CITY OF Vernon

Transit & Active Transportation Review



WATT Consulting Group

2024

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Introduction

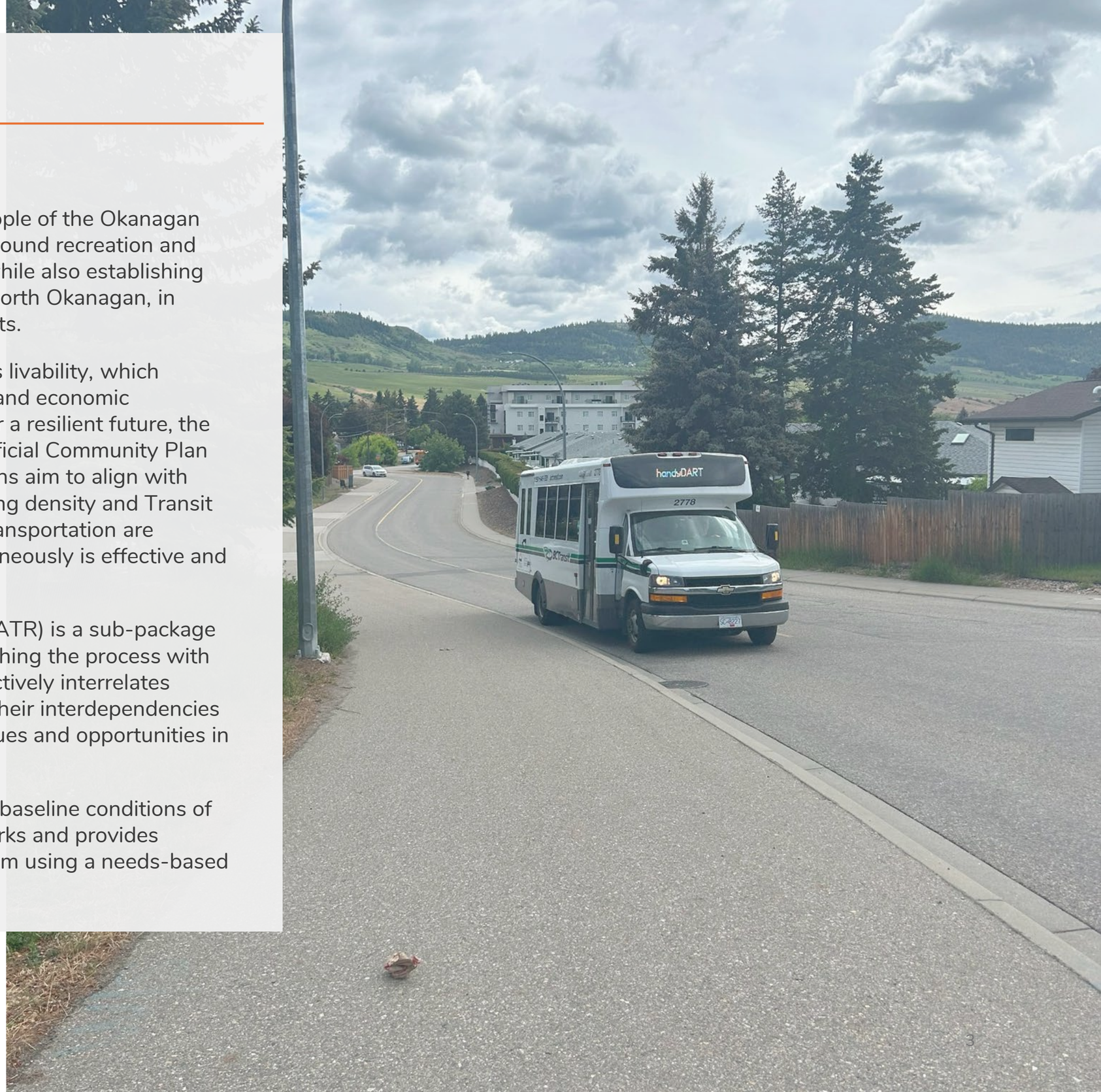
Project Overview

Located in the traditional territory of the Sylix People of the Okanagan Nation, Vernon is a regional destination for year-round recreation and activity. The city embraces a small-town charm while also establishing itself as the service and employment hub of the North Okanagan, in proximity to Kelowna for major services and events.

