike infrastructure would be classified as "shared lanes". According to TAC, for motor vehicle speeds of 30 km/h or less, roadway conditions are typically acceptable for the shared use of space by people cycling and motorists as the relative speed between them is no more than 10 km/h to 20 km/h.¹⁴ For roadways with motor vehicle volumes of less than 2,500 vehicles per day, TAC indicates that facilities such as bicycle boulevards on local streets are only suitable for this facility type. Further, shared lanes are not suitable on roadways with greater than 10 heavy vehicles in the peak hour including transit buses and trucks.

Beyond shared lanes, there are some streets with shoulder bike lanes but otherwise, the available cycling infrastructure is limited and not suitable for all ages and abilities. Research has shown that people prefer to be separated from [a] faster moving traffic and [b] high volumes of traffic. Only in low-speed environments (30 km/h or less) and on streets with low traffic volumes is riding a bicycle adequate for people to share a lane with motor vehicles.

¹⁴ Transportation Association of Canada. (2017). *Geometric Design Guide for Canadian Roads: Chapter 5 Bicycle Integrated Design*.



As illustrated in **Figure 9** at-right, traffic volumes above 2,500 vehicles a day justify a bike lane and above 4,000 vehicles a day necessitate strong consideration of facilities that physically separate people cycling from motor vehicles. For major roadways, this means that better bike facilities such as protected bike lanes or multi-use pathways are more appropriate, especially if the roadways are posted 50 km/h or greater.

As shown in **Section 7.0** (Street Network and Traffic Conditions), most of the roads in Creston have less than 4,000 vehicles per day (average daily traffic). However, there are several streets that have traffic volumes greater than 2,500 vehicles per day with posted speed limits of 50 km/h. Based on the bicycle facility selection decision matrix in the BC Active Transportation Design Guide, these streets should be upgraded from shared lanes to a bicycle lane. These streets include 16th Avenue N (north of Canyon Street) and Hillside Street. 16th Avenue S (south of Canyon Street) and Cook Street have over 4,500 vehicles per day and would justify a facility such as a protected bicycle lane to make the corridor suitable for all ages and abilities.

A bicycle lane should have a desirable width of 1.8 metres. A bicycle lane should include a buffer where motor vehicle speeds are 50 km/h or greater and bicycle volumes are greater than 1,500 bicycles per day, or where space is available as is shown in **Figure 10**.

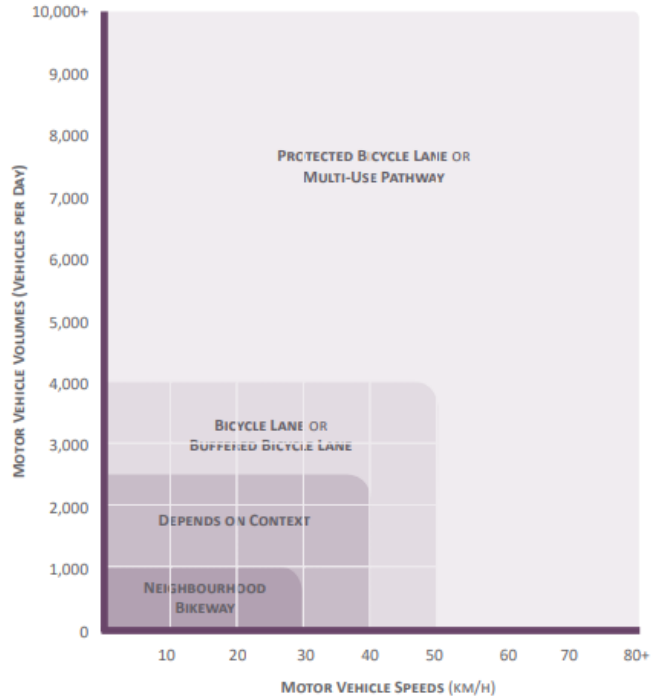


Figure 9: Bicycle Facility Selection Decision Matrix
Retrieved From: BC Active Transportation Guide

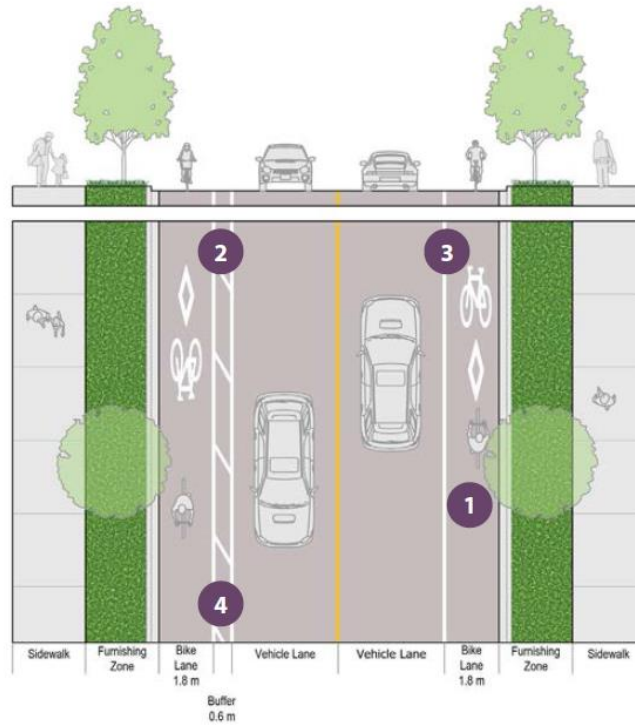


Figure 10: Cross-Section for a Buffered Bicycle Lane (left) & Bicycle Lane (right)

Retrieved From: BC Active Transportation Design Guide, Chapter D

Overall, the Town’s existing facilities do not meet the needs of all ages and abilities. Further analysis will be undertaken in the MMTF to identify the types of facilities required to improve the safety and comfort of cycling in Creston.

6.5.2 TOPOGRAPHY

Similar to the pedestrian network, topography can pose a challenge to people cycling. Topography, however, is largely being overcome as a barrier through the rise of electric bicycles, which are becoming more commonplace across British Columbia. See **Section 9.0** for a detailed discussion of electric bikes and other emerging mobility trends.

Due to Creston’s topography, staircases are available but they are not designed to accommodate people cycling. This requires the person to carry their bicycle as they climb



up or down the staircase. One way to address this issue is through bicycle ramps, which enable the bicycle user to transition between bicycle facilities that are at different grades without dismounting. According to the BC Active Transportation Design Guide, grade changes greater than 13% should be avoided when transitioning between the ramp and the road or gutter.



Example of a person cycling approaching a staircase that does not provide a bicycle ramp.



6.5.3 INTERSECTIONS & RAIL CROSSINGS

Another important factor in designing safe and accessible facilities for people cycling are intersections. According to ICBC, four out of five cycling collisions happen at intersections.¹⁵ If motor vehicle speeds and volumes warrant a more separated bike facility, then the same care should extend to the intersection where users are exposed to motor vehicles turning in various directions. The widths of facilities should remain as wide as they are along the corridor as users are more prone to congregate with other users while waiting for their turn to cross.

The most serious conflicts to remediate are between the curbs where motor vehicles and vulnerable road users are likely to intersect. The BC Active Transportation Guide recommends the following advice at intersections:

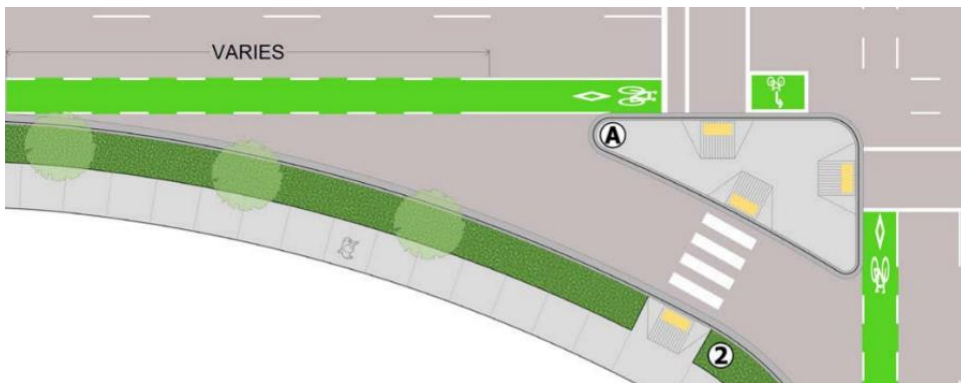
- Reduce the turning speed of motor vehicles;
- Increase the visibility of people walking and biking;
- Denote clear right-of-way; and
- Facilitate eye contact and awareness with other modes.

Most of the intersections in the Town (outside of the downtown) are unsignalized. These intersections are easier and safer to navigate for people cycling. However, the signalized intersections on the Crowsnest Highway provide little accommodation for people cycling both on the approaches and through the intersection.

¹⁵ ICBC. (2020). *Cycling Safety*. Available online at: <https://www.icbc.com/road-safety/sharing/Pages/cycling-safety.aspx>



16th Avenue and Canyon Street (top), where a person cycling is at risk of a right-hook collision from a vehicle turning right. Image on the bottom is the recommended treatment for a continuous bicycle lane with dedicated turn lane to protect cyclists on the intersection approaches. Retrieved From: BC Active Transportation Design Guide



Canyon Street and 10th Avenue (top). A person cycling wanting to turn left has to cross from the curb, across the wide right turn area, to the left turn lane. The image on the bottom is an example of a bicycle lane with a channelized right-turn island. Use of coloured conflict zone pavement markings applied through the bicycle lane conflict area and the use of a Smart Right turn can delineate cyclist space and improve the safety. Retrieved From: BC Active Transportation Design Guide, Chapter G – Intersections + Crossings.



Lastly, rail crossings pose another barrier to people cycling in Creston. This includes the physical crossing and the rail tracks. Rail tracks can present a hazard to people cycling as bicycle wheels can get caught in or alongside the track. The BC Active Transportation Design Guide recommends several design solutions for rail crossings to better accommodate people cycling. This includes adequate sightlines along the tracks and appropriate warning systems should be installed.¹⁶

The guide indicates that freight rail tracks have higher risks of bicycle wheels getting caught than streetcar tracks which are typically more flush with the road and have a narrower flange. To address this issue, the guide recommends adjusting the rail crossings to be perpendicular to the tracks, as shown in **Figure 11** below.

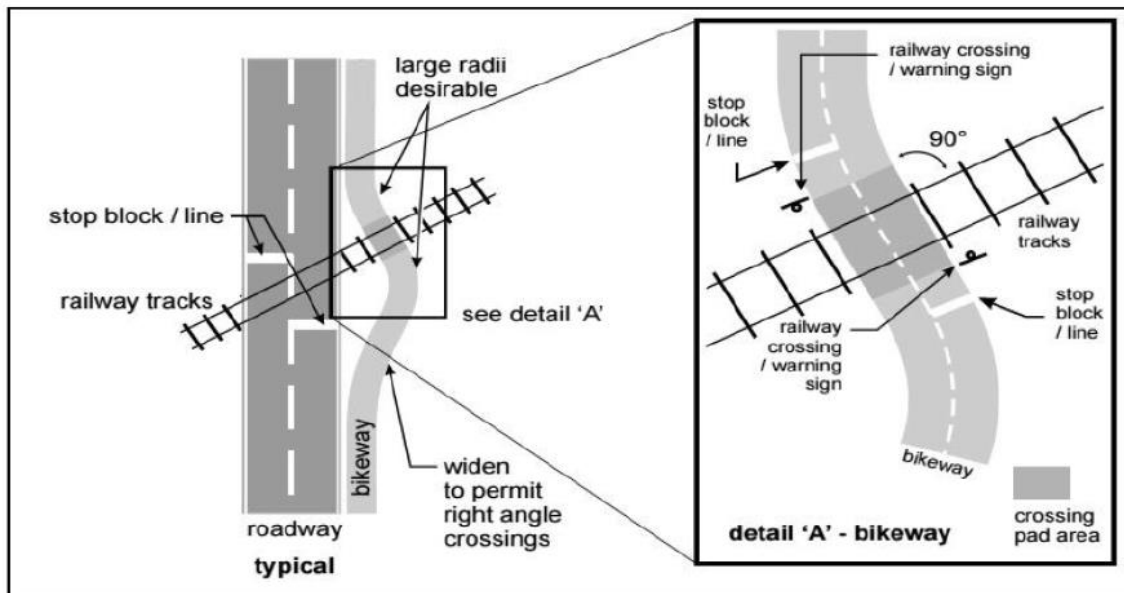


Figure 11: Bicycle Facility Crossing of Railway

Retrieved From: TAC Geometric Design Guide for Canadian Roads

¹⁶ Government of BC. (2019). British Columbia Active Transportation Design Guide. Chapter G: Intersections + Crossings. Retrieved From: https://www2.gov.bc.ca/assets/gov/driving-and-transportation/funding-engagement-permits/grants-funding/cycling-infrastructure-funding/active-transportation-guide-low-res/2019-06-14_bcatdg_section_g_rfs.pdf



Section 7 – Transit Network Conditions



7.0 TRANSIT NETWORK CONDITIONS

7.1 OVERVIEW

Transit has and continues to be an important component of Creston’s overall transportation network. In early 2021, the BC Transit, in collaboration with the Regional District of Central Kootenay, launched the process for the Creston Valley Transit Future Service Plan. The plan will support decision-making on service levels, routes, and infrastructure in Creston Valley. The plan will provide valuable direction for the overall MMTP and will be referenced once completed.

Similar to the need to expand active transportation opportunities, the Town’s OCP provides direction on transit service as part of improving overall connectivity. Policy 3.2 (Connectivity) provide the following direction:

Advocate with BC Transit, the Regional District of Central Kootenay, and the Ministry of Transportation and Infrastructure for enhanced transit services and facilities throughout the community.

Other Town plans including the Age-Friendly Action Plan and Youth Strategy and Action Plan also recognize the importance of transit service for Creston’s overall transportation system.

7.2 SERVICE OVERVIEW

7.2.1 CONVENTIONAL SERVICE

The Town of Creston is currently served by the Creston Valley Transit System. The transit system provides three fixed-routes, as follows:

- Route 1 – Town Shuttle/Erickson
- Route 4 – Wynndel
- Route 6 – Creston-Cranbrook Connector

Figure 12 below illustrates the three routes in the Creston Valley Transit System.

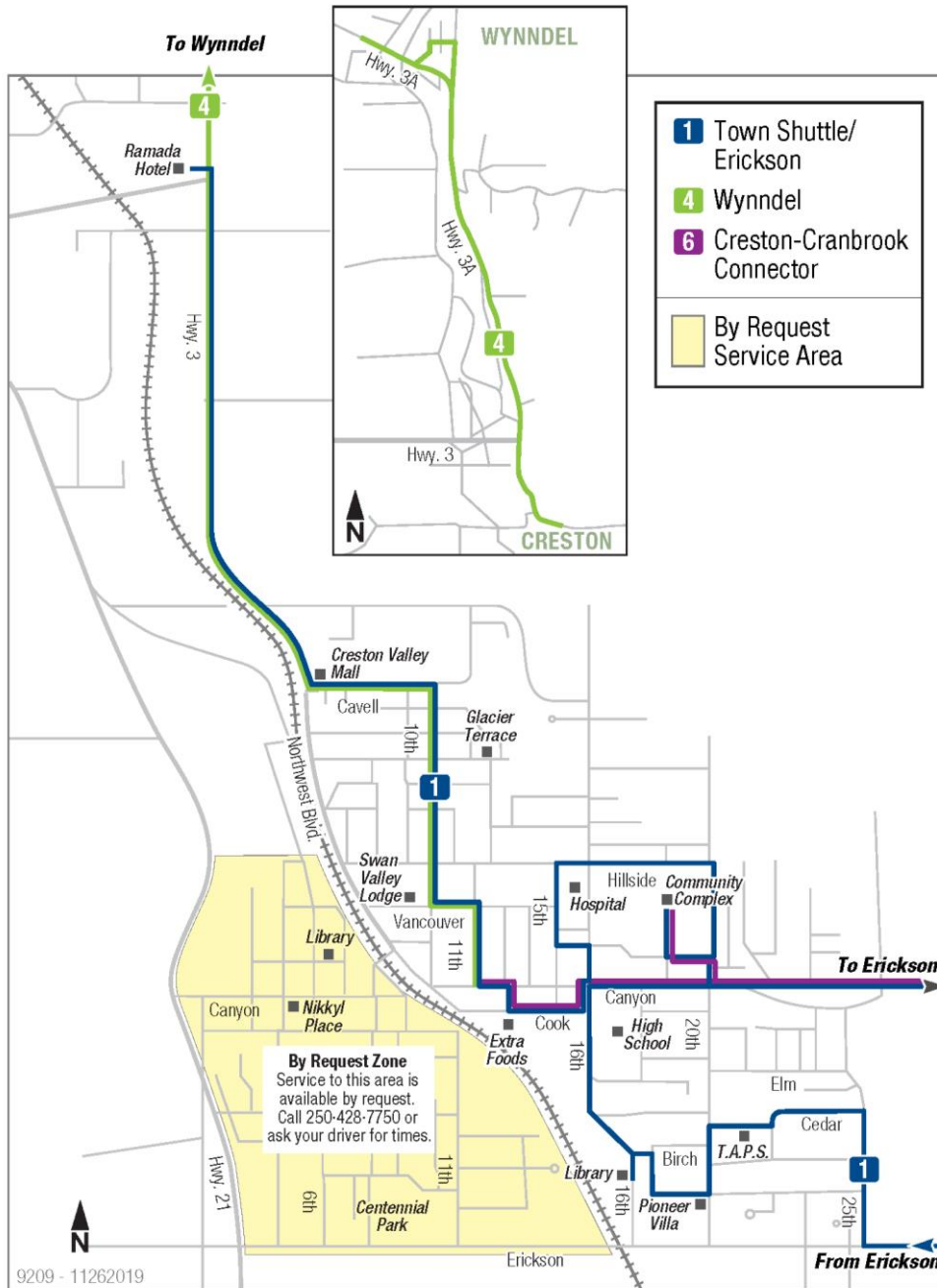


Figure 12: Creston Valley Transit System



Route 1 provides service to several key destinations within Town including the Creston Valley Mall, downtown, the hospital, and the library. It also provides service to Erickson. It operates on weekdays only with hourly service from 9:30am to 2:30pm.

Route 4 provides service from Creston to Wynndel with stops including downtown Creston and the Creston Valley Mall. Service on the Route 4 is limited; it operates on Tuesday and Friday only with two round trips per day.

Both Route 4 and Route 6 also offer “by request service” at select times by booking 24 hours ahead. This service is in effect at the following times:

- Mondays from 8:50am to 9:30am and 3:10pm to 3:45pm
- Thursdays from 8:00am to 9:30am and 3:10pm to 3:45pm

For Route 1, transit users can request service in the Centennial Park By Request Zone (shown in yellow in **Figure 12**). This service provides a bit more flexibility to users who require transit service closer to their destination.

Lastly, the Route 6 provides service from Creston to the City of Cranbrook. Destinations on this route include downtown Creston, the Creston Community Complex, the East Kootenay Regional Hospital, and the Cranbrook Tamarack Mall, among others. The service is limited to Tuesday and Thursdays only, with one trip departing Creston in the morning, and one trip departing Cranbrook in the afternoon.



7.2.2 HANDYDART

There is also handyDART service available, which provides door-to-door service for people with permanent or temporary disabilities that prevent them from using fixed-route transit without assistance from another person. As described in the 2012 Creston Valley Transit System Service Review, the handyDART was the “bread and butter” of the Creston Valley transit



Retrieved From: www.bctransit.com

system. In 2010/2011, handyDART accounted for two-thirds of total ridership. A more detailed discussion of the transit system’s ridership is presented in **Section 6.3**.

7.2.3 HEALTH CONNECTIONS

Health Connections is another transit service in the Creston Valley Transit System. It provides communities with accessible transportation options to non-emergency medical appointments. Although medical appointments have priority, everyone is eligible to use this service if space is available.



7.3 RIDERSHIP SUMMARY

Ridership data was obtained from BC Transit to understand the performance of the fixed-route service in the Town. **Table 7** below shows the total ridership by leave time for the Route 1 indicating that a total of 427 passengers used the service in the months of January and February 2021.

TABLE 7: TOTAL RIDERSHIP, ROUTE 1 (JANUARY AND FEBRUARY 2021)

Time	Total Ridership
8:50am	6
9:30am	60
9:46am	57
10:40am	66
10:56am	23
11:40am	50
11:56am	35
1:10pm	54
1:26pm	14
2:10pm	46
2:26pm	12
3:20pm	2
3:36pm	2
Total	427



Table 8 below shows the total ridership by leave time for the Route 1 (by request service). The data indicate that a total of 7 transit users utilized the Route 1 by request service in January and February. A total of 58 passengers utilized the Route 4 over that same period of time (see **Table 9**).

**TABLE 8: TOTAL RIDERSHIP, ROUTE 1 BY REQUEST
(JANUARY AND FEBRUARY 2021)**

Time	Total Ridership
9:10am	0
10:30am	0
11:30am	2
2:00pm	4
3:10pm	1
Total	7

TABLE 9: TOTAL RIDERSHIP, ROUTE 4 (JANUARY AND FEBRUARY 2021)

Time	Total Ridership
8:14am	0
8:50am	17
9:07am	18
3:10pm	19
3:27pm	4
4:40pm	0
Total	58



Data were also obtained from BC Transit summarizing the ridership of all three transit services available in the Town of Creston including (1) fixed-route service (2) handyDART and (3) Healthy Connections. See **Figure 13** and **Figure 14** below.

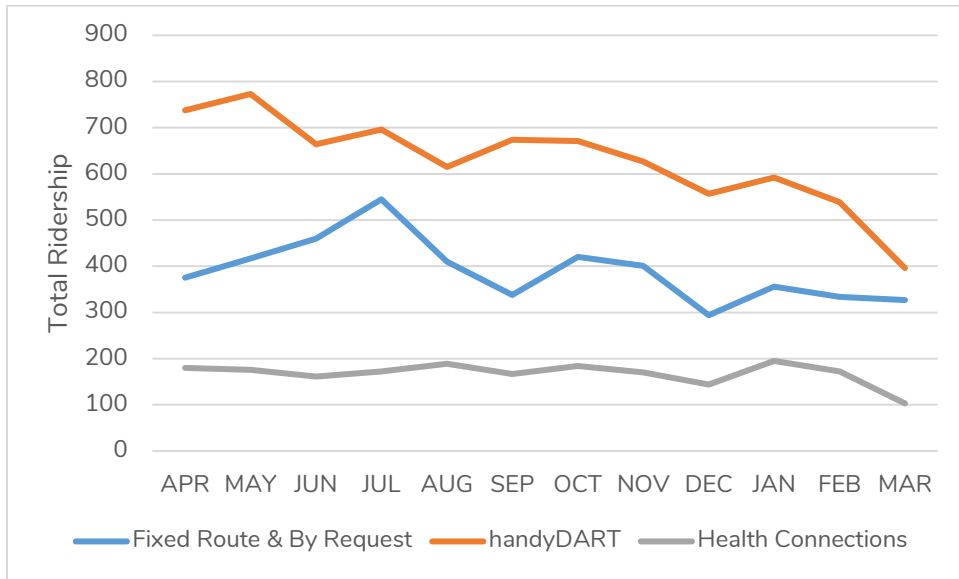


Figure 13: Total Ridership by Transit Service, 2019/2020

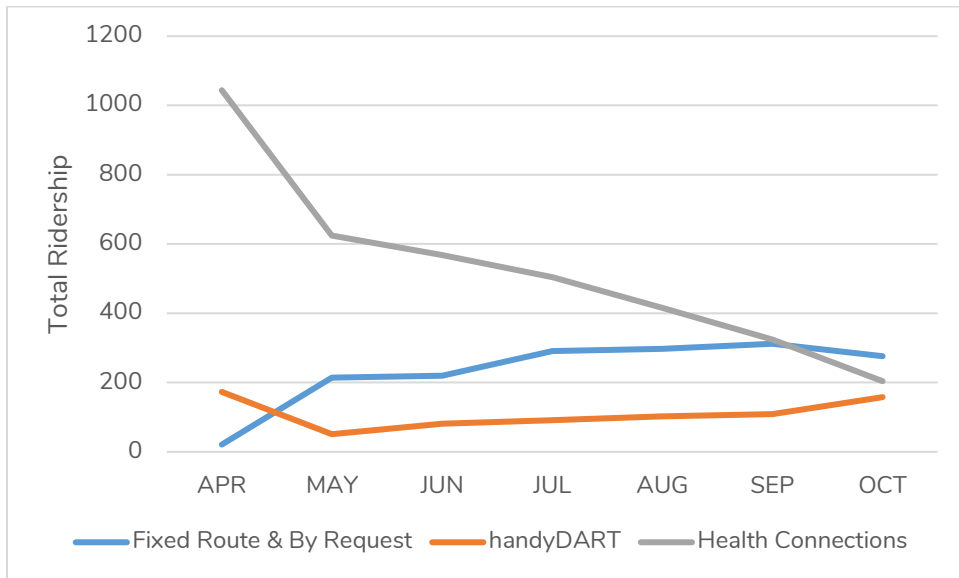


Figure 14: Total Ridership by Transit Service, 2020/2021



Overall, the ridership data indicate that in 2019/2020 (prior to the pandemic), handyDART carried the majority (50%) of the total ridership in the system. All three transit services started to see a decrease in February / March 2020, which coincides with when Covid-19 was declared a pandemic.

The ridership data in 2020/2021 show less of a difference in ridership between fixed-route / by request service and handyDART, although the data are less representative of a typical year due to the pandemic. Overall, the data suggest that services like handyDART performed better than conventional fixed-route service prior to the pandemic. This type of on-demand transit service may be more suitable in the Town moving forward and will be further explored as part of the MMTP process.



7.4 BUS STOP INFRASTRUCTURE

There are a total of 16 bus stops in the Town of Creston. However, the type and quality of bus stop ranges across the municipality with only a few stops offering passenger amenities and others only a sign and pole. Bus stop amenities are important to the transit user experience and can enhance the overall transit experience.¹⁷ An assessment was completed to document the amenities available at each bus stop. This included documentation of six criteria:

1. Bus stop signage
2. Garbage can
3. Bench
4. Shelter
5. Accessible curb letdown
6. Sidewalk connection



Bus stop 162015 (left) only provides a sign pole. It lacks a sidewalk, accessible curb ramp, and other amenities, which impacts the transit user experience. Bus stop 162007 (right) includes all six amenities.

¹⁷ BC Transit. (2018). BC Transit Infrastructure Design Summary. Available online at: <https://www.bctransit.com/documents/1507213895398>



The assessment found the following:

- Only one bus stop (162007) provides all six amenities
- Four bus stops provide a shelter and bench
- Five bus stops provide an accessible curb letdown and sidewalk connection
- Half of the bus stops (8 total) only provide signage and no other amenities





Section 8 – Street & Traffic Conditions



8.0 STREET & TRAFFIC CONDITIONS

8.1 ROAD NETWORK & CLASSIFICATION

Map 2 shows the existing road network including road classifications within the Town's jurisdictional boundary. Road classification is based on adjacent land use, service function, traffic volumes, traffic flow characteristics, vehicle types, vehicle speeds, and connections with intersecting roads. The following are the existing road classifications in the network:

Provincial Highway – Traffic movement is the primary function of highways with speed limits of between 50 and 80km/h in and around the town limits. Property access is not meaningfully limited as is typically the case since the highway serves as the main street through Creston. Highway 3 and Highway 21 are the two Provincial highways under the jurisdiction of BC MoTI that run through/along the Town's boundaries. These two highways carry volumes of 5,000 to 10,000 vehicles per day which includes a higher proportion of heavy vehicles than is typical for a town street. The typical range for Provincial highways is 10,000 to 30,000 vehicles per day. Roads of this nature tend to prioritize vehicle movement over pedestrian and cycling infrastructure. However, it is not uncommon to see all transportation modes meeting and mixing at key intersections and near highway commercial areas.

Arterial – Traffic movement is an important function of arterials to connect vehicles from collectors to highways. In Creston, these roads carry vehicle volumes in the range of 2,000 to 10,000 vehicles per day with a speed limit of 50 km/h. The typical range for arterials is 5,000 to 20,000 vehicles per day. The volumes are lower than is typical for arterial roads, but this is expected in a smaller municipality. Heavy vehicles can also be expected on these types of roads. Arterial roads as designated in the Town's Works and Services Bylaw #1170 include:

- Canyon Street (Highway 3)
- Northwest Boulevard (Highway 3)
- 9th Avenue N
- Cook Street
- 16th Avenue N
- 16th Avenue S



Erickson Road runs along the southern town border and is in the MoTI's jurisdiction, it also functions as an arterial. Pedestrian and cycling infrastructure on these types of corridors should be separate and / or protected due to higher speeds and volumes of vehicles.

Collector – Collector roads intend to balance direct access to adjacent properties while maintaining traffic flow and connecting local roads and arterials. In Creston, these roads carry vehicle volumes in the range of 1,000 to 5,000 vehicles per day and have posted speed limits between 30km/h and 50 km/h. The typical range for collectors is 1,000 to 12,000 vehicles per day, and heavy vehicles may be permitted on these roads. The

Town's collector roads include:

- Valleyview Drive
- Devon Street
- Cavell Street
- Hillside Street
- Vancouver Street
- Cedar Street
- 10th Avenue N
- 11th Avenue S
- 12th Avenue
- 15th Avenue
- 18th Avenue S
- 19th Avenue N
- 20th Avenue

These roads tend to need to balance vehicle movement with pedestrian and bicycle accommodations. Separate facilities could be considered and provided, but based on lower volumes seen, the need for separation may not always be required.



Example of a collector roadway. Looking south on 15th Ave N.

Local – The primary function of local roads is to provide direct access to properties over easy traffic flow. Local roads are intended to connect with collector roads. Vehicle volumes on these roads are typically less than 1,000 vehicles per day in rural neighbourhood settings, while in denser urban settings, vehicle volumes can range up to



3,000 vehicles per day. Traffic flow on local roads is usually interrupted with on-street parking and driveway access activity. Heavy vehicles access is usually limited on these roads, except for garbage pickup and occasional residential loading/unloading activities. Due to lower volumes, pedestrian and bicycle infrastructure can be integrated with vehicles through bicycle boulevards and sidewalks.

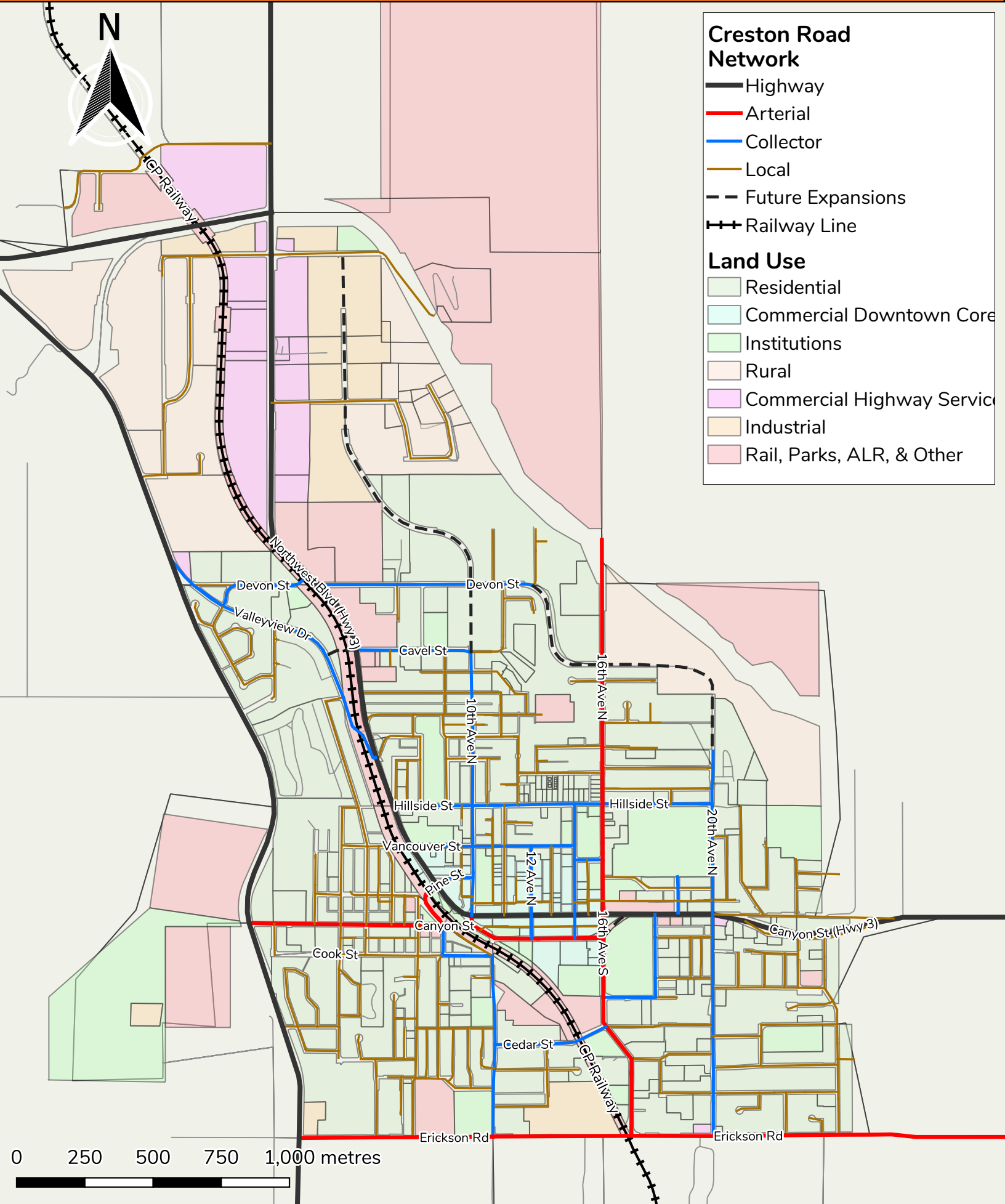
Table 10 shows the breakdown of road classifications in the road network based on overall length in kilometres in Creston. There is a total of 62 km of roads within the Town.

TABLE 10: EXISTING ROAD NETWORK INVENTORY

Road Classification	Length (km)	Percentage
Provincial Highway	9.0	15%
Arterial (includes Erickson Rd)	5.9	10%
Collector	10.1	16%
Local	29.8	48%
Cul-de-Sac	1.9	3%
Lane	5.2	8%
Total	62 km	100%

Town of Creston Multi-Modal Transportation Plan

Map 2. Road Classifications & Land Use





8.2 ROAD STANDARDS

The Town's road standards and specifications are based on consolidated bylaw 1170: Works and Services originally published in 1990. Road construction is covered in Part B of this bylaw. Standard cross-sections are illustrated in Appendix "A" of the bylaw.

Table 11 shows typical cross-section width allocation for the Town's current road standards, including specifications for local and collector in rural and urban settings and for lanes, cul-de-sacs, and four-lane undivided arterials. When comparing the current road classifications to the identified cross-sections in the bylaw, we see that many of the Town's cross-sections are not used today, as such, these should be updated to meet today's standards for multi-modal accommodation.

None of the cross-sections specifically identify that on-street parking is permitted or expected and none of the cross-sections indicate separate bicycle facilities. The cross-sections with sidewalks show narrower than current best practice standard width sidewalks, and on rural roadways, there is either no shoulder shown or is again less than best practice. This width of shoulder is too narrow for shared bicycle / pedestrian use.

The Town's cross-sections do not specify lane widths, parallel parking widths, or bike lanes. As such, options are available for dedicating the paved roadway space. Roads with 4m or wider lanes widths would be considered to have some type of parking accommodation. Lane widths wider than 3.5m are intended for higher speed roadways and roads with significant heavy truck and transit use. Most pavement widths in the residential areas of Creston seem generous and likely contribute to higher vehicles speeds. Having road widths wider than 3.5m in lower volume roads (lower classification roads) can increase speeding. Reallocating road space is a crucial element needed to adapt Creston's roads to be more multi-modal friendly.



TABLE 11: EXISTING ROAD CROSS-SECTION STANDARDS

Classification	ROW (m)	Roadway Width (m)	Road Edge	Sidewalk Width (m)	Cycling Facilities
Paved Lane	8	6.0 min.	None	None	None
Cul-de-Sac	15	9.0	Curb & Gutter*	None	None
Urban Local	15	11.0	Curb & Gutter*	None	None
Urban Collector	20	14.0	Curb & Gutter*	1.8 One side**	None
Major Collector	22	16.0	Curb & Gutter*	3.0 Both sides	None
Arterial – 4 Lane Undivided	25	16.0	Curb & Gutter*	1.8 One side^	None
Rural Local	18	8.5	0.75m Gravel Shoulder	None	None
Rural Collector	20	9.0	1.5m Gravel Shoulder	None	None

*Rollover curb in residential areas, barrier curb in other areas.

** Sidewalk one side only or both sides where multiple residential front both sides of street.

^Sidewalk installed on both sides in commercial areas.

8.3 TRAFFIC VOLUMES

Map 3 shows daily two-way traffic volumes in the Town of Creston. The volumes are based on a combination of intersection turning movement counts, roadway tube counts, and data collected by WATT in August 2021, and past data provided by the Town. August 2021 data was collected during phase 3 of the BC Covid-19 Restart Plan, thus no Covid-19 correction factors were needed since the town was operating under reasonably normal conditions.

Traffic volumes of the higher volume corridors (3,000 veh/day) were compared with existing roadway classifications to determine any discrepancies in the existing function of the roads to their current classification. Functional classifications are per TAC guidelines.



That said, the need for truck routes necessitates the need for an arterial roadway network regardless of volume. See **Table 12**.

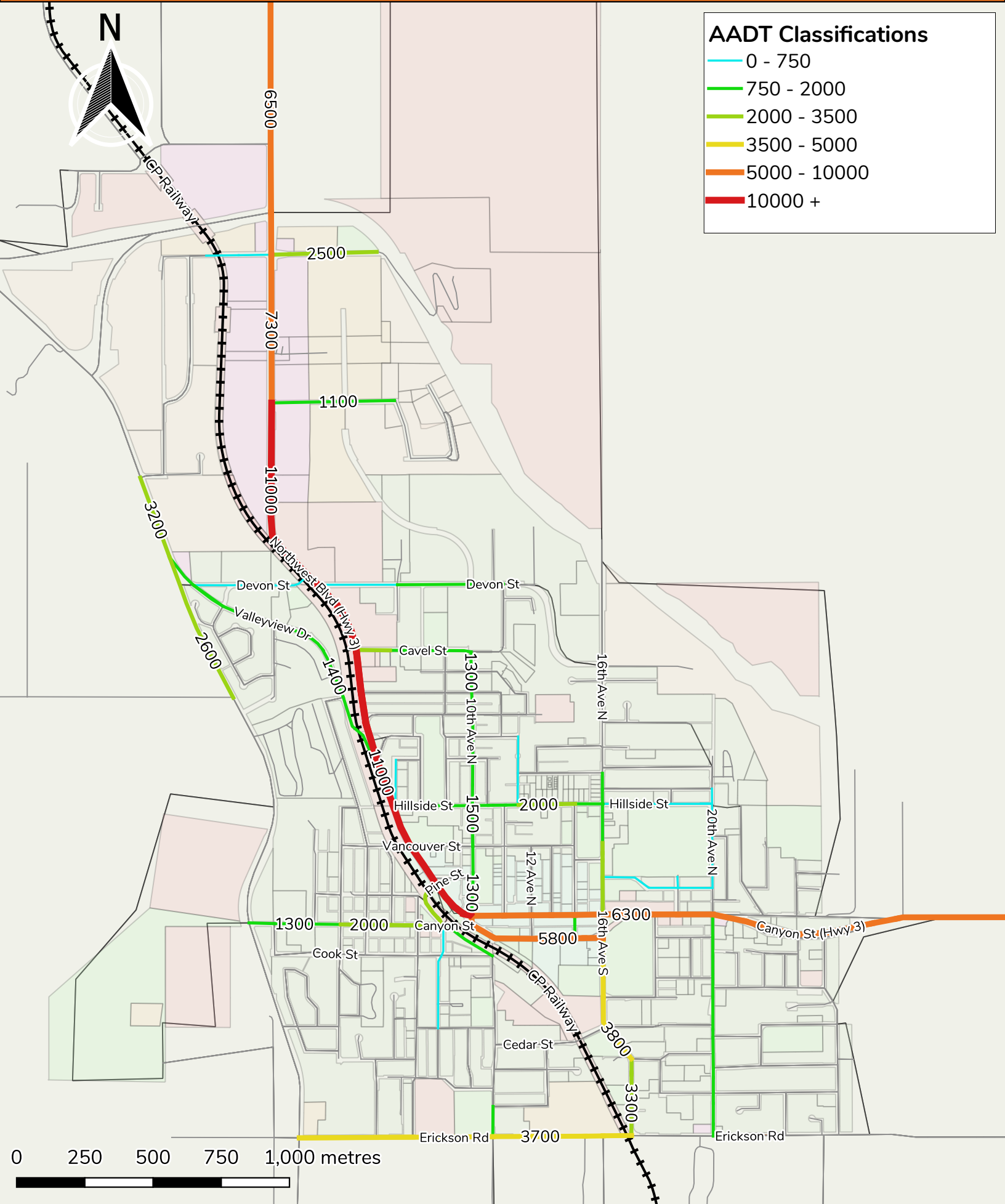
TABLE 12: RANKING OF HIGH VOLUME ROADS (AADT ABOVE 3,000 VEH/DAY)

Road Segment	Daily Volume	Existing Classification	Functioning Classification	Truck Route
Northwest Boulevard (MoTI - Hwy 3)	11,000	Provincial Hwy	Arterial	Yes
Canyon Street (MoTI - Hwy 3)	8,000	Provincial Hwy	Arterial	Yes
Cook Street	5,800	Arterial	Collector	Yes
16 th Avenue S	4,500	Arterial	Collector	Yes
Erickson Road (MoTI)	3,700	Arterial	Collector	Yes
Highway 21 (MoTI)	3,200	Provincial Hwy	Provincial Hwy	Yes

Creston, including the MoTI roads in the area, has a total of six corridors with volumes greater than 3,000 veh/day. All of these roads are truck routes and thus have a provincial highway or arterial classification. This is appropriate as truck traffic should be kept off collectors or local routes to limit noise and mixing with bikes / peds if possible. When excluding trucks, the functioning classification of the higher volume roads are often lower than is designated in the Town’s Works & Services bylaw. Highway 3 within the Town’s limits operates as an arterial. It has volumes at the lower end of the spectrum, doesn’t limit land access or minor intersections, while serves its primary role of moving traffic through the Town. Cook Street and 16th Avenue S do not limit access and carry lower volumes which put them in the collector functioning classification category. Erickson Road is more rural in nature but similarly, it does not limit access and carries lower volumes. Highway 21 has a higher speed limit (80 km/hr) so its provincial highway classification is appropriate. That said, all of these routes carry truck traffic so their provincial highway or arterial classification is appropriate.