More people are being drawn to Vernon due to its livability, which encourages housing diversity, community safety and economic prosperity. To manage this growth and to plan for a resilient future, the City is undertaking a concurrent update of the Official Community Plan (OCP) and the Transportation Plan (TP). Both plans aim to align with recent provincial legislation with respect to housing density and Transit Oriented Development (TOD). As land use and transportation are integrally connected, updating both plans simultaneously is effective and efficient.

The Transit and Active Transportation Review (TATR) is a sub-package of the Transportation Plan as a means of approaching the process with smaller, actionable items of work. The TATR effectively interrelates active transportation and transit and recognizes their interdependencies while also acknowledging their unique needs, issues and opportunities in Vernon.

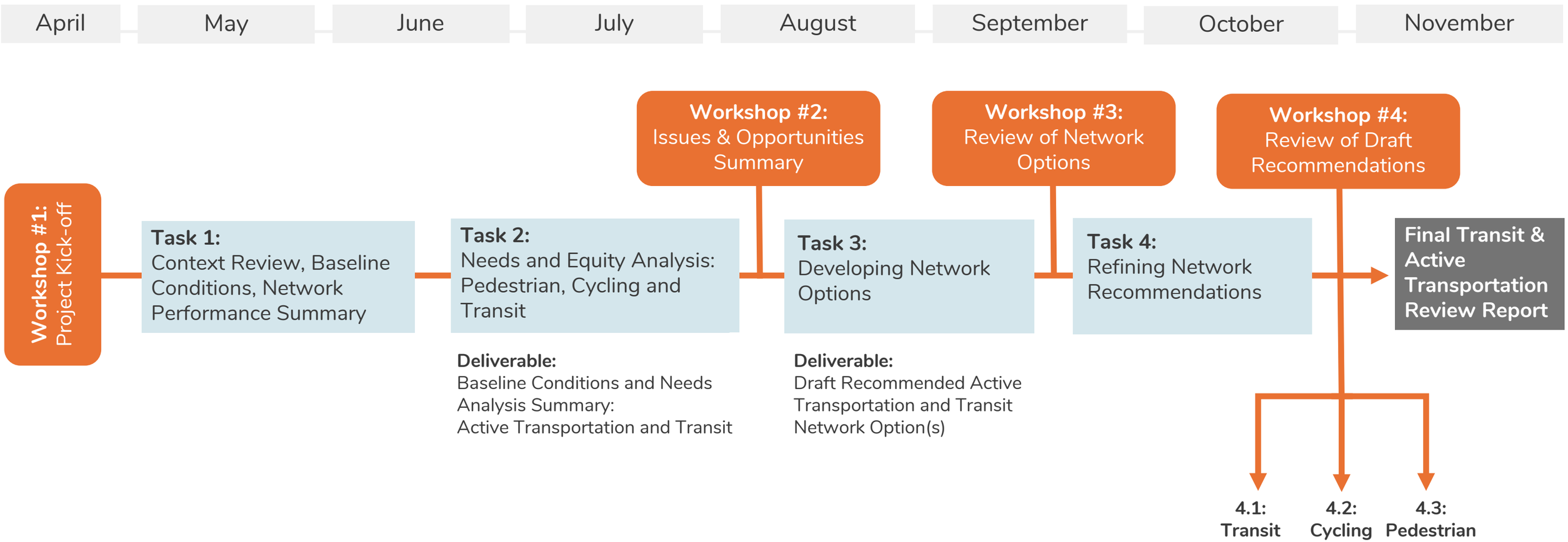
This project reviews the background context and baseline conditions of the existing pedestrian, cycling and transit networks and provides recommendations for next steps in enhancing them using a needs-based and equity-focused approach.



Introduction

Timeline

The TATR process took place over the course of eight months, from April to November 2024. The project entailed four main tasks and a series of meetings with the Working Group, comprised of City staff and members of the consulting team, BC Transit and TransDev.