Town of Creston Multi-Modal Transportation Plan

Map 3. Daily Traffic Volumes - AADT





8.4 TRAFFIC CONDITIONS

Table 13 details the existing levels of service (LOS) at the study intersections in Creston during the PM peak hour, accompanied by complete Synchro reports provided in **Appendix B**.

TABLE 13: SUMMARY OF OPERATIONS AT KEY INTERSECTIONS

Intersections	LOS
Cook St / 15 Ave S	A
Canyon St / 9 Ave N	A
Hillside St / 16 Ave N	A
Hillside St / 10 Ave N	A
Hillside St / 7 Ave N	A
Hillside St / Northwest Blvd	A
Valleyview Dr / Northwest Blvd	A
Cavell St / Northwest Blvd	A
Devon St E / Northwest Blvd (South Tee)	A
Devon St W / Northwest Blvd (North Tee)	A
Valleyview Dr / Hwy 21	A
Helen St / Northwest Blvd	A

Synchro analysis results indicate that all intersections reviewed provide an excellent overall LOS A (delay less than 10 seconds / vehicle) and all movements on the minor street operating at a LOS C or better (delay of 15-25 seconds / vehicle). The only exception is the intersection of Northwest Boulevard and Valleyview Drive, where vehicles turning left from Murdoch Street experience a LOS D and delay of 26.7 seconds; however, there is minimal traffic on this road, and it does not impact the overall network. Changes in LOS and additional traffic operations should be reviewed in Phase two of the MMTP.



Describing Road Network Traffic Levels of Service (LOS)

Traffic operations are typically described in terms of levels of service, which rates the amount of delay per vehicle for each movement and the entire intersection. Levels of service range from LOS A (representing best operations) to LOS E/F (LOS E being poor operations and LOS F being unpredictable / disruptive operations). LOS E/F are generally unacceptable levels of service under normal everyday conditions.

The hierarchy of criteria for grading an intersection or movement not only includes delay times, but also takes into account traffic control type (stop signs or traffic signal). For example, if a vehicle is delayed for 19 seconds at an unsignalized intersection, it is considered to have an average operation, and would therefore be graded as an LOS C. However, at a signalized intersection, a 19 second delay would be considered a good operation and therefore it would be given an LOS B. The table below indicates the range of delay for LOS for signalized and unsignalized intersections.

LOS Criteria, by Intersection Traffic Control

Level of Service	Unsignalized Intersection Average Vehicle Delay (sec/veh)	Signalized Intersection Average Vehicle Delay (sec/veh)
A	Less than 10	Less than 10
B	10 to 15	11 to 20
C	15 to 25	20 to 35
D	25 to 35	35 to 55
E	35 to 50	55 to 80
F	More than 50	More than 80

8.5 TRAFFIC COLLISIONS

Traffic collision data can be one indicator of a safety issue at a location. Collision statistics are obtained from Insurance Corporation of British Columbia (ICBC). **Map 4** shows the total number of collisions at intersections in Creston from 2016-2020. **Table 14** shows the intersection collision locations on the Town’s roads, which averaged over one accident per year.



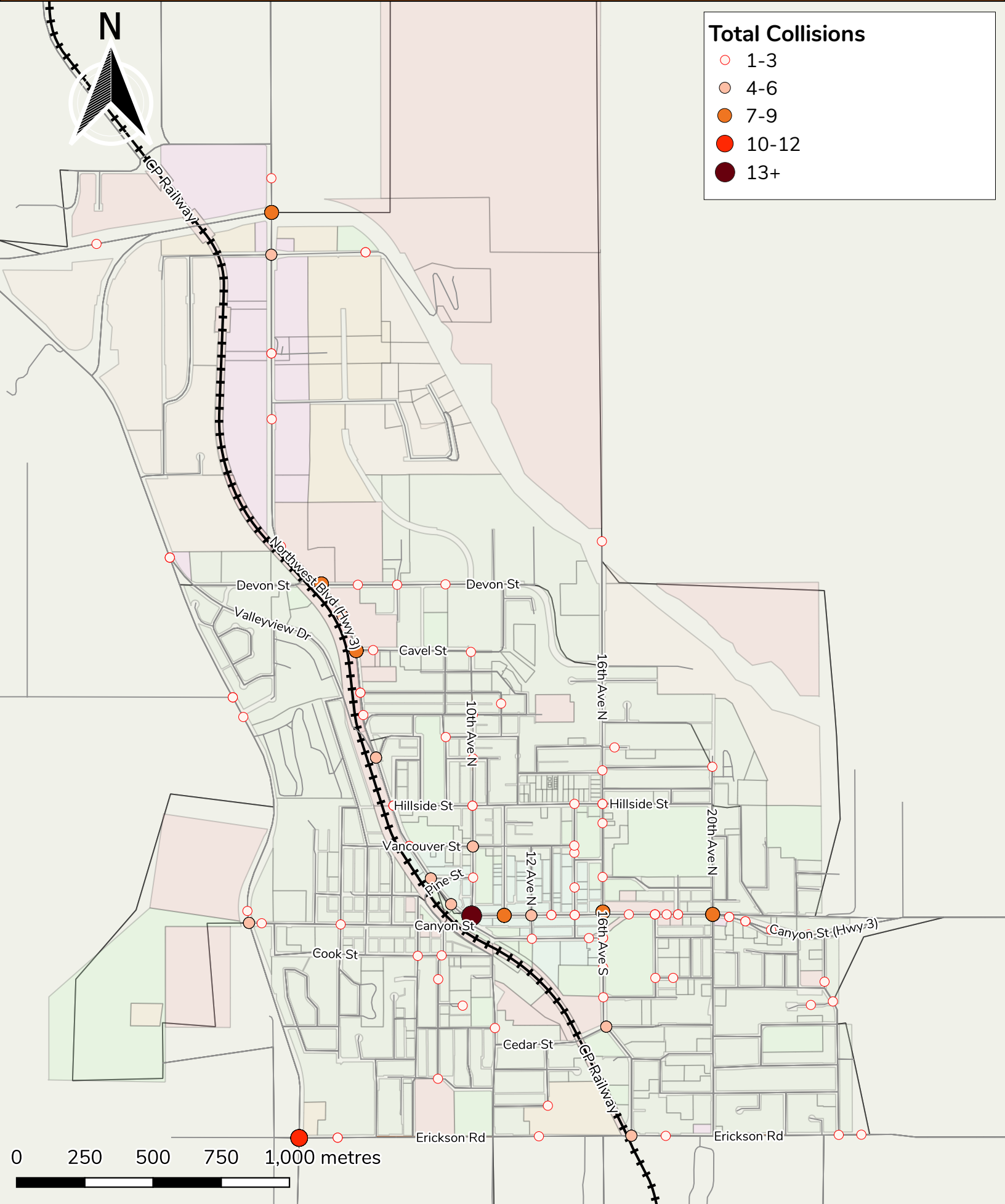
TABLE 14: COLLISION LOCATIONS IN CRESTON

Ranking	Location	5-year Total Collisions	Average Collisions per year
1	Cook St / Canyon St (Hwy 3) / 10 Ave N	14	2.8
2	Highway 21 / Erickson Rd	12	2.4
3	Canyon St (Hwy 3) / 11 Ave	9	1.8
3	Canyon St (Hwy 3) / 16 Ave	9	1.8
3	Canyon St (Hwy 3) / 20 Ave	9	1.8
3	Northwest Blvd (Hwy 3) / Cavell St	9	1.8
7	Northwest Blvd (Hwy 3) / Devon St	7	1.4
7	Northwest Blvd (Hwy 3) / Highway 3a	7	1.4
9	Canyon St / Highway 21	6	1.2
9	Northwest Blvd (Hwy 3) / Helen St	6	1.2
9	Northwest Blvd (Hwy 3) / Pine St	6	1.2
9	Northwest Blvd (Hwy 3) / Valleyview Drive	6	1.2
9	Vancouver Street / 10 Ave N	6	1.2

Many of these locations are at intersections along Canyon Street (Highway 3) and Northwest Boulevard (Highway 3), where they have highway traffic and pass-by volume travel through. These locations will be reviewed in the next phase of the MMTP to determine if changes to the intersections are required to improve safety and / or operations.

Town of Creston Multi-Modal Transportation Plan

Map 4. Total Vehicle Collisions (2016 - 2020)





8.6 TRAFFIC SPEEDS

Travel speed is a very important factor for active transportation users' comfort and safety. The BC AT Design Guide states that there is only a 15% survival rate for a pedestrian in a collision when a vehicle is travelling 50km/hr. This improves greatly to a 90% survival rate when a vehicle travelling just 20km/hr slower (30km/hr). As such, vehicle speed is a very important factor when considering on-street active transportation facilities. The potential facilities have been discussed in **Section 4.6.1 and 5.5** as it pertains to facility selection. When traffic calming efforts to slow vehicle traffic or reduce volumes are achieved, the roadway is generally much safer and comfortable for active transportation users and the AT infrastructure capital costs may be limited.



30km/hr speed limit on 10th Avenue N

Speed data was collected by WATT in 2021 via pneumatic tubes. Speed radar board data has also been provided by the Town. Existing vehicle speeds were analyzed by comparing posted speed limits with the 85th percentile speeds of roadway segments. The 85th percentile speed is generally acknowledged in the industry as the speed at which a reasonable driver travels. This speed indicates the typical speed that drivers feel comfortable driving on the corridor. **Table 15** shows a summary of roadways in town where speed data is available for routes under consideration for traffic calming or active transportation or pedestrian improvements.



TABLE 15: EXISTING TRAFFIC SPEEDS

Roadway	Posted Speed Limit (km/h)	85 th Percentile Speed NB/EB (km/h)	85 th Percentile Speed SB/WB (km/h)	85 th Percentile Speed Average (km/h)	Difference (km/h)
10th Ave N (70m North of Hillside St)	30	47	44	46	+16
10th Ave N (20m South of Scott St)	30	42	37	40	+10
20th Ave N (30m South of Vancouver St)	30	43	44	43	+13
Canyon St (Near 6th Ave N - Midway Up Hill)	50	52	55	54	+4
16th Ave (Near Library)	50	50	48	49	-1
16th Ave (Near Millennium Park)	50	46	50	48	-2
Cavell St (180m East of Northwest Blvd)	50	40	44	42	-8
Hillside St (30m East of 12 Ave N)	50	45	45	45	-5
Devon St (40m West of 7 Ave N)	50	41	35	38	-12
Payne St (160m East of Northwest Blvd)	50	28	41	35	-15
11th Ave S (50m North of Erickson Rd)	50	28	42	35	-15
9th Ave S (130m South of Cook St)	50	42	40	41	-9
Valleyview Dr (70m East of Hawkview Dr)	50	61	64	62	+12
Erickson Rd (Near Centennial Park)	50	63	63	63	+13

The roads with a 30km/hr posted speed limit show an excess of drivers travelling over the speed limit. These roads are wider but have not undergone traffic calming measures to match the lower posted speed limit. Valleyview Road and Erickson Road also has a high 85th percentile speed of ~63km/hr. This is not unexpected as they are wide rural roads.

8.7 GOODS MOVEMENT

The Town of Creston’s heavy vehicle routes are shown in the network map as is shown in **Map 5**. It is composed of the following arterial roads to facilitate goods movement:

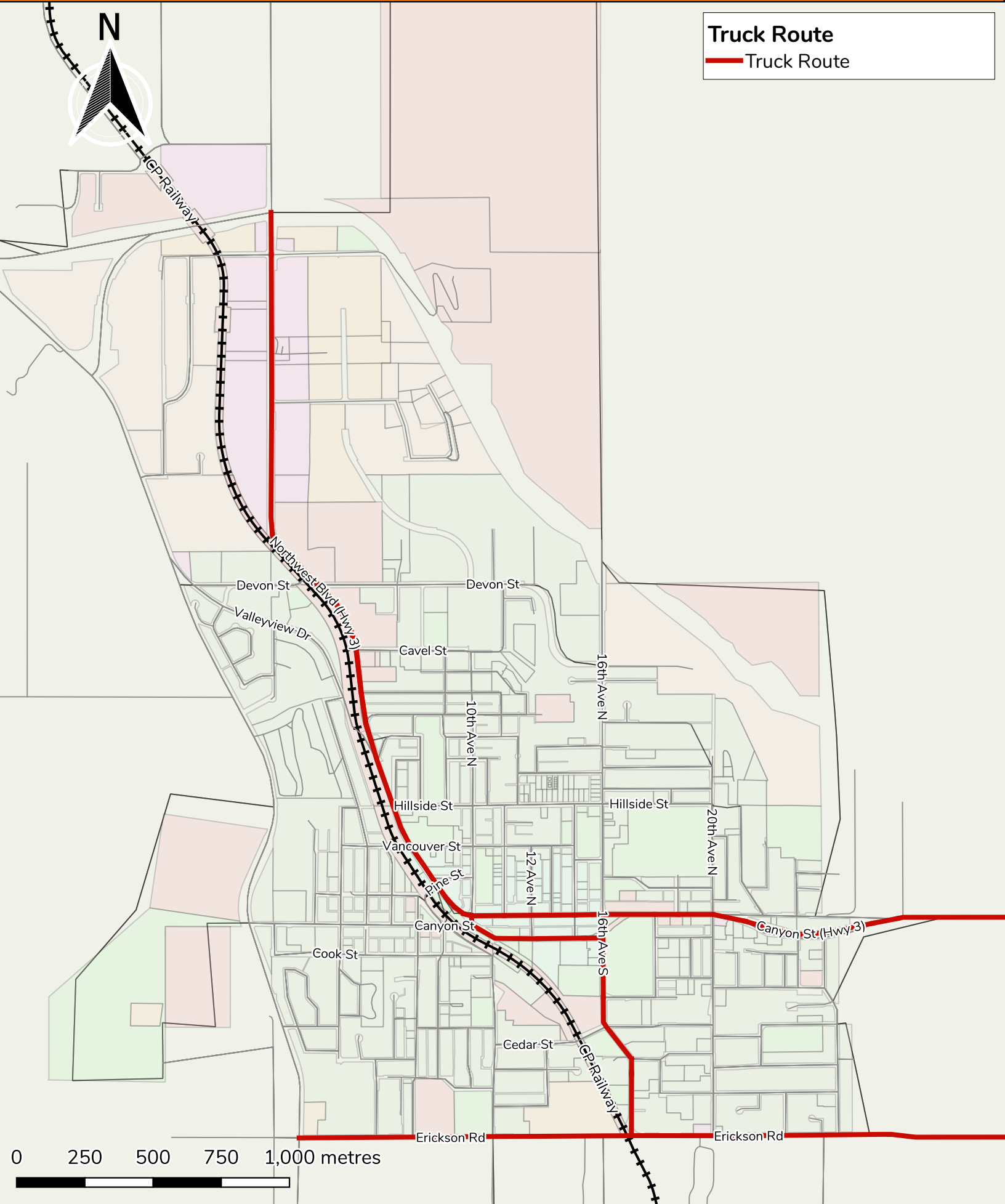
- Northwest Boulevard (Highway 3)



- Canyon Street (Highway 3 Section)
- Cook Street
- 16th Avenue S
- Erickson Road

The heavy vehicle routes provide a spine network that covers the Town. Trucks can deviate from the truck route to reach their destination / delivery location; however, they can only take the shortest path from the truck route to reach their destination. The restriction of trucks on routes should be based on the need to restrict trucks due to weight concerns and to limit heavy truck traffic from mixing with vulnerable road users. Canyon Street west of the railway is not designated as a truck route, as such, trucks are to stay on the highways or use Erickson Road and 16th Avenue N to transition between Highway 21 and Highway 3. Columbia Brewing has a high truck demand and is located at the corner of Erickson Road and 16th Avenue S.







8.8 TRAFFIC CALMING

The Town has a speed radar board program that is used to collect speed on Town roadways. The boards are regularly deployed to neighbourhoods with speeding or traffic calming concerns. Recently two collector roads, 20th Avenue S & 16th Avenue N, have been traffic calmed. Results are detailed below.

Raised crosswalks and curb extensions were installed on 20th Avenue South. It is a long straight urbanized road that is wide enough for parallel parking but has very low parking utilization. As such, the road feels wide when driven. Traffic volumes are very low, 900veh/day. The traffic calming measures which aimed to slow vehicles traffic by vertical and horizontal deflection, resulted in an 85th percentile speed of 39km/hr. This speed is lower than the 50km/hr posted speed limit and has proved effective at lowering speeds on this straight stretch of road.



Raised Crosswalk at 20th Ave S and Cedar St

Speed humps were installed on 16th Avenue N. It is a straight, 10.0m wide, urbanized road with grade. It had a centerline and parallel parking restrictions on the east side. The parallel parking has very low utilization. As such, the road feels wide when driven. Traffic volumes are very low, 1100veh/day and traffic calming measures were introduced to slow vehicle traffic by means of vertical deflection, which resulted in an 85th percentile speed



of 44km/hr southbound (downhill) and 39km/hr northbound (uphill). This is lower than the 50km/hr posted speed limit and has also proved effective at lowering speeds on this straight stretch of road that has grade.



Speed hump on 16th Ave N, near the Creston Valley Hospital

The above two examples show the effectiveness of traffic calming measures on a low-volume street with a speeding issue. Traffic calming will be a key component of implementing a comprehensive multi-modal transportation network within the Town.



Section 9 – Parking



9.0 PARKING

9.1 OVERVIEW

The Town's 2017 OCP contains policy direction that is focused on ensuring a variety of parking options are provided that can be flexible in how its used and managed in the Downtown Core.

- Policy 1.2 (Downtown Vibrancy) | Create a mechanism to allow business owners, located on side streets, to expand their retail operations to the sidewalk and parking areas.
- Policy 2.3 (Downtown Vibrancy) | Where appropriate, provide priority parking and drop-off spots for people with special needs that are: safe, sufficient in number, and conveniently located.
- Policy 2.4 (Commercial) | Consider a range of parking options to support a vibrant and accessible Downtown Core
- Policy 3.7 (Recreational Parks & Open Space) | Consider creating Pop-Up Parks on municipally owned properties, undeveloped municipal rights-of-way and isolated parking areas to create places for people instead of vehicles.
- Policy 3.7 (Downtown Vibrancy) | Consider creating one way traffic patterns with angle parking in select locations in the Downtown Area to diversify parking options and enhance the pedestrian experience.
- Policy 5.3 (Downtown Vibrancy) | Create Pop-Up Parks on municipally owned properties and in isolated parking areas to create spaces for people.

9.2 VEHICLE PARKING COUNTS

Weekday and weekend vehicle parking counts were collected as part of the August 2021 Data Collection Plan (**Appendix A**) for the existing on-street parking zones and two off-street parking facilities within the Downtown Core. Detailed parking occupancy, utilization, duration, and turnover results can be found in **Appendix C**.

Observations were conducted at one-hour intervals by recording a snapshot of the number of vehicles parked and their license plate for a seven-hour period from 9:00 a.m. to 4:00 p.m., excluding 12:00 p.m, on the following dates:



- Tuesday, August 17, 2021
- Thursday, August 19, 2021
- Saturday, August 21, 2021

All vehicles were assumed to be parked for a minimum of one hour due to limitations of the data collection method, so results are conservative and reflect the upper bound of actual parking duration.

9.3 VEHICLE PARKING INVENTORY

The study area consisted of 275 designated parking and loading spaces that are publicly owned and operated by the Town of Creston, with 174 spaces (63%) located on-street and 101 spaces (37%) located off-street.



Table 16: On-Street Parking and Loading Inventory provides the breakdown of the on-street parking and loading inventory by street segment.

The 174 on-street spaces were categorized as follows:

- 165 parking spaces (94%) with a two-hour time limit, with 155 standard spaces and 10 accessible spaces.
- Six short-term parking spaces (3%), with two 10-minute spaces and four 15-minute spaces.
- Two bus-only loading spaces (1%).
- One loading space (<1%) with a 15-minute time limit.

The 101 off-street spaces are located at two on-street surface parking facilities, with 61 spaces (60%) at the Cook Street Lot and 40 spaces (40%) at the Sunset Seeds Lot.

- The Cook Street Lot has 55 two-hour parking spaces (47 standard, four standard spaces with electric vehicle charging, and four accessible spaces) and six spaces that require a monthly permit with no time limit.
- Sunset Seeds Lot contains all-day parking.

Parking permits for Cook Street Lot can be purchased at \$30 per month or \$300 per year.



Example of an accessible parking space on Canyon Street.



TABLE 16: ON-STREET PARKING AND LOADING INVENTORY

Street	From Street	To Street	Side	Parking		Loading			Total
				Standard	Accessible	Passenger	Loading	Bus	
10th Avenue	Vancouver	Pine	West	9					9
10th Avenue	Vancouver	Pine	East	4		3			7
10th Avenue	Pine	Canyon	West	10					10
10th Avenue	Pine	Canyon	East	5	1	2			8
11th Avenue	Vancouver	Canyon	West	16	1			1	18
11th Avenue	Vancouver	Canyon	East	19				1	20
12th Avenue North	Vancouver	Canyon	West	10					10
14th Avenue	Vancouver	Canyon	West	2			1		3
14th Avenue	Vancouver	Canyon	East	4					4
15th Avenue North	Vancouver	Canyon	West	3					3
15th Avenue North	Vancouver	Canyon	East	2					2
15th Avenue South	Canyon	Cook	West	6					6
15th Avenue South	Canyon	Cook	East	4		1			5
Canyon Street	10th	11th	North	5	2				7
Canyon Street	10th	11th	South	7	1				8
Canyon Street	11th	12th	North	8	1				9
Canyon Street	11th	12th	South	8	1				9
Canyon Street	12th North	14th	North	2	1				3
Canyon Street	12th North	14th	South	6	1				7
Canyon Street	14th	15th	North	4	1				5
Canyon Street	14th	15th	South	7					7
Northwest Boulevard	Pine	10th	North east	2					2
Pine Street	Northwest	10th	North	8					8
Pine Street	Northwest	10th	South	4					4
Total On-Street				155	10	6	1	2	174

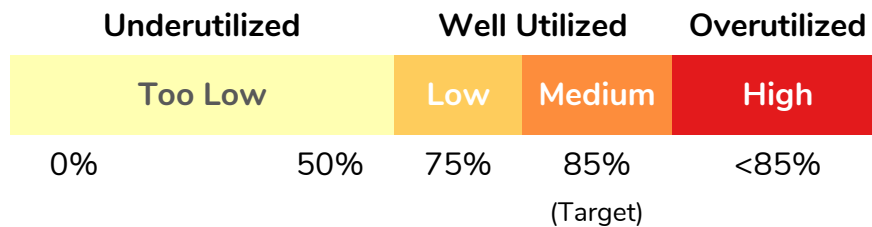


9.4 VEHICLE PARKING UTILIZATION

Parking utilization measures the usage of a parking facility and is calculated by dividing the number of parked vehicles with the number of parking spaces. Parking utilization results are discussed in relation to a target occupancy rate of 85% and excludes spaces in the study area designated as 10-minute parking, 15-minute parking, and loading.

A occupancy rate of 85% is a typical target used that represents an optimal balance between demand and supply. When parking utilization exceeds 85%, vehicles tend to spend more time circling the block or facility to search for parking (“cruising for parking”), which can exacerbate traffic congestion and add to driver frustration. For example, for a street block where there are ten on-street parking spaces, one to two spaces should be vacant to ensure drivers can reliably and efficiently find a parking space.

Utilization is considered too high (i.e., overutilized) if there are no spaces available and too low (i.e., underutilized) if there are too many spaces available. When parking is consistently measured to be low, parking could be repurposed for other means such as new development for off-street parking or active transportation facilities and public space amenities for on-street parking.





On average, the weekday dates were busier than the weekend in terms of the total volume of vehicles that parked in the study area. The use of “vehicles” in this section is equivalent to a “parking event,” defined as when a vehicle parks at a location for a particular purpose. This is a different measure from the number of unique vehicles that parked in the study area. For example, if a vehicle with the license plate, AB1 23C, parked for two hours from 10:00 a.m. to 12:00 p.m., and returned and parked for one hour from 4:00 to 5:00 p.m., this would be considered one unique vehicle but two separate parking events.

- **Key Results** Thursday was the busiest day with 538 unique vehicles observed that generated 558 parking events. 11% of vehicles had an out-of-province license plate.
- Tuesday was the second busiest day with 499 unique vehicles that generated 532 parking events. 9% had an out-of-province license plate.
- Saturday was the least busiest day with 416 unique vehicles that generated 427 parking events. 11% of vehicles had an out-of-province license plate.
- On average, there were 519 unique parked vehicles across both weekday dates and 416 on the Saturday. Overall, 10% of vehicles across all three days were out-of-province.

A summary of the major findings are summarized below by Thursday (weekday) and Saturday (weekend), and by on-street and off-street.

General

- On average, half of all spaces (48%) on the weekday (on-street: 57%; off-street: 35%) and more than a quarter of all spaces (37%) on Saturday (on-street: 39%; off-street: 35%) from 9:00 a.m. to 4:00 p.m were occupied.
- During the weekday peak hour¹⁸ at 10:00 a.m., overall utilization for the study area was 63%. On-street utilization was 66% and off-street utilization was 57%

¹⁸ The peak hour refers to the busiest hour of the day where parking utilization was highest.



- During the Saturday peak hour at 10:00 a.m., overall utilization for the study area was 50%. On-street utilization was 45% and off-street utilization was 57%.
- In summary, Saturday on-street utilization was lower than the weekday but off-street utilization remained the same for both days. **Figure 16** and **Figure 16** show parking utilization by hour of the day on the Thursday and Saturday, respectively.

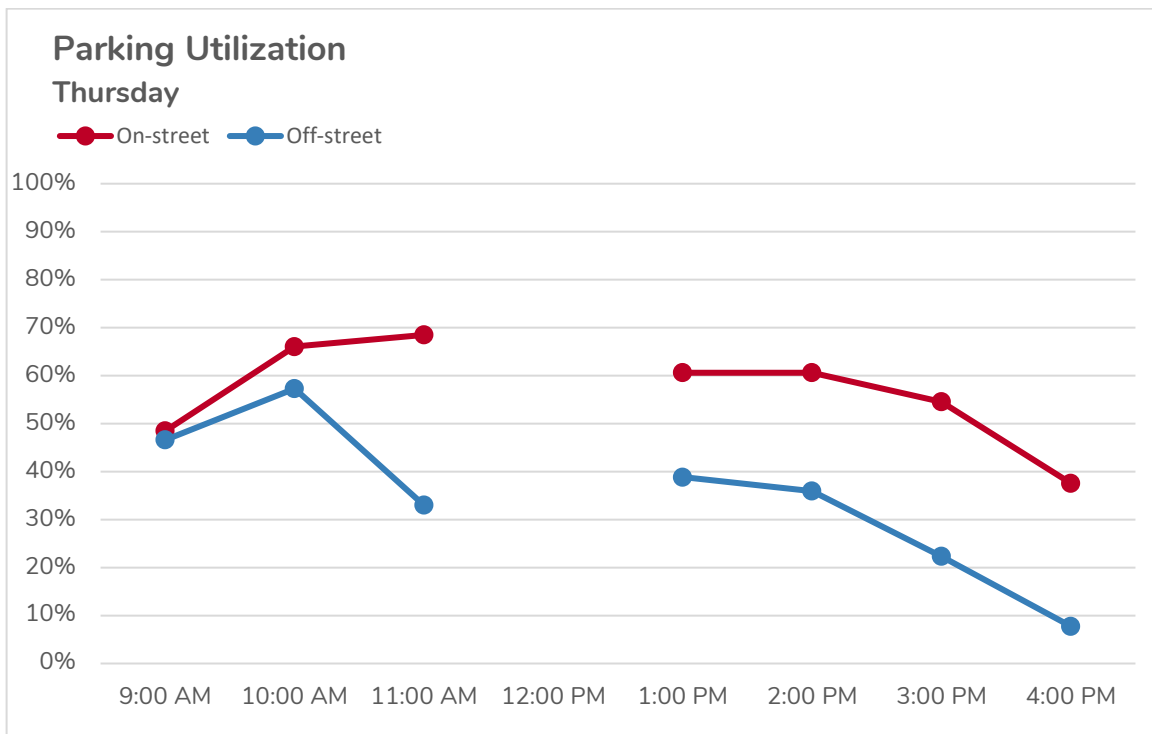


Figure 15: Vehicle Parking Utilization

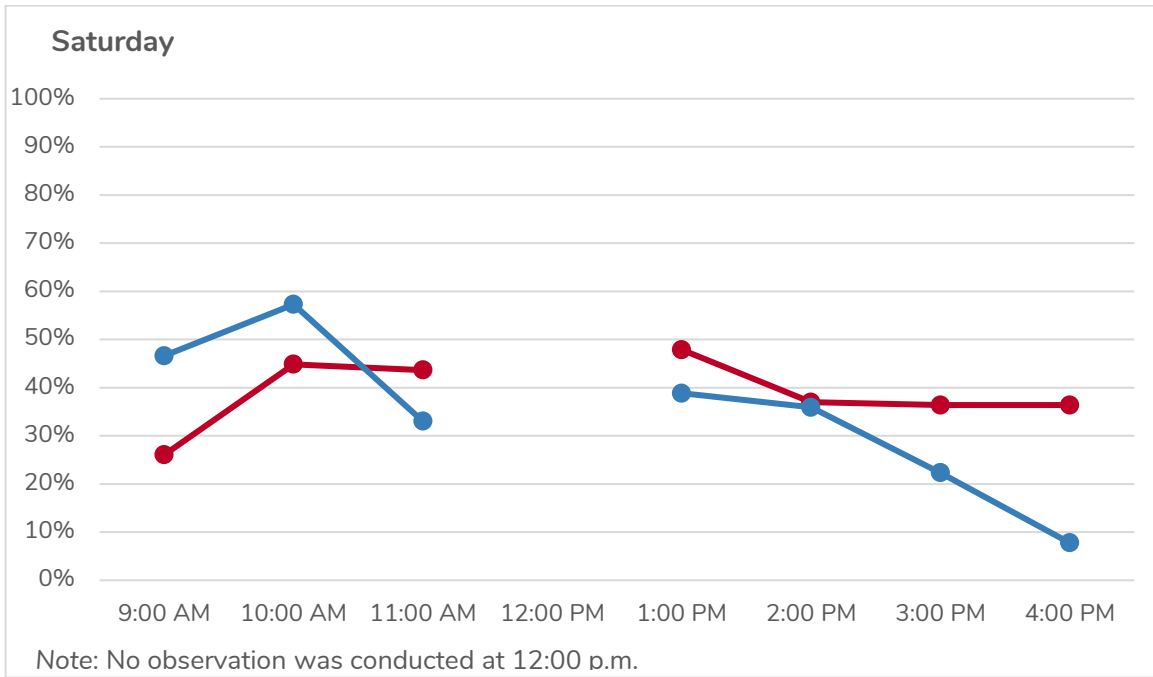


Figure 16: Vehicle Parking Utilization



On-street Parking Conditions

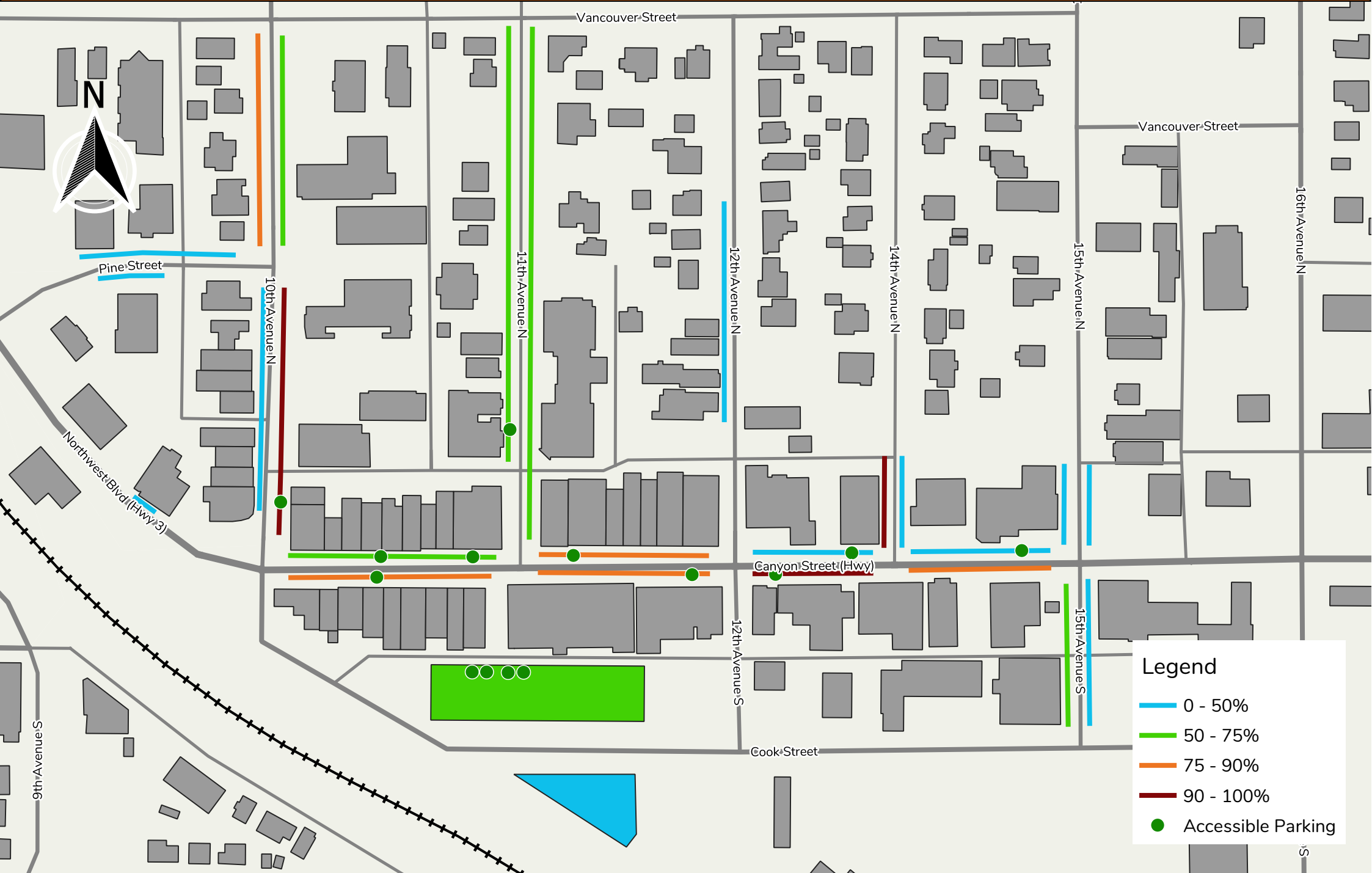
- On the weekday, all streets had a utilization of less than 85% for all hours of the day, except for 15th Avenue South (from Canyon Street to Cook Street) at 11:00 a.m. with 90% utilization, and Northeast Boulevard (from Pine Street to 10th Avenue) at 2:00 p.m. with 100% utilization. **Map 6** shows weekday utilization by blockface.
- On the Saturday, all streets were below 85% for all hours of the day, except for Northwest Boulevard (from Pine Street to 10th Avenue) at 10:00 a.m. and 1:00 p.m. with 100% utilization for both hours. **Map 7** shows weekday utilization by blockface.
- In summary, over-utilized parking was limited to only a few select locations. Northwest Boulevard saw utilization exceed 85% during certain hours of the day. However, it is a small block with only two parking spaces available.

Off-street Parking Conditions

- On the weekday, the Cook Street Lot had an average parking utilization of 44% with a peak utilization of 74% at 10:00 a.m.
- On the weekday, the Sunset Seeds Lot had an average parking utilization of 20% with a peak utilization of 33% at 10:00 a.m.
- On the weekend, both facilities operated similarly with the same average and peak utilization as the weekday.
- In summary, the Cook Street Lot is consistently busier than the Sunset Seeds Lot. There were no differences in utilization when comparing weekday to Saturday.

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Map 6. Weekday Parking Utilization (Percent Occupancy)

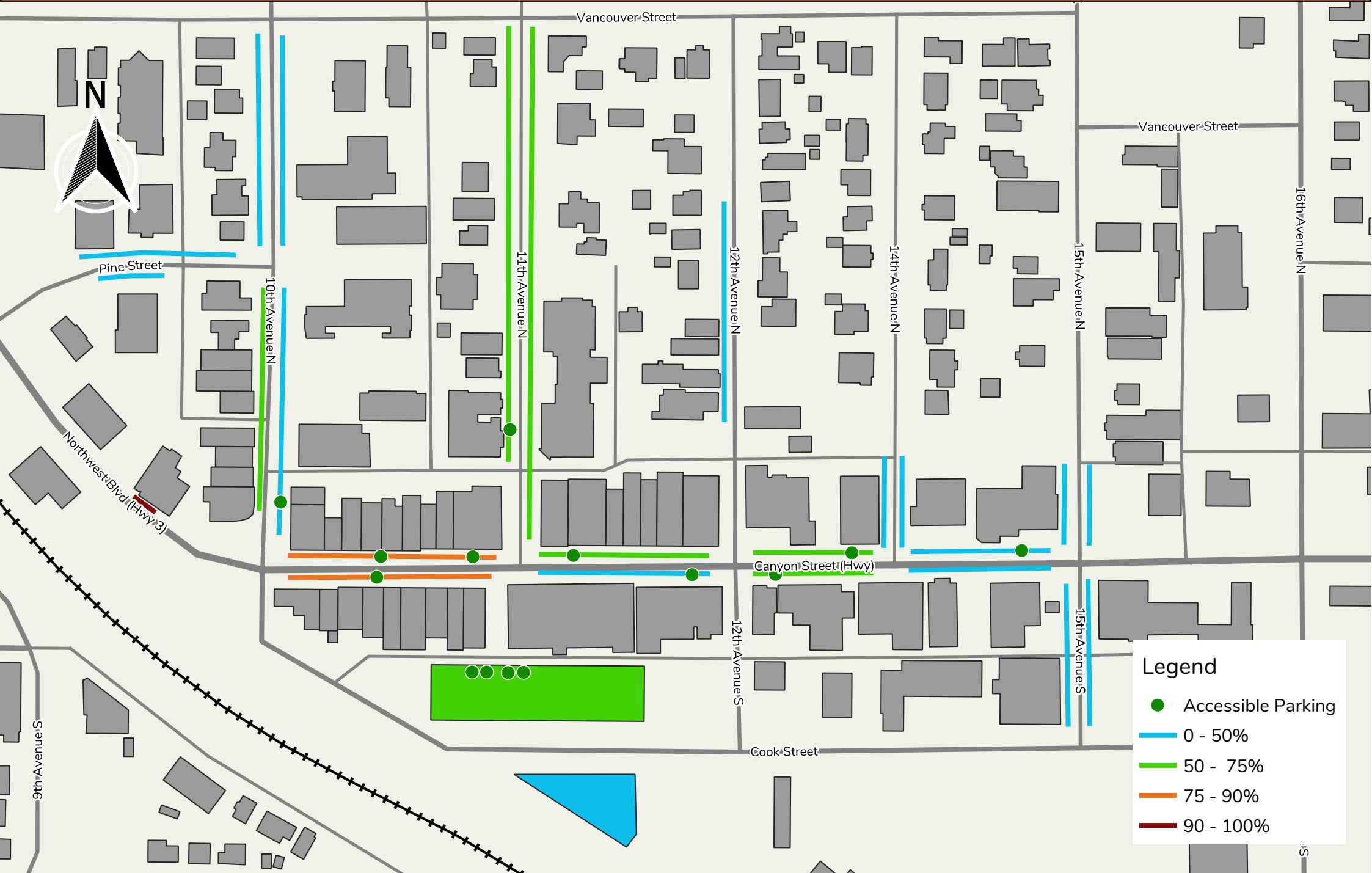


Legend

- 0 - 50%
- 50 - 75%
- 75 - 90%
- 90 - 100%
- Accessible Parking

Town of Creston Multi-Modal Transportation Plan

Map 7. Weekend Parking Utilization (Percent Occupancy)



Legend

- Accessible Parking
- 0 - 50%
- 50 - 75%
- 75 - 90%
- 90 - 100%



9.5 VEHICLE PARKING DURATION & TURNOVER

Parking duration measures the duration of time that vehicles use a parking facility and is calculated by counting the number of occurrences of the same license plate throughout the observation period. **Parking turnover** measures the productivity of a parking space and is calculated by dividing the total volume of parked vehicles by the number of parking spaces for a specified period of time, in this case, the seven-hour observation period.

Parking duration results are discussed in relation to the standard time limit of two-hours in the Downtown Core and excludes vehicles parked in spaces designated as 10-minute parking, 15-minute parking, and loading. Parking duration that is lower than the two-hour time limit is considered desirable as it indicates there is sufficient turnover of vehicles to meet the needs of visitors and customers. Parking duration that is higher than the time limit is undesirable as it indicates vehicles are parking illegally beyond the permitted time. This results in lower turnover and reduces the overall productivity of the parking supply.

On-street Parking Conditions

- For both the weekday and Saturday, median on-street parking duration was one hour from 9:00 a.m. to 4:00 p.m., with a 85th percentile duration of two hours.
- Nine-in-ten vehicles in the study area parked for two hours or less at 90% and 91% on the weekday and Saturday, respectively. **Figure 17** shows a histogram of the number of parked vehicles by total parking duration.

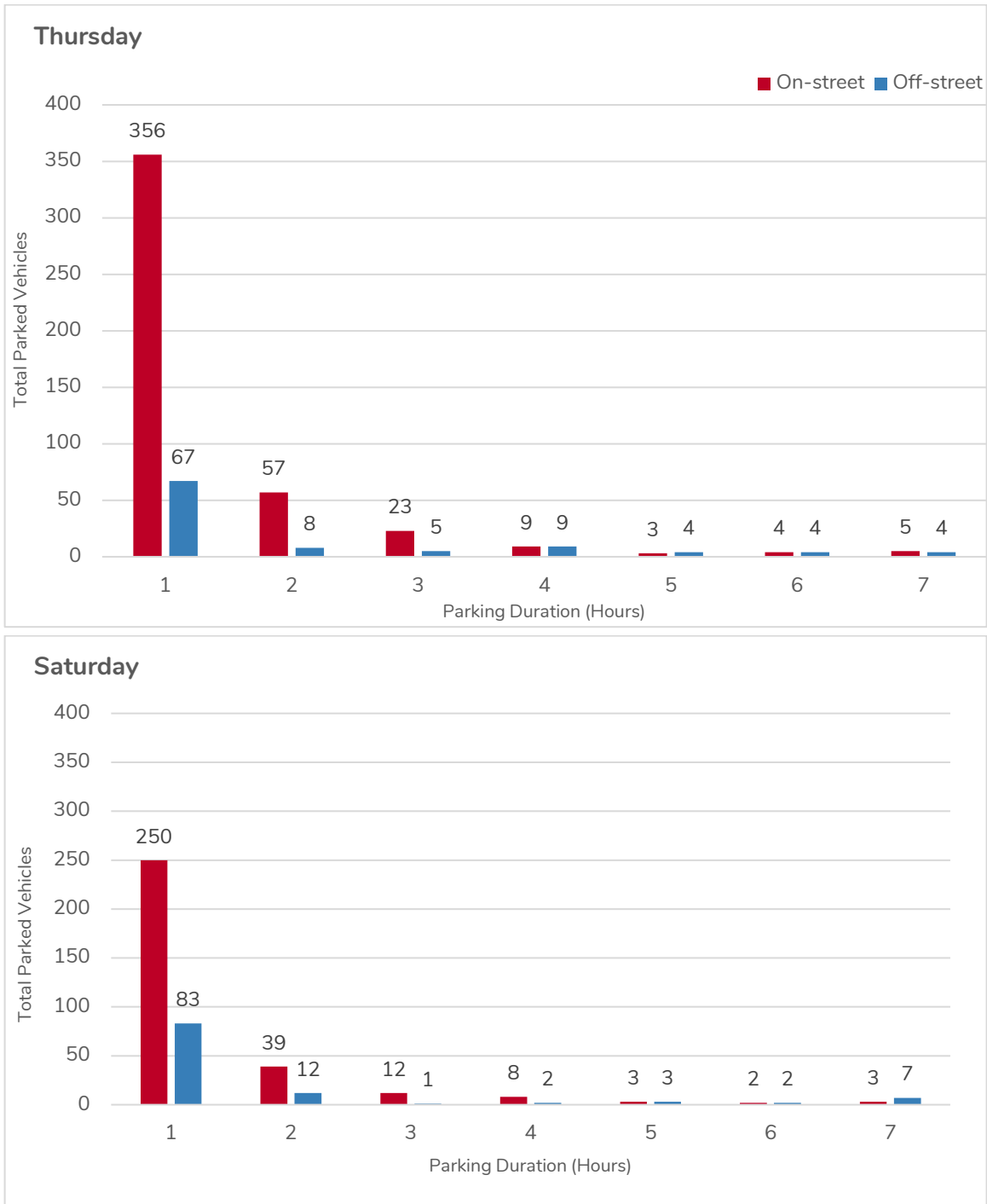


Figure 17: Parked Vehicle Count by Total Parking Duration



On-street Parking Conditions (continued)

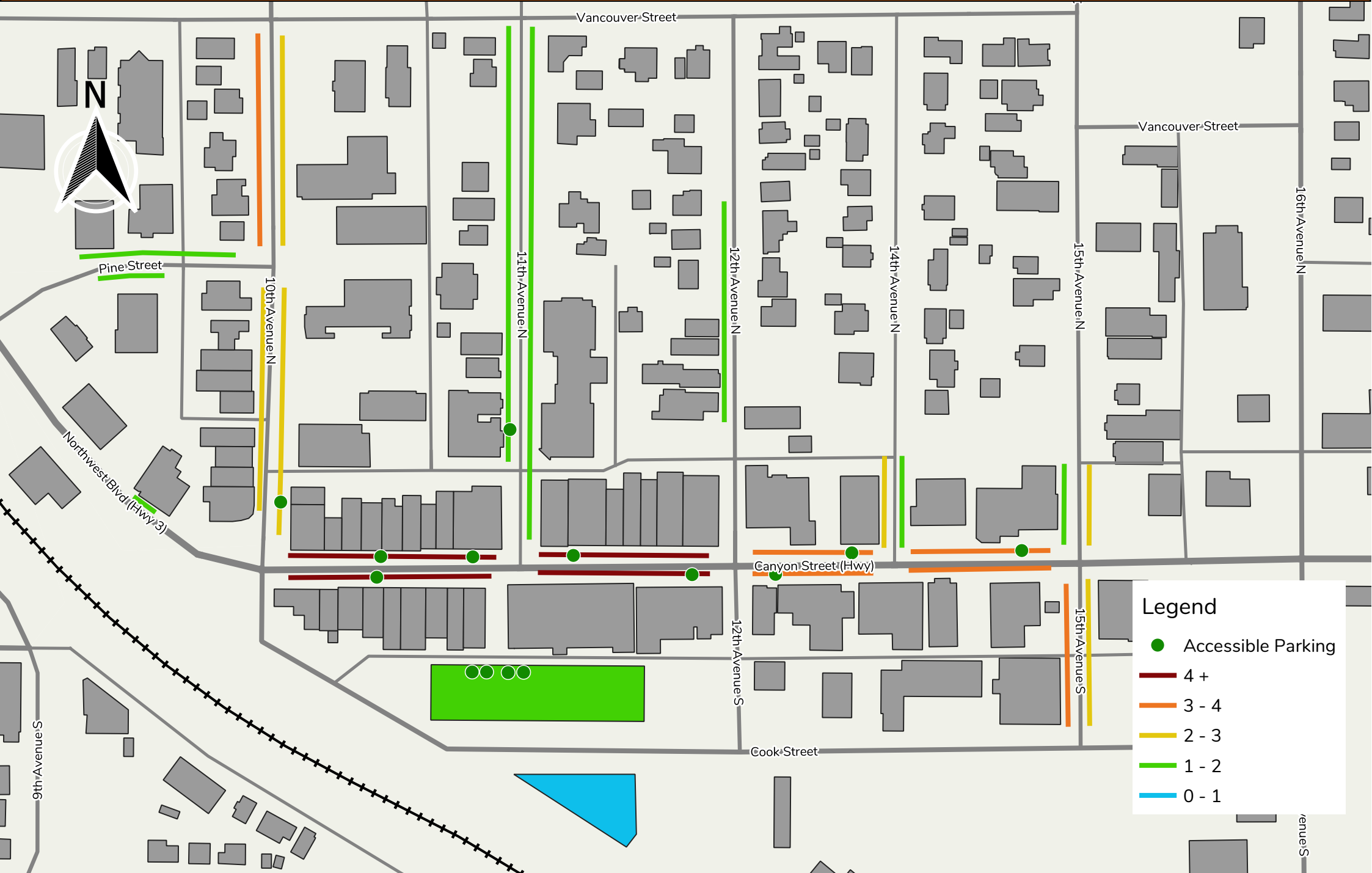
- On the weekday, Canyon Street (from 10th Avenue to 15th Avenue) was the most productive street in the study area, with a turnover of 4.09 vehicles per parking space (vpps) over the course of seven hours. **Map 8** shows weekday turnover by blockface.
- This was followed by 10th Avenue (from Vancouver Street to Canyon Street) at 3.07 vpps, and 15th Avenue South (from Canyon Street to Cook Street) at 2.80 vpps as the most productive streets.
- The least productive streets on the weekday were as follows:
 - 12th Avenue North (from Vancouver Street to Canyon Street) at 1.10 vpps.
 - Pine Street (from Northwest Boulevard to 10th Avenue) at 1.42 vpps.
 - Northwest Boulevard (from Pine Street to 10th Avenue) at 1.50 vpps.
 - 11th Avenue (from Vancouver Street to Canyon Street) at 1.67 vpps.
- On the Saturday, Canyon Street remained the most productive street with a turnover of 3.13 vpps. However, productivity shifted for the remaining streets with 14th Avenue (from Vancouver Street to Canyon Street) being the second most productive at 2.17 vpps and Pine Street (from Northwest Boulevard to 10th Avenue) being the least productive at 0.58 vpps. **Map 9** shows weekend turnover by blockface.

Off-street Parking Conditions

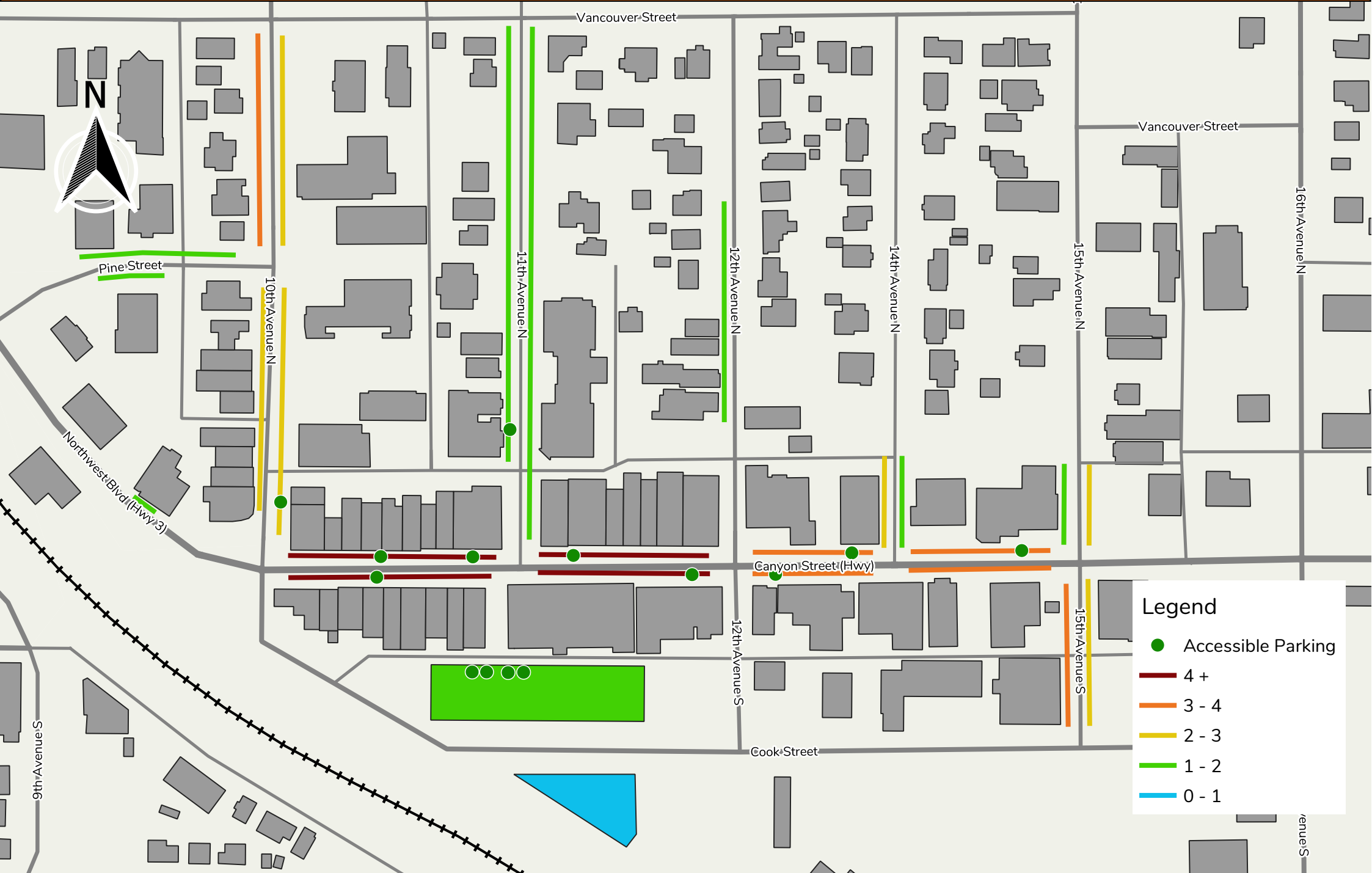
- On the weekday, median off-street parking duration was one hour. However, when broken down by location, the Cook Street Lot had a median duration of one hour and the Sunset Seeds Lot had a median duration of four hours. This is consistent with the restrictions in-place, with two-hour parking at Cook Street Lot and all-day parking at Sunset Seeds Lot.
- On the weekend, the median parking duration for both facilities was one hour.

Town of Creston Multi-Modal Transportation Plan

Map 8. Weekday 7 Hour Parking Turnover (Vehicles/Space)



Map 9. Weekend 7 Hour Parking Turnover (Vehicles/Space)





Section 10 – Emerging Trends



10.1 ELECTRIC VEHICLES

What is it & Why is it Important?

Electric vehicles (EVs) are a class of vehicles that run entirely or partially on electricity. These vehicles have a battery instead of a gasoline tank, and an electric motor instead of an internal combustion engine. EVs and other types of zero-emission vehicles can play an important role in reducing community GHG emissions, especially as uptake continues to grow due to more affordable prices—as vehicle production has increased—and government financial rebates.

There are no publicly available data on EV ownership in Creston. However, based on provincial trends, the EV ownership within the Town is likely growing. The province's 2020 zero-emission vehicle update reported the following:¹⁹

- Light-duty zero emission vehicle (ZEV) sales represented 9.4% of all new light-duty vehicle sales in BC, up from 8.7% in 2019.
- There were 54,469 light-duty ZEVs registered in BC as of December 30, 2020 compared to about to just under 40,000 in 2019
- The total number of public Level 2 charging stations increased from 1,768 in 2019 to 2,127 in 2020.
- In 2020, BC had the highest uptake rates of ZEVs in North America.

The province of BC has committed to phasing out gas-powered vehicles over the coming years. By 2040, the legislation will require all new light-duty vehicles and trucks to be zero-emissions. To achieve that, a number of measures will need to be considered that allow and incentivize the use of EVs that will vary from public and private electric vehicle charging stations, designated parking spaces, tax incentives, and transportation policies. Typically, electric vehicles are recharged by plugging into the electricity grid through a charging station. Three distinct charging station types are available:

¹⁹ Government of BC. (2020). Zero Emission Vehicle Update. Available online at: https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/electricity-alternative-energy/transportation/2020_zero_emission_vehicle_update.pdf



- Level 1 (120 Volt – Household Outlet) – Approx. Full Charge: 8-12 hours;
- Level 2 (240 Volt – Typical Charging Station) – Approx. Full Charge: 4-6 hours; &
- Level 3 (480 Volt – Fast-Charging Station) – Approx. Full Charge: 0.5-1 hours.

There are currently 6 charging stations in Creston²⁰ with the majority (about 83%) of stations offering Level 2 ports. They are found at the following locations:

- Town of Creston Public Parking, Cook Street (2 x Level 3, 2 x Level 2,); and
- Creston Visitor Centre, 121 Northwest Blvd (2 x Level 2).



Charging Station at Cook Street Parking Lot. Image Retrieved From: chargehub.com

While EVs do not address congestion issues, they do support GHG emission reduction goals as the transportation sector represents a significant share of GHG emissions. Local governments are uniquely positioned to capitalize on this opportunity to reduce GHG emissions by supporting EV adoption through the provision of public EV charging stations and requirements for new buildings to be EV-ready, which means that residential and

²⁰ More information about Creston's EV charging station profile is available online at: <https://chargehub.com/en/countries/canada/british-columbia/creston.html>



commercial developments must have energized electrical outlets installed at the time of construction that are capable of charging an EV when a charging station is installed the future. Many communities across BC including Richmond, Victoria, Saanich, Vancouver, and Burnaby, among others, have amended their zoning bylaws to include EV-ready requirements to make it easier for residents, employees, and customers to charge their EVs in new buildings.

Even though there are few publicly available charging stations in the Town today, the provincial data above suggests that EV adoption will continue to grow province-wide, which will have implications for the number of publicly available charging stations. This represents an opportunity through the MMTP process to provide policy direction that can support provincial efforts to increase EV adoption.

10.2 ELECTRIC BICYCLES

What is it & Why is it Important?

Electric bicycles (e-bikes) are bicycles with an electric motor of 500 watts or less, and functioning pedals that are limited to a top speed of 32 km/h without pedalling. Electric bicycles make cycling more attractive for a greater diversity of the population, particularly for seniors, women, and people with disabilities, as they increase the maximum length of bicycle



trips, minimize the impact of hills and other terrain challenges, and allow people to bike with heavier cargo loads. Further, electric bicycles can help municipalities achieve their GHG emission reduction targets. With supportive cycling infrastructure in place, e-bikes have the potential to substitute for, or completely replace, a substantial number of trips



taken by a gasoline powered car, which could address congestion issues within urban areas.²¹

Recent research on e-bikes has reported the following impacts on vehicle ownership:

- A 2020 scoping review looked at 76 studies that have been published to date on electric bikes. It found that the proportion of car journeys substituted following acquisition of an e-bike ranged from 20% to 86%, with three studies reporting the substitution of short car journeys with the e-bike;²²
- A 2018 study presented results of a North American survey of electric bike owners. The study reported that 62% of e-bike trips replaced trips that otherwise would have been taken by car. Of these trips previously taken by car, 45.8% were commute trips to work or school, 44.7% were other utilitarian trips (entertainment, personal errands, visiting friends and family, or other), and 9.4% were recreation or exercise trips. The average length of these previous car trips was 15 kilometres;²³
- A more recent study found that approximately 39 kilometres of driving per week is displaced by the average e-bike adopter along with 14 kilometres of travel by conventional bicycle²⁴; and
- A 2020 study found that people who purchased an e-bike increased their bicycle use from 2.1 to 9.2 km per day on average.²⁵

²¹ WATT Consulting Group. (2018). *Capital Region Local Government Electric Vehicle + Electric Bike Infrastructure Planning Guide*. Available online at:

https://www.crd.bc.ca/docs/default-source/climate-action-pdf/reports/infrastructure-planning-guide_capital-region-ev-ebike-infrastructure-project-nov-2018.pdf?sfvrsn=d767c5ca_2

²² Bourne, J.E., Cooper, A.R., Kelly, P., Kinnear, F.J., England, C., Leary, S., and A. Page. (2020). *The impact of e-cycling on travel behaviour: A scoping review*. *Journal of Transportation Health*, 19.

²³ MacArthur, J., Harpool, M., & D. Scheppke. (2018). *A North American Survey of Electric Bicycle Owners*. National Institute for Transportation and Communities, NITC-RR-1041.

²⁴ Bagasse, A & E Borgesian. (2019). *Electric Bicycles: Can they reduce driving and emissions in Canada*. Plan Canada Fall 2019.

²⁵ Fyhri, A & H.B. Sundfor. (2020). *Do people who buy e-bikes cycle more?* *Transportation Research Part D*, 86, 1-7.



All of these studies indicate that e-bikes allow users to travel longer distances, which help substitute for trips that would otherwise be made by a vehicle. As an emerging mobility form, there is limited ownership data available in Creston. However, e-bikes can be especially attractive in the Town due to due to the hilly terrain and topography.

10.3 MOUNTAIN BIKES

What is it & Why is it Important?

Mountain biking is already a popular recreational activity in the Town; however, as both a form of recreational transportation and a tourism opportunity, mountain biking can become an even more integral part of Creston's identity, economic development strategy, and overall wellbeing. Even though the Town does not officially provide an inventory of mountain biking trails, the interest continues to build and more trails are built in proximity to Creston.



Retrieved From: <https://www.crestonvalleykootenaylakeroute.com>

Enhancement of the existing non-motorized trail network in the area is one of the specific recommendations in the Parks and Recreation Mater Plan for the Town of Creston, which would include surveying and mapping trails, creating signage, and promoting mountain biking in Creston as part of a growing network of central Kootenay mountain biking destinations.

Even though mountain biking is a recreational activity, the development of the Town's cycling network can improve connectivity to the mountain bike trails and thereby reduce the need to drive. Further, mountain biking is an emerging economic development opportunity for the Town, which can enhance Creston's overall transportation network and options.



10.4 CARSHARE

What is it & Why is it Important?

Carshare is a form of car rental where people can rent vehicles for varying lengths of time. They are usually co-operatives or businesses, and users must sign up as a member to be able to use the vehicles and pay the costs associated with it. Carshare is a good option for those who sometimes need access to a vehicle but may not be able to pay the costs associated with owning a vehicle or do not need to rent for an entire day. This mobility option can be a popular tool for families who cannot afford to own a vehicle and may get



around by transit, walking, or cycling, but may need occasionally the use of a vehicle to travel long distances or transport heavy / bulk items (e.g., moving, shopping). The result is users that are less reliant on vehicles. This has a big impact on the overall goals of reducing GHG emissions and encouraging a more active lifestyle.

There are two models of carsharing available in British Columbia:

- One-way carsharing: In this model the user can start their trip in one location and end it at a different location. For instance, Evo Car Share is a one-way carsharing provider operating in Metro Vancouver and Victoria, where users can end their trips anywhere within an operational area; and
- Two-way or roundtrip carsharing: The difference with this model is that the user must return the vehicle at the same place that the trip originated. A local Kootenays example is Kootenay Carshare which currently operates in Nelson, Kaslo, Revelstoke, and Rossland.

Apart from the carsharing companies, across BC there have been developers that support an “internal” carshare model that operates for the development site’s residents. Typically, this has been done to allow for relaxations on the minimum parking requirement of multi-family residential buildings. The Town should be open to hybrid models of carsharing as it is considered a significant transportation demand management (TDM) measure. TDM



is the application of strategies and policies to influence individual travel choice, most commonly to reduce single-occupant vehicle travel.

Creston has made efforts regarding support of attracting a carshare program, which is an action item that is also identified in the Strategic Community Energy Efficiency Plan.

10.5 MICROMOBILITY

What is it & Why is it Important??

Micromobility, both privately owned and shared, has exploded globally and has a market that has attracted a strong customer base. Compared to other mobility services, shared micromobility has attracted significant investments and customers two to three times faster than car sharing. Micromobility has found its niche in the first and last kilometer transportation as:

- It enables citizens to comfortably access transit;
- It discourages people from owning a vehicle; and
- It can support climate change mitigation efforts.

Lately more cities are investing and/or permitting micromobility vehicles for individual use, typically for a short duration, for a price. Apart from the benefits in terms of active transportation, shared micromobility systems should be considered as part of a town's transportation system and an extension of public transit, as it serves the first and last kilometer of trips well. Primarily, there are two distinct types of shared micromobility: docked and dockless.

- **Docked systems** include shared vehicles that are parked in special racks at one of multiple stations where users can unlock vehicles with a membership card, cell phone, credit card. The user has to return the vehicle to the same or another station. Docking stations are typically found with bike share systems.
- **Dockless systems** include shared vehicles that are parked without a rack in the furniture zone or in designated areas called "havens". This system provides flexibility and efficiency for the user, as it allows them to park very close to their



destination. Dockless systems are typically found with electric scooter sharing systems and some bike share systems. Dockless systems require members to have a smartphone in order to locate a vehicle.

It has been observed that most jurisdictions introduce shared micromobility programs and especially e-scooter share programs as pilot projects for a specific time (i.e., less than one year) to assess community reaction before formalizing the program. A pilot e-scooter share is currently underway in 6 communities across BC but there are currently none operating in the Kootenays.



Many of the shared micromobility programs are more feasible in larger Cities as it is difficult to attract larger companies to a smaller market. However, there are still a number of ways a smaller town can facilitate or encourage micromobility. The Town of Creston's compact and hillside nature is extremely well suited for electric micromobility vehicles as users are able to overcome steep hills and complete their trip without the need for long distance travel. A study conducted for rural towns in the United States looked at opportunities and provided examples of ways smaller communities are encouraging micromobility.²⁶ A few examples of shared micromobility models included a library style check-out check-in system, low-cost town run bikeshare, community bike donation bikeshare. The library option is a free option where a user checks-out a bike and returns it within a certain amount of time (ranges from minutes to months). For this example, the program was funded by a series of grants as a barrier to cycling was identified as a lack of access to bicycles themselves by community members. The community bike donation

²⁶ *Opportunities for State DOTs (and others) to Encourage Shared-Use Mobility Practices in Rural Areas* (2019) <http://onlinepubs.trb.org/onlinepubs/nchrp/2065/Task76Report.pdf>



bikeshare example was made possible by a citizen’s donation of bikes available for free checkout at various locations in the community. A low-cost town run bike share could also be an option since it is difficult to attract large micromobility companies to smaller communities. There are numerous examples of rural Town’s operating bikeshares at a modest cost to the users.

The proliferation of shared micromobility as described above is witnessed in BC and across the world, however as more people see and experience these types of vehicles, interest in buying them for private use continues to rise. This adds more transportation options and increases demand for better roadway design that includes dedicated cycling infrastructure. The significant increase in electric unicycles and e-scooters, apart from the steady increase of e-bikes over the last couple of years has required communities to think about the regulations that should dictate where and how these vehicles should be used critically. It is recommended that the Town considers the steps to ensure the legal and safe operations of micromobility vehicles and start to think about how micromobility vehicles may move around the Town efficiently.



APPENDIX A: CRESTON MMTP DATA COLLECTION PLAN



CRESTON MMTP

Data Collection Plan

Nathan Carswell, P.Eng.

Project Manager

Author:

Date: August 11, 2021

File No.: 3065.B01



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1.0 PURPOSE

The purpose of this report is to outline our proposed data collection plan as part of the Town of Creston's Multi-Modal Transportation Plan. This plan will be reviewed by the Town to confirm our approach, overall methodology and locations being reviewed.

2.0 INTERSECTION COUNTS

2.1 APPROACH

We have allocated budget for 10 count locations in total. **Table 1** shows the proposed locations. At each location either an in-person manual count will be done, or video cameras may be used to record the count data and then summarized in the office. These counts will include vehicle, truck, bus, bicycle, and pedestrian movements.

We are proposing one weekday count for each location, to occur either Tuesday, Wednesday, or Thursday during the week of August 16, 2021. The data collection times are:

- AM Peak Hour **7:00-9:00 AM**
- PM Peak Hour **3:00-5:00 PM**

TABLE 1. PROPOSED LOCATIONS

	Street Name	Intersection Description	Notes
1	Hillside St / 7 th Av / Northwest Blvd (Hwy 3)	Hillside St / 7 th Av – Stop controlled SB direction on 7 th Av Hwy 3/ Hillside St – Stop controlled WB direction on Hillside	Two intersections are operating as one. Manual count location to observe active mode use and vehicle behaviours.
2	Hillside St / 16 Av N	Stop controlled EB/WB direction	Four way intersection, potential concern regarding shortcutting from Highway NB Via 20 AV and WB on Hillside. Video count



3	Valley View Dr & Northwest Blvd (Hwy 3)	Valley View Dr – Stop controlled SB direction. SBR Restricted	Likely manual count to confirm movements and potential relocation and closure of highway access just west of CP Track. See note for location #4.
4	Cavell Street / Northwest Blvd	Stop controlled WB direction. All-turns allowed from Cavell Street	Manual count Confirm the intent of relocating Valley View/ Hwy 3. Four leg intersection + signalization? Site visit to see west of the intersection
5	Valley View Dr / Creston – Rykerts (Hwy 21)	Valley View Dr – Stop controlled NB direction.	Video count No restricted movements
6	Canyon St / 9 Av N	Four-way Stop controlled, skewed intersection	Canyon Street / 9 Av S , potential for mini traffic circle, will need dimensions measured. Delivery truck to the Pub SB on 9 Av. Prefer Manual count
7	Devon St & Northwest Blvd (Hwy 3)	Devon st off-set intersection. East leg stop controlled and west leg stop controlled	Both legs are to be counted. WSP report recommended that traffic counts be undertaken on Northwest Boulevard every two years to monitor background traffic, last count was done in 2015.
8	Helen Street & Northwest Blvd (Hwy 3)	Stop controlled EB and WB directions.	Four leg intersection. Tim Hortons on east side. Confirm turning lanes and capacity. Likely a video count
9	Hillside St / 10 Av N	Stop controlled EB/WB direction Busy school area, actuated ped crossing	Ped count to be noted, close to elementary school Video count see note about location 1 and 2, should be collected the same day
10	Cook St / 15 Av S	3-Way Intersection, Stop control SB.	Ped Crossings, so ped count and collect E/W Cook Street volumes for all modes Video Count. Measurements to be taken of roadwidth for Cook St and 15 Av S



Appendix A provides the Creston Traffic Count Map that lays out all the counts collected over the last 10 years, and it also shows the planned locations for our upcoming data collection in August 2021. Typically, older traffic counts can be used and factored. Reviewing the map we see some 2021 proposed locations that were also collected in 2016, this can likely be used to determine a growth factor to adjust other counts collected.

3.0 AUTOMATIC COUNTS (SPEED AND VOLUME)

3.1 APPROACH

We have allocated budget for 8 automatic count locations in total. **Table 2** provides additional detail on the proposed locations. At each location, pneumatic tubes will be set up to collect 24 hours of volume and speed data. The data will be downloaded and summarized in the office.

For each location, we are proposing one 24 hour count, to occur either Tuesday, Wednesday, or Thursday during the week of August 16, 2021. The data collection times are:

- 24 hour period from **7:00 AM - 7:00AM(next day)**

TABLE 2. PROPOSED LOCATIONS

	Street Name	Segment Description	Notes
1	10 Av N	Between Alder St and Hillside St	Response to a speeding concern provided by the Town. 30km/h, close to Elementary School
2	10 Av N	Between Ibbitson St and Scott St	Response to a speeding concern provided by the Town. 30km/h, proposed location is at bottom of hill closer toward Scott St



3	16 Av S	Between Birch St and Erickson St	Response to speeding concern provided by the Town. Proposed location close to Creston Valley Public Library
4	16 Av S	Between Cedar St and Dogwood St	Response to speeding concern provided by the Town. Proposed location close to Millennium Park
5	20 Av N	Just south of Vancouver St	Initial concern with shortcutting from highway. Speed and volume at the top of the hill, just south of Vancouver Street. No sidewalks either side.
6	Canyon St	Between 2 Av S and 4 Av N	Speed and volume at the bottom of this hill, main connection between Highways. No sidewalk, either side
7	Valleyview Dr	Just west of Hawkview Dr	Speed and Volume on Valleyview Drive just west of Hawkview Drive
8	Erickson Rd	Between cross-walk and Centennial Park	Speeds approaching cross-walk and Centennial Park. Speed and Volume + Truck traffic. MoTI roadway. No sidewalks, potentially shoulder bike lane, please confirm

Photos will be taken at each location and roadway measurements. A backup location has been chosen to be at Crawford Road, in the case one location does not allow for the tubes to be set up.

4.0 BIKE ROUTES

4.1 APPROACH

A data sharing request is required to be undertaken by the Town with [Strava Metro](#). The Town should fill this application form out to become a Strava Metro partner. This is free of charge for the Town. Once approved, the Town can grant access to WATT. Failing this, we have reviewed the Strava Heat Map, and have identified a couple of key routes that could likely be targeted with one of the remaining intersection counts.



They include the E/W portion of Hillside Street between 10th Avenue N and 16th Avenue N and Erickson Road between Highway 21 and 25 Avenue S.

During the week of August 16-21, 2021 we will have one staff member conduct a three-hour tour of key routes to be agreed upon with the Town. This tour will also include taking measurements(as required), photos, and noting observations.

5.0 TRANSIT DATA

5.1 APPROACH

BC Transit has provided annual and monthly Transit performance data and we will summarize this data and determine trends both monthly and annually.

We typically analyze ridership data at the route, trip, and stop level and review on-board ridership counts. During the week of August 16-21, 2021, we will visit the Towns 16 identified bus stops and log the amenities at each location such as (signage, shelters, benches, receptacles, accessible ramps and sidewalk location) and provide a breakdown at each of these locations.

TABLE 3. TRANSIT AMENITIES

stopid	stopname	stopsite	Amenities (Y/N)						Photo Taken (Y/N)
			Bus Stop Signage	Garbage Can	Shelter	Bench	Accessible with curb letdown	Sidewalk connection	
162002	Cavell St at 7th Ave N (WB)	WB_Cavell St_FS_7th Ave N							
162003	10th Ave N at Scott St (SB)	SB_10th Ave N_NS_Scott St							
162004	10th Ave N at Alder St (SB)	SB_10th Ave N_NS_Alder St							
162005	10th Ave N at Hillside St (SB)	SB_10th Ave N_NS_Hillside St							
162006	11th Ave N at Canyon St (SB)	SB_11th Ave N_NS_Canyon St							
162007	11th Ave N at Canyon St (NB)	NB_11th Ave N_FS_Canyon St							
162008	Cook St at 12th Ave S (EB)	EB_Cook St_FS_12th Ave S							
162009	15th Ave N at Vancouver St (NB)	NB_15th Ave N_FS_Vancouver St							
162010	Hillside St at 16th Ave N (EB)	EB_Hillside St_FS_16th Ave N							
162011	20th Ave N at Vancouver St (SB)	SB_20th Ave N_NS_Vancouver St							
162012	16th Ave S at Cook St (SB)	SB_16th Ave S_FS_Cook St							
162013	16th Ave S at Birch St (SB)	SB_16th Ave S_FS_Birch St							
162014	18th Ave S at Birch St (SB)	SB_18th Ave S_FS_Birch St							
162015	20th Ave S at Birch St (NB)	NB_20th Ave S_NS_Birch St							
162016	Erickson St at 20th Ave (WB)	WB_Erickson St_FS_20th Ave							
162017	Hillside St at 15th Ave N (WB)	WB_Hillside St_FS_15th Ave N							



6.0 PARKING DATA COLLECTION

6.1 APPROACH

We will support the Town and their bylaw students in the preparation and collection of the parking data.

We have allotted two weekday and one weekend day for parking data collection. At this time, counts are anticipated to be collected in one-hour intervals, but we may adjust this interval based on the final parking inventory.

The data collection times are for all three collection days will be:

- 8 Hours - **8:30 AM - 4:30PM**

The 2021 study area was confirmed with the Town on July 27, 2021. There appear to be several on-street parking changes after reviewing the street long lines shapefile, so we recommend refreshing the inventory to have the most up-to-date information.

Please see **Appendix B** for the Parking Data Collection Form Maps.

- We have provided a spreadsheet form for the students to create an inventory of all parking spaces in the study area. We will record the following information for each parking space:
 - Street or parking lot location
 - Segment location (for on-street parking only)
 - Use restriction (e.g., parking, loading, etc.)
 - Vehicle restriction (e.g., accessible parking)
 - Time restriction (e.g., two-hour parking limit)
 - Payment (i.e., is paid parking in effect for this space?)
- The students will also use the provided map to indicate the location of each on-street parking space.
- At least one student should be on-site to walk through the study area. We estimate approximately 1 to 1.5 hours to complete the inventory.

Once the inventory is confirmed, the count sheets are reflective of the following additional data being collected:

- Out-of-province vehicles – (i.e., a non-BC-issued license plate)
- Origin-destination (primary place of residence) – We will be recording the full license plate to estimate parking duration. In addition, if desired by the Town at a



later date*, that data could be provided to ICBC for them to provide the postal code of the insured driver's place of residence.

- Compliant vehicles – Are there additional cases of non-compliance outside of exceeding the parking duration limit that we should track?

** Upon confirmation from ICBC, this location data could be displayed on a map showing where people are driving from. Additional costs are associated for sending the data to ICBC and the cost for this analysis.*



APPENDIX A – CRESTON TRAFFIC COUNT MAP



Creston Data Collection Map

Legend

Intersection Count Data

- 2021
- 2020
- 2015
- 2016
- 2017
- Pre 2015

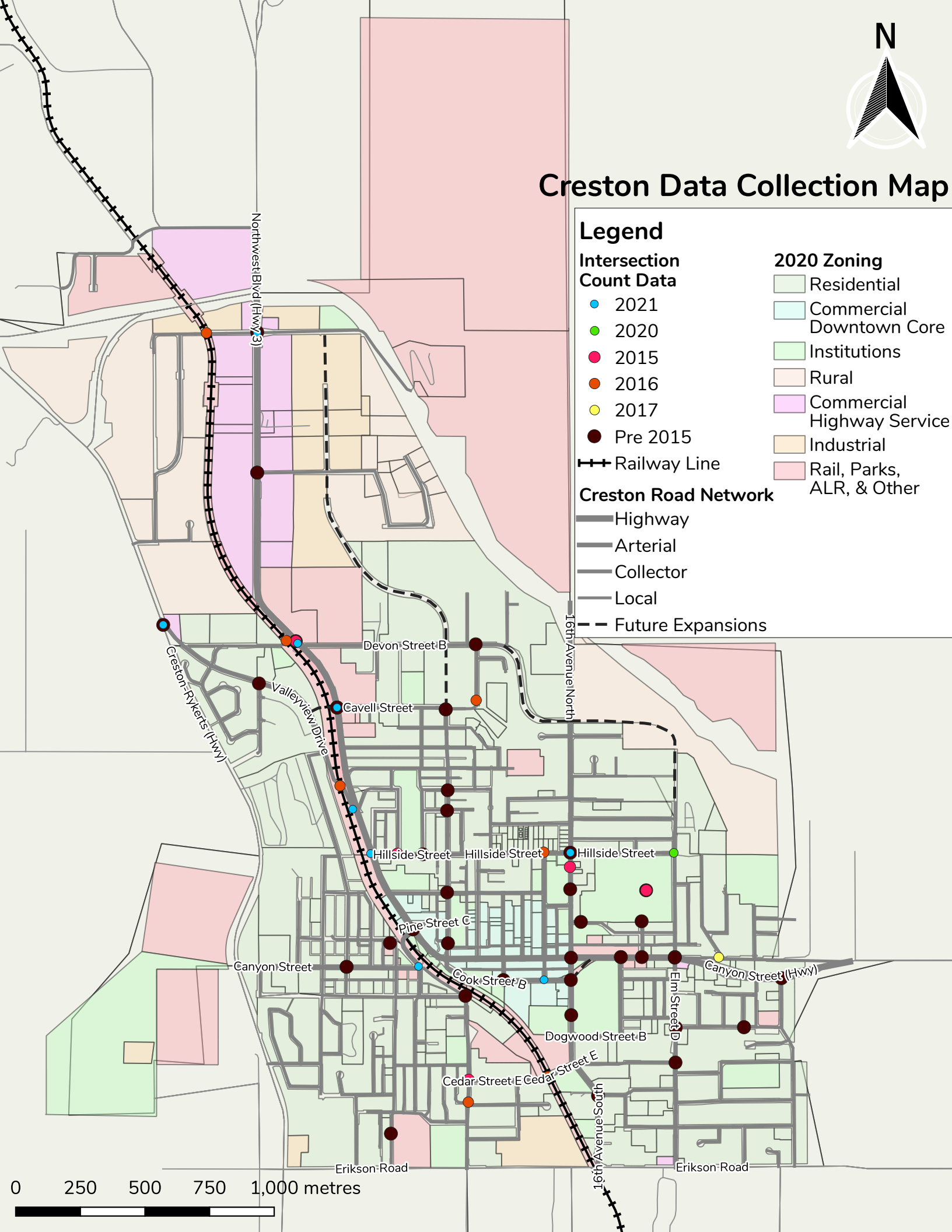
--- Railway Line

Creston Road Network

- Highway
- Arterial
- Collector
- Local
- - - Future Expansions

2020 Zoning

- Residential
- Commercial Downtown Core
- Institutions
- Rural
- Commercial Highway Service
- Industrial
- Rail, Parks, ALR, & Other



0 250 500 750 1,000 metres





APPENDIX B: PARKING DATA COLLECTION FORMS & MAPS



Data Collection Reference Guide

Client: Town of Creston
Project: Multi-Modal Transportation Plan

1. PURPOSE

We are measuring parking activity to understand how many vehicles are parking and how long they are parking at an on-street or off-street parking location. This document is a reference guide and provides instructions on how to conduct parking observations.

2. CONTACT

If you have questions while conducting the observations, or if there is an emergency and you require assistance, please contact the designated contact person.

Contact	Person #1
Name	Victor Ngo, Transportation Planner
Phone	778-980-6520
Email	VNgo@wattconsultinggroup.com

3. SCHEDULE

Date	Shifts	Observation Rounds
Tuesday, August 17, 2021	9:00 a.m. to 5:00 p.m. First round: 9:00 a.m. to 9:00 a.m. Last round: 4:00 p.m. to 5:00 p.m.	8
Thursday, August 19, 2021	9:00 a.m. to 5:00 p.m. First round: 9:00 a.m. to 9:00 a.m. Last round: 4:00 p.m. to 5:00 p.m.	8
Saturday, August 21, 2021 or Saturday, August 28, 2021	9:00 a.m. to 5:00 p.m. First round: 9:00 a.m. to 9:00 a.m. Last round: 4:00 p.m. to 5:00 p.m.	8

4. BACKGROUND

1. Each day will consist of eight hours of data collection with a maximum one-hour break allotted. Please coordinate between the other data collectors to ensure you take your lunch break at the same time to ensure consistency between the parking observations.
2. Parking observations will occur once every hour (“observation round”) for your assigned zone in the study area. Your data collection form will show the location of each parking space, located either on-street or off-street (e.g., surface parking lot), and the information you are required to record about the parking activity.
3. Dress for the weather and bring sunscreen & water to stay comfortable throughout the day.
4. If a person approaches you inquiring what you are doing, let them know you are collecting data for a study being conducted by the Town of Creston. You are not writing bylaw tickets or using the license plates for personal use. If you do not feel comfortable or are unable to respond, provide them the contact person’s information.



5. INSTRUCTIONS

5.2. Using the Data Collection Form

Each parking space has been assigned an identification number; refer to the map to ensure you are counting the correct one. You will record the following information on your data collection form for your assigned zone:

1. License Plate—the license plate of the parked vehicle:

- a. If the parking space is occupied by a vehicle (e.g., car, truck, van, motorcycle), record all digits of the license plate. Add an asterisk if the plate is out-of-province.

	British Columbia Plates	Out-of-Province Plates
What you see:		
What you record:	CF3 46E	*BTW 8688

- b. When a vehicle has been recorded to be occupying a parking space during one round and the same vehicle is present during the immediate subsequent round(s), use a “√” to indicate this to avoid rewriting the entire license plate.
- c. If a parking space is not occupied, or a previously occupied vehicle has left the parking space, use a “X” to indicate this. If a new vehicle is present, record the new plate.

5.2. Data Collection Procedures

Using the Form

1. Indicate the cross-street where you start and end recording the parking activity.
 - a. It is recommended you record parking activity on the same side of the street before moving onto the other side of the street. The form has been set-up to reflect this due to the location of where you record the cross-street in the middle of the form when you switch sides of the street.
 - b. If you find it easier to record both sides of the street simultaneously (e.g., you can see the license plate on the other side of the road), you will just need to scroll up and down the form to ensure the activity is recorded in the correct place.
2. Indicate clearly on the sheet if you are unable to record information for whatever reason. It is important that we can distinguish between: (1) a parking space that is not occupied; and (2) you were unable to record that parking space for a particular round for whatever reason.
3. An empty row is provided between each parking space to provide you buffer room and flexibility for recording parking activity as not all vehicles will park neatly at a location.
4. Feel free to use different notations for recording information (e.g., “√”, “X”). However, please ensure you provide instructions on how to interpret your form.
5. For some fields (e.g., vehicle or time restriction), you don't necessarily need to fill in all the information as you complete your observations as long as you keep track and remember to complete it during downtime or at the end of the day. For example, if all the parking spaces have a two-hour time limit and there is only one 15-minute space, it will be easier to only indicate which space is the 15-minute space and fill in the two-hour limit later.

Conducting the Observations

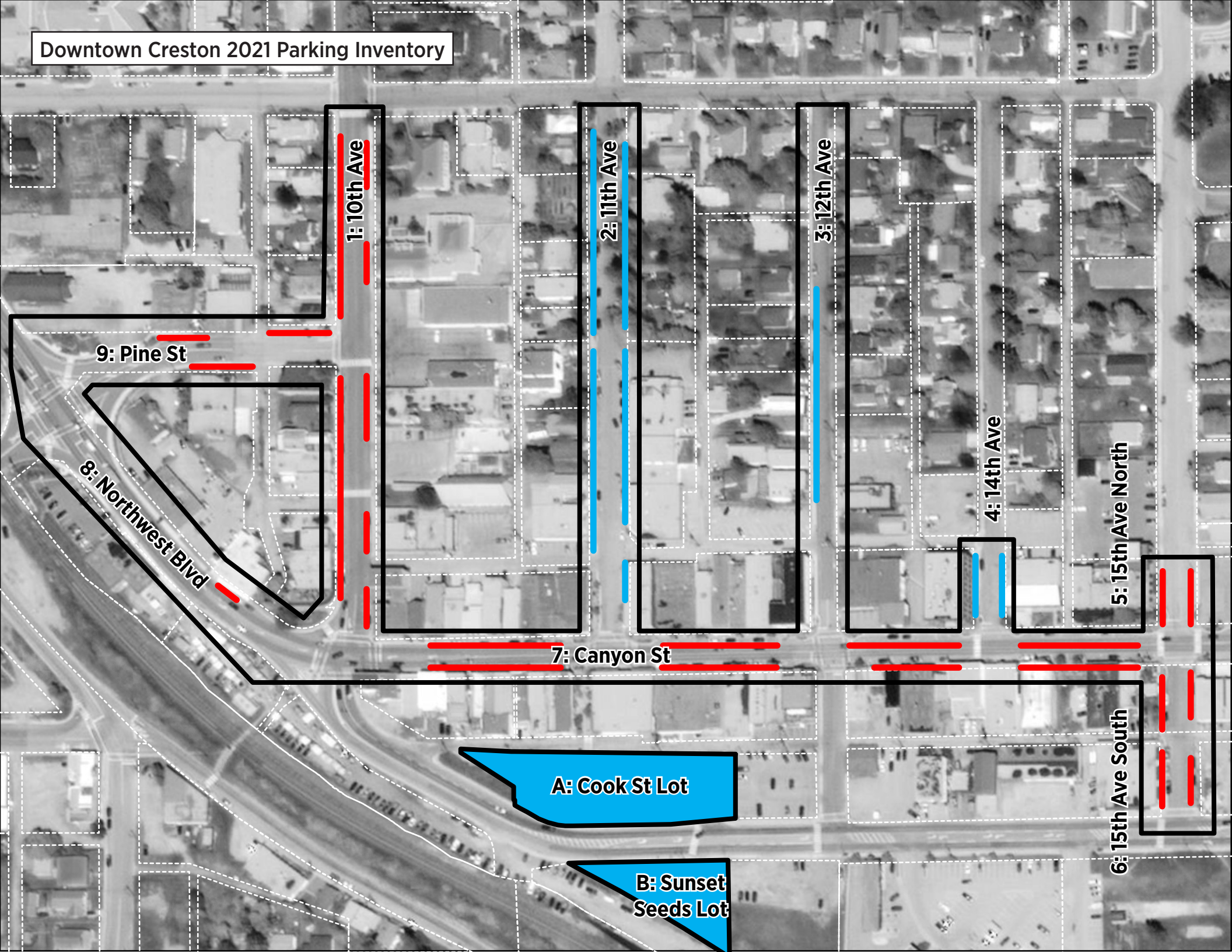
6. Be consistent with the order that you record the parking space activity for each observation round. Always start your round at the first parking space you counted (i.e., do not change where you start for each round).
7. Depending on your pace of walking/cycling/driving and the number of vehicles in the area, you may not need the entire hour to complete an observation round. If you finish early, feel free to do whatever you want but ensure you are ready to begin promptly for the next round.
8. The first couple of observations rounds may take over an hour. This is OK—please do not rush as the subsequent rounds will be quicker. Please notify the contact person if you are consistently taking over an hour. If this is the case, the contact person may instruct you to prioritize certain parking spaces or the type of information to record.

9. If you identify a parking space that meets the following conditions:
 - a. The parking space has not been captured in the inventory or is no longer there, please indicate the location of these spaces on the form and on the map.
 - b. The parking space is normally available, but unavailable for whatever reason during the day of data collection (e.g., temporary construction has closed off access to the space), please identify the location of these spaces on the form.
10. Some vehicles may be parked illegally; make a note and continue to record these vehicles.

Lunch Break

11. It is recommended you take your lunch break immediately after you have completed an observation round to minimize disrupting the parking observations.
12. For example, if you plan to take a 30-minute break around noon, finish your observations for “11:00 a.m. to 12:00 p.m.”, take your break, and resume part-way for the “12:00 p.m. to 1:00 p.m.” round (e.g., at 12:30 p.m.).
 - a. Ideally you would be able to complete the “12:00 p.m. to 1:00 p.m.” round within the remaining time left so we have a complete set of parking activity for the entire day, but this may not always be possible. If so, indicate clearly which spaces you were able to record and not record.
 - b. Remember to start at the very beginning again (i.e., the first parking space) for the “1:00 p.m. to 2:00 p.m.” round.

Downtown Creston 2021 Parking Inventory



1: 10th Ave

2: 11th Ave

3: 12th Ave

4: 14th Ave

5: 15th Ave North

9: Pine St

8: Northwest Blvd

7: Canyon St

A: Cook St Lot

B: Sunset Seeds Lot

6: 15th Ave South



APPENDIX B: INTERSECTION ANALYSIS REPORTS



SYNCHRO MODELLING SOFTWARE DESCRIPTION

The traffic analysis was completed using Synchro and SimTraffic traffic modeling software. Results were measured in delay, level of service (LOS) and 95th percentile queue length. Synchro is based on the Highway Capacity Manual (HCM) methodology. SimTraffic integrates established driver behaviours and characteristics to simulate actual conditions by randomly “seeding” or positioning vehicles travelling throughout the network. The simulation is run five times (five different random seedings of vehicle types, behaviours and arrivals) to obtain statistical significance of the results.

Levels of Service

Traffic operations are typically described in terms of levels of service, which rates the amount of delay per vehicle for each movement and the entire intersection. Levels of service range from LOS A (representing best operations) to LOS E / F (LOS E being poor operations and LOS F being unpredictable / disruptive operations). LOS E / F are generally unacceptable levels of service under normal everyday conditions.

The hierarchy of criteria for grading an intersection or movement not only includes delay times, but also takes into account traffic control type (stop signs or traffic signal). For example, if a vehicle is delayed for 19 seconds at an unsignalized intersection, it is considered to have an average operation, and would therefore be graded as an LOS C. However, at a signalized intersection, a 19 second delay would be considered a good operation and therefore it would be given an LOS B. The table below indicates the range of delay for LOS for signalized and unsignalized intersections.

Table A1: LOS Criteria, by Intersection Traffic Control

Level of Service	Unsignalized Intersection Average Vehicle Delay (sec/veh)	Signalized Intersection Average Vehicle Delay (sec/veh)
A	Less than 10	Less than 10
B	10 to 15	11 to 20
C	15 to 25	20 to 35
D	25 to 35	35 to 55
E	35 to 50	55 to 80
F	More than 50	More than 80

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕			↕	↕
Traffic Vol, veh/h	62	8	10	12	10	22	2	31	1	19	47	100
Future Vol, veh/h	62	8	10	12	10	22	2	31	1	19	47	100
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	5	2	6	2	2	2	2
Mvmt Flow	67	9	11	13	11	24	2	34	1	21	51	109
Number of Lanes	0	1	0	1	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	1
HCM Control Delay	8.9	7.8	8.4	7.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	6%	78%	100%	0%	29%	0%
Vol Thru, %	91%	10%	0%	31%	71%	0%
Vol Right, %	3%	12%	0%	69%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	34	80	12	32	66	100
LT Vol	2	62	12	0	19	0
Through Vol	31	8	0	10	47	0
RT Vol	1	10	0	22	0	100
Lane Flow Rate	37	87	13	35	72	109
Geometry Grp	6	6	7	7	7	7
Degree of Util (X)	0.052	0.125	0.02	0.045	0.101	0.127
Departure Headway (Hd)	5.073	5.174	5.63	4.644	5.064	4.217
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	708	695	637	773	710	852
Service Time	3.091	3.192	3.35	2.364	2.777	1.93
HCM Lane V/C Ratio	0.052	0.125	0.02	0.045	0.101	0.128
HCM Control Delay	8.4	8.9	8.5	7.6	8.3	7.5
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.2	0.4	0.1	0.1	0.3	0.4

Intersection						
Int Delay, s/veh	2.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘↗		↑	↗	↘	↑
Traffic Vol, veh/h	69	30	455	82	56	389
Future Vol, veh/h	69	30	455	82	56	389
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	1400	550	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	3	2	2	3
Mvmt Flow	75	33	495	89	61	423

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1041	496	0	0	585	0
Stage 1	496	-	-	-	-	-
Stage 2	545	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	255	574	-	-	990	-
Stage 1	612	-	-	-	-	-
Stage 2	581	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	239	574	-	-	989	-
Mov Cap-2 Maneuver	239	-	-	-	-	-
Stage 1	611	-	-	-	-	-
Stage 2	545	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.6	0	1.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	290	989
HCM Lane V/C Ratio	-	-	0.371	0.062
HCM Control Delay (s)	-	-	24.6	8.9
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	1.6	0.2

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	42	266	192	23	23	32
Future Vol, veh/h	42	266	192	23	23	32
Conflicting Peds, #/hr	8	0	0	8	11	18
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	3	2	2	2	2
Mvmt Flow	46	289	209	25	25	35

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	242	0	-	0	622 248
Stage 1	-	-	-	-	230 -
Stage 2	-	-	-	-	392 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1324	-	-	-	450 791
Stage 1	-	-	-	-	808 -
Stage 2	-	-	-	-	683 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1315	-	-	-	428 774
Mov Cap-2 Maneuver	-	-	-	-	428 -
Stage 1	-	-	-	-	774 -
Stage 2	-	-	-	-	678 -

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1315	-	-	-	578
HCM Lane V/C Ratio	0.035	-	-	-	0.103
HCM Control Delay (s)	7.8	-	-	-	11.9
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T	T	T	T
Traffic Vol, veh/h	18	14	520	26	11	479
Future Vol, veh/h	18	14	520	26	11	479
Conflicting Peds, #/hr	0	0	0	25	25	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	2	4	2	9	3
Mvmt Flow	20	15	565	28	12	521

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1149	604	0	0	618	0
Stage 1	604	-	-	-	-	-
Stage 2	545	-	-	-	-	-
Critical Hdwy	6.46	6.22	-	-	4.19	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.318	-	-	2.281	-
Pot Cap-1 Maneuver	215	498	-	-	929	-
Stage 1	538	-	-	-	-	-
Stage 2	573	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	206	487	-	-	909	-
Mov Cap-2 Maneuver	206	-	-	-	-	-
Stage 1	527	-	-	-	-	-
Stage 2	562	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.9	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	276	909
HCM Lane V/C Ratio	-	-	0.126	0.013
HCM Control Delay (s)	-	-	19.9	9
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.4	0

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	14	18	519	478	10
Future Vol, veh/h	6	14	18	519	478	10
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	350	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	3	2
Mvmt Flow	7	15	20	564	520	11

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1131	527	532	0	-	0
Stage 1	527	-	-	-	-	-
Stage 2	604	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	225	551	1036	-	-	-
Stage 1	592	-	-	-	-	-
Stage 2	546	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	220	551	1035	-	-	-
Mov Cap-2 Maneuver	220	-	-	-	-	-
Stage 1	580	-	-	-	-	-
Stage 2	545	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1035	-	380	-	-
HCM Lane V/C Ratio	0.019	-	0.057	-	-
HCM Control Delay (s)	8.5	-	15	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕		↕	↕	
Traffic Vol, veh/h	7	2	12	72	1	47	18	251	72	32	251	6
Future Vol, veh/h	7	2	12	72	1	47	18	251	72	32	251	6
Conflicting Peds, #/hr	0	0	0	0	0	0	2	0	0	0	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	250	500	-	-	350	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	14	2	8	2	2	4	2	4	7	9	8	2
Mvmt Flow	8	2	13	78	1	51	20	273	78	35	273	7

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	727	740	279	706	704	312	282	0	0	351	0	0
Stage 1	349	349	-	352	352	-	-	-	-	-	-	-
Stage 2	378	391	-	354	352	-	-	-	-	-	-	-
Critical Hdwy	7.24	6.52	6.28	7.12	6.52	6.24	4.12	-	-	4.19	-	-
Critical Hdwy Stg 1	6.24	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.24	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.626	4.018	3.372	3.518	4.018	3.336	2.218	-	-	2.281	-	-
Pot Cap-1 Maneuver	325	345	746	351	361	724	1280	-	-	1170	-	-
Stage 1	643	633	-	665	632	-	-	-	-	-	-	-
Stage 2	620	607	-	663	632	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	291	329	745	331	344	724	1278	-	-	1170	-	-
Mov Cap-2 Maneuver	291	329	-	331	344	-	-	-	-	-	-	-
Stage 1	632	613	-	654	622	-	-	-	-	-	-	-
Stage 2	566	597	-	630	612	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	13.3		15.8		0.4		0.9	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1278	-	-	454	331	724	1170	-	-
HCM Lane V/C Ratio	0.015	-	-	0.05	0.24	0.071	0.03	-	-
HCM Control Delay (s)	7.9	-	-	13.3	19.3	10.4	8.2	-	-
HCM Lane LOS	A	-	-	B	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.9	0.2	0.1	-	-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Traffic Vol, veh/h	3	53	41	1	1	0
Future Vol, veh/h	3	53	41	1	1	0
Conflicting Peds, #/hr	1	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	58	45	1	1	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	47	0	-	0	111 47
Stage 1	-	-	-	-	47 -
Stage 2	-	-	-	-	64 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1560	-	-	-	886 1022
Stage 1	-	-	-	-	975 -
Stage 2	-	-	-	-	959 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1559	-	-	-	882 1021
Mov Cap-2 Maneuver	-	-	-	-	882 -
Stage 1	-	-	-	-	972 -
Stage 2	-	-	-	-	958 -

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1559	-	-	-	882
HCM Lane V/C Ratio	0.002	-	-	-	0.001
HCM Control Delay (s)	7.3	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection												
Int Delay, s/veh	5.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	37	15	14	26	21	10	33	12	26	51	3
Future Vol, veh/h	4	37	15	14	26	21	10	33	12	26	51	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	5	5	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	3	2	2	4	2
Mvmt Flow	4	40	16	15	28	23	11	36	13	28	55	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	203	189	57	211	184	48	58	0	0	54	0	0
Stage 1	113	113	-	70	70	-	-	-	-	-	-	-
Stage 2	90	76	-	141	114	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	755	706	1009	746	710	1021	1546	-	-	1551	-	-
Stage 1	892	802	-	940	837	-	-	-	-	-	-	-
Stage 2	917	832	-	862	801	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	701	685	1009	684	689	1017	1546	-	-	1544	-	-
Mov Cap-2 Maneuver	701	685	-	684	689	-	-	-	-	-	-	-
Stage 1	886	787	-	930	828	-	-	-	-	-	-	-
Stage 2	860	823	-	789	786	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.2		10.1		1.3		2.4	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1546	-	-	751	774	1544	-	-
HCM Lane V/C Ratio	0.007	-	-	0.081	0.086	0.018	-	-
HCM Control Delay (s)	7.3	0	-	10.2	10.1	7.4	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.3	0.1	-	-

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔			↔			↔	
Traffic Vol, veh/h	21	17	26	5	11	0	26	29	11	0	35	16
Future Vol, veh/h	21	17	26	5	11	0	26	29	11	0	35	16
Conflicting Peds, #/hr	0	0	0	0	0	0	5	0	0	0	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	250	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	2	4	2	2	2	3	2
Mvmt Flow	23	18	28	5	12	0	28	32	12	0	38	17

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	152	152	52	164	154	38	60	0	0	44	0	0
Stage 1	52	52	-	94	94	-	-	-	-	-	-	-
Stage 2	100	100	-	70	60	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.24	7.12	6.52	6.22	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.336	3.518	4.018	3.318	2.236	-	-	2.218	-	-
Pot Cap-1 Maneuver	815	740	1010	801	738	1034	1531	-	-	1564	-	-
Stage 1	961	852	-	913	817	-	-	-	-	-	-	-
Stage 2	906	812	-	940	845	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	790	723	1006	752	721	1034	1525	-	-	1564	-	-
Mov Cap-2 Maneuver	790	723	-	752	721	-	-	-	-	-	-	-
Stage 1	939	849	-	896	801	-	-	-	-	-	-	-
Stage 2	876	797	-	894	842	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.5	10.1	2.9	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1525	-	-	759	1006	730	1564	-	-
HCM Lane V/C Ratio	0.019	-	-	0.054	0.028	0.024	-	-	-
HCM Control Delay (s)	7.4	0	-	10	8.7	10.1	0	-	-
HCM Lane LOS	A	A	-	B	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.1	0.1	0	-	-

Intersection						
Int Delay, s/veh	0.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	37	460	12	44	460
Future Vol, veh/h	5	37	460	12	44	460
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	400	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	3
Mvmt Flow	5	40	500	13	48	500

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1104	508	0	0	514
Stage 1	508	-	-	-	-
Stage 2	596	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	234	565	-	-	1052
Stage 1	604	-	-	-	-
Stage 2	550	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	223	565	-	-	1051
Mov Cap-2 Maneuver	223	-	-	-	-
Stage 1	603	-	-	-	-
Stage 2	525	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.3	0	0.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	478	1051
HCM Lane V/C Ratio	-	-	0.096	0.046
HCM Control Delay (s)	-	-	13.3	8.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1

Intersection						
Int Delay, s/veh	3.6					
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	88	20	51	100	32	53
Future Vol, veh/h	88	20	51	100	32	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	2	6	8	3	2
Mvmt Flow	96	22	55	109	35	58

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	118	0	326	107
Stage 1	-	-	-	-	107	-
Stage 2	-	-	-	-	219	-
Critical Hdwy	-	-	4.16	-	6.43	6.22
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.254	-	3.527	3.318
Pot Cap-1 Maneuver	-	-	1446	-	666	947
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	815	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1446	-	639	947
Mov Cap-2 Maneuver	-	-	-	-	639	-
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	782	-

Approach	NB	SB	NW
HCM Control Delay, s	0	2.6	10.1
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NBRNWLn1	SBL	SBT
Capacity (veh/h)	-	-	802	1446
HCM Lane V/C Ratio	-	-	0.115	0.038
HCM Control Delay (s)	-	-	10.1	7.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1

Intersection										
Int Delay, s/veh	0.8									
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER	SWL	SWR
Lane Configurations										
Traffic Vol, veh/h	37	475	1	1	459	0	0	33	1	0
Future Vol, veh/h	37	475	1	1	459	0	0	33	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	2	2	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None	-	-
Storage Length	400	-	-	-	-	-	0	-	0	-
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-
Grade, %	-	0	-	-	0	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	3	2	2	3	2	2	2	2	2
Mvmt Flow	40	516	1	1	499	0	0	36	1	0

Major/Minor	Major1	Major2	Minor2	Minor1
Conflicting Flow All	499	0	0	517
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.12	-	-	4.12
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.218	-	-	2.218
Pot Cap-1 Maneuver	1065	-	-	1049
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1065	-	-	1049
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	NB	SB	SE	SW
HCM Control Delay, s	0.6	0	11.8	26.7
HCM LOS			B	D

Minor Lane/Major Mvmt	NBL	NBT	NBR	SELn1	SBL	SBT	SWLn1
Capacity (veh/h)	1065	-	-	569	1049	-	167
HCM Lane V/C Ratio	0.038	-	-	0.063	0.001	-	0.007
HCM Control Delay (s)	8.5	-	-	11.8	8.4	0	26.7
HCM Lane LOS	A	-	-	B	A	A	D
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0	-	0

Intersection Turning Movement Count Summary

N/S Street: 9 Ave N
 E/W Street: Canyon St
 LOCATION: Creston, BC
 DATE: Aug 18-21
 WEATHER: Partly Sun
 JOB #: 3065

Observer: BRIAN SOCH
 Notes: _____

TOTAL HOURS =

Speed Limit Major Street:	50 km/h
Speed Limit Minor Street:	50 km/h

Vehicles

TIME	From	To	Northbound			Southbound			Eastbound			Westbound			Total Volume	Hourly Volume	Pedestrians			
			LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT			N	S	E	W
	7:00	7:15	1	5		3	6	11	12				1	3	42		1			
	7:15	7:30		4		1	1	7	10	2				5	30		2			1
	7:30	7:45		5		5	3	15	21	2		1	1	6	59		4			
	7:45	8:00		3		4		7	15		1		3	3	36	167				
	8:00	8:15	1	5		2	2	8	25	1			1	9	54	179				2
	8:15	8:30		9	1	1	2	12	18	1			4	9	57	206				
	8:30	8:45		5		5	3	33	17	4		1	4	7	79	226				
	8:45	9:00		8		1	3	18	20	4			1	2	57	247				
Total			2	44	1	22	20	111	138	14	1	2	15	44			10	0	0	3
Peak Hour			1	27	1	9	10	71	80	10	0	1	10	27			3	0	0	2
PHF			0.25	0.75	0.25	0.45	0.83	0.54	0.80	0.63	0.00	0.25	0.63	0.75						

Heavy Vehicles

TIME	From	To	Northbound			Southbound			Eastbound			Westbound		
			LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
	7:00	7:15												
	7:15	7:30						1	1					
	7:30	7:45							1		1			
	7:45	8:00							1					
	8:00	8:15						2	1					
	8:15	8:30		1					1					
	8:30	8:45			1									
	8:45	9:00	1											
Total			1	1	1	0	0	5	4	0	1	0	0	0
Peak Hour			1	1	1	0	0	4	1	0	0	0	0	
% Heavy Vehicles			100%	4%	100%	0%	0%	6%	1%	0%	0%	0%	0%	

Bicycles

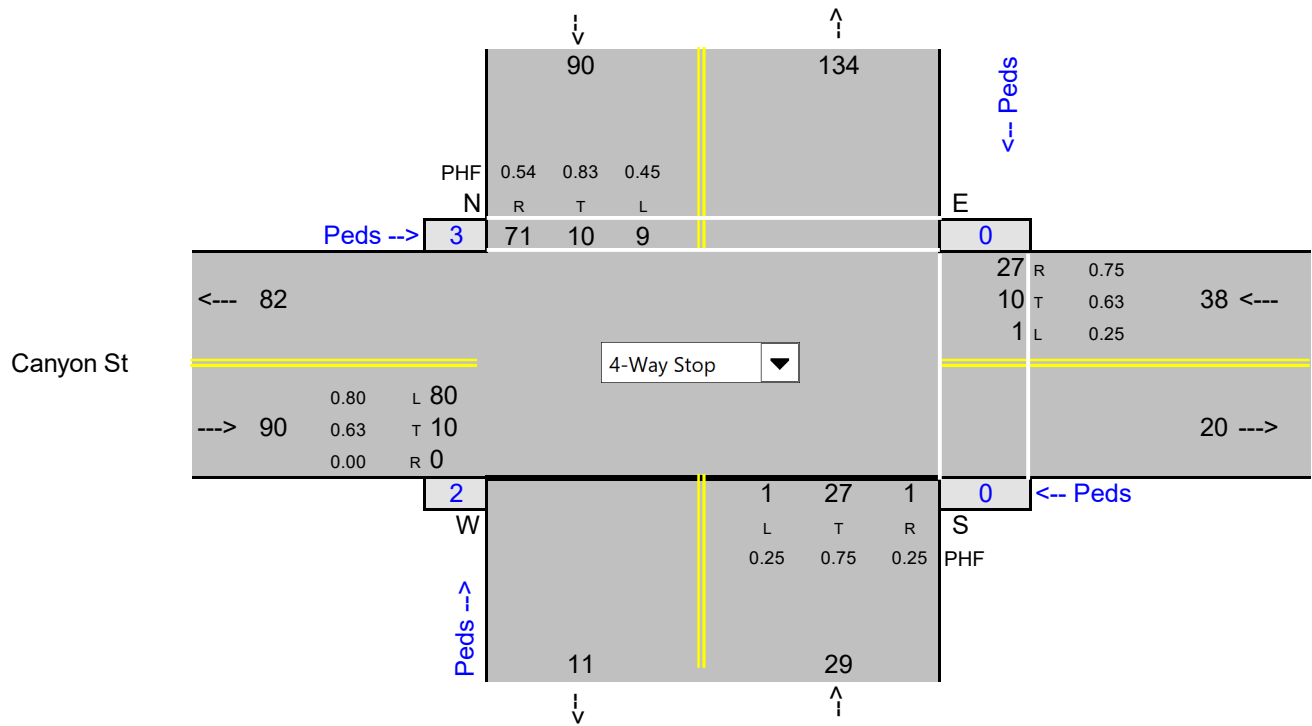
TIME	From	To	Northbound			Southbound			Eastbound			Westbound		
			LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
	7:00	7:15												
	7:15	7:30												
	7:30	7:45												
	7:45	8:00												
	8:00	8:15					1							
	8:15	8:30												
	8:30	8:45										2		
	8:45	9:00						1						
Total			0	0	0	0	1	1	0	0	0	2	0	0
Peak Hour			0	0	0	0	1	1	0	0	0	2	0	0

Peak Hour Volumes

Peak Hour Volumes

9 Ave N

7:00 AM to 9:00 AM



Intersection Turning Movement Count Summary

N/S Street: 9 Ave N
 E/W Street: Canyon Ave
 LOCATION: Creston, BC
 DATE: Aug 18-21
 WEATHER: Sun
 JOB #: 3065

Observer: BRIAN SOCH
 Notes: _____

TOTAL HOURS =

Speed Limit Major Street:	50 km/h
Speed Limit Minor Street:	50 km/h

Vehicles

TIME		Northbound			Southbound			Eastbound			Westbound			Total Volume	Hourly Volume	Pedestrians			
From	To	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT			N	S	E	W
3:00	3:15		11		5	14	35	22	5	3		2	9	106		2			1
3:15	3:30	2	5		5	14	26	22	1		1		7	83					
3:30	3:45		5		3	6	20	18	2	2		2	6	64					
3:45	4:00		10	1	6	13	19			5	11	6		71	324				
4:00	4:15		9		6	11	28	19	3		1	3	10	90	308				
4:15	4:30		5		3	12	22	23	1	1		1	7	75	300				
4:30	4:45		2		1	4	21	18	2	1	1	2	5	57	293				
4:45	5:00	2	6		6	8	26	17	2			2	9	78	300	2			
Total		4	53	1	35	82	197	139	16	12	14	18	53			4	0	0	1
Peak Hour		2	31	1	19	47	100	62	8	10	12	10	22			2	0	0	1
PHF		0.25	0.70	0.25	0.79	0.84	0.71	0.70	0.40	0.50	0.27	0.42	0.61						

Heavy Vehicles

TIME		Northbound			Southbound			Eastbound			Westbound		
From	To	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
3:00	3:15		1										
3:15	3:30												
3:30	3:45					1							
3:45	4:00		1					1					1
4:00	4:15					1							
4:15	4:30												
4:30	4:45												
4:45	5:00												
Total		0	2	0	0	2	0	1	0	0	0	0	1
Peak Hour		0	2	0	0	1	0	1	0	0	0	0	1
% Heavy Vehicles		0%	6%	0%	0%	2%	0%	2%	0%	0%	0%	0%	5%

Bicycles

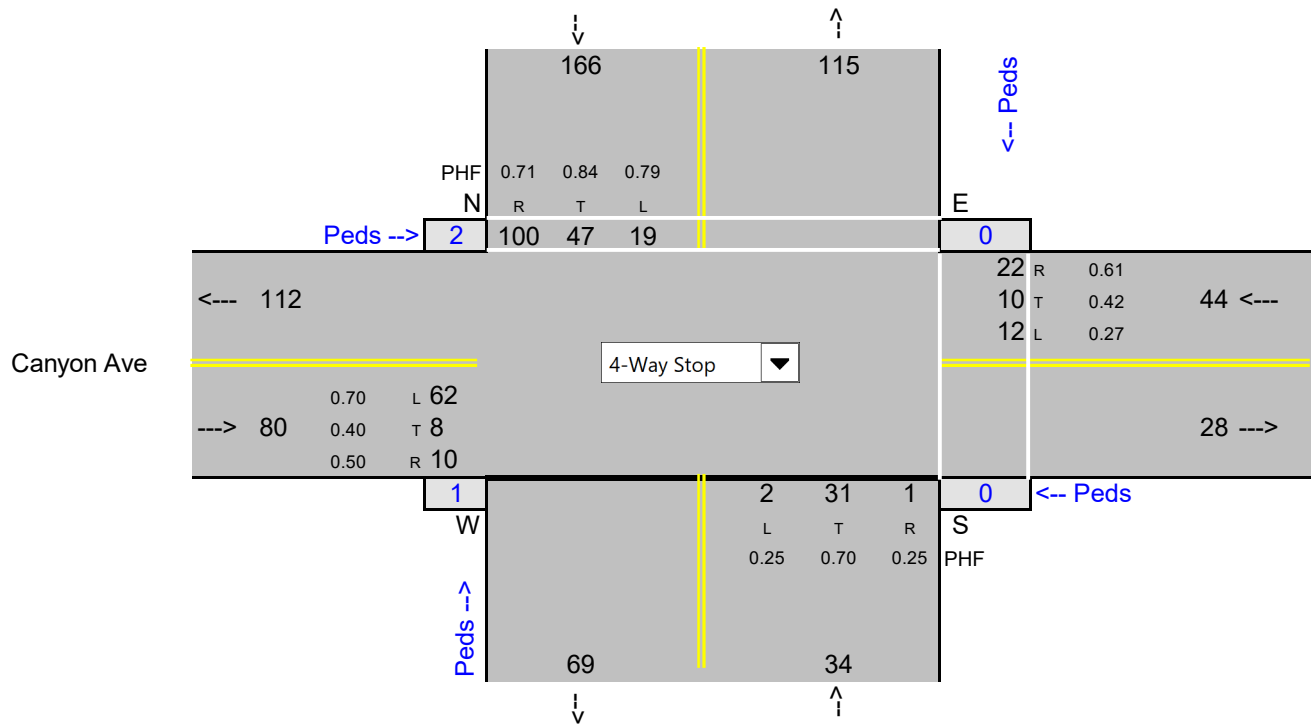
TIME		Northbound			Southbound			Eastbound			Westbound		
From	To	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
3:00	3:15		2										
3:15	3:30				1								
3:30	3:45						2						1
3:45	4:00												
4:00	4:15												
4:15	4:30												
4:30	4:45												
4:45	5:00												
Total		0	2	0	1	0	2	0	0	0	0	0	1
Peak Hour		0	2	0	1	0	2	0	0	0	0	0	1

Peak Hour Volumes

Peak Hour Volumes

9 Ave N

3:00 PM to 5:00 PM



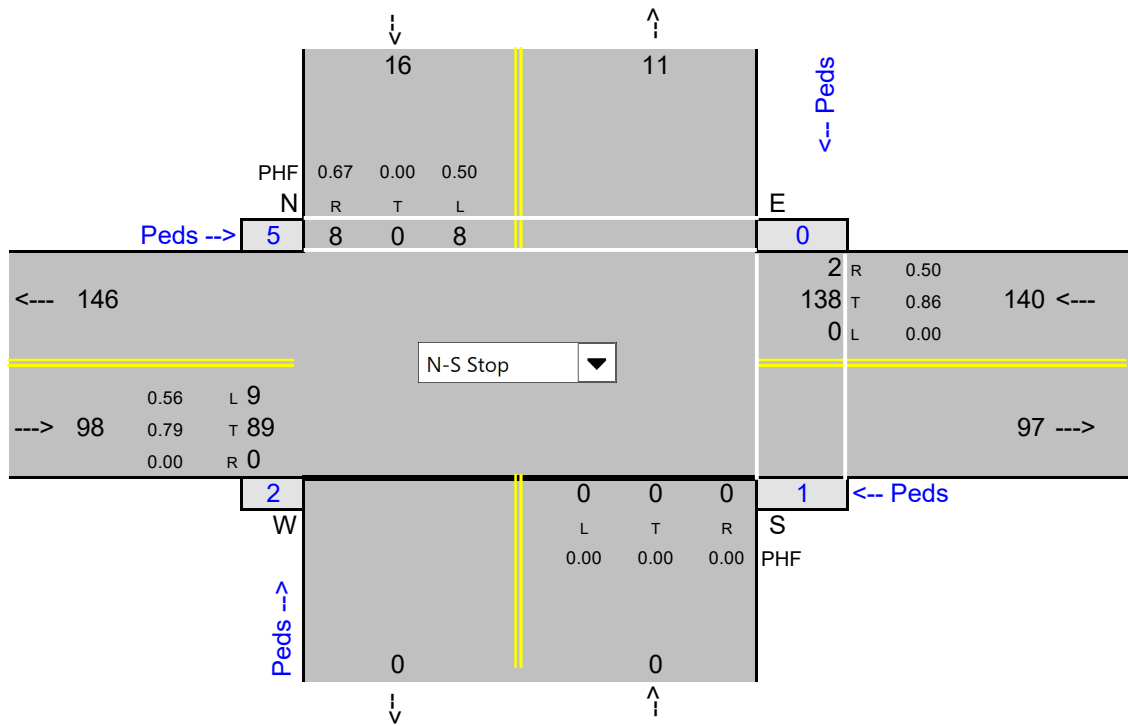
Peak Hour Volumes

Peak Hour Volumes

15 Ave S

7:00 AM to 9:00 AM

Cook St



Intersection Turning Movement Count Summary

N/S Street: 15 Ave S
 E/W Street: Cook St
 LOCATION: Creston, BC
 DATE: Aug 19-21
 WEATHER: Sun
 JOB #: 3065

Observer: BRIAN SOCH
 Notes: _____

TOTAL HOURS =

Speed Limit Major Street:	50 km/h
Speed Limit Minor Street:	50 km/h

Vehicles

TIME		Northbound			Southbound			Eastbound			Westbound			Total Volume	Hourly Volume	Pedestrians			
From	To	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT			N	S	E	W
3:00	3:15				5		6	5	56			40	3	115		4			8
3:15	3:30				5		10	10	55			46	7	133					4
3:30	3:45				2		8	14	49			49	2	124		1			1
3:45	4:00				3		4	10	59			50	4	130	502	6	3		8
4:00	4:15				9		3	10	56			48	5	131	518	1	6		2
4:15	4:30				3		10	14	52			35	3	117	502	1	1		6
4:30	4:45				6		11	9	91			69	10	196	574	5	3		7
4:45	5:00				5		8	9	67			40	5	134	578	1	1		3
Total		0	0	0	38	0	60	81	485	0	0	377	39			19	14	0	39
Peak Hour		0	0	0	23	0	32	42	266	0	0	192	23			8	11	0	18
PHF		0.00	0.00	0.00	0.64	0.00	0.73	0.75	0.73	0.00	0.00	0.70	0.58						

Heavy Vehicles

TIME		Northbound			Southbound			Eastbound			Westbound		
From	To	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
3:00	3:15								4			2	
3:15	3:30											1	
3:30	3:45												
3:45	4:00						1		2				1
4:00	4:15								2				
4:15	4:30								4				
4:30	4:45								1			3	
4:45	5:00								1			1	
Total		0	0	0	0	0	1	0	14	0	0	7	1
Peak Hour		0	0	0	0	0	0	0	8	0	0	4	0
% Heavy Vehicles		0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	2%	0%

Bicycles

TIME		Northbound			Southbound			Eastbound			Westbound		
From	To	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
3:00	3:15												
3:15	3:30								1			1	
3:30	3:45												
3:45	4:00												
4:00	4:15												
4:15	4:30				2				1				
4:30	4:45							1					
4:45	5:00												
Total		0	0	0	2	0	0	1	2	0	0	1	0
Peak Hour		0	0	0	2	0	0	1	1	0	0	0	0

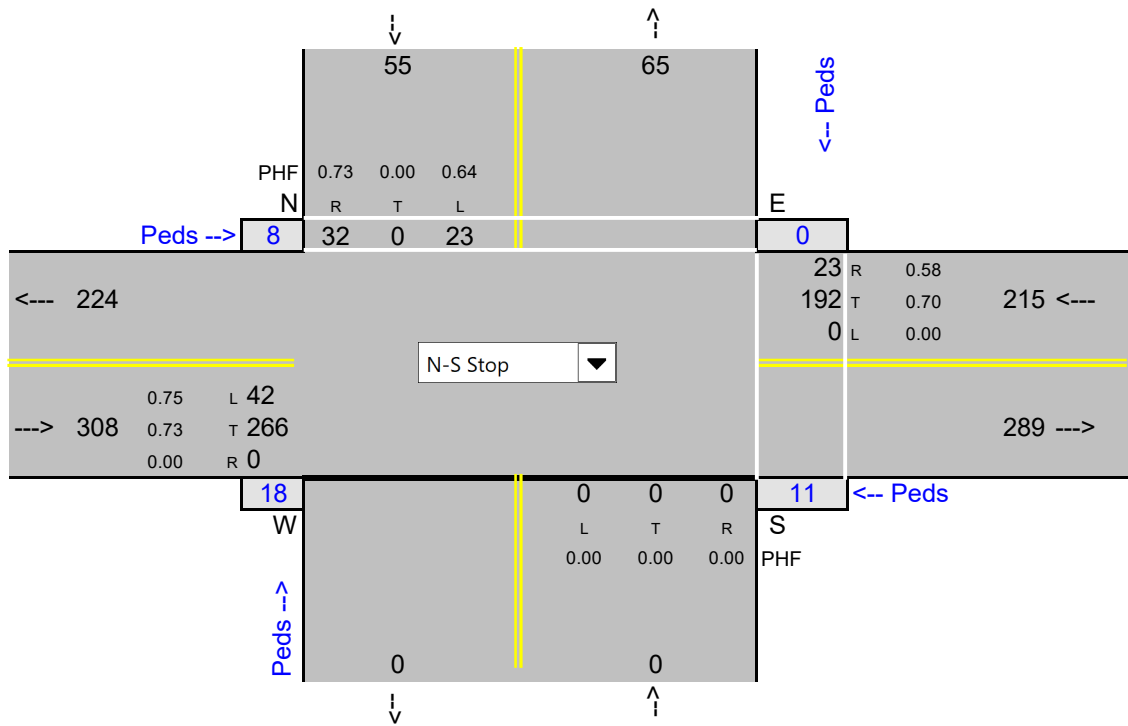
Peak Hour Volumes

Peak Hour Volumes

15 Ave S

3:00 PM to 5:00 PM

Cook St



Intersection Turning Movement Count Summary

N/S Street: Hwy 3
 E/W Street: Valleyview Dr
 LOCATION: Creston, BC
 DATE: Aug 17-21
 WEATHER: Cloudy
 JOB #: 3065

Observer: BRIAN SOCH
 Notes: _____

TOTAL HOURS =

Speed Limit Major Street:	60 km/h
Speed Limit Minor Street:	50 km/h

Vehicles

TIME		Northbound			Southbound			Eastbound			Westbound			Total Volume	Hourly Volume	Pedestrians			
From	To	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT			N	S	E	W
7:00	7:15	6	49	1		44	1			12		1		114		4		2	
7:15	7:30	8	64			52		2		7				133			2	3	
7:30	7:45	6	71	1		65	1	1		10			1	156				1	
7:45	8:00	3	58		1	50				8			1	121	524				
8:00	8:15	6	52			64				9				131	541				
8:15	8:30	5	64	1		79		3		11			2	165	573				
8:30	8:45	9	101			63		2		20		1	1	197	614				
8:45	9:00	11	95			87		1		14	1		2	211	704				1
Total		54	554	3	1	504	2	9	0	91	1	2	7			4	2	7	0
Peak Hour		31	312	1	0	293	0	6	0	54	1	1	5			0	0	1	0
PHF		0.70	0.77	0.25	0.00	0.84	0.00	0.50	0.00	0.68	0.25	0.25	0.63						

WEAHER Vehicles

TIME		Northbound			Southbound			Eastbound			Westbound		
From	To	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
7:00	7:15	1	1			5							
7:15	7:30		8			5							
7:30	7:45		8			6							
7:45	8:00		5			6							
8:00	8:15		5			5							
8:15	8:30		10			8							
8:30	8:45		6			2							
8:45	9:00		5			6							
Total		1	48	0	0	43	0	0	0	0	0	0	0
Peak Hour		0	26	0	0	21	0	0	0	0	0	0	0
% Heavy Vehicles		0%	8%	0%	0%	7%	0%	0%	0%	0%	0%	0%	0%

Bicycles

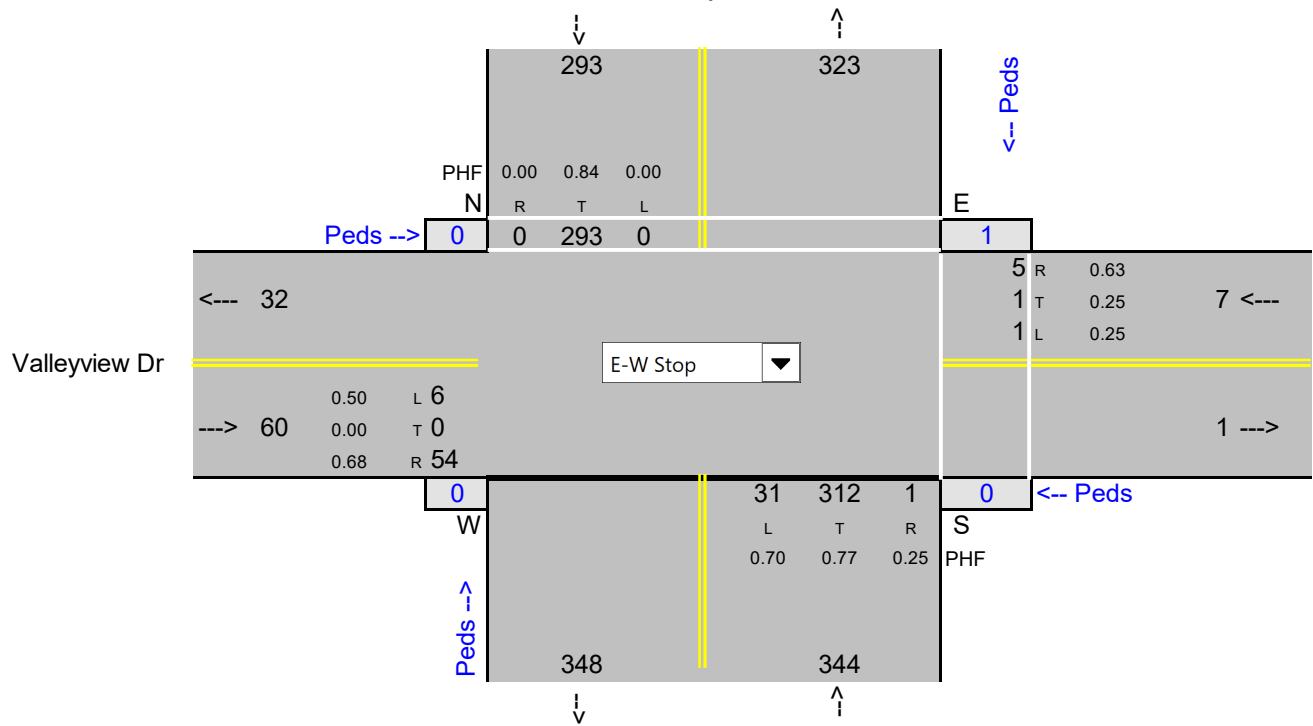
TIME		Northbound			Southbound			Eastbound			Westbound		
From	To	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
7:00	7:15												
7:15	7:30												
7:30	7:45												
7:45	8:00												
8:00	8:15					1							
8:15	8:30		1										
8:30	8:45		1			1							
8:45	9:00												
Total		0	2	0	0	2	0	0	0	0	0	0	0
Peak Hour		0	2	0	0	2	0	0	0	0	0	0	0

Peak Hour Volumes

Peak Hour Volumes

Hwy 3

7:00 AM to 9:00 AM

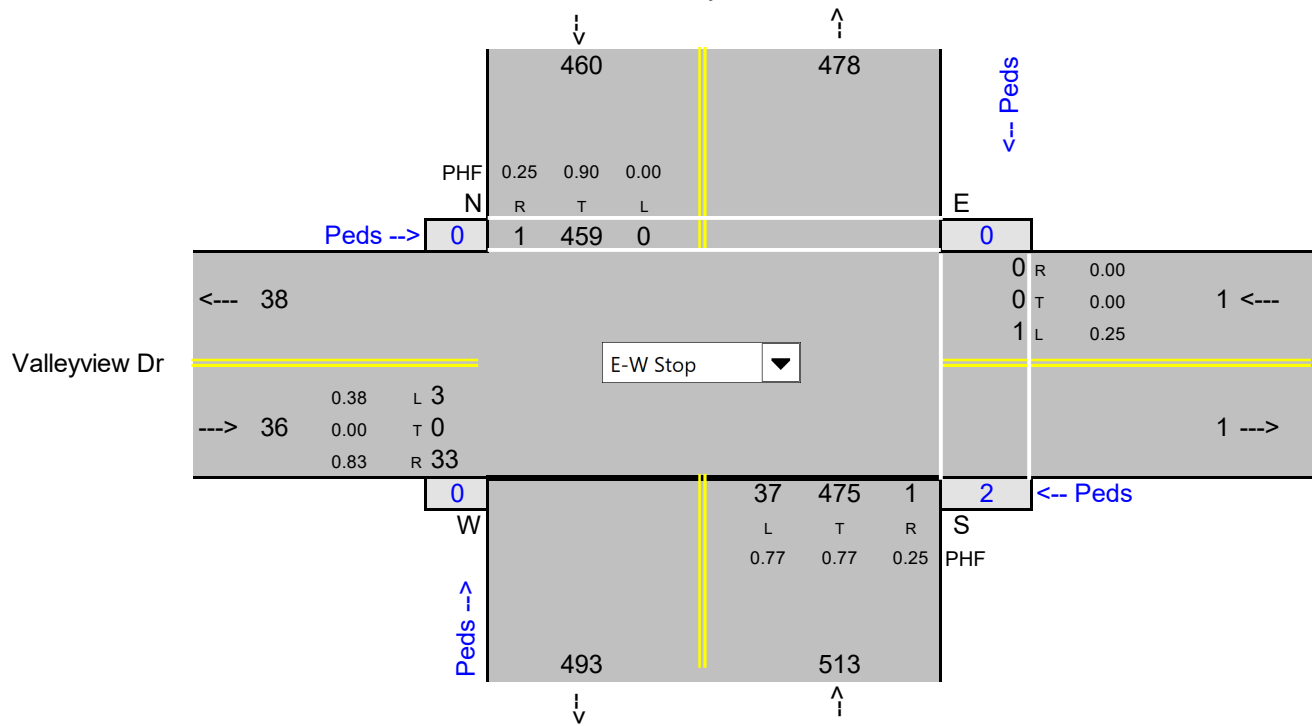


Peak Hour Volumes

Peak Hour Volumes

Hwy 3

3:00 PM to 5:00 PM



Valley View Dr. & Hwy 21 - TMC

Wed Aug 18, 2021

Full Length (7 AM-9 AM, 3 PM-5 PM)

All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 865676, Location: 49.107265, -116.528631



Provided by: Watt Consulting Group
791 Goldstream Ave, #201,
Victoria, BC, V9B 2X5, CA

Leg Direction	Valley View Dr. Westbound					Hwy 21 Northbound					Hwy 21 Southbound					Int
	L	R	U	App	Ped*	T	R	U	App	Ped*	L	T	U	App	Ped*	
2021-08-18 7:00AM	1	6	0	7	0	18	2	0	20	0	5	14	0	19	0	46
7:15AM	2	4	0	6	3	23	0	0	23	0	3	10	0	13	0	42
7:30AM	2	7	0	9	0	21	3	0	24	0	13	11	0	24	0	57
7:45AM	5	5	0	10	0	22	4	0	26	0	5	15	0	20	0	56
Hourly Total	10	22	0	32	3	84	9	0	93	0	26	50	0	76	0	201
8:00AM	4	3	0	7	0	23	1	0	24	0	6	17	0	23	0	54
8:15AM	3	5	0	8	0	16	4	0	20	0	7	13	0	20	0	48
8:30AM	3	10	0	13	0	34	6	0	40	0	11	14	0	25	0	78
8:45AM	5	13	0	18	0	28	4	0	32	0	18	20	0	38	0	88
Hourly Total	15	31	0	46	0	101	15	0	116	0	42	64	0	106	0	268
3:00PM	3	15	0	18	0	31	7	0	38	0	9	28	0	37	0	93
3:15PM	0	15	0	15	0	30	5	0	35	0	8	26	0	34	0	84
3:30PM	5	12	0	17	0	27	3	0	30	0	3	23	0	26	0	73
3:45PM	8	12	0	20	0	27	3	0	30	0	11	32	0	43	0	93
Hourly Total	16	54	0	70	0	115	18	0	133	0	31	109	0	140	0	343
4:00PM	4	17	0	21	0	23	6	0	29	0	16	20	0	36	0	86
4:15PM	11	14	0	25	0	17	5	0	22	0	12	28	0	40	0	87
4:30PM	9	10	0	19	0	21	6	0	27	0	12	20	0	32	0	78
4:45PM	4	5	0	9	0	24	5	0	29	0	9	19	0	28	0	66
Hourly Total	28	46	0	74	0	85	22	0	107	0	49	87	0	136	0	317
Total	69	153	0	222	3	385	64	0	449	0	148	310	0	458	0	1129
% Approach	31.1%	68.9%	0%	-	-	85.7%	14.3%	0%	-	-	32.3%	67.7%	0%	-	-	-
% Total	6.1%	13.6%	0%	19.7%	-	34.1%	5.7%	0%	39.8%	-	13.1%	27.5%	0%	40.6%	-	-
Lights and Motorcycles	68	147	0	215	-	348	64	0	412	-	141	271	0	412	-	1039
% Lights and Motorcycles	98.6%	96.1%	0%	96.8%	-	90.4%	100%	0%	91.8%	-	95.3%	87.4%	0%	90.0%	-	92.0%
Heavy	1	6	0	7	-	35	0	0	35	-	6	39	0	45	-	87
% Heavy	1.4%	3.9%	0%	3.2%	-	9.1%	0%	0%	7.8%	-	4.1%	12.6%	0%	9.8%	-	7.7%
Bicycles on Road	0	0	0	0	-	2	0	0	2	-	1	0	0	1	-	3
% Bicycles on Road	0%	0%	0%	0%	-	0.5%	0%	0%	0.4%	-	0.7%	0%	0%	0.2%	-	0.3%
Pedestrians	-	-	-	-	3	-	-	-	-	0	-	-	-	-	0	-
% Pedestrians	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Valley View Dr. & Hwy 21 - TMC

Wed Aug 18, 2021

Full Length (7 AM-9 AM, 3 PM-5 PM)

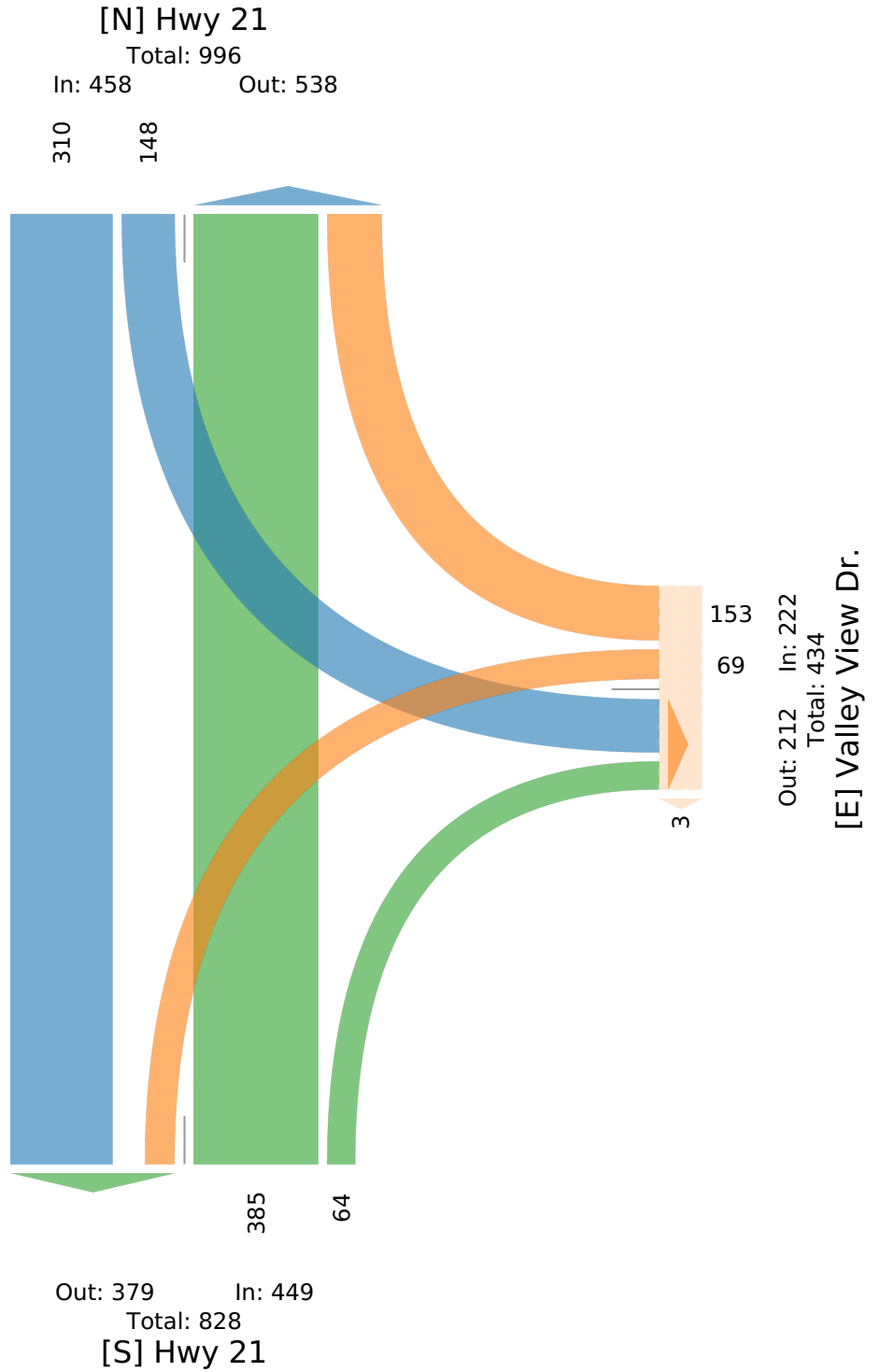
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 865676, Location: 49.107265, -116.528631



Provided by: Watt Consulting Group
791 Goldstream Ave, #201,
Victoria, BC, V9B 2X5, CA



Valley View Dr. & Hwy 21 - TMC

Wed Aug 18, 2021

AM Peak (8 AM - 9 AM)

All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 865676, Location: 49.107265, -116.528631



Provided by: Watt Consulting Group
791 Goldstream Ave, #201,
Victoria, BC, V9B 2X5, CA

Leg Direction	Valley View Dr. Westbound					Hwy 21 Northbound					Hwy 21 Southbound					Int
	L	R	U	App	Ped*	T	R	U	App	Ped*	L	T	U	App	Ped*	
2021-08-18 8:00AM	4	3	0	7	0	23	1	0	24	0	6	17	0	23	0	54
8:15AM	3	5	0	8	0	16	4	0	20	0	7	13	0	20	0	48
8:30AM	3	10	0	13	0	34	6	0	40	0	11	14	0	25	0	78
8:45AM	5	13	0	18	0	28	4	0	32	0	18	20	0	38	0	88
Total	15	31	0	46	0	101	15	0	116	0	42	64	0	106	0	268
% Approach	32.6%	67.4%	0%	-	-	87.1%	12.9%	0%	-	-	39.6%	60.4%	0%	-	-	-
% Total	5.6%	11.6%	0%	17.2%	-	37.7%	5.6%	0%	43.3%	-	15.7%	23.9%	0%	39.6%	-	-
PHF	0.750	0.596	-	0.639	-	0.743	0.625	-	0.725	-	0.583	0.800	-	0.697	-	0.761
Lights and Motorcycles	15	29	0	44	-	88	15	0	103	-	41	53	0	94	-	241
% Lights and Motorcycles	100%	93.5%	0%	95.7%	-	87.1%	100%	0%	88.8%	-	97.6%	82.8%	0%	88.7%	-	89.9%
Heavy	0	2	0	2	-	13	0	0	13	-	1	11	0	12	-	27
% Heavy	0%	6.5%	0%	4.3%	-	12.9%	0%	0%	11.2%	-	2.4%	17.2%	0%	11.3%	-	10.1%
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
% Bicycles on Road	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Valley View Dr. & Hwy 21 - TMC

Wed Aug 18, 2021

AM Peak (8 AM - 9 AM)

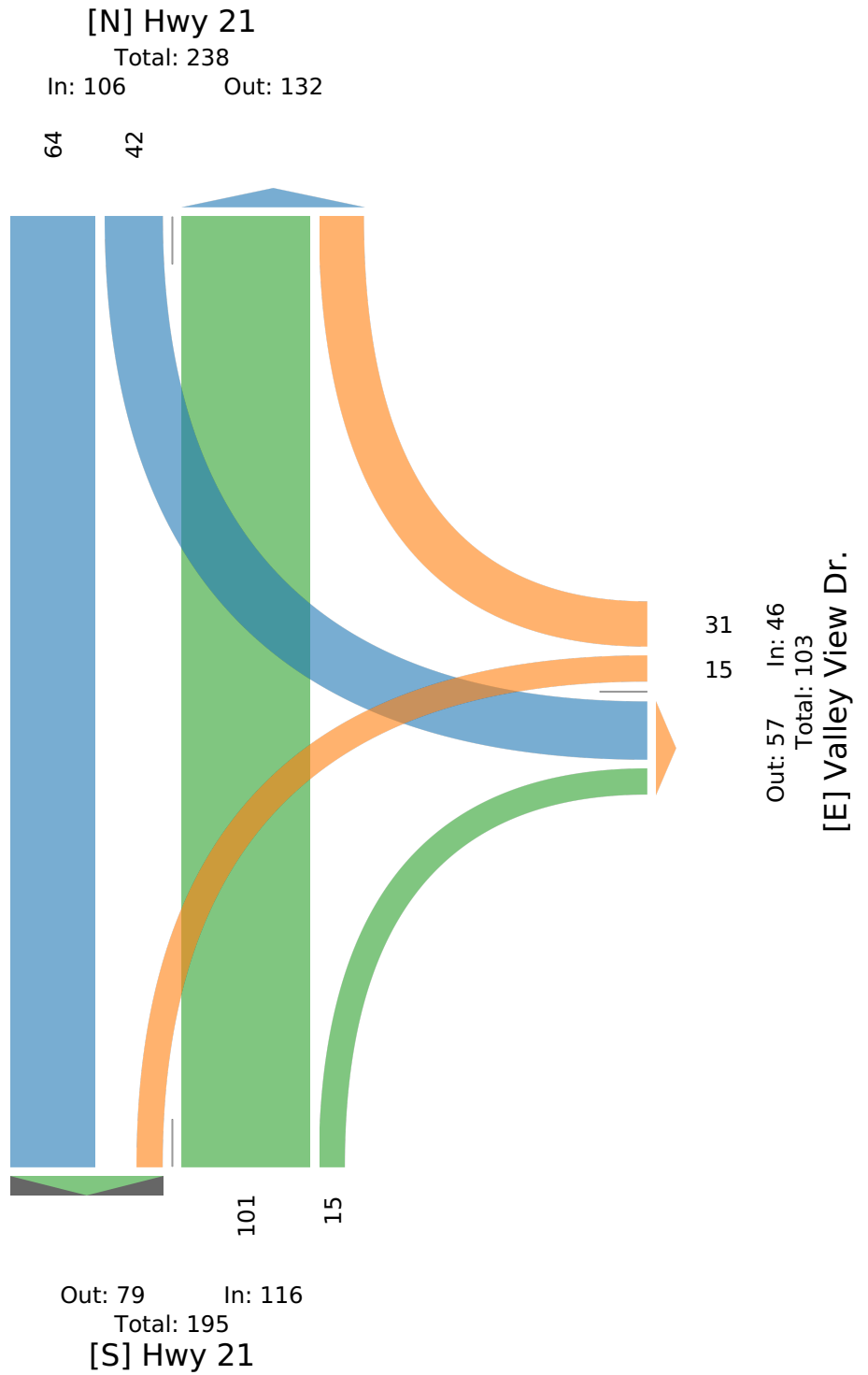
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 865676, Location: 49.107265, -116.528631



Provided by: Watt Consulting Group
791 Goldstream Ave, #201,
Victoria, BC, V9B 2X5, CA



Valley View Dr. & Hwy 21 - TMC

Wed Aug 18, 2021

PM Peak (3:45 PM - 4:45 PM) - Overall Peak Hour

All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 865676, Location: 49.107265, -116.528631



Provided by: Watt Consulting Group
791 Goldstream Ave, #201,
Victoria, BC, V9B 2X5, CA

Leg Direction	Valley View Dr. Westbound					Hwy 21 Northbound					Hwy 21 Southbound					Int
	L	R	U	App	Ped*	T	R	U	App	Ped*	L	T	U	App	Ped*	
2021-08-18 3:45PM	8	12	0	20	0	27	3	0	30	0	11	32	0	43	0	93
4:00PM	4	17	0	21	0	23	6	0	29	0	16	20	0	36	0	86
4:15PM	11	14	0	25	0	17	5	0	22	0	12	28	0	40	0	87
4:30PM	9	10	0	19	0	21	6	0	27	0	12	20	0	32	0	78
Total	32	53	0	85	0	88	20	0	108	0	51	100	0	151	0	344
% Approach	37.6%	62.4%	0%	-	-	81.5%	18.5%	0%	-	-	33.8%	66.2%	0%	-	-	-
% Total	9.3%	15.4%	0%	24.7%	-	25.6%	5.8%	0%	31.4%	-	14.8%	29.1%	0%	43.9%	-	-
PHF	0.727	0.779	-	0.850	-	0.815	0.833	-	0.900	-	0.797	0.781	-	0.878	-	0.925
Lights and Motorcycles	31	52	0	83	-	84	20	0	104	-	48	92	0	140	-	327
% Lights and Motorcycles	96.9%	98.1%	0%	97.6%	-	95.5%	100%	0%	96.3%	-	94.1%	92.0%	0%	92.7%	-	95.1%
Heavy	1	1	0	2	-	4	0	0	4	-	3	8	0	11	-	17
% Heavy	3.1%	1.9%	0%	2.4%	-	4.5%	0%	0%	3.7%	-	5.9%	8.0%	0%	7.3%	-	4.9%
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
% Bicycles on Road	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Valley View Dr. & Hwy 21 - TMC

Wed Aug 18, 2021

PM Peak (3:45 PM - 4:45 PM) - Overall Peak Hour

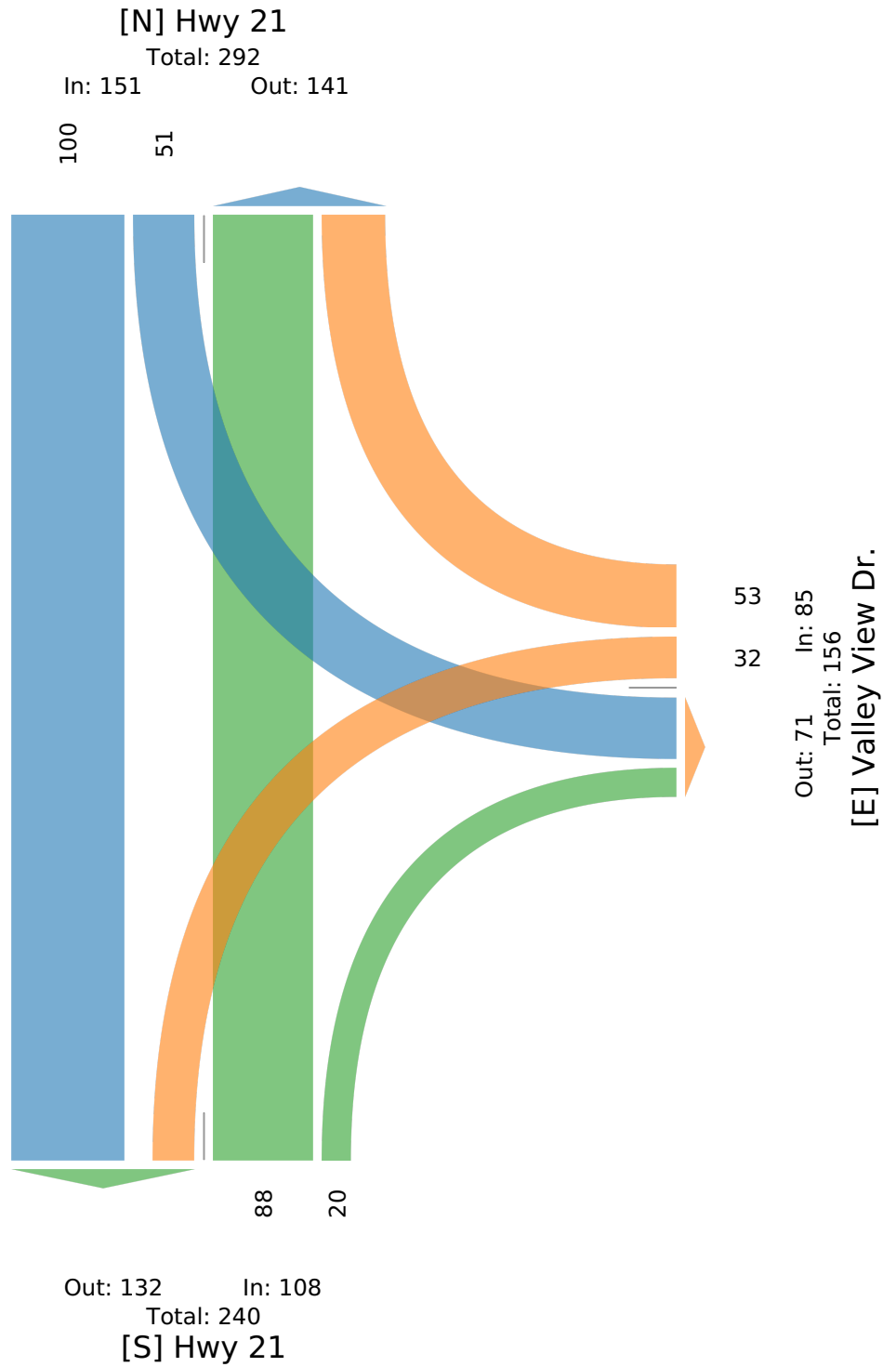
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 865676, Location: 49.107265, -116.528631



Provided by: Watt Consulting Group
791 Goldstream Ave, #201,
Victoria, BC, V9B 2X5, CA



Helen St. & Northwest Blvd - TMC

Tue Aug 17, 2021

Full Length (7 AM-9 AM, 3 PM-5 PM)

All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 865677, Location: 49.117212, -116.52352



Provided by: Watt Consulting Group
791 Goldstream Ave, #201,
Victoria, BC, V9B 2X5, CA

Leg Direction	West Eastbound						East Westbound						South Northbound						North Southbound						Int
	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	
2021-08-17 7:00AM	1	0	3	0	4	0	17	2	3	0	22	0	3	21	21	0	45	0	7	20	0	0	27	0	98
7:15AM	1	1	2	0	4	0	27	3	14	0	44	1	1	21	18	0	40	0	16	29	4	0	49	0	137
7:30AM	1	0	6	0	7	1	23	1	8	0	32	2	7	32	17	0	56	0	9	36	1	0	46	0	141
7:45AM	1	4	2	0	7	0	16	3	8	0	27	0	6	33	22	0	61	1	15	73	2	0	90	0	185
Hourly Total	4	5	13	0	22	1	83	9	33	0	125	3	17	107	78	0	202	1	47	158	7	0	212	0	561
8:00AM	2	0	3	0	5	0	16	1	13	0	30	0	2	25	24	0	51	0	13	44	3	0	60	0	146
8:15AM	1	0	3	0	4	0	23	2	9	0	34	0	4	33	18	0	55	0	13	41	0	0	54	0	147
8:30AM	0	4	3	0	7	0	21	2	12	0	35	1	4	42	26	0	72	0	12	48	1	0	61	0	175
8:45AM	2	1	4	0	7	0	29	1	11	0	41	0	4	38	17	0	59	1	9	53	2	0	64	0	171
Hourly Total	5	5	13	0	23	0	89	6	45	0	140	1	14	138	85	0	237	1	47	186	6	0	239	0	639
3:00PM	3	1	5	0	9	0	20	0	10	1	31	0	3	65	24	0	92	0	7	74	1	0	82	0	214
3:15PM	1	0	2	0	3	0	14	1	16	0	31	0	4	63	19	0	86	0	5	55	0	0	60	0	180
3:30PM	2	1	3	0	6	1	26	0	12	0	38	0	6	60	16	0	82	0	13	65	2	0	80	0	206
3:45PM	1	0	2	0	3	1	12	0	9	0	21	0	5	63	13	0	81	0	7	57	3	0	67	0	172
Hourly Total	7	2	12	0	21	2	72	1	47	1	121	0	18	251	72	0	341	0	32	251	6	0	289	0	772
4:00PM	1	1	5	0	7	0	23	1	5	0	29	2	7	56	17	0	80	0	4	65	0	0	69	0	185
4:15PM	2	1	7	0	10	0	17	0	4	0	21	0	7	52	14	1	74	0	9	53	1	0	63	0	168
4:30PM	2	0	6	0	8	2	14	0	4	0	18	0	8	65	12	0	85	0	11	71	1	0	83	0	194
4:45PM	4	0	5	0	9	0	14	2	5	0	21	0	4	69	16	0	89	0	2	55	3	0	60	0	179
Hourly Total	9	2	23	0	34	2	68	3	18	0	89	2	26	242	59	1	328	0	26	244	5	0	275	0	726
Total	25	14	61	0	100	5	312	19	143	1	475	6	75	738	294	1	1108	2	152	839	24	0	1015	0	2698
% Approach	25.0%	14.0%	61.0%	0%	-	-	65.7%	4.0%	30.1%	0.2%	-	-	6.8%	66.6%	26.5%	0.1%	-	-	15.0%	82.7%	2.4%	0%	-	-	-
% Total	0.9%	0.5%	2.3%	0%	3.7%	-	11.6%	0.7%	5.3%	0%	17.6%	-	2.8%	27.4%	10.9%	0%	41.1%	-	5.6%	31.1%	0.9%	0%	37.6%	-	-
Lights and Motorcycles	22	12	57	0	91	-	298	16	130	1	445	-	70	678	277	1	1026	-	139	783	23	0	945	-	2507
% Lights and Motorcycles	88.0%	85.7%	93.4%	0%	91.0%	-	95.5%	84.2%	90.9%	100%	93.7%	-	93.3%	91.9%	94.2%	100%	92.6%	-	91.4%	93.3%	95.8%	0%	93.1%	-	92.9%
Heavy	3	2	4	0	9	-	14	3	13	0	30	-	4	56	16	0	76	-	13	55	1	0	69	-	184
% Heavy	12.0%	14.3%	6.6%	0%	9.0%	-	4.5%	15.8%	9.1%	0%	6.3%	-	5.3%	7.6%	5.4%	0%	6.9%	-	8.6%	6.6%	4.2%	0%	6.8%	-	6.8%
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	1	4	1	0	6	-	0	1	0	0	1	-	7
% Bicycles on Road	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	1.3%	0.5%	0.3%	0%	0.5%	-	0%	0.1%	0%	0%	0.1%	-	0.3%
Pedestrians	-	-	-	-	-	5	-	-	-	-	-	6	-	-	-	-	-	2	-	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Helen St. & Northwest Blvd - TMC

Tue Aug 17, 2021

Full Length (7 AM-9 AM, 3 PM-5 PM)

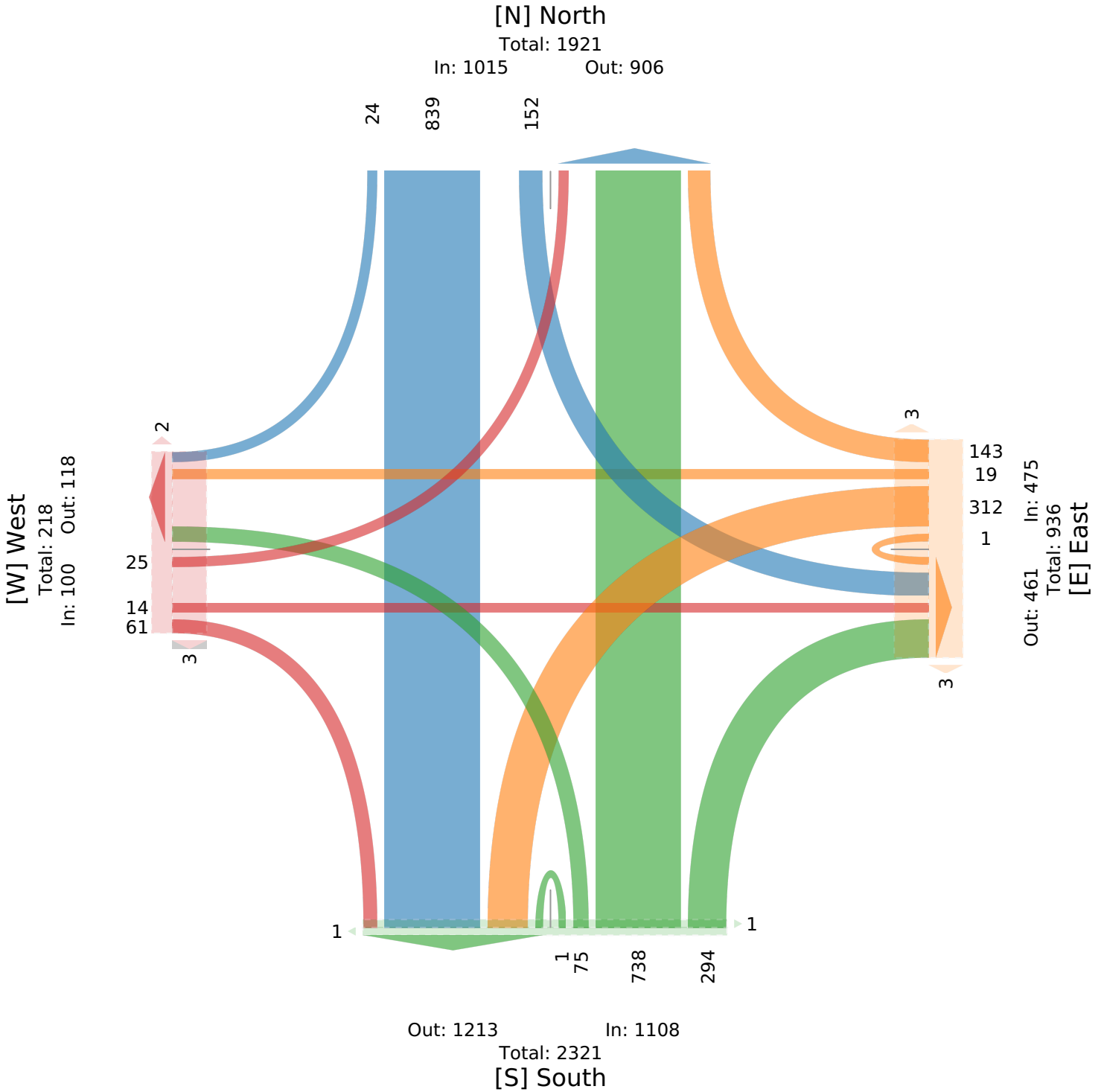
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 865677, Location: 49.117212, -116.52352



Provided by: Watt Consulting Group
791 Goldstream Ave, #201,
Victoria, BC, V9B 2X5, CA



Helen St. & Northwest Blvd - TMC

Tue Aug 17, 2021

AM Peak (7:45 AM - 8:45 AM)

All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 865677, Location: 49.117212, -116.52352



Provided by: Watt Consulting Group
791 Goldstream Ave, #201,
Victoria, BC, V9B 2X5, CA

Leg Direction	West Eastbound						East Westbound						South Northbound						North Southbound						Int
	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	
2021-08-17 7:45AM	1	4	2	0	7	0	16	3	8	0	27	0	6	33	22	0	61	1	15	73	2	0	90	0	185
8:00AM	2	0	3	0	5	0	16	1	13	0	30	0	2	25	24	0	51	0	13	44	3	0	60	0	146
8:15AM	1	0	3	0	4	0	23	2	9	0	34	0	4	33	18	0	55	0	13	41	0	0	54	0	147
8:30AM	0	4	3	0	7	0	21	2	12	0	35	1	4	42	26	0	72	0	12	48	1	0	61	0	175
Total	4	8	11	0	23	0	76	8	42	0	126	1	16	133	90	0	239	1	53	206	6	0	265	0	653
% Approach	17.4%	34.8%	47.8%	0%	-	-	60.3%	6.3%	33.3%	0%	-	-	6.7%	55.6%	37.7%	0%	-	-	20.0%	77.7%	2.3%	0%	-	-	-
% Total	0.6%	1.2%	1.7%	0%	3.5%	-	11.6%	1.2%	6.4%	0%	19.3%	-	2.5%	20.4%	13.8%	0%	36.6%	-	8.1%	31.5%	0.9%	0%	40.6%	-	-
PHF	0.500	0.500	0.917	-	0.821	-	0.826	0.667	0.808	-	0.900	-	0.667	0.786	0.865	-	0.826	-	0.883	0.705	0.500	-	0.736	-	0.886
Lights and Motorcycles	3	6	10	0	19	-	74	7	36	0	117	-	14	110	85	0	209	-	47	192	6	0	245	-	590
% Lights and Motorcycles	75.0%	75.0%	90.9%	0%	82.6%	-	97.4%	87.5%	85.7%	0%	92.9%	-	87.5%	82.7%	94.4%	0%	87.4%	-	88.7%	93.2%	100%	0%	92.5%	-	90.4%
Heavy	1	2	1	0	4	-	2	1	6	0	9	-	2	22	5	0	29	-	6	14	0	0	20	-	62
% Heavy	25.0%	25.0%	9.1%	0%	17.4%	-	2.6%	12.5%	14.3%	0%	7.1%	-	12.5%	16.5%	5.6%	0%	12.1%	-	11.3%	6.8%	0%	0%	7.5%	-	9.5%
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	1
% Bicycles on Road	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0.8%	0%	0%	0.4%	-	0%	0%	0%	0%	0%	-	0.2%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Helen St. & Northwest Blvd - TMC

Tue Aug 17, 2021

AM Peak (7:45 AM - 8:45 AM)

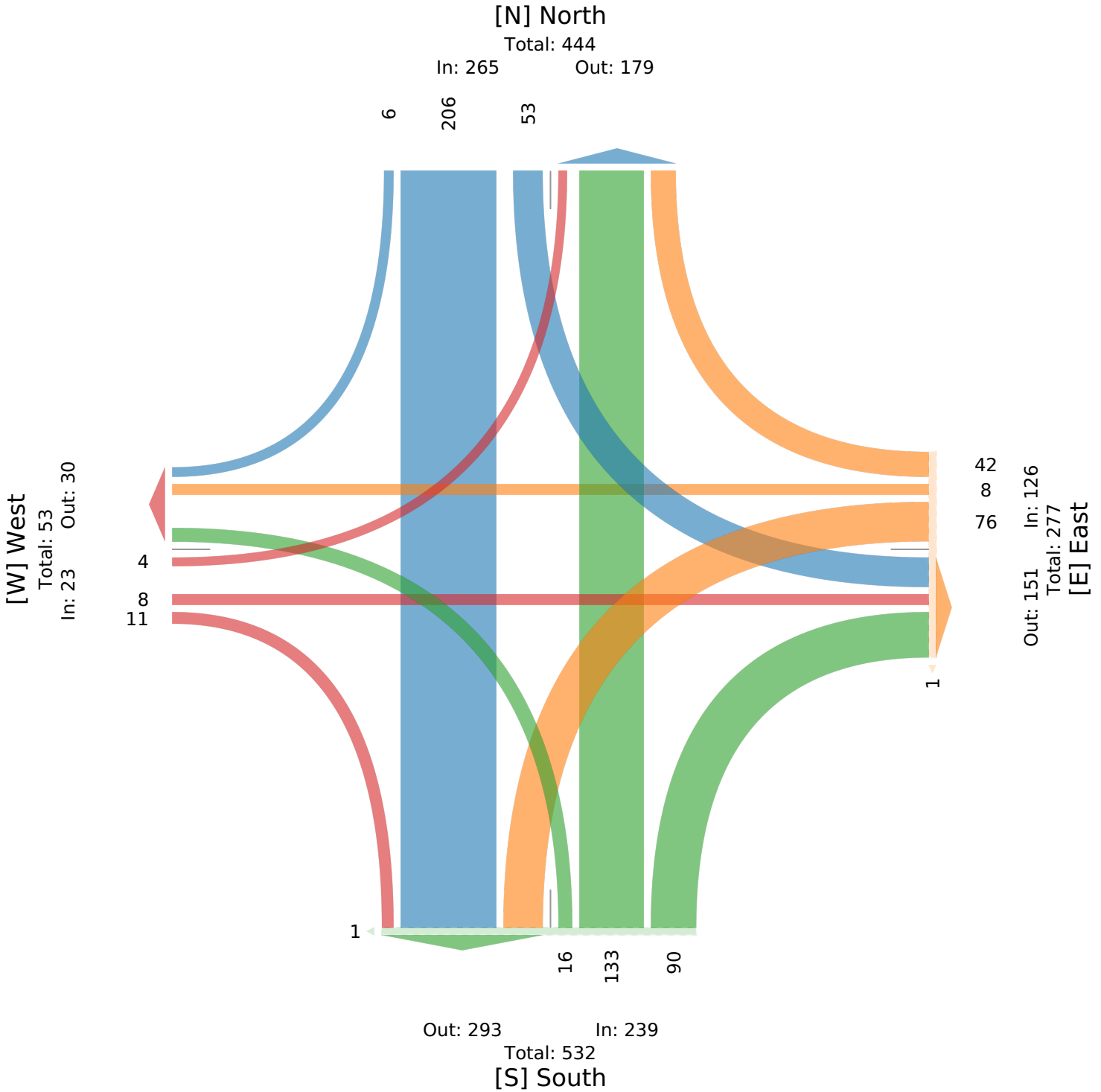
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 865677, Location: 49.117212, -116.52352



Provided by: Watt Consulting Group
791 Goldstream Ave, #201,
Victoria, BC, V9B 2X5, CA



Helen St. & Northwest Blvd - TMC

Tue Aug 17, 2021

PM Peak (3 PM - 4 PM) - Overall Peak Hour

All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 865677, Location: 49.117212, -116.52352



Provided by: Watt Consulting Group

791 Goldstream Ave, #201,
Victoria, BC, V9B 2X5, CA

Leg Direction	West Eastbound						East Westbound						South Northbound						North Southbound						
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2021-08-17 3:00PM	3	1	5	0	9	0	20	0	10	1	31	0	3	65	24	0	92	0	7	74	1	0	82	0	214
3:15PM	1	0	2	0	3	0	14	1	16	0	31	0	4	63	19	0	86	0	5	55	0	0	60	0	180
3:30PM	2	1	3	0	6	1	26	0	12	0	38	0	6	60	16	0	82	0	13	65	2	0	80	0	206
3:45PM	1	0	2	0	3	1	12	0	9	0	21	0	5	63	13	0	81	0	7	57	3	0	67	0	172
Total	7	2	12	0	21	2	72	1	47	1	121	0	18	251	72	0	341	0	32	251	6	0	289	0	772
% Approach	33.3%	9.5%	57.1%	0%	-	-	59.5%	0.8%	38.8%	0.8%	-	-	5.3%	73.6%	21.1%	0%	-	-	11.1%	86.9%	2.1%	0%	-	-	-
% Total	0.9%	0.3%	1.6%	0%	2.7%	-	9.3%	0.1%	6.1%	0.1%	15.7%	-	2.3%	32.5%	9.3%	0%	44.2%	-	4.1%	32.5%	0.8%	0%	37.4%	-	-
PHF	0.583	0.500	0.600	-	0.583	-	0.692	0.250	0.734	0.250	0.796	-	0.750	0.965	0.750	-	0.927	-	0.615	0.848	0.500	-	0.881	-	0.902
Lights and Motorcycles	6	2	11	0	19	-	71	1	45	1	118	-	18	241	67	0	326	-	29	232	6	0	267	-	730
% Lights and Motorcycles	85.7%	100%	91.7%	0%	90.5%	-	98.6%	100%	95.7%	100%	97.5%	-	100%	96.0%	93.1%	0%	95.6%	-	90.6%	92.4%	100%	0%	92.4%	-	94.6%
Heavy	1	0	1	0	2	-	1	0	2	0	3	-	0	10	5	0	15	-	3	19	0	0	22	-	42
% Heavy	14.3%	0%	8.3%	0%	9.5%	-	1.4%	0%	4.3%	0%	2.5%	-	0%	4.0%	6.9%	0%	4.4%	-	9.4%	7.6%	0%	0%	7.6%	-	5.4%
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Bicycles on Road	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
Pedestrians	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	0
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	0
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Helen St. & Northwest Blvd - TMC

Tue Aug 17, 2021

PM Peak (3 PM - 4 PM) - Overall Peak Hour

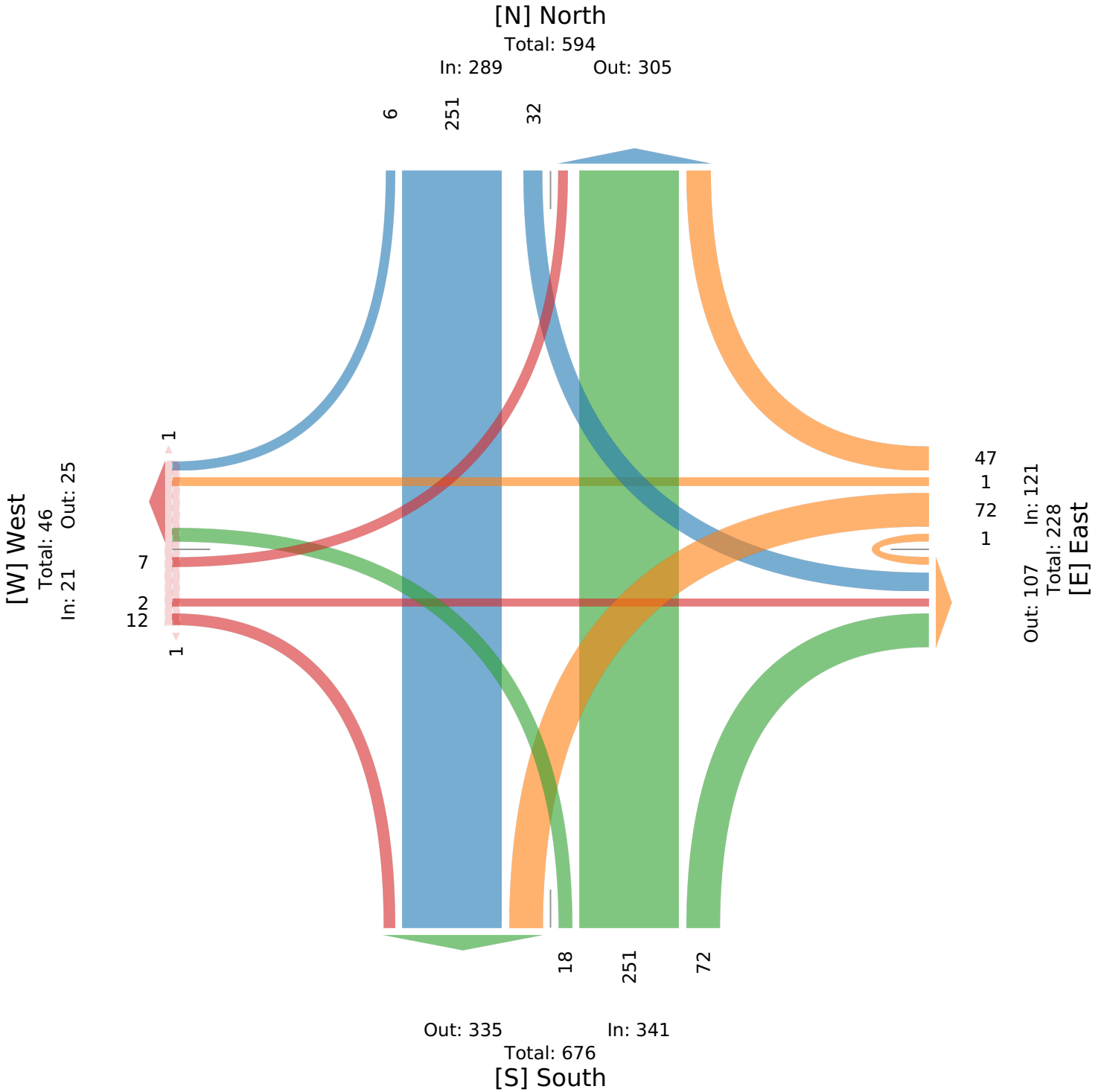
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 865677, Location: 49.117212, -116.52352



Provided by: Watt Consulting Group
791 Goldstream Ave, #201,
Victoria, BC, V9B 2X5, CA



Hillside St. & 10 Ave. N - TMC

Tue Aug 17, 2021

Full Length (7 AM-9 AM, 3 PM-5 PM)

All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 865678, Location: 49.099119, -116.513436



Provided by: Watt Consulting Group
791 Goldstream Ave, #201,
Victoria, BC, V9B 2X5, CA

Leg Direction	West Eastbound						East Westbound						South Northbound						North Southbound						Int
	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	
2021-08-17 7:00AM	0	0	1	0	1	0	0	6	0	0	6	1	0	3	2	0	5	0	0	3	0	0	3	0	15
7:15AM	1	5	2	0	8	0	3	5	1	0	9	1	1	1	1	0	3	0	2	4	0	0	6	1	26
7:30AM	1	4	3	0	8	0	0	4	0	0	4	2	2	1	2	0	5	0	1	7	0	0	8	1	25
7:45AM	0	7	2	0	9	2	1	8	4	0	13	1	0	1	1	0	2	0	1	9	0	0	10	1	34
Hourly Total	2	16	8	0	26	2	4	23	5	0	32	5	3	6	6	0	15	0	4	23	0	0	27	3	100
8:00AM	0	5	2	0	7	0	2	5	3	0	10	0	0	2	2	0	4	0	1	7	1	0	9	0	30
8:15AM	0	3	1	0	4	0	4	1	1	0	6	0	0	5	0	0	5	0	3	4	0	0	7	0	22
8:30AM	2	12	3	0	17	0	3	6	4	0	13	0	0	4	0	0	4	0	6	7	1	0	14	0	48
8:45AM	0	12	2	0	14	0	5	11	5	0	21	4	3	7	2	0	12	2	8	13	0	0	21	0	68
Hourly Total	2	32	8	0	42	0	14	23	13	0	50	4	3	18	4	0	25	2	18	31	2	0	51	0	168
3:00PM	0	9	5	0	14	0	8	8	9	0	25	0	2	8	1	0	11	0	5	14	0	0	19	0	69
3:15PM	1	8	4	0	13	0	4	9	4	0	17	3	1	9	4	0	14	0	8	14	1	0	23	0	67
3:30PM	2	14	3	0	19	0	0	4	4	0	8	0	3	7	3	0	13	0	8	14	1	0	23	0	63
3:45PM	1	6	3	0	10	0	2	5	4	0	11	2	4	9	4	0	17	0	5	9	1	0	15	0	53
Hourly Total	4	37	15	0	56	0	14	26	21	0	61	5	10	33	12	0	55	0	26	51	3	0	80	0	252
4:00PM	1	14	3	0	18	0	0	10	9	0	19	1	1	7	4	0	12	0	3	8	0	0	11	0	60
4:15PM	0	10	3	0	13	0	2	4	4	0	10	4	2	9	4	0	15	0	5	12	5	0	22	0	60
4:30PM	1	7	3	0	11	0	1	8	4	0	13	0	1	11	2	0	14	0	5	11	0	0	16	0	54
4:45PM	0	7	4	0	11	0	2	6	1	0	9	0	4	8	2	0	14	1	3	4	1	0	8	0	42
Hourly Total	2	38	13	0	53	0	5	28	18	0	51	5	8	35	12	0	55	1	16	35	6	0	57	0	216
Total	10	123	44	0	177	2	37	100	57	0	194	19	24	92	34	0	150	3	64	140	11	0	215	3	736
% Approach	5.6%	69.5%	24.9%	0%	-	-	19.1%	51.5%	29.4%	0%	-	-	16.0%	61.3%	22.7%	0%	-	-	29.8%	65.1%	5.1%	0%	-	-	-
% Total	1.4%	16.7%	6.0%	0%	24.0%	-	5.0%	13.6%	7.7%	0%	26.4%	-	3.3%	12.5%	4.6%	0%	20.4%	-	8.7%	19.0%	1.5%	0%	29.2%	-	-
Lights and Motorcycles	10	123	44	0	177	-	36	98	57	0	191	-	24	87	33	0	144	-	64	136	11	0	211	-	723
% Lights and Motorcycles	100%	100%	100%	0%	100%	-	97.3%	98.0%	100%	0%	98.5%	-	100%	94.6%	97.1%	0%	96.0%	-	100%	97.1%	100%	0%	98.1%	-	98.2%
Heavy	0	0	0	0	0	-	1	2	0	0	3	-	0	4	1	0	5	-	0	3	0	0	3	-	11
% Heavy	0%	0%	0%	0%	0%	-	2.7%	2.0%	0%	0%	1.5%	-	0%	4.3%	2.9%	0%	3.3%	-	0%	2.1%	0%	0%	1.4%	-	1.5%
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	1	-	0	1	0	0	1	-	2
% Bicycles on Road	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	1.1%	0%	0%	0.7%	-	0%	0.7%	0%	0%	0.5%	-	0.3%
Pedestrians	-	-	-	-	-	2	-	-	-	-	-	19	-	-	-	-	-	3	-	-	-	-	-	3	-
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Hillside St. & 10 Ave. N - TMC

Tue Aug 17, 2021

Full Length (7 AM-9 AM, 3 PM-5 PM)

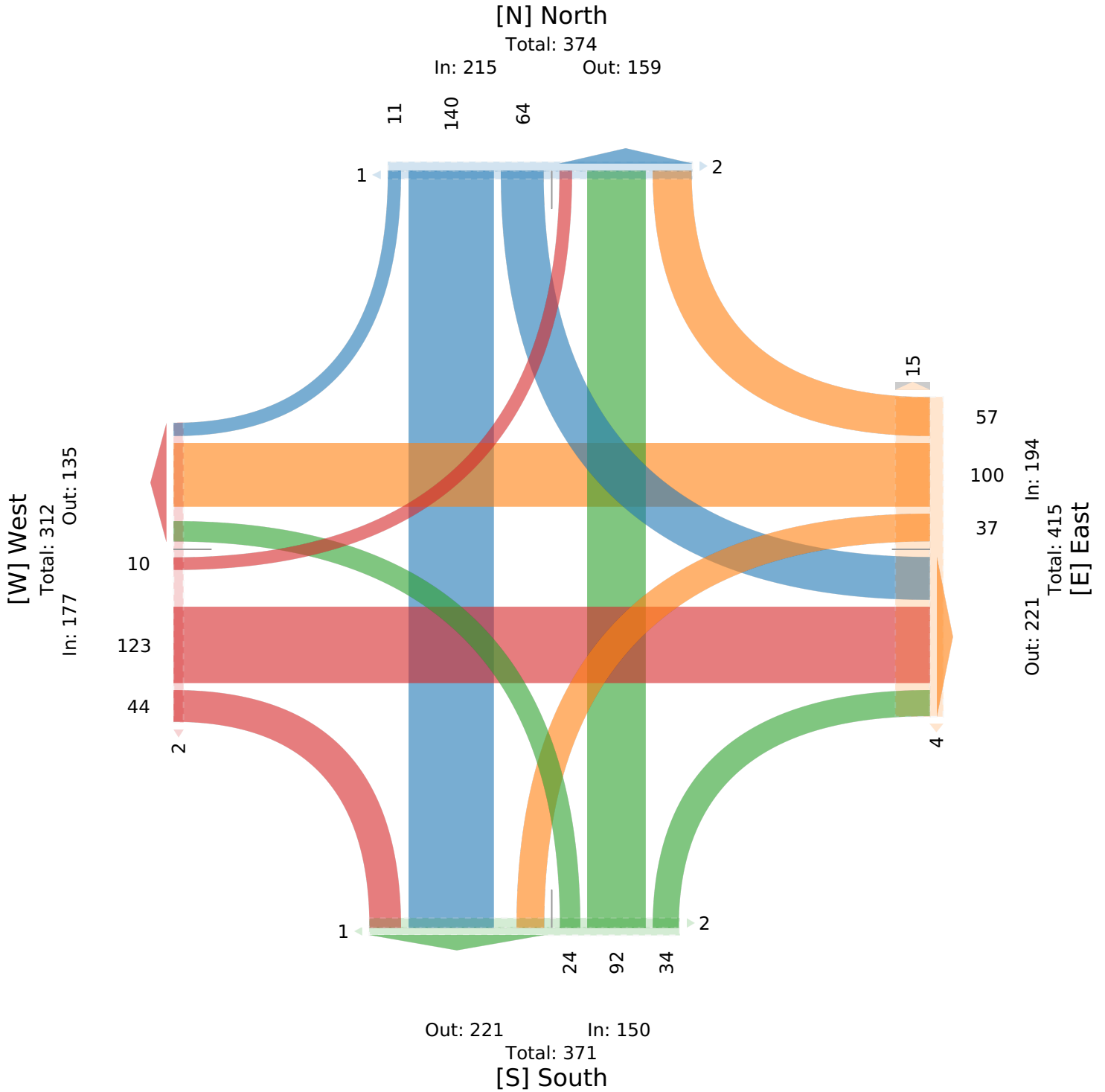
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 865678, Location: 49.099119, -116.513436



Provided by: Watt Consulting Group
791 Goldstream Ave, #201,
Victoria, BC, V9B 2X5, CA



Hillside St. & 10 Ave. N - TMC

Tue Aug 17, 2021

AM Peak (8 AM - 9 AM)

All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 865678, Location: 49.099119, -116.513436



Provided by: Watt Consulting Group
791 Goldstream Ave, #201,
Victoria, BC, V9B 2X5, CA

Leg Direction	West Eastbound						East Westbound						South Northbound						North Southbound						
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2021-08-17 8:00AM	0	5	2	0	7	0	2	5	3	0	10	0	0	2	2	0	4	0	1	7	1	0	9	0	30
8:15AM	0	3	1	0	4	0	4	1	1	0	6	0	0	5	0	0	5	0	3	4	0	0	7	0	22
8:30AM	2	12	3	0	17	0	3	6	4	0	13	0	0	4	0	0	4	0	6	7	1	0	14	0	48
8:45AM	0	12	2	0	14	0	5	11	5	0	21	4	3	7	2	0	12	2	8	13	0	0	21	0	68
Total	2	32	8	0	42	0	14	23	13	0	50	4	3	18	4	0	25	2	18	31	2	0	51	0	168
% Approach	4.8%	76.2%	19.0%	0%	-	-	28.0%	46.0%	26.0%	0%	-	-	12.0%	72.0%	16.0%	0%	-	-	35.3%	60.8%	3.9%	0%	-	-	-
% Total	1.2%	19.0%	4.8%	0%	25.0%	-	8.3%	13.7%	7.7%	0%	29.8%	-	1.8%	10.7%	2.4%	0%	14.9%	-	10.7%	18.5%	1.2%	0%	30.4%	-	-
PHF	0.250	0.667	0.667	-	0.618	-	0.700	0.523	0.650	-	0.595	-	0.250	0.643	0.500	-	0.521	-	0.563	0.596	0.500	-	0.607	-	0.618
Lights and Motorcycles	2	32	8	0	42	-	13	23	13	0	49	-	3	16	3	0	22	-	18	30	2	0	50	-	163
% Lights and Motorcycles	100%	100%	100%	0%	100%	-	92.9%	100%	100%	0%	98.0%	-	100%	88.9%	75.0%	0%	88.0%	-	100%	96.8%	100%	0%	98.0%	-	97.0%
Heavy	0	0	0	0	0	-	1	0	0	0	1	-	0	2	1	0	3	-	0	1	0	0	1	-	5
% Heavy	0%	0%	0%	0%	0%	-	7.1%	0%	0%	0%	2.0%	-	0%	11.1%	25.0%	0%	12.0%	-	0%	3.2%	0%	0%	2.0%	-	3.0%
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Bicycles on Road	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	2	-	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Hillside St. & 10 Ave. N - TMC

Tue Aug 17, 2021

AM Peak (8 AM - 9 AM)

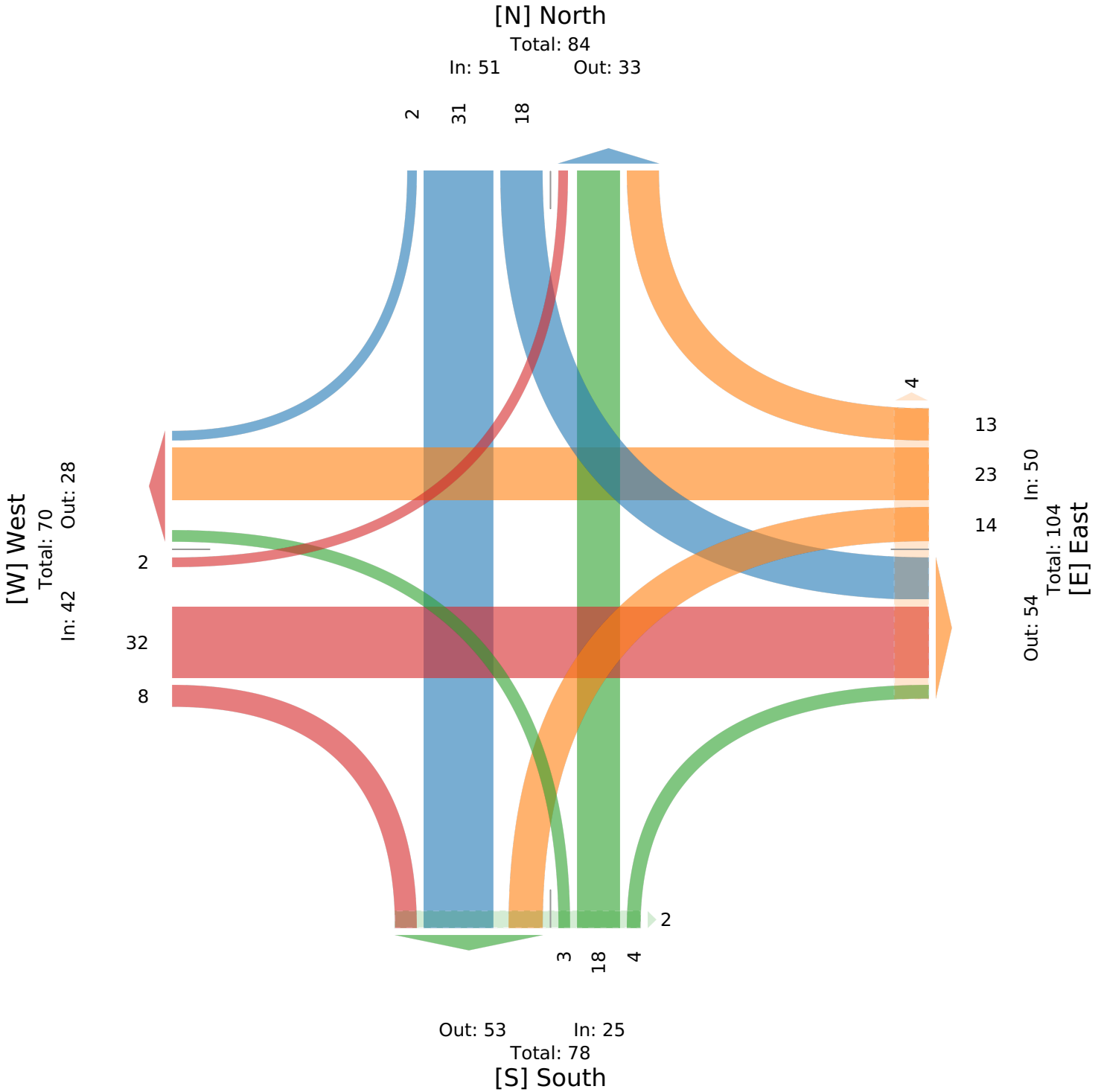
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 865678, Location: 49.099119, -116.513436



Provided by: Watt Consulting Group
791 Goldstream Ave, #201,
Victoria, BC, V9B 2X5, CA



Hillside St. & 10 Ave. N - TMC

Tue Aug 17, 2021

PM Peak (3 PM - 4 PM) - Overall Peak Hour

All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 865678, Location: 49.099119, -116.513436



Provided by: Watt Consulting Group
791 Goldstream Ave, #201,
Victoria, BC, V9B 2X5, CA

Leg Direction	West Eastbound					East Westbound					South Northbound					North Southbound									
Time	L	T	R	U	App Ped*	L	T	R	U	App Ped*	L	T	R	U	App Ped*	L	T	R	U	App Ped*	Int				
2021-08-17 3:00PM	0	9	5	0	14	0	8	8	9	0	25	0	2	8	1	0	11	0	5	14	0	0	19	0	69
3:15PM	1	8	4	0	13	0	4	9	4	0	17	3	1	9	4	0	14	0	8	14	1	0	23	0	67
3:30PM	2	14	3	0	19	0	0	4	4	0	8	0	3	7	3	0	13	0	8	14	1	0	23	0	63
3:45PM	1	6	3	0	10	0	2	5	4	0	11	2	4	9	4	0	17	0	5	9	1	0	15	0	53
Total	4	37	15	0	56	0	14	26	21	0	61	5	10	33	12	0	55	0	26	51	3	0	80	0	252
% Approach	7.1%	66.1%	26.8%	0%	-	-	23.0%	42.6%	34.4%	0%	-	-	18.2%	60.0%	21.8%	0%	-	-	32.5%	63.8%	3.8%	0%	-	-	-
% Total	1.6%	14.7%	6.0%	0%	22.2%	-	5.6%	10.3%	8.3%	0%	24.2%	-	4.0%	13.1%	4.8%	0%	21.8%	-	10.3%	20.2%	1.2%	0%	31.7%	-	-
PHF	0.500	0.661	0.750	-	0.737	-	0.438	0.722	0.583	-	0.610	-	0.625	0.917	0.750	-	0.809	-	0.813	0.911	0.750	-	0.870	-	0.913
Lights and Motorcycles	4	37	15	0	56	-	14	26	21	0	61	-	10	32	12	0	54	-	26	49	3	0	78	-	249
% Lights and Motorcycles	100%	100%	100%	0%	100%	-	100%	100%	100%	0%	100%	-	100%	97.0%	100%	0%	98.2%	-	100%	96.1%	100%	0%	97.5%	-	98.8%
Heavy	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	1	-	0	2	0	0	2	-	3
% Heavy	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	3.0%	0%	0%	1.8%	-	0%	3.9%	0%	0%	2.5%	-	1.2%
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Bicycles on Road	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	5	-	-	-	-	-	0	-	-	-	-	-	-	0
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Hillside St. & 10 Ave. N - TMC

Tue Aug 17, 2021

PM Peak (3 PM - 4 PM) - Overall Peak Hour

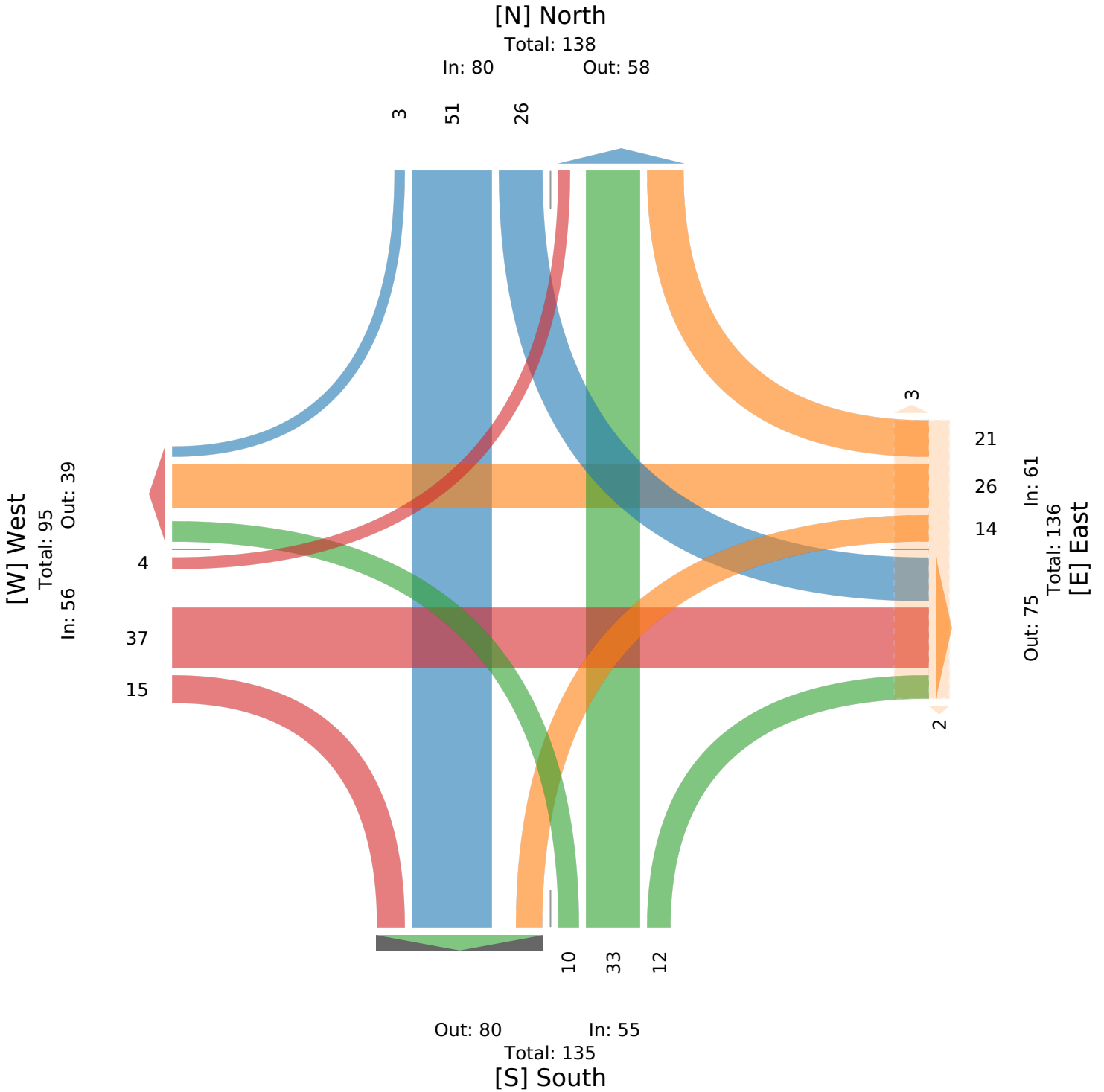
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 865678, Location: 49.099119, -116.513436



Provided by: Watt Consulting Group
791 Goldstream Ave, #201,
Victoria, BC, V9B 2X5, CA



Devon St. & Northwest Blvd (south) - TMC

Wed Aug 18, 2021

Full Length (7 AM-9 AM, 3 PM-5 PM)

All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 865679, Location: 49.106339, -116.521227



Provided by: Watt Consulting Group
791 Goldstream Ave, #201,
Victoria, BC, V9B 2X5, CA

Leg Direction	East					South					North					Int
	Westbound					Northbound					Southbound					
Time	L	R	U	App	Ped*	T	R	U	App	Ped*	L	T	U	App	Ped*	
2021-08-18 7:00AM	1	2	0	3	0	43	0	0	43	0	1	47	0	48	0	94
7:15AM	1	5	0	6	0	54	0	0	54	0	0	47	0	47	0	107
7:30AM	2	2	0	4	0	56	2	0	58	0	0	43	0	43	0	105
7:45AM	2	1	0	3	0	82	0	0	82	0	0	56	0	56	0	141
Hourly Total	6	10	0	16	0	235	2	0	237	0	1	193	0	194	0	447
8:00AM	1	1	0	2	1	61	2	0	63	0	0	74	0	74	0	139
8:15AM	6	2	0	8	3	68	4	0	72	0	3	86	0	89	0	169
8:30AM	2	5	0	7	0	69	2	0	71	0	2	84	0	86	0	164
8:45AM	2	3	0	5	1	71	1	0	72	0	5	104	0	109	1	186
Hourly Total	11	11	0	22	5	269	9	0	278	0	10	348	0	358	1	658
3:00PM	5	8	0	13	3	135	8	0	143	0	2	115	0	117	0	273
3:15PM	4	2	0	6	6	125	5	0	130	0	5	126	0	131	0	267
3:30PM	4	1	0	5	11	145	3	0	148	0	2	128	0	130	0	283
3:45PM	5	3	0	8	5	115	10	0	125	0	2	110	0	112	0	245
Hourly Total	18	14	0	32	25	520	26	0	546	0	11	479	0	490	0	1068
4:00PM	3	5	0	8	0	98	6	0	104	0	8	108	0	116	0	228
4:15PM	7	1	0	8	0	71	6	0	77	0	2	111	0	113	0	198
4:30PM	4	2	0	6	5	76	3	0	79	0	4	96	0	100	0	185
4:45PM	5	2	0	7	1	88	5	0	93	0	1	83	0	84	0	184
Hourly Total	19	10	0	29	6	333	20	0	353	0	15	398	0	413	0	795
Total	54	45	0	99	36	1357	57	0	1414	0	37	1418	0	1455	1	2968
% Approach	54.5%	45.5%	0%	-	-	96.0%	4.0%	0%	-	-	2.5%	97.5%	0%	-	-	-
% Total	1.8%	1.5%	0%	3.3%	-	45.7%	1.9%	0%	47.6%	-	1.2%	47.8%	0%	49.0%	-	-
Lights and Motorcycles	52	45	0	97	-	1290	57	0	1347	-	36	1352	0	1388	-	2832
% Lights and Motorcycles	96.3%	100%	0%	98.0%	-	95.1%	100%	0%	95.3%	-	97.3%	95.3%	0%	95.4%	-	95.4%
Heavy	2	0	0	2	-	63	0	0	63	-	1	62	0	63	-	128
% Heavy	3.7%	0%	0%	2.0%	-	4.6%	0%	0%	4.5%	-	2.7%	4.4%	0%	4.3%	-	4.3%
Bicycles on Road	0	0	0	0	-	4	0	0	4	-	0	4	0	4	-	8
% Bicycles on Road	0%	0%	0%	0%	-	0.3%	0%	0%	0.3%	-	0%	0.3%	0%	0.3%	-	0.3%
Pedestrians	-	-	-	-	36	-	-	-	-	0	-	-	-	-	1	-
% Pedestrians	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Devon St. & Northwest Blvd (south) - TMC

Wed Aug 18, 2021

Full Length (7 AM-9 AM, 3 PM-5 PM)

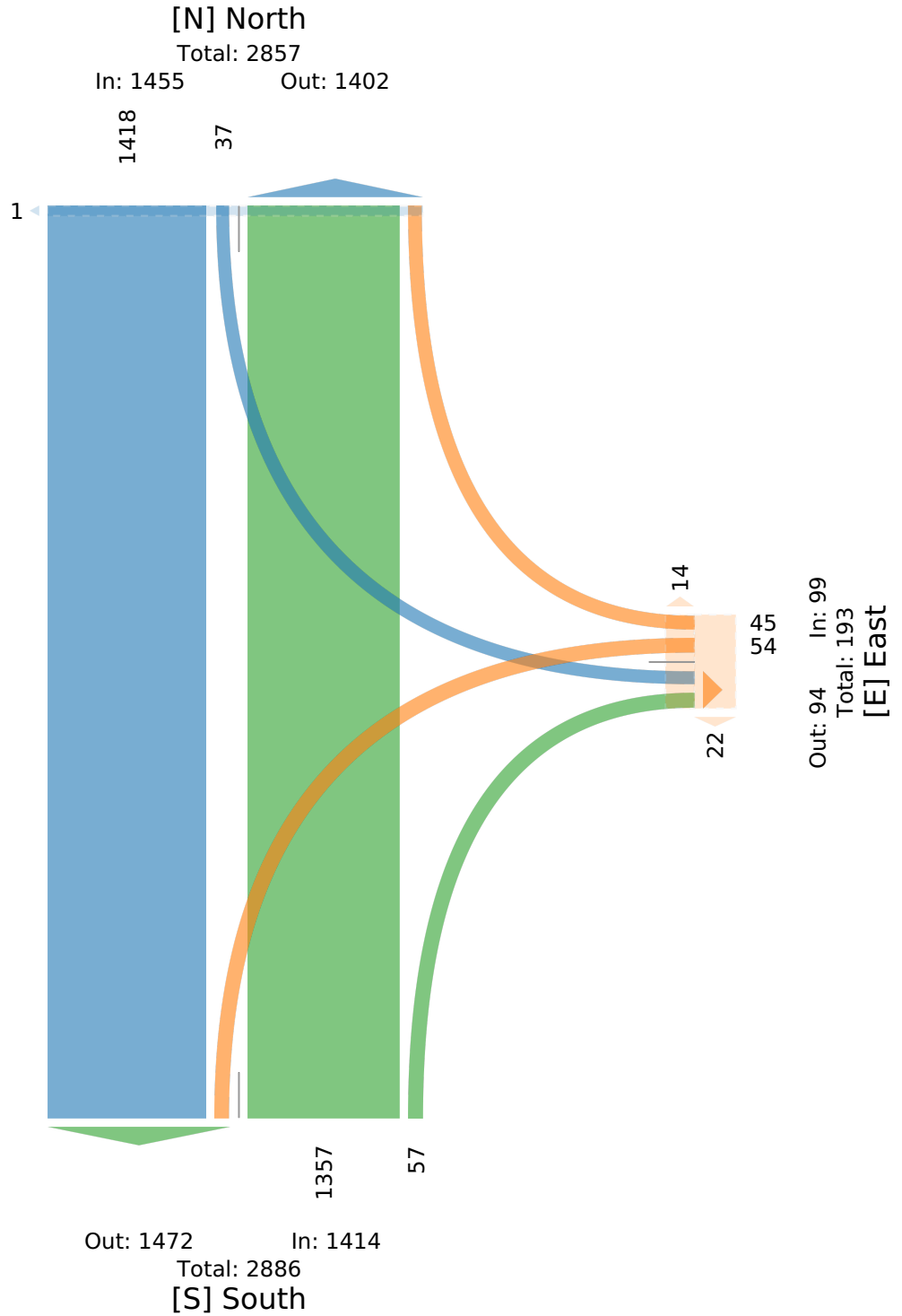
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 865679, Location: 49.106339, -116.521227



Provided by: Watt Consulting Group
791 Goldstream Ave, #201,
Victoria, BC, V9B 2X5, CA



Devon St. & Northwest Blvd (south) - TMC

Wed Aug 18, 2021

AM Peak (8 AM - 9 AM)

All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 865679, Location: 49.106339, -116.521227



Provided by: Watt Consulting Group
791 Goldstream Ave, #201,
Victoria, BC, V9B 2X5, CA

Leg Direction	East					South					North					Int
	Westbound					Northbound					Southbound					
Time	L	R	U	App	Ped*	T	R	U	App	Ped*	L	T	U	App	Ped*	
2021-08-18 8:00AM	1	1	0	2	1	61	2	0	63	0	0	74	0	74	0	139
8:15AM	6	2	0	8	3	68	4	0	72	0	3	86	0	89	0	169
8:30AM	2	5	0	7	0	69	2	0	71	0	2	84	0	86	0	164
8:45AM	2	3	0	5	1	71	1	0	72	0	5	104	0	109	1	186
Total	11	11	0	22	5	269	9	0	278	0	10	348	0	358	1	658
% Approach	50.0%	50.0%	0%	-	-	96.8%	3.2%	0%	-	-	2.8%	97.2%	0%	-	-	-
% Total	1.7%	1.7%	0%	3.3%	-	40.9%	1.4%	0%	42.2%	-	1.5%	52.9%	0%	54.4%	-	-
PHF	0.458	0.550	-	0.688	-	0.947	0.563	-	0.965	-	0.500	0.840	-	0.824	-	0.886
Lights and Motorcycles	10	11	0	21	-	248	9	0	257	-	10	333	0	343	-	621
% Lights and Motorcycles	90.9%	100%	0%	95.5%	-	92.2%	100%	0%	92.4%	-	100%	95.7%	0%	95.8%	-	94.4%
Heavy	1	0	0	1	-	21	0	0	21	-	0	13	0	13	-	35
% Heavy	9.1%	0%	0%	4.5%	-	7.8%	0%	0%	7.6%	-	0%	3.7%	0%	3.6%	-	5.3%
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	2	0	2	-	2
% Bicycles on Road	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0.6%	0%	0.6%	-	0.3%
Pedestrians	-	-	-	-	5	-	-	-	-	0	-	-	-	-	1	-
% Pedestrians	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Devon St. & Northwest Blvd (south) - TMC

Wed Aug 18, 2021

AM Peak (8 AM - 9 AM)

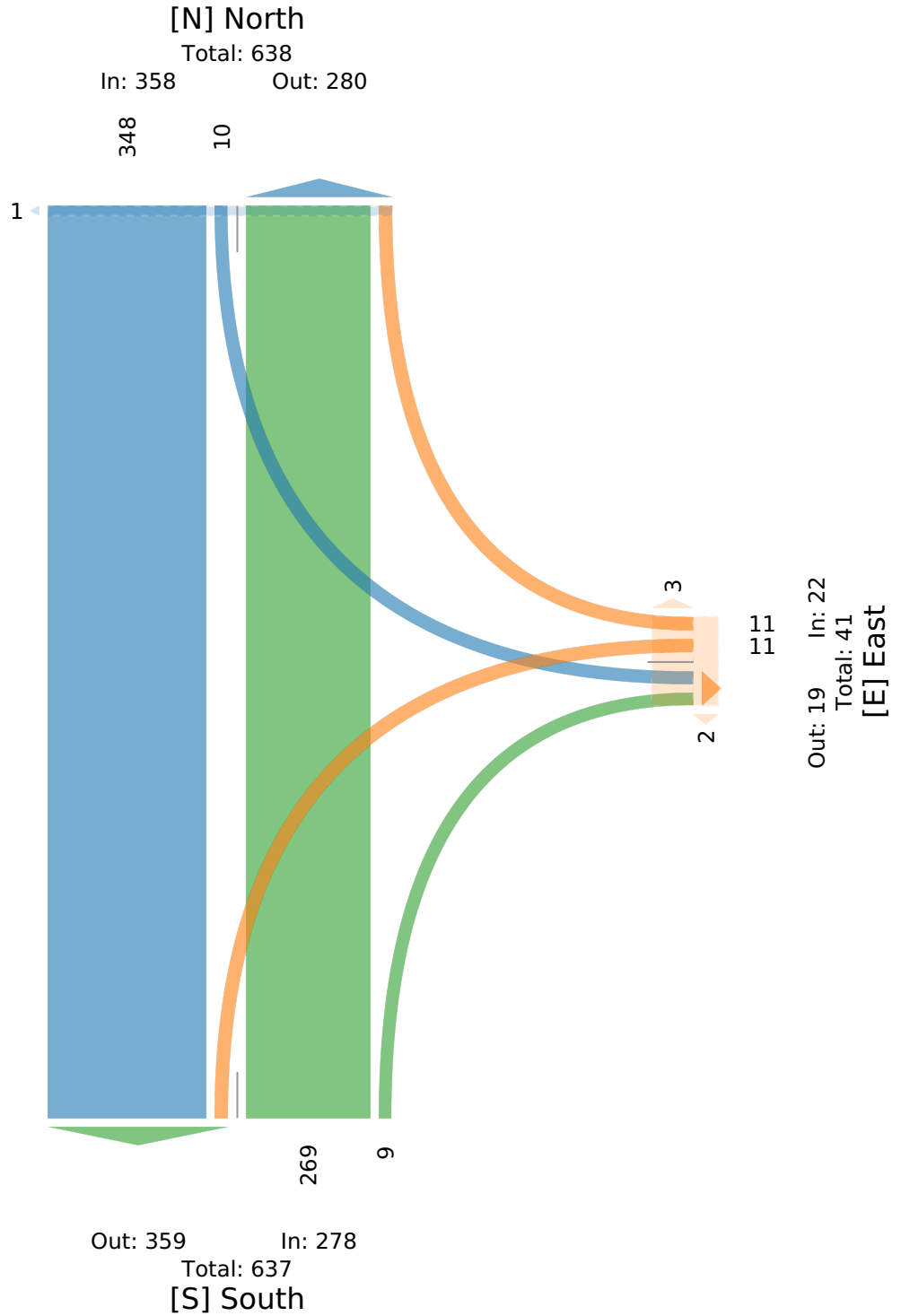
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 865679, Location: 49.106339, -116.521227



Provided by: Watt Consulting Group
791 Goldstream Ave, #201,
Victoria, BC, V9B 2X5, CA



Devon St. & Northwest Blvd (south) - TMC

Wed Aug 18, 2021

PM Peak (3 PM - 4 PM) - Overall Peak Hour

All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 865679, Location: 49.106339, -116.521227



Provided by: Watt Consulting Group
791 Goldstream Ave, #201,
Victoria, BC, V9B 2X5, CA

Leg Direction	East					South					North					Int
	Westbound					Northbound					Southbound					
Time	L	R	U	App	Ped*	T	R	U	App	Ped*	L	T	U	App	Ped*	
2021-08-18 3:00PM	5	8	0	13	3	135	8	0	143	0	2	115	0	117	0	273
3:15PM	4	2	0	6	6	125	5	0	130	0	5	126	0	131	0	267
3:30PM	4	1	0	5	11	145	3	0	148	0	2	128	0	130	0	283
3:45PM	5	3	0	8	5	115	10	0	125	0	2	110	0	112	0	245
Total	18	14	0	32	25	520	26	0	546	0	11	479	0	490	0	1068
% Approach	56.3%	43.8%	0%	-	-	95.2%	4.8%	0%	-	-	2.2%	97.8%	0%	-	-	-
% Total	1.7%	1.3%	0%	3.0%	-	48.7%	2.4%	0%	51.1%	-	1.0%	44.9%	0%	45.9%	-	-
PHF	0.900	0.438	-	0.615	-	0.897	0.650	-	0.922	-	0.550	0.939	-	0.931	-	0.945
Lights and Motorcycles	17	14	0	31	-	499	26	0	525	-	10	463	0	473	-	1029
% Lights and Motorcycles	94.4%	100%	0%	96.9%	-	96.0%	100%	0%	96.2%	-	90.9%	96.7%	0%	96.5%	-	96.3%
Heavy	1	0	0	1	-	21	0	0	21	-	1	14	0	15	-	37
% Heavy	5.6%	0%	0%	3.1%	-	4.0%	0%	0%	3.8%	-	9.1%	2.9%	0%	3.1%	-	3.5%
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	2	0	2	-	2
% Bicycles on Road	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0.4%	0%	0.4%	-	0.2%
Pedestrians	-	-	-	-	25	-	-	-	-	0	-	-	-	-	0	-
% Pedestrians	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Devon St. & Northwest Blvd (south) - TMC

Wed Aug 18, 2021

PM Peak (3 PM - 4 PM) - Overall Peak Hour

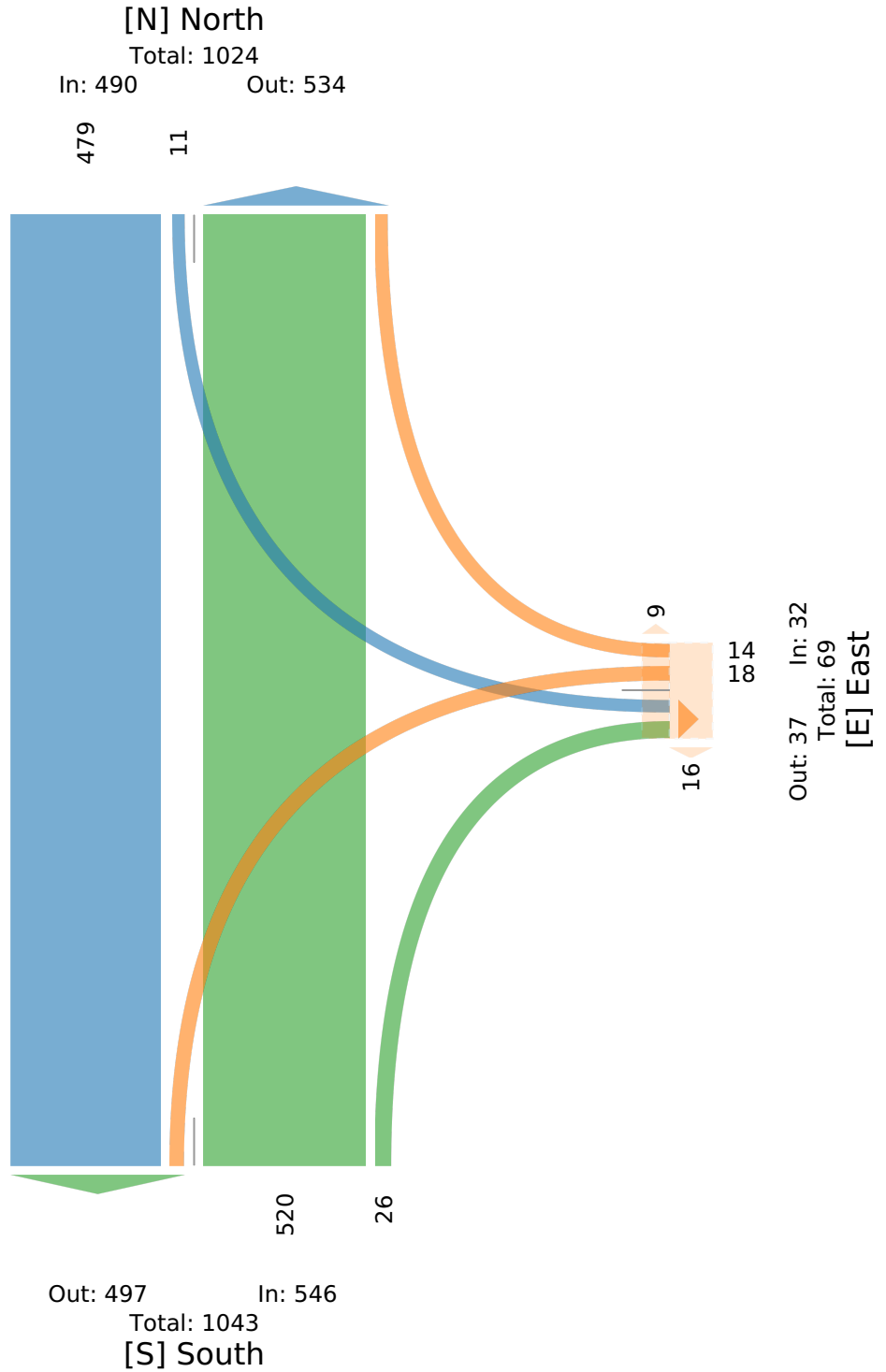
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 865679, Location: 49.106339, -116.521227



Provided by: Watt Consulting Group
791 Goldstream Ave, #201,
Victoria, BC, V9B 2X5, CA



Intersection Turning Movement Count Summary

N/S Street: Northwest Blvd. (HWY 3)
 E/W Street: Cavell Street
 LOCATION: Creston BC
 DATE: 2021,08,18
 WEATHER: Sunny
 JOB #: 3065.B01

Observer: Kari Anderson
 Notes: _____

TOTAL HOURS =

Speed Limit Major Street:	50 km/h
Speed Limit Minor Street:	40 km/h

Vehicles

TIME		Northbound			Southbound			Eastbound			Westbound			Total Volume	Hourly Volume	Pedestrians			
From	To	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT			N	S	E	W
7:00	7:15		42	3	5	40					7		2	99		3			
7:15	7:30		41	4	5	32					5		8	95					
7:30	7:45		41	5	7	37					2		4	96					
7:45	8:00		73	5	6	49					6		5	144	434				
8:00	8:15		56	7	7	60					6		3	139	474				
8:15	8:30		66	8	4	88					3		3	172	551				
8:30	8:45		67	10	9	65					10		5	166	621				
8:45	9:00		62	9	11	85					6		11	184	661			1	
Total		0	448	51	54	456	0	0	0	0	45	0	41			3	0	1	0
Peak Hour		0	251	34	31	298	0	0	0	0	25	0	22			0	0	1	0
PHF		0.00	0.94	0.85	0.70	0.85	0.00	0.00	0.00	0.00	0.63	0.00	0.50						

Heavy Vehicles

TIME		Northbound			Southbound			Eastbound			Westbound		
From	To	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
7:00	7:15		4			7							
7:15	7:30		6			2							
7:30	7:45		3			3							
7:45	8:00			1		2							
8:00	8:15		5			4							
8:15	8:30		4			2							1
8:30	8:45		3			2							
8:45	9:00		4			2					1		
Total		0	29	1	0	24	0	0	0	0	1	0	1
Peak Hour		0	16	0	0	10	0	0	0	0	1	0	1
% Heavy Vehicles		0%	6%	0%	0%	3%	0%	0%	0%	0%	4%	0%	5%

Bicycles

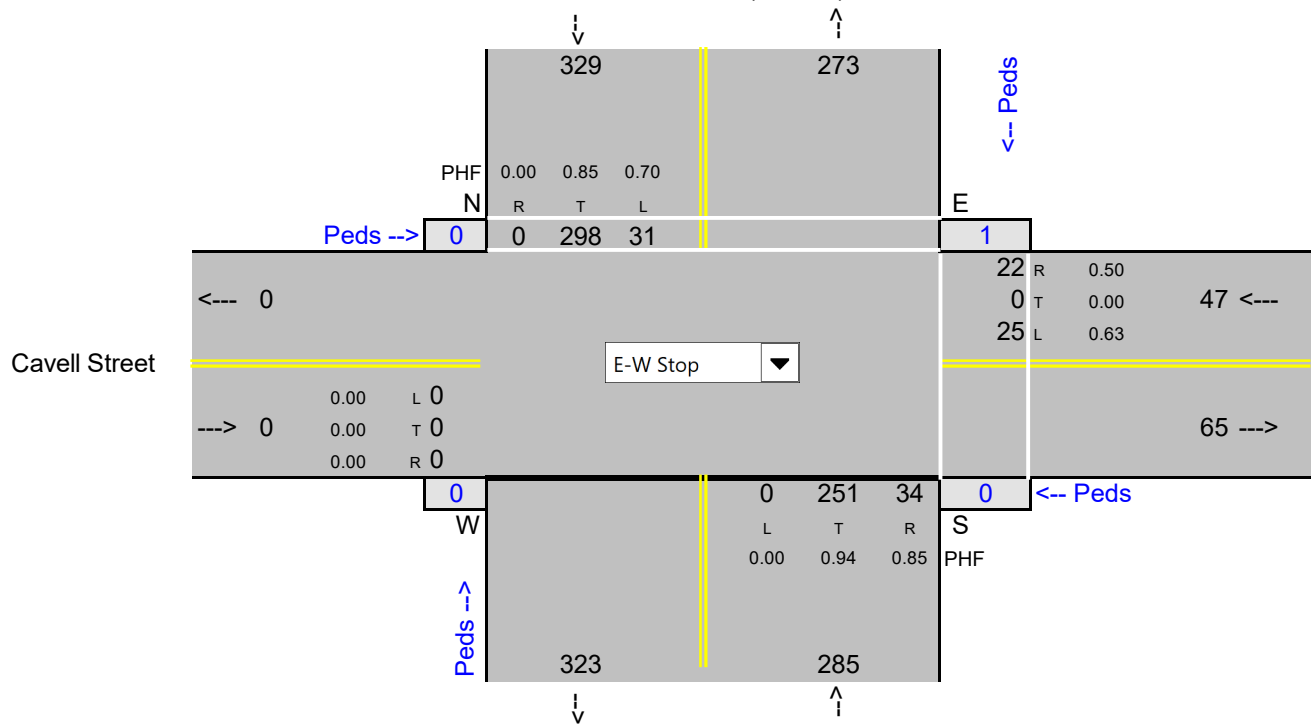
TIME		Northbound			Southbound			Eastbound			Westbound		
From	To	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
7:00	7:15												
7:15	7:30												
7:30	7:45		1										
7:45	8:00		2										
8:00	8:15												
8:15	8:30												
8:30	8:45				1								
8:45	9:00					1							1
Total		0	3	0	1	1	0	0	0	0	0	0	1
Peak Hour		0	0	0	1	1	0	0	0	0	0	0	1

Peak Hour Volumes

Peak Hour Volumes

Northwest Blvd. (HWY 3)

7:00 AM to 9:00 AM



Intersection Turning Movement Count Summary

N/S Street: Northwest Blvd. (HWY 3)
 E/W Street: Cavell Street
 LOCATION: Creston BC
 DATE: 2021,08,18
 WEATHER: Sunny
 JOB #: 3065.B01

Observer: Kari Anderson
 Notes: _____

TOTAL HOURS =

Speed Limit Major Street:	50 km/h
Speed Limit Minor Street:	40 km/h

Vehicles

TIME	From	To	Northbound			Southbound			Eastbound			Westbound			Total Volume	Hourly Volume	Pedestrians			
			LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT			N	S	E	W
	15:00	15:15		128	21	20	84				18		8	279						
	15:15	15:30		110	18	15	99				18		10	270						
	15:30	15:45		116	23	11	110				16		7	283				1		
	15:45	16:00		101	20	10	96				17		5	249	1081					
	16:00	16:15		80	23	24	87				19		8	241	1043					
	16:15	16:30		55	20	12	81				17		14	199	972	1				
	16:30	16:45		53	19	7	83				23		10	195	884			1		
	16:45	17:00		78	13	9	69				14		6	189	824					
Total			0	721	157	108	709	0	0	0	142	0	68			1	0	2	0	
Peak Hour			0	455	82	56	389	0	0	0	69	0	30			0	0	1	0	
PHF			0.00	0.89	0.89	0.70	0.88	0.00	0.00	0.00	0.96	0.00	0.75							

Heavy Vehicles

TIME	From	To	Northbound			Southbound			Eastbound			Westbound		
			LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
	15:00	15:15		2			5							
	15:15	15:30		3	1		3							
	15:30	15:45		5			2							
	15:45	16:00		3			2				1			
	16:00	16:15		1	1		2							
	16:15	16:30		1		1	4				1			
	16:30	16:45		2			2							
	16:45	17:00		1			4							
Total			0	18	2	1	24	0	0	0	2	0	0	
Peak Hour			0	13	1	0	12	0	0	0	1	0	0	
% Heavy Vehicles			0%	3%	1%	0%	3%	0%	0%	0%	1%	0%	0%	

Bicycles

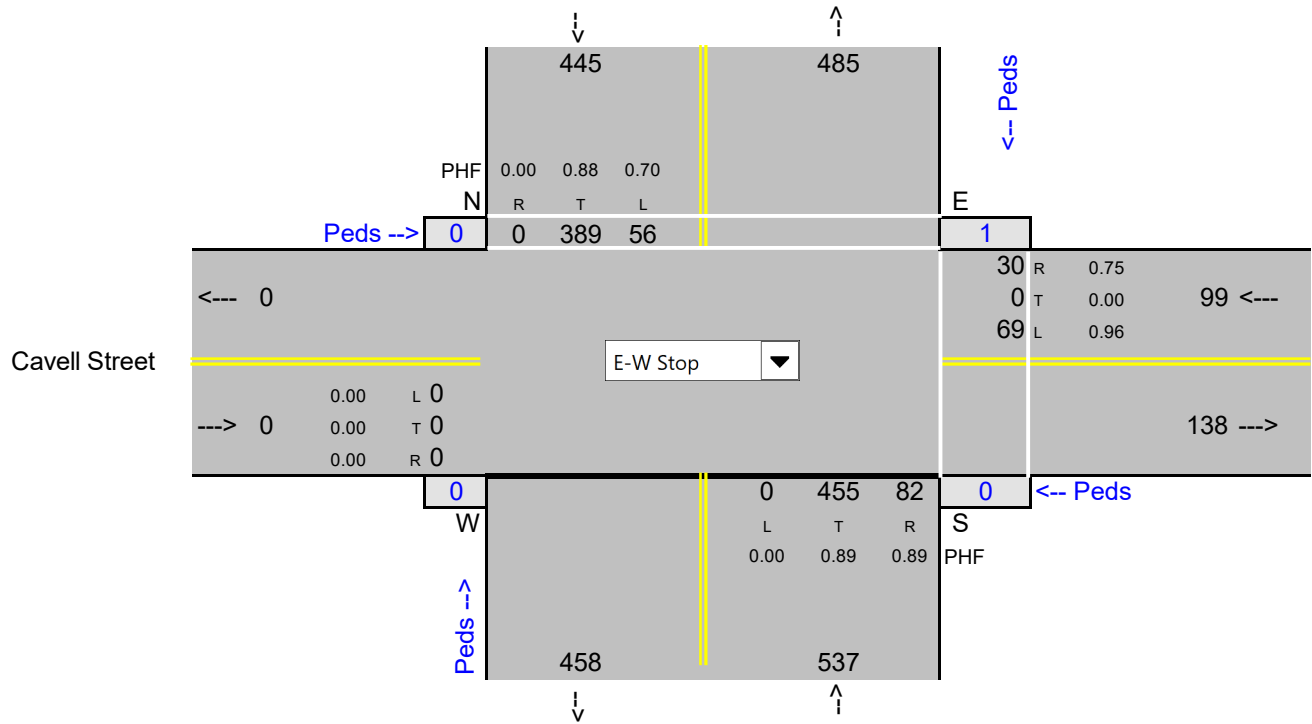
TIME	From	To	Northbound			Southbound			Eastbound			Westbound		
			LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
	15:00	15:15				1								
	15:15	15:30									1			
	15:30	15:45				2					1			
	15:45	16:00									1			
	16:00	16:15												
	16:15	16:30												
	16:30	16:45												
	16:45	17:00												
Total			0	0	0	3	0	0	0	0	3	0	0	
Peak Hour			0	0	0	3	0	0	0	0	3	0	0	

Peak Hour Volumes

Peak Hour Volumes

Northwest Blvd. (HWY 3)

3:00 PM to 5:00 PM



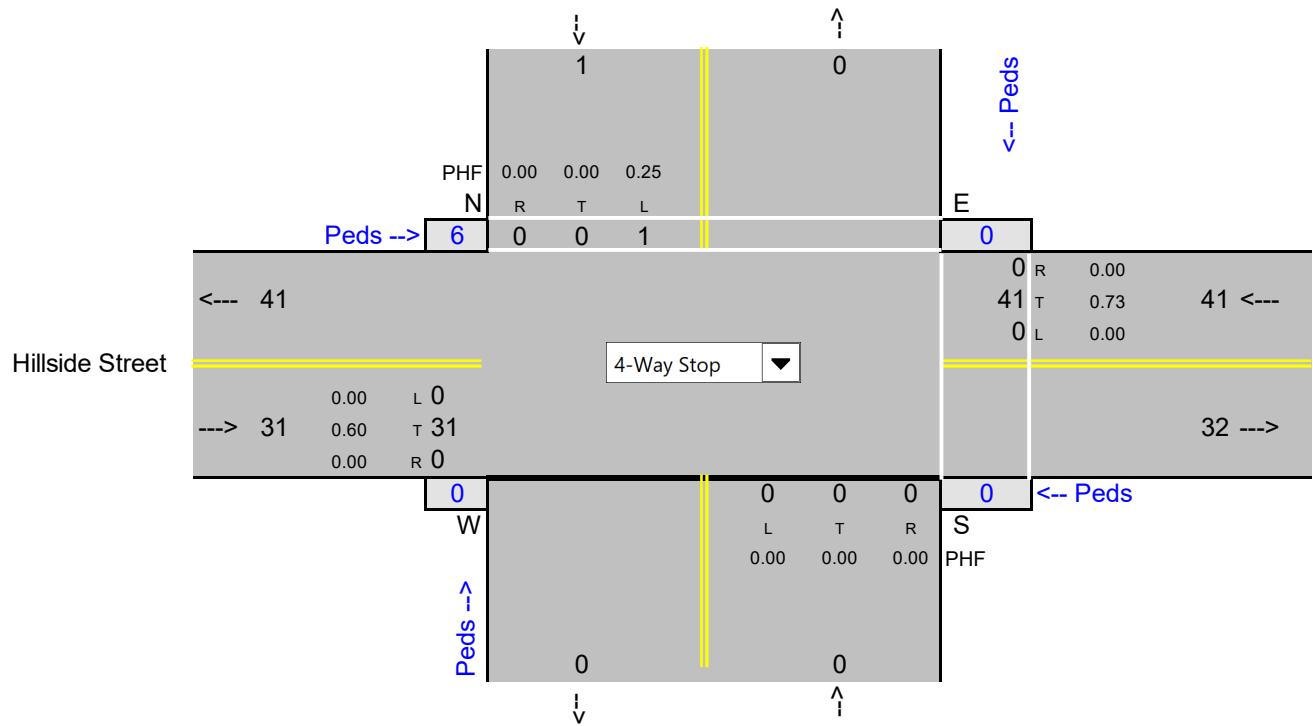
Peak Hour Volumes

Peak Hour Volumes

7th Avenue

PM to

PM

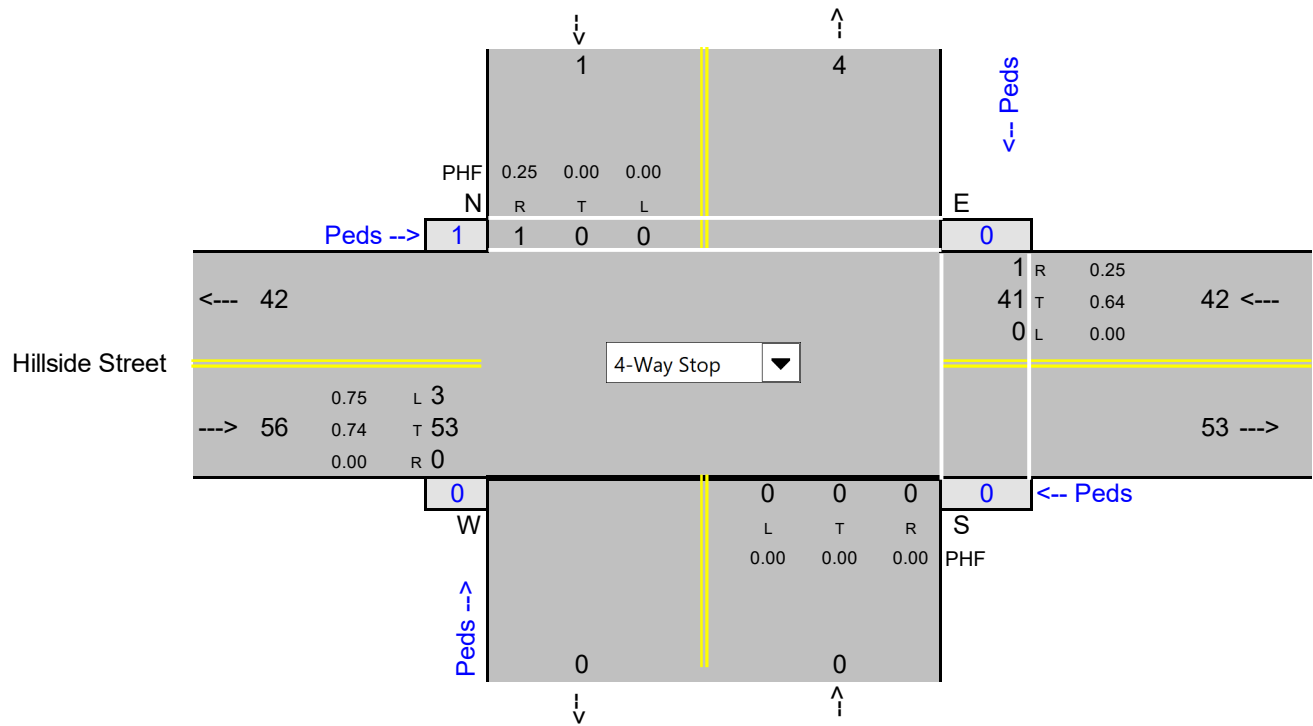


Peak Hour Volumes

Peak Hour Volumes

7th Avenue

3:00 PM to 5:00 PM



Intersection Turning Movement Count Summary

N/S Street: 16th Avenue
 E/W Street: Hillside Street
 LOCATION: Creston BC
 DATE: 2021,08,17
 WEATHER: Sunny
 JOB #: 3065.B01

Observer: Kari Anderson
 Notes: Combined from miovision count sheets

TOTAL HOURS =

Speed Limit Major Street:	50 km/h
Speed Limit Minor Street:	50 km/h

Vehicles

TIME	From	To	Northbound			Southbound			Eastbound			Westbound			Total Volume	Hourly Volume	Pedestrians				
			LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT			N	S	E	W	
	7:00	7:15	1	2	1	1	4	2	1	1	2	1	2	0	18		0	0	0	0	
	7:15	7:30	3	1	1	0	4	4	0	3	2	1	1	1	21		1	0	0	0	
	7:30	7:45	3	3	1	0	3	2	1	2	2	1	4	0	22		2	1	0	1	
	7:45	8:00	7	3	3	0	4	4	1	5	4	1	3	0	35	96	2	1	0	1	
	8:00	8:15	5	3	2	1	8	0	2	3	8	2	3	0	37	115	0	0	0	0	
	8:15	8:30	3	3	5	0	6	6	0	1	3	0	3	0	30	124	0	0	0	1	
	8:30	8:45	5	4	0	1	3	4	4	4	9	0	3	0	37	139	0	1	0	0	
	8:45	9:00	8	7	3	0	8	5	4	6	10	2	3	1	57	161	0	0	0	1	
Total			35	26	16	3	40	27	13	25	40	8	22	2			5	3	0	4	
Peak Hour			21	17	10	2	25	15	10	14	30	4	12	1			0	1	0	2	
PHF			0.66	0.61	0.50	0.50	0.78	0.63	0.63	0.58	0.75	0.50	1.00	0.25							

Heavy Vehicles

TIME	From	To	Northbound			Southbound			Eastbound			Westbound		
			LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
	7:00	7:15	0	0	0	0	0	0	0	0	1	0	0	0
	7:15	7:30	0	0	0	0	0	0	0	0	0	0	1	0
	7:30	7:45	0	0	1	0	0	0	0	0	0	0	0	0
	7:45	8:00	0	0	1	0	0	2	0	0	0	0	0	0
	8:00	8:15	0	0	0	0	0	0	0	0	0	0	0	0
	8:15	8:30	0	0	0	0	0	0	0	0	0	0	0	0
	8:30	8:45	2	0	0	0	0	0	0	0	0	0	0	0
	8:45	9:00	0	0	0	0	0	0	0	0	0	0	0	0
Total			2	0	2	0	0	2	0	0	1	0	1	0
Peak Hour			2	0	0	0	0	0	0	0	0	0	0	0
% Heavy Vehicles			10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Bicycles

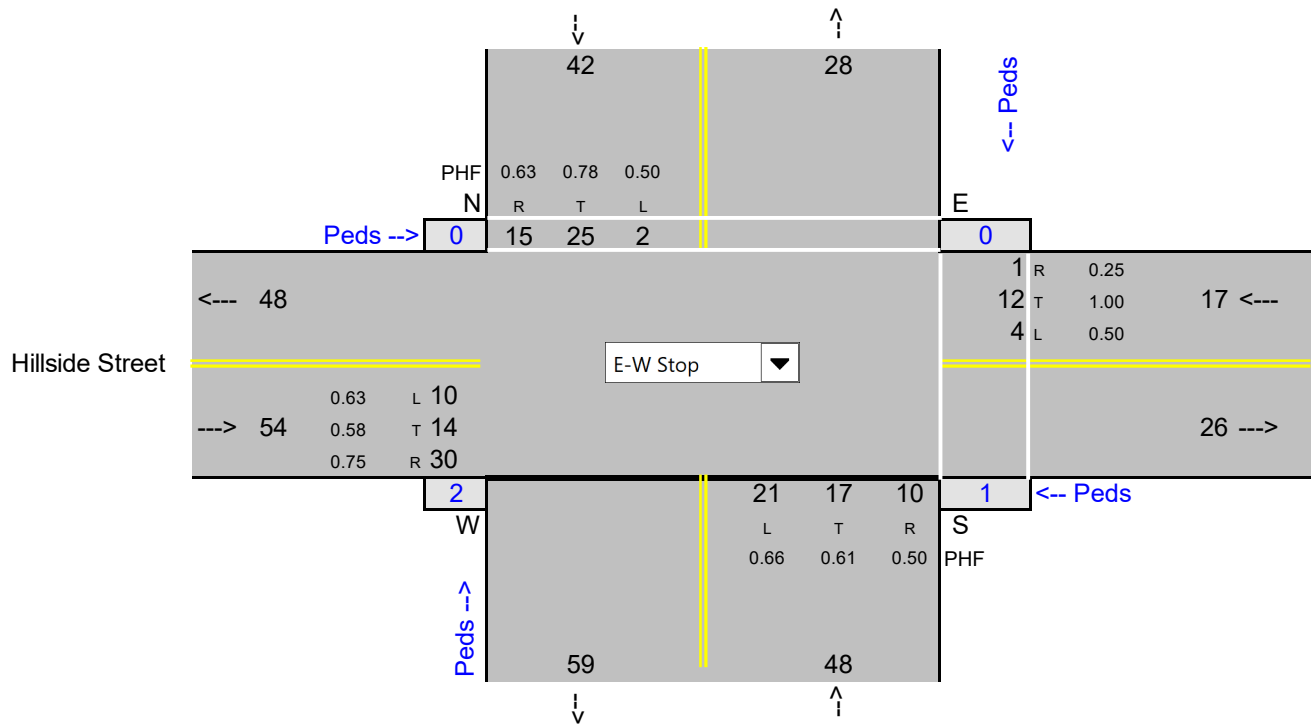
TIME	From	To	Northbound			Southbound			Eastbound			Westbound		
			LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
	7:00	7:15	0	0	0	0	0	0	0	0	0	0	0	0
	7:15	7:30	0	0	0	0	0	0	0	0	0	0	0	0
	7:30	7:45	0	0	0	0	0	0	0	0	0	0	0	0
	7:45	8:00	0	0	0	0	0	0	0	0	0	0	0	0
	8:00	8:15	0	0	0	0	0	0	0	0	0	0	0	0
	8:15	8:30	0	0	0	0	0	1	1	0	0	0	0	0
	8:30	8:45	0	1	0	0	0	1	0	0	0	0	0	0
	8:45	9:00	0	0	0	0	0	0	0	0	0	0	0	0
Total			0	1	0	0	0	2	1	0	0	0	0	0
Peak Hour			0	1	0	0	0	2	1	0	0	0	0	0

Peak Hour Volumes

Peak Hour Volumes

16th Avenue

7:00 AM to 9:00 AM

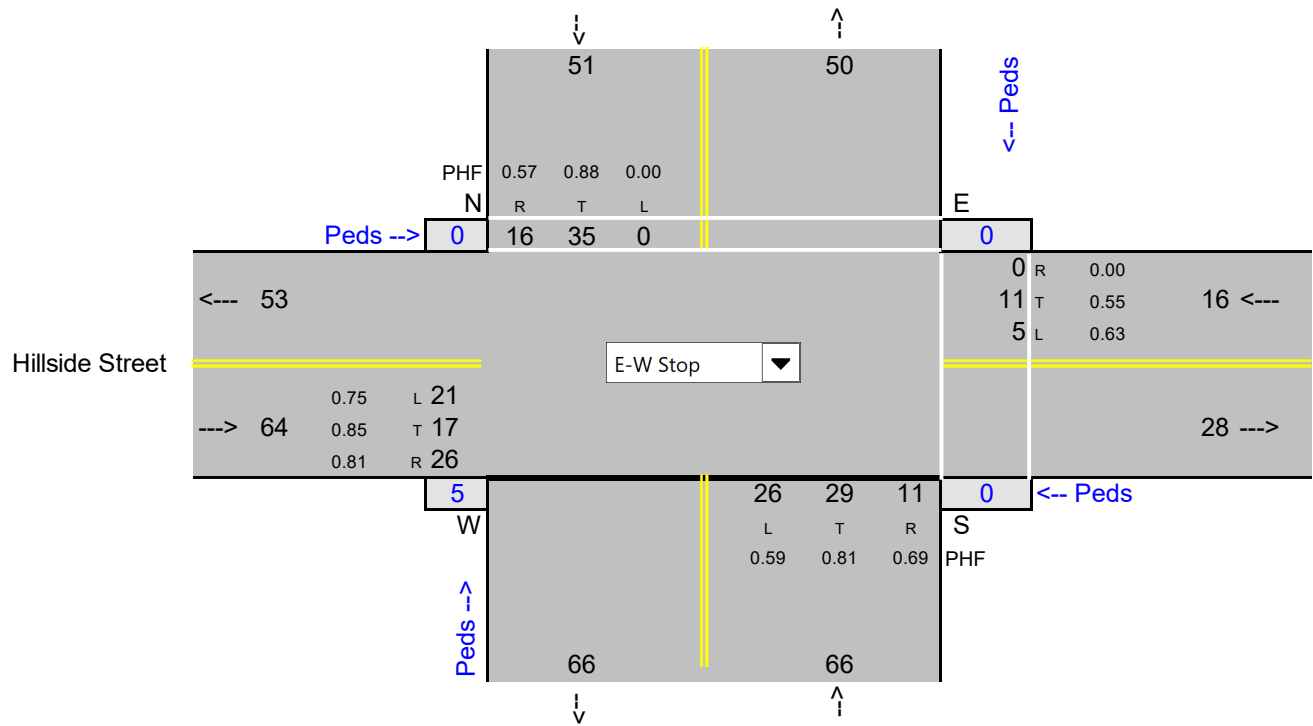


Peak Hour Volumes

Peak Hour Volumes

16th Avenue

3:00 PM to 5:00 PM



Intersection Turning Movement Count Summary

N/S Street: Northwest Blvd. (HWY 3)
 E/W Street: Devon Street
 LOCATION: Creston BC
 DATE: 2021,08,18
 WEATHER: Sunny
 JOB #: 3065.B01

Observer: Kari Anderson
 Notes: Combined from miovision count sheets

TOTAL HOURS =

Speed Limit Major Street:	60 km/h
Speed Limit Minor Street:	50 km/h

Vehicles

TIME		Northbound			Southbound			Eastbound			Westbound			Total Volume	Hourly Volume	Pedestrians			
From	To	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT			N	S	E	W
7:00	7:15	1	45	0	0	46	1	4	0	1	0	0	0	98		0	0	0	2
7:15	7:30	3	60	0	0	48	1	1	0	2	0	0	0	115		0	0	0	0
7:30	7:45	2	48	0	0	40	4	0	0	0	0	0	0	94		0	0	0	0
7:45	8:00	2	79	0	0	56	4	2	0	2	0	0	0	145	452	0	0	1	0
8:00	8:15	1	64	0	0	73	1	1	0	2	0	0	0	142	496	0	0	2	1
8:15	8:30	2	68	0	0	89	2	0	0	4	0	0	0	165	546	0	1	2	0
8:30	8:45	3	73	0	0	82	4	1	0	4	0	0	0	167	619	0	1	0	0
8:45	9:00	5	69	0	0	101	6	1	0	7	0	0	0	189	663	0	1	1	0
Total		19	506	0	0	535	23	10	0	22	0	0	0			0	3	6	3
Peak Hour		11	274	0	0	345	13	3	0	17	0	0	0			0	3	5	1
PHF		0.55	0.94	0.00	0.00	0.85	0.54	0.75	0.00	0.61	0.00	0.00	0.00						

Heavy Vehicles

TIME		Northbound			Southbound			Eastbound			Westbound		
From	To	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
7:00	7:15	0	4	0	0	5	0	0	0	0	0	0	0
7:15	7:30	2	6	0	0	6	0	0	0	0	0	0	0
7:30	7:45	1	3	0	0	3	1	0	0	0	0	0	0
7:45	8:00	1	1	0	0	3	0	0	0	0	0	0	0
8:00	8:15	0	6	0	0	4	0	0	0	0	0	0	0
8:15	8:30	0	6	0	0	2	0	0	0	0	0	0	0
8:30	8:45	0	4	0	0	2	0	0	0	0	0	0	0
8:45	9:00	0	3	0	0	3	0	0	0	0	0	0	0
Total		4	33	0	0	28	1	0	0	0	0	0	0
Peak Hour		0	19	0	0	11	0	0	0	0	0	0	0
% Heavy Vehicles		0%	7%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%

Bicycles

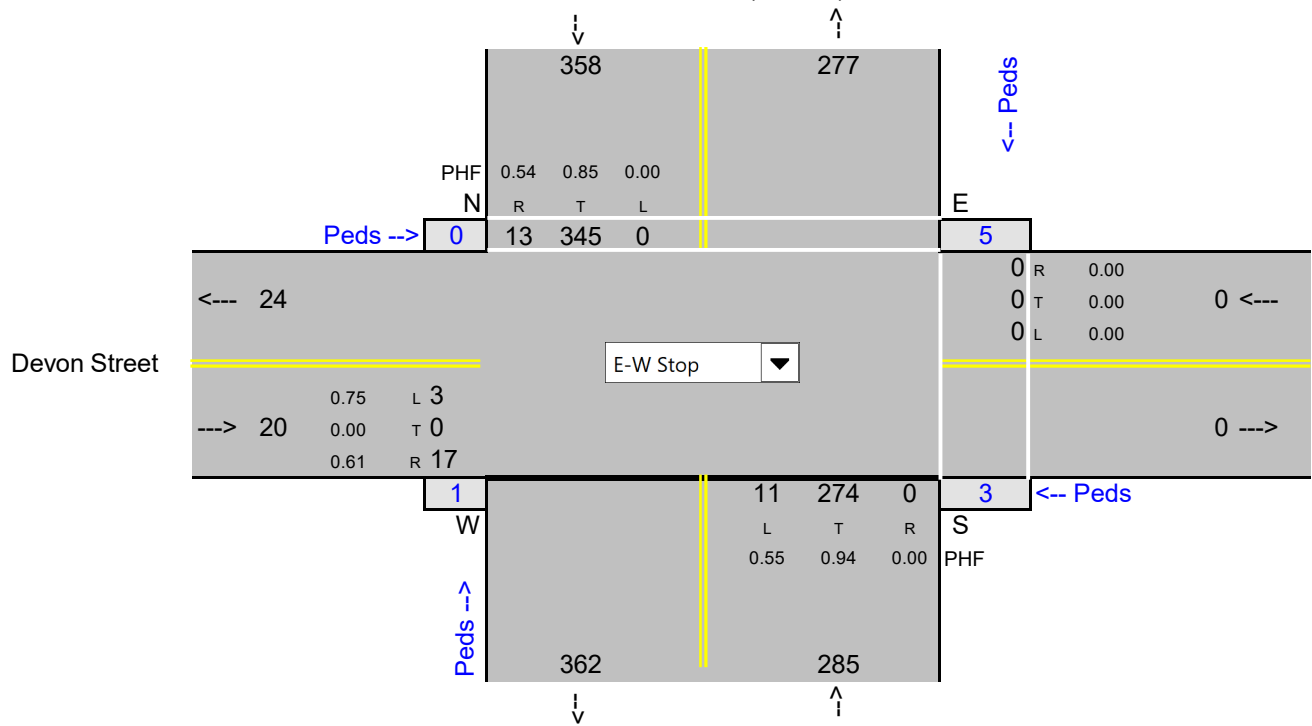
TIME		Northbound			Southbound			Eastbound			Westbound		
From	To	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
7:00	7:15	0	0	0	0	0	0	0	0	0	0	0	0
7:15	7:30	0	0	0	0	0	0	0	0	0	0	0	0
7:30	7:45	1	0	0	0	0	0	0	0	0	0	0	0
7:45	8:00	2	0	0	0	0	0	0	0	0	0	0	0
8:00	8:15	0	0	0	0	0	0	0	0	0	0	0	0
8:15	8:30	0	0	0	0	0	0	0	0	0	0	0	0
8:30	8:45	0	0	0	0	1	0	0	0	0	0	0	0
8:45	9:00	0	0	0	0	0	0	0	0	0	0	0	0
Total		3	0	0	0	1	0	0	0	0	0	0	0
Peak Hour		0	0	0	0	1	0	0	0	0	0	0	0

Peak Hour Volumes

Peak Hour Volumes

Northwest Blvd. (HWY 3)

7:00 AM to 9:00 AM



Intersection Turning Movement Count Summary

N/S Street: Northwest Blvd. (HWY 3)
 E/W Street: Devon Street
 LOCATION: Creston BC
 DATE: 2021,08,18
 WEATHER: Sunny
 JOB #: 3065.B01

Observer: Kari Anderson
 Notes: Combined from miovision count sheets

TOTAL HOURS =

Speed Limit Major Street:	60 km/h
Speed Limit Minor Street:	50 km/h

Vehicles

TIME		Northbound			Southbound			Eastbound			Westbound			Total Volume	Hourly Volume	Pedestrians			
From	To	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT			N	S	E	W
15:00	15:15	3	146	0	0	123	2	2	0	4	0	0	0	280		0	0	0	1
15:15	15:30	3	121	0	0	122	1	1	0	3	0	0	0	251		0	0	3	0
15:30	15:45	7	138	0	0	124	3	1	0	2	0	0	0	275		0	0	9	0
15:45	16:00	5	114	0	0	109	4	2	0	5	0	0	0	239	1045	0	0	1	0
16:00	16:15	5	98	0	1	110	5	2	0	8	0	0	0	229	994	0	0	2	0
16:15	16:30	8	65	0	0	105	7	1	0	7	0	0	0	193	936	0	0	0	1
16:30	16:45	8	71	0	0	96	3	2	0	3	0	0	0	183	844	2	0	4	1
16:45	17:00	4	88	0	1	81	2	2	0	2	0	0	0	180	785	0	0	0	0
Total		43	841	0	2	870	27	13	0	34	0	0	0			2	0	19	3
Peak Hour		18	519	0	0	478	10	6	0	14	0	0	0			0	0	13	1
PHF		0.64	0.89	0.00	0.00	0.96	0.63	0.75	0.00	0.70	0.00	0.00	0.00						

Heavy Vehicles

TIME		Northbound			Southbound			Eastbound			Westbound		
From	To	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
15:00	15:15	0	2	0	0	6	0	0	0	0	0	0	0
15:15	15:30	0	2	0	0	3	0	0	0	0	0	0	0
15:30	15:45	0	5	0	0	3	0	0	0	0	0	0	0
15:45	16:00	0	3	0	0	2	0	0	0	0	0	0	0
16:00	16:15	0	1	0	0	2	0	0	0	0	0	0	0
16:15	16:30	0	1	0	0	5	0	0	0	0	0	0	0
16:30	16:45	0	1	0	0	2	0	0	0	0	0	0	0
16:45	17:00	0	1	0	0	3	0	0	0	0	0	0	0
Total		0	16	0	0	26	0	0	0	0	0	0	0
Peak Hour		0	12	0	0	14	0	0	0	0	0	0	0
% Heavy Vehicles		0%	2%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%

Bicycles

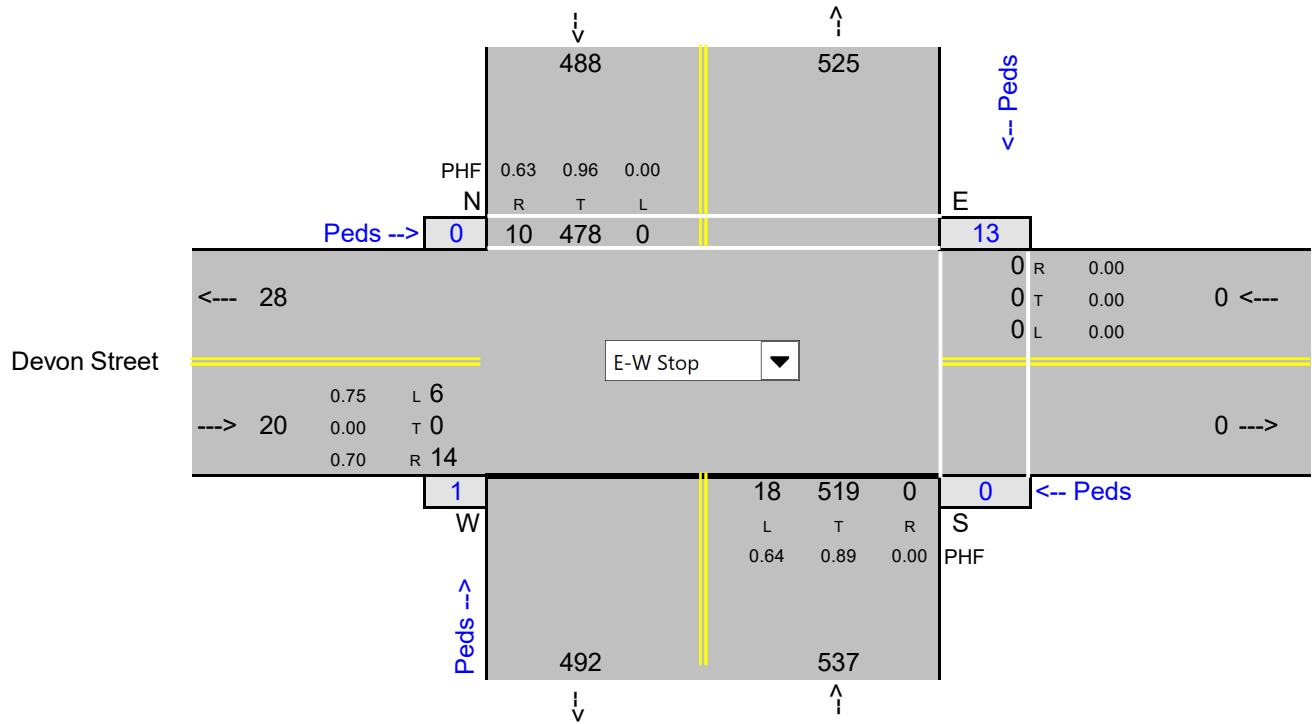
TIME		Northbound			Southbound			Eastbound			Westbound		
From	To	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
15:00	15:15	0	0	0	0	0	0	0	0	1	0	0	0
15:15	15:30	0	0	0	0	0	0	0	0	0	0	0	0
15:30	15:45	0	0	0	0	0	0	0	0	0	0	0	0
15:45	16:00	0	0	0	0	0	0	0	0	0	0	0	0
16:00	16:15	0	0	0	0	0	0	0	0	0	0	0	0
16:15	16:30	0	1	0	0	0	0	0	0	0	0	0	0
16:30	16:45	0	0	0	0	1	0	0	0	0	0	0	0
16:45	17:00	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	1	0	0	1	0	0	0	1	0	0	0
Peak Hour		0	0	0	0	0	0	0	0	1	0	0	0

Peak Hour Volumes

Peak Hour Volumes

Northwest Blvd. (HWY 3)

3:00 PM to 5:00 PM



Road Tube Count Summary Sheet

10th Avenue at #422

August 17, 2021

to

August 18, 2021

10th Avenue at #422	
24 Hour Traffic Total	1405
Posted Speed Limit	30 km/h
85th Percentile Speed	46 km/h

Directional Traffic Summary

Day		Northbound	Southbound	Total
Tuesday	08-17-2021	582	823	1405

Peak Hour Volume Summary

	Time	Northbound	Southbound	Total
AM Peak Hour	08:00-09:00	18	38	56
PM Peak Hour	15:00-16:00	58	89	147
Actual Peak Hr	11:00-12:00	64	106	170

*PM Peak Hour is selected between 14:00 and 17:00.
 AM Peak Hour is typically selected from 8:00 to 9:00.
 Actual Peak Hr has the greatest hourly volume of the day.

Speed Summary for 24 Hour Volumes

Two Way Total

	BINS (km/h)															Total
Speed	0-8	8-12	12-15	15-19	19-23	23-27	27-31	31-35	35-38	38-42	42-46	46-50	50-54	55+		
Total Vehicles	4	9	10	35	46	70	146	195	258	236	196	110	44	46	1405	
% of Total	0.3%	0.6%	0.7%	2.5%	3.3%	5.0%	10.4%	13.9%	18.4%	16.8%	14.0%	7.8%	3.1%	3.3%		
Cumulative %	0.3%	0.9%	1.6%	4.1%	7.4%	12.4%	22.8%	36.7%	55.0%	71.8%	85.8%	93.6%	96.7%	100.0%		
85th Percentile Speed:		46 km/h	50th Percentile Speed:		437 km/h											

Northbound

	BINS (km/h)															Total
Speed	0-8	8-12	12-15	15-19	19-23	23-27	27-31	31-35	35-38	38-42	42-46	46-50	50-54	55+		
Total Vehicles	0	3	6	14	20	22	50	69	99	94	95	58	24	28	582	
% of Total	0.0%	0.5%	1.0%	2.4%	3.4%	3.8%	8.6%	11.9%	17.0%	16.2%	16.3%	10.0%	4.1%	4.8%		
Cumulative %	0.0%	0.5%	1.5%	4.0%	7.4%	11.2%	19.8%	31.6%	48.6%	64.8%	81.1%	91.1%	95.2%	100.0%		
85th Percentile Speed:		47 km/h														

Southbound

	BINS (km/h)															Total
Speed	0-8	8-12	12-15	15-19	19-23	23-27	27-31	31-35	35-38	38-42	42-46	46-50	50-54	55+		
Total Vehicles	4	6	4	21	26	48	96	126	159	142	101	52	20	18	823	
% of Total	0.5%	0.7%	0.5%	2.6%	3.2%	5.8%	11.7%	15.3%	19.3%	17.3%	12.3%	6.3%	2.4%	2.2%		
Cumulative %	0.5%	1.2%	1.7%	4.3%	7.4%	13.2%	24.9%	40.2%	59.5%	76.8%	89.1%	95.4%	97.8%	100.0%		
85th Percentile Speed:		44 km/h														



Since 1983

Road Tube Count Summary Sheet

10th Avenue at #919

August 17, 2021

to

August 18, 2021

10th Avenue at #919	
24 Hour Traffic Total	1317
Posted Speed Limit	30 km/h
85th Percentile Speed	40 km/h

Directional Traffic Summary

Day		Southbound	Northbound	Total
Tuesday	08-17-2021	706	611	1317

Peak Hour Volume Summary

	Time	Southbound	Northbound	Total
AM Peak Hour	08:00-09:00	18	38	56
PM Peak Hour	15:00-16:00	76	48	124
Actual Peak Hr	11:00-12:00	100	63	163

*PM Peak Hour is selected between 14:00 and 17:00.

AM Peak Hour is typically selected from 8:00 to 9:00.

Actual Peak Hr has the greatest hourly volume of the day.

Speed Summary for 24 Hour Volumes

Two Way Total

	BINS (km/h)														Total	
	0-8	8-12	12-15	15-19	19-23	23-27	27-31	31-35	35-38	38-42	42-46	46-50	50-54	55+		
Speed																
Total Vehicles	4	12	17	48	77	103	183	192	239	189	120	73	30	30	1317	
% of Total	0.3%	0.9%	1.3%	3.6%	5.8%	7.8%	13.9%	14.6%	18.1%	14.4%	9.1%	5.5%	2.3%	2.3%		
Cumulative %	0.3%	1.2%	2.5%	6.2%	12.0%	19.8%	33.7%	48.3%	66.4%	80.8%	89.9%	95.4%	97.7%	100.0%		
85th Percentile Speed:		40 km/h													50th Percentile Speed: 31 km/h	

Southbound

	BINS (km/h)														Total
	0-8	8-12	12-15	15-19	19-23	23-27	27-31	31-35	35-38	38-42	42-46	46-50	50-54	55+	
Speed															
Total Vehicles	2	5	11	21	33	67	121	119	142	101	44	28	5	7	706
% of Total	0.3%	0.7%	1.6%	3.0%	4.7%	9.5%	17.1%	16.9%	20.1%	14.3%	6.2%	4.0%	0.7%	1.0%	
Cumulative %	0.3%	1.0%	2.5%	5.5%	10.2%	19.7%	36.8%	53.7%	73.8%	88.1%	94.3%	98.3%	99.0%	100.0%	
85th Percentile Speed:		37 km/h													

Northbound

	BINS (km/h)														Total
	0-8	8-12	12-15	15-19	19-23	23-27	27-31	31-35	35-38	38-42	42-46	46-50	50-54	55+	
Speed															
Total Vehicles	2	7	6	27	44	36	62	73	97	88	76	45	25	23	611
% of Total	0.3%	1.1%	1.0%	4.4%	7.2%	5.9%	10.1%	11.9%	15.9%	14.4%	12.4%	7.4%	4.1%	3.8%	
Cumulative %	0.3%	1.5%	2.5%	6.9%	14.1%	20.0%	30.1%	42.1%	57.9%	72.3%	84.8%	92.1%	96.2%	100.0%	
85th Percentile Speed:		42 km/h													

* Northbound speeds are relatively higher than southbound.



Since 1983

Road Tube Count Summary Sheet

16th Avenue Library

August 17, 2021

to

August 18, 2021

16th Avenue Library	
24 Hour Traffic Total	3283
Posted Speed Limit	50 km/h
85th Percentile Speed	49 km/h

Directional Traffic Summary

Day		Northbound	Southbound	Total
Tuesday	08-17-2021	1577	1706	3283

Peak Hour Volume Summary

	Time	Northbound	Southbound	Total
AM Peak Hour	08:00-09:00	98	50	148
PM Peak Hour	14:45-15:45	145	173	318
Actual Peak Hr	11:30-12:30	144	194	338

*PM Peak Hour is selected between 14:00 and 17:00.
 AM Peak Hour is typically selected from 8:00 to 9:00.
 Actual Peak Hr has the greatest hourly volume of the day.

Speed Summary for 24 Hour Volumes

Two Way Total

	BINS (km/h)															Total	
Speed	0-8	8-12	12-15	15-19	19-23	23-27	27-31	31-35	35-38	38-42	42-46	46-50	50-54	55+			
Total Vehicles	4	3	4	28	72	88	111	218	416	616	711	573	256	183	3283		
% of Total	0.1%	0.1%	0.1%	0.9%	2.2%	2.7%	3.4%	6.6%	12.7%	18.8%	21.7%	17.5%	7.8%	5.6%			
Cumulative %	0.1%	0.2%	0.3%	1.2%	3.4%	6.1%	9.4%	16.1%	28.8%	47.5%	69.2%	86.6%	94.4%	100.0%			
85th Percentile Speed:		49 km/h														50th Percentile Speed:	42 km/h

Northbound

	BINS (km/h)															Total
Speed	0-8	8-12	12-15	15-19	19-23	23-27	27-31	31-35	35-38	38-42	42-46	46-50	50-54	55+		
Total Vehicles	2	1	0	10	21	36	47	99	187	292	340	293	147	102	1577	
% of Total	0.1%	0.1%	0.0%	0.6%	1.3%	2.3%	3.0%	6.3%	11.9%	18.5%	21.6%	18.6%	9.3%	6.5%		
Cumulative %	0.1%	0.2%	0.2%	0.8%	2.2%	4.4%	7.4%	13.7%	25.6%	44.1%	65.6%	84.2%	93.5%	100.0%		
85th Percentile Speed:		50 km/h														

Southbound

	BINS (km/h)															Total
Speed	0-8	8-12	12-15	15-19	19-23	23-27	27-31	31-35	35-38	38-42	42-46	46-50	50-54	55+		
Total Vehicles	2	2	4	18	51	52	64	119	229	324	371	280	109	81	1706	
% of Total	0.1%	0.1%	0.2%	1.1%	3.0%	3.0%	3.8%	7.0%	13.4%	19.0%	21.7%	16.4%	6.4%	4.7%		
Cumulative %	0.1%	0.2%	0.5%	1.5%	4.5%	7.6%	11.3%	18.3%	31.7%	50.7%	72.5%	88.9%	95.3%	100.0%		
85th Percentile Speed:		48 km/h														



Since 1983

Road Tube Count Summary Sheet
16th Avenue Millennium Park
August 17, 2021 to **August 18, 2021**

16th Avenue Millennium Park	
24 Hour Traffic Total	4495
Posted Speed Limit	50 km/h
85th Percentile Speed	48 km/h

Directional Traffic Summary

Day		Northbound	Southbound	Total
Tuesday	08-17-2021	2180	2315	4495

Peak Hour Volume Summary

	Time	Northbound	Southbound	Total
AM Peak Hour	08:00-09:00	159	74	233
PM Peak Hour	14:45-15:45	180	234	414
Actual Peak Hr	11:15-12:15	193	243	436

*PM Peak Hour is selected between 14:00 and 17:00.
 AM Peak Hour is typically selected from 8:00 to 9:00.
 Actual Peak Hr has the greatest hourly volume of the day.

Speed Summary for 24 Hour Volumes

Two Way Total

	BINS (km/h)															Total
Speed	0-8	8-12	12-15	15-19	19-23	23-27	27-31	31-35	35-38	38-42	42-46	46-50	50-54	55+		
Total Vehicles	4	6	4	34	37	77	208	398	695	956	918	678	302	178	4495	
% of Total	0.1%	0.1%	0.1%	0.8%	0.8%	1.7%	4.6%	8.9%	15.5%	21.3%	20.4%	15.1%	6.7%	4.0%		
Cumulative %	0.1%	0.2%	0.3%	1.1%	1.9%	3.6%	8.2%	17.1%	32.5%	53.8%	74.2%	89.3%	96.0%	100.0%		
85th Percentile Speed:		48 km/h		50th Percentile Speed:		41 km/h										

Northbound

	BINS (km/h)															Total
Speed	0-8	8-12	12-15	15-19	19-23	23-27	27-31	31-35	35-38	38-42	42-46	46-50	50-54	55+		
Total Vehicles	4	4	2	21	29	51	143	278	425	493	407	206	68	49	2180	
% of Total	0.2%	0.2%	0.1%	1.0%	1.3%	2.3%	6.6%	12.8%	19.5%	22.6%	18.7%	9.4%	3.1%	2.2%		
Cumulative %	0.2%	0.4%	0.5%	1.4%	2.8%	5.1%	11.7%	24.4%	43.9%	66.5%	85.2%	94.6%	97.8%	100.0%		
85th Percentile Speed:		46 km/h														

Southbound

	BINS (km/h)															Total
Speed	0-8	8-12	12-15	15-19	19-23	23-27	27-31	31-35	35-38	38-42	42-46	46-50	50-54	55+		
Total Vehicles	0	2	2	13	8	26	65	120	270	463	511	472	234	129	2315	
% of Total	0.0%	0.1%	0.1%	0.6%	0.3%	1.1%	2.8%	5.2%	11.7%	20.0%	22.1%	20.4%	10.1%	5.6%		
Cumulative %	0.0%	0.1%	0.2%	0.7%	1.1%	2.2%	5.0%	10.2%	21.9%	41.9%	63.9%	84.3%	94.4%	100.0%		
85th Percentile Speed:		50 km/h		* Southbound speeds are relatively higher than northbound.												



Since 1983

Road Tube Count Summary Sheet

20th Avenue at #238

August 18, 2021

to

August 19, 2021

20th Avenue at #238	
24 Hour Traffic Total	550
Posted Speed Limit	30 km/h
85th Percentile Speed	43 km/h

Directional Traffic Summary

Day		Northbound	Southbound	Total
Wednesday	08-18-2021	279	271	550

Peak Hour Volume Summary

	Time	Northbound	Southbound	Total
AM Peak Hour	08:00-09:00	16	12	28
PM Peak Hour	16:00-17:00	25	26	51
Actual Peak Hr	13:15-14:15	26	28	54

*PM Peak Hour is selected between 14:00 and 17:00.
 AM Peak Hour is typically selected from 8:00 to 9:00.
 Actual Peak Hr has the greatest hourly volume of the day.

Speed Summary for 24 Hour Volumes

Two Way Total

	BINS (km/h)															Total	
Speed	0-8	8-12	12-15	15-19	19-23	23-27	27-31	31-35	35-38	38-42	42-46	46-50	50-54	55+			
Total Vehicles	1	1	6	15	22	36	78	104	106	76	57	21	12	15	550		
% of Total	0.2%	0.2%	1.1%	2.7%	4.0%	6.5%	14.2%	18.9%	19.3%	13.8%	10.4%	3.8%	2.2%	2.7%			
Cumulative %	0.2%	0.4%	1.5%	4.2%	8.2%	14.7%	28.9%	47.8%	67.1%	80.9%	91.3%	95.1%	97.3%	100.0%			
85th Percentile Speed:		43 km/h														50th Percentile Speed:	35 km/h

Northbound

	BINS (km/h)															Total
Speed	0-8	8-12	12-15	15-19	19-23	23-27	27-31	31-35	35-38	38-42	42-46	46-50	50-54	55+		
Total Vehicles	1	0	5	9	8	16	47	50	57	38	31	8	5	4	279	
% of Total	0.4%	0.0%	1.8%	3.2%	2.9%	5.7%	16.8%	17.9%	20.4%	13.6%	11.1%	2.9%	1.8%	1.4%		
Cumulative %	0.4%	0.4%	2.2%	5.4%	8.2%	14.0%	30.8%	48.7%	69.2%	82.8%	93.9%	96.8%	98.6%	100.0%		
85th Percentile Speed:		43 km/h														

Southbound

	BINS (km/h)															Total
Speed	0-8	8-12	12-15	15-19	19-23	23-27	27-31	31-35	35-38	38-42	42-46	46-50	50-54	55+		
Total Vehicles	0	1	1	6	14	20	31	54	49	38	26	13	7	11	271	
% of Total	0.0%	0.4%	0.4%	2.2%	5.2%	7.4%	11.4%	19.9%	18.1%	14.0%	9.6%	4.8%	2.6%	4.1%		
Cumulative %	0.0%	0.4%	0.7%	3.0%	8.1%	15.5%	26.9%	46.9%	64.9%	79.0%	88.6%	93.4%	95.9%	100.0%		



Since 1983

**Road Tube Count Summary Sheet
Canyon Street at #316**

August 18, 2021

to

August 19, 2021

Canyon Street at #316	
24 Hour Traffic Total	1251
Posted Speed Limit	50 km/h
85th Percentile Speed	55+ km/h

Directional Traffic Summary

Day		Westbound	Eastbound	Total
Wednesday	08-18-2021	629	622	1251

Peak Hour Volume Summary

	Time	Westbound	Eastbound	Total
AM Peak Hour	08:00-09:00	34	43	77
PM Peak Hour	15:15-16:15	57	49	106
Actual Peak Hr	12:00-13:00	72	57	129

*PM Peak Hour is selected between 14:00 and 17:00.
AM Peak Hour is typically selected from 8:00 to 9:00.
Actual Peak Hr has the greatest hourly volume of the day.

Speed Summary for 24 Hour Volumes

Two Way Total

Speed	BINS (km/h)														Total
	0-8	8-12	12-15	15-19	19-23	23-27	27-31	31-35	35-38	38-42	42-46	46-50	50-54	55+	
Total Vehicles	0	1	5	7	15	28	26	42	72	91	114	167	184	499	1251
% of Total	0.0%	0.1%	0.4%	0.6%	1.2%	2.2%	2.1%	3.4%	5.8%	7.3%	9.1%	13.3%	14.7%	39.9%	
Cumulative %	0.0%	0.1%	0.5%	1.0%	2.2%	4.5%	6.6%	9.9%	15.7%	22.9%	32.1%	45.4%	60.1%	100.0%	

85th Percentile Speed: 55+ km/h 50th Percentile Speed: 51 km/h

Westbound

Speed	BINS (km/h)														Total
	0-8	8-12	12-15	15-19	19-23	23-27	27-31	31-35	35-38	38-42	42-46	46-50	50-54	55+	
Total Vehicles	0	0	1	4	5	15	11	14	25	36	39	66	68	345	629
% of Total	0.0%	0.0%	0.2%	0.6%	0.8%	2.4%	1.7%	2.2%	4.0%	5.7%	6.2%	10.5%	10.8%	54.8%	
Cumulative %	0.0%	0.0%	0.2%	0.8%	1.6%	4.0%	5.7%	7.9%	11.9%	17.6%	23.8%	34.3%	45.2%	100.0%	

85th Percentile Speed: 55+ km/h 50th Percentile Speed: 55 km/h

Eastbound

Speed	BINS (km/h)														Total
	0-8	8-12	12-15	15-19	19-23	23-27	27-31	31-35	35-38	38-42	42-46	46-50	50-54	55+	
Total Vehicles	0	1	4	3	10	13	15	28	47	55	75	101	116	154	622
% of Total	0.0%	0.2%	0.6%	0.5%	1.6%	2.1%	2.4%	4.5%	7.6%	8.8%	12.1%	16.2%	18.6%	24.8%	
Cumulative %	0.0%	0.2%	0.8%	1.3%	2.9%	5.0%	7.4%	11.9%	19.5%	28.3%	40.4%	56.6%	75.2%	100.0%	

85th Percentile Speed: 55+ km/h 50th Percentile Speed: 48 km/h



Since 1983

**Road Tube Count Summary Sheet
Valley View Road Mail Boxes**

August 18, 2021

to

August 19, 2021

Valley View Road Mail Boxes	
24 Hour Traffic Total	1351
Posted Speed Limit	50 km/h
50th / 85th Percentile Speed	55+ km/h

Directional Traffic Summary

Day		Southbound	Northbound	Total
Wednesday	08-18-2021	707	644	1351

Peak Hour Volume Summary

	Time	Southbound	Northbound	Total
AM Peak Hour	08:00-09:00	52	23	75
PM Peak Hour	16:00-17:00	63	51	114
Actual Peak Hr	12:15-13:15	57	66	123

*PM Peak Hour is selected between 14:00 and 17:00.
AM Peak Hour is typically selected from 8:00 to 9:00.
Actual Peak Hr has the greatest hourly volume of the day.

Speed Summary for 24 Hour Volumes

Two Way Total

Speed	BINS (km/h)														Total
	0-8	8-12	12-15	15-19	19-23	23-27	27-31	31-35	35-38	38-42	42-46	46-50	50-54	55+	
Total Vehicles	0	0	1	1	4	2	8	10	18	54	93	192	211	757	1351
% of Total	0.0%	0.0%	0.1%	0.1%	0.3%	0.1%	0.6%	0.7%	1.3%	4.0%	6.9%	14.2%	15.6%	56.0%	
Cumulative %	0.0%	0.0%	0.1%	0.1%	0.4%	0.6%	1.2%	1.9%	3.3%	7.3%	14.1%	28.3%	44.0%	100.0%	

85th Percentile Speed: 55+ km/h 50th Percentile Speed: 55+ km/h

Southbound

Speed	BINS (km/h)														Total
	0-8	8-12	12-15	15-19	19-23	23-27	27-31	31-35	35-38	38-42	42-46	46-50	50-54	55+	
Total Vehicles	0	0	1	0	1	1	2	7	12	39	50	119	119	356	707
% of Total	0.0%	0.0%	0.1%	0.0%	0.1%	0.1%	0.3%	1.0%	1.7%	5.5%	7.1%	16.8%	16.8%	50.4%	
Cumulative %	0.0%	0.0%	0.1%	0.1%	0.3%	0.4%	0.7%	1.7%	3.4%	8.9%	16.0%	32.8%	49.6%	100.0%	

85th Percentile Speed: 55+ km/h 50th Percentile Speed: 55+ km/h

Northbound

Speed	BINS (km/h)														Total
	0-8	8-12	12-15	15-19	19-23	23-27	27-31	31-35	35-38	38-42	42-46	46-50	50-54	55+	
Total Vehicles	0	0	0	1	3	1	6	3	6	15	43	73	92	401	644
% of Total	0.0%	0.0%	0.0%	0.2%	0.5%	0.2%	0.9%	0.5%	0.9%	2.3%	6.7%	11.3%	14.3%	62.3%	
Cumulative %	0.0%	0.0%	0.0%	0.2%	0.6%	0.8%	1.7%	2.2%	3.1%	5.4%	12.1%	23.4%	37.7%	100.0%	

85th Percentile Speed: 55+ km/h 50th Percentile Speed: 55+ km/h



Since 1983

Road Tube Count Summary Sheet
Erickson Road Milenial Park
August 18, 2021 to **August 19, 2021**

Erickson Road Milenial Park	
24 Hour Traffic Total	3633
Posted Speed Limit	50 km/h
50th / 85th Percentile Speed	55+ km/h

Directional Traffic Summary

Day		Eastbound	Westbound	Total
Wednesday	08-18-2021	1876	1757	3633

Peak Hour Volume Summary

	Time	Eastbound	Westbound	Total
AM Peak Hour	08:00-09:00	96	73	169
PM Peak Hour	15:15-16:15	145	173	318
Actual Peak Hr	13:30-14:30	190	155	345

*PM Peak Hour is selected between 14:00 and 17:00.
 AM Peak Hour is typically selected from 8:00 to 9:00.
 Actual Peak Hr has the greatest hourly volume of the day.

Speed Summary for 24 Hour Volumes

Two Way Total

Speed	BINS (km/h)														Total
	0-8	8-12	12-15	15-19	19-23	23-27	27-31	31-35	35-38	38-42	42-46	46-50	50-54	55+	
Total Vehicles	0	0	0	2	2	7	29	42	98	146	246	481	627	1953	3633
% of Total	0.0%	0.0%	0.0%	0.1%	0.1%	0.2%	0.8%	1.2%	2.7%	4.0%	6.8%	13.2%	17.3%	53.8%	
Cumulative %	0.0%	0.0%	0.0%	0.1%	0.1%	0.3%	1.1%	2.3%	5.0%	9.0%	15.7%	29.0%	46.2%	100.0%	

85th Percentile Speed: 55+ km/h 50th Percentile Speed: 55+ km/h

Eastbound

Speed	BINS (km/h)														Total
	0-8	8-12	12-15	15-19	19-23	23-27	27-31	31-35	35-38	38-42	42-46	46-50	50-54	55+	
Total Vehicles	0	0	0	2	1	5	21	29	72	80	118	239	300	1009	1876
% of Total	0.0%	0.0%	0.0%	0.1%	0.1%	0.3%	1.1%	1.5%	3.8%	4.3%	6.3%	12.7%	16.0%	53.8%	
Cumulative %	0.0%	0.0%	0.0%	0.1%	0.2%	0.4%	1.5%	3.1%	6.9%	11.2%	17.5%	30.2%	46.2%	100.0%	

85th Percentile Speed: 55+ km/h 50th Percentile Speed: 55+ km/h

Westbound

Speed	BINS (km/h)														Total
	0-8	8-12	12-15	15-19	19-23	23-27	27-31	31-35	35-38	38-42	42-46	46-50	50-54	55+	
Total Vehicles	0	0	0	0	1	2	8	13	26	66	128	242	327	944	1757
% of Total	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.5%	0.7%	1.5%	3.8%	7.3%	13.8%	18.6%	53.7%	
Cumulative %	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	0.6%	1.4%	2.8%	6.6%	13.9%	27.7%	46.3%	100.0%	

85th Percentile Speed: 55+ km/h 50th Percentile Speed: 55+ km/h



Since 1983



APPENDIX C: PARKING ANALYSIS

Team of Content | Multi-Modal Transportation Plan

Parking Analysis

Period: Weekday Date: 2021-08-19

Parking Occupancy

Segment										Summary Statistics																						
Segment ID	Block ID	Type	Street/Facility	From Street	To Street	Side	Time Period	Date	Day	Parking Supply	Obs. Hours	Parking Turnover	Parking Min	25th	Med	Mean	75th	85th	95th	Max	Min Hour	Max Hour	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM		
Street Blockface:																																
1	1	On-street	10th Avenue	Vancouver Street	Pine Street	West	Weekday	2021-08-19	Thursday	9	7:00	36	4.00	2	6	6	6	7	8	8	8	4:00 PM	10:00 AM	6	8	8	7	6	6	6	2	
2	2	On-street	10th Avenue	Vancouver Street	Pine Street	East	Weekday	2021-08-19	Thursday	4	7:00	11	2.75	0	1	2	3	3	3	3	3	9:00 AM	10:00 AM	0	3	3	7	3	1	1	1	
1	1	On-street	10th Avenue	Pine Street	Canyon Street	East	Weekday	2021-08-19	Thursday	10	7:00	26	2.00	0	0	0	0	0	0	0	0	0	4:00 PM	10:00 AM	5	6	8	4	2	2	2	2
1	4	On-street	10th Avenue	Vancouver Street	Pine Street	East	Weekday	2021-08-19	Thursday	6	7:00	16	2.67	1	3	5	4	5	5	6	6	6	4:00 PM	10:00 AM	5	6	5	7	4	2	5	1
2	5	On-street	11th Avenue	Vancouver Street	Canyon Street	West	Weekday	2021-08-19	Thursday	17	7:00	33	1.94	9	10	10	10	11	11	11	11	9:00 AM	10:00 AM	9	11	9	7	11	11	10	10	
2	6	On-street	11th Avenue	Vancouver Street	Canyon Street	East	Weekday	2021-08-19	Thursday	17	7:00	33	1.94	9	10	10	10	11	11	11	11	9:00 AM	10:00 AM	9	11	9	7	11	11	10	10	
3	7	On-street	12th Avenue North	Vancouver Street	Canyon Street	West	Weekday	2021-08-19	Thursday	10	7:00	11	1.10	0	2	2	2	4	4	5	5	6	4:00 PM	10:00 AM	2	3	5	7	1	4	2	0
4	8	On-street	14th Avenue	Vancouver Street	Canyon Street	West	Weekday	2021-08-19	Thursday	2	7:00	6	3.00	0	0	1	1	2	2	2	2	2	1:00 PM	10:00 AM	1	2	1	7	0	0	2	0
9	9	On-street	14th Avenue	Vancouver Street	Canyon Street	East	Weekday	2021-08-19	Thursday	2	7:00	6	3.00	0	0	1	1	2	2	2	2	2	1:00 PM	10:00 AM	1	2	1	7	0	0	2	0
5	10	On-street	15th Avenue North	Vancouver Street	Canyon Street	West	Weekday	2021-08-19	Thursday	3	7:00	5	1.67	0	1	1	1	1	2	2	2	2	1:00 PM	11:00 AM	1	1	2	7	0	0	2	0
5	11	On-street	15th Avenue North	Vancouver Street	Canyon Street	East	Weekday	2021-08-19	Thursday	3	7:00	5	1.67	0	1	1	1	1	2	2	2	2	1:00 PM	11:00 AM	1	1	2	7	0	0	2	0
6	12	On-street	15th Avenue South	Canyon Street	Cook Street	West	Weekday	2021-08-19	Thursday	6	7:00	19	3.17	2	4	4	4	5	5	6	6	6	4:00 PM	10:00 AM	4	4	5	7	6	3	5	2
6	13	On-street	15th Avenue South	Canyon Street	Cook Street	East	Weekday	2021-08-19	Thursday	4	7:00	9	2.25	1	1	1	2	2	2	3	4	4	9:00 AM	11:00 AM	1	1	4	7	2	2	1	1
7	14	On-street	12th Avenue	Canyon Street	11th Avenue	North	Weekday	2021-08-19	Thursday	10	7:00	24	2.43	2	3	3	3	3	5	5	6	6	4:00 PM	10:00 AM	5	5	7	6	4	5	7	4
7	15	On-street	12th Avenue	Canyon Street	11th Avenue	South	Weekday	2021-08-19	Thursday	8	7:00	35	4.38	5	5	5	6	6	6	7	7	9:00 AM	10:00 AM	5	7	6	7	5	6	5	5	
7	16	On-street	Canyon Street	11th Avenue	12th Avenue	North	Weekday	2021-08-19	Thursday	9	7:00	40	4.44	5	6	6	7	7	8	8	8	1:00 PM	2:00 PM	7	7	6	7	5	8	6	6	
7	17	On-street	Canyon Street	12th Avenue	12th Avenue	South	Weekday	2021-08-19	Thursday	9	7:00	24	2.67	1	1	1	2	2	2	2	2	2	9:00 AM	10:00 AM	4	4	8	7	4	7	2	2
7	18	On-street	Canyon Street	12th Avenue North	14th Avenue	North	Weekday	2021-08-19	Thursday	3	7:00	10	3.33	1	1	2	2	2	2	2	2	2	9:00 AM	11:00 AM	1	1	2	7	2	2	1	2
7	19	On-street	Canyon Street	12th Avenue North	14th Avenue	South	Weekday	2021-08-19	Thursday	7	7:00	24	3.43	2	3	3	3	3	5	5	6	6	7	3:00 PM	4:00 AM	5	7	3	7	2	2	2
7	20	On-street	Canyon Street	14th Avenue	15th Avenue	North	Weekday	2021-08-19	Thursday	5	7:00	16	3.20	2	3	3	3	4	4	4	4	10:00 AM	11:00 AM	3	2	4	7	4	3	2	3	
7	21	On-street	Canyon Street	14th Avenue	15th Avenue	South	Weekday	2021-08-19	Thursday	7	7:00	27	3.86	4	4	5	5	6	6	6	6	3:00 PM	10:00 AM	4	6	5	7	6	6	6	3	
8	12	On-street	Northwest Boulevard	Pine Street	10th Avenue	Northwest	Weekday	2021-08-19	Thursday	2	7:00	3	1.50	0	0	0	1	1	1	1	2	2	9:00 AM	2:00 PM	0	1	0	7	0	2	0	0
9	23	On-street	Pine Street	Northwest Boulevard	10th Avenue	North	Weekday	2021-08-19	Thursday	8	7:00	11	1.38	2	3	3	3	5	6	6	7	7	9:00 AM	10:00 AM	2	3	7	7	6	6	5	3
9	24	On-street	Pine Street	Northwest Boulevard	10th Avenue	South	Weekday	2021-08-19	Thursday	4	7:00	6	1.50	0	1	2	2	2	2	3	3	9:00 AM	2:00 PM	0	2	2	7	2	3	2	0	
Street Segment & Facility:																																
1	1	On-street	10th Avenue	Vancouver Street	Canyon Street	West	Weekday	2021-08-19	Thursday	29	7:00	89	3.07	6	13	19	17	22	23	23	24	4:00 PM	11:00 AM	14	22	24	7	21	12	19	6	
2	2	On-street	11th Avenue	Vancouver Street	Canyon Street	West	Weekday	2021-08-19	Thursday	36	7:00	60	1.67	17	20	20	20	22	22	23	24	4:00 PM	10:00 AM	19	24	21	7	20	22	20	17	
3	3	On-street	12th Avenue North	Vancouver Street	Canyon Street	West	Weekday	2021-08-19	Thursday	10	7:00	11	1.10	0	2	2	2	4	4	5	5	4:00 PM	11:00 AM	2	3	5	7	1	4	2	0	
4	4	On-street	14th Avenue	Vancouver Street	Canyon Street	West	Weekday	2021-08-19	Thursday	6	7:00	6	1.00	0	0	0	0	0	0	0	0	4:00 PM	10:00 AM	2	2	2	7	2	2	2	0	
5	5	On-street	15th Avenue North	Vancouver Street	Canyon Street	West	Weekday	2021-08-19	Thursday	5	7:00	10	2.00	1	1	2	2	3	3	4	4	9:00 AM	11:00 AM	1	2	4	7	1	3	3	1	
6	6	On-street	15th Avenue South	Canyon Street	Cook Street	West	Weekday	2021-08-19	Thursday	28	7:00	28	1.00	0	0	0	0	0	0	0	0	4:00 PM	10:00 AM	1	1	1	1	1	1	1	1	
7	7	On-street	15th Avenue South	Canyon Street	Cook Street	East	Weekday	2021-08-19	Thursday	55	7:00	225	4.09	30	33	39	37	40	41	42	43	3:00 PM	10:00 AM	34	43	39	7	39	41	30	32	
8	8	On-street	Northwest Boulevard	Pine Street	10th Avenue	North	Weekday	2021-08-19	Thursday	2	7:00	3	1.50	0	0	0	0	1	1	2	2	9:00 AM	2:00 PM	0	1	0	7	0	2	0	0	
9	9	On-street	Pine Street	Northwest Boulevard	10th Avenue	North	Weekday	2021-08-19	Thursday	12	7:00	11	0.92	4	4	4	4	4	4	4	4	9:00 AM	10:00 AM	7	8	9	8	9	8	7	9	
A	A	Off-street	Cook Street Lot	Cook Street Lot	Cook Street Lot	West	Weekday	2021-08-19	Thursday	61	7:00	88	1.44	7	23	29	27	32	35	42	45	4:00 PM	10:00 AM	34	45	24	7	30	29	21	7	
8	8	Off-street	Sunset Seeds Lot	Sunset Seeds Lot	Sunset Seeds Lot	West	Weekday	2021-08-19	Thursday	40	7:00	13	0.33	1	5	10	8	12	14	14	14	4:00 PM	9:00 AM	14	14	10	7	10	8	2	1	
Study Area:																																
Total On-street																																
Total Off-street																																
Total Study Area																																

Parking Utilization

Segment										Summary Statistics										Parking Occupancy Rate by Beginning of Hour												
Segment ID	Block ID	Type	Street/Facility	From Street	To Street	Side	Time Period	Date	Day	Parking Supply	Obs. Hours	Parking Turnover	Parking Min	25th	Med	Mean	75th	85th	95th	Max	Min Hour	Max Hour	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM		
Street Blockface:																																
1	1	On-street	10th Avenue	Vancouver Street	Pine Street	West	Weekday	2021-08-19	Thursday	9	7:00	36	4.00	22%	67%	67%	78%	89%	89%	89%	89%	4:00 PM	10:00 AM	67%	85%	85%	7	67%	67%	67%	22%	
2	2	On-street	10th Avenue	Vancouver Street	Pine Street	East	Weekday	2021-08-19	Thursday	4	7:00	11	2.75	0%	25%	25%	43%	75%	75%	75%	75%	9:00 AM	10:00 AM	0%	75%	75%	7	75%	25%	25%	25%	
1	1	On-street	10th Avenue	Pine Street	Canyon Street	East	Weekday	2021-08-19	Thursday	10	7:00	26	2.00	20%	20%	20%	51%	75%	80%	80%	80%	4:00 PM	10:00 AM	20%	50%	80%	7	80%	20%	20%	20%	
1	4	On-street	10th Avenue	Vancouver Street	Pine Street	East	Weekday	2021-08-19	Thursday	6	7:00	16	2.67	6%	50%	83%	60%	83%	85%	95%	100%	4:00 PM	10:00 AM	83%	100%	100%	6	67%	83%	7	17%	
2	5	On-street	11th Avenue	Vancouver Street	Canyon Street	West	Weekday	2021-08-19	Thursday	17	7:00	33	1.94	53%	56%	59%	60%	65%	65%	65%	65%	9:00 AM	10:00 AM	53%	65%	53%	7	65%	65%	59%	59%	
2	6	On-street	11th Avenue	Vancouver Street	Canyon Street	East	Weekday	2021-08-19	Thursday	17	7:00	33	1.94	53%	56%	59%	60%	65%	65%	65%	65%	9:00 AM	10:00 AM	53%	65%	53%	7	65%	65%	59%	59%	
3	7	On-street	12th Avenue North	Vancouver Street	Canyon Street	West	Weekday	2021-08-19	Thursday	10	7:00	11	1.10	0%	15%	20%	24%	35%	41%	47%	50%	4:00 PM	11:00 AM	20%	30%	50%	7	10%	40%	20%	0%	
4	8	On-street	14th Avenue	Vancouver Street	Canyon Street	West	Weekday	2021-08-19	Thursday	2	7:00	6	3.00	0%	0%	50%	43%	75%	100%	100%	100%	1:00 PM	10:00 AM	50%	100%	100%	7	0%	0%	100%	0%	
9	9	On-street	14th Avenue	Vancouver Street	Canyon Street	East	Weekday	2021-08-19	Thursday	2	7:00	6	3.00	0%	0%	50%	43%	75%	100%	100%	100%	1:00 PM	10:00 AM	50%	100%	100%	7	0%	0%	100%	0%	
5	10	On-street	15th Avenue North	Vancouver Street	Canyon Street	West	Weekday	2021-08-19	Thursday	3	7:00	5	1.67	0%	33%	33%	43%	67%	67%	67%	67%	4:00 PM	11:00 AM	33%	33%	67%	7	0%	67%	33%	33%	
5	11	On-street	15th Avenue North	Vancouver Street	Canyon Street	East	Weekday	2021-08-19	Thursday	2	7:00	5	2.50	0%	23%	23%	30%	43%	50%	55%	85%	100%	9:00 AM	11:00 AM	0%	50%	100%	7	50%	50%	30%	10%
6	12	On-street	15th Avenue South	Canyon Street	Cook Street	West	Weekday	2021-08-19	Thursday	4	7:00	19	3.17	33%	33%	33%	67%	83%	85%	95%	100%	4:00 PM	10:00 AM	67%	67%	83%	7	67%	83%	100%	33%	
6	13																															