Background Context & Policy Review

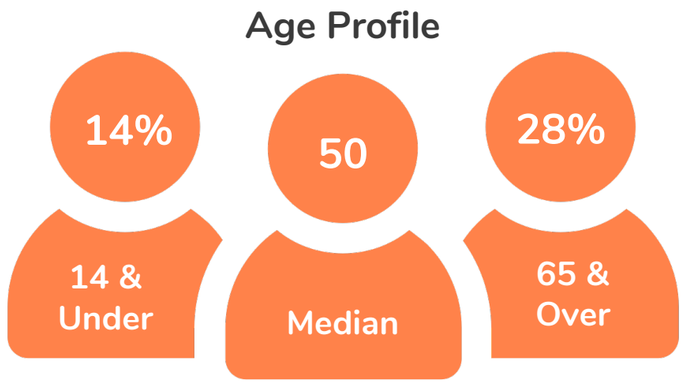
Community Context

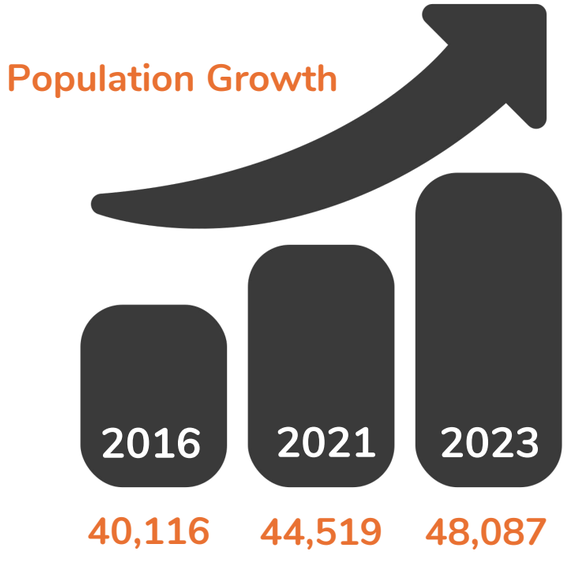
Demographics

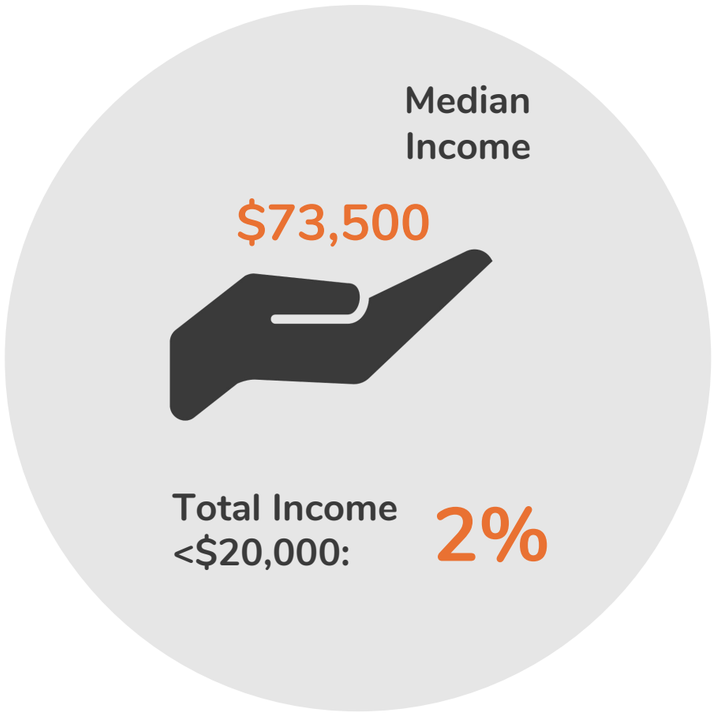
Vernon is a growing city within the Okanagan, with a population increase of approximately 20% from 2016 to 2023. This is comparable to the province's overall growth of approximately 19% within the same timeframe.

Overall, Vernon is characterized by a middle-aged, middle-class, growing community, comprised of more people over the age of 65 than there are under the age of 14, a post-secondary student population, and some recent newcomers to Canada.

Understanding the demographic context of the City forms the foundation of the transportation priorities in this review and guides how, where, and why facilities and improvements are required.









Proportion of Immigrant Population: **12%**

Recent Immigrants
(immigrated to Canada between 2016-2021): **1%**



~1,000
Students at Okanagan College, Vernon Campus

Community Context

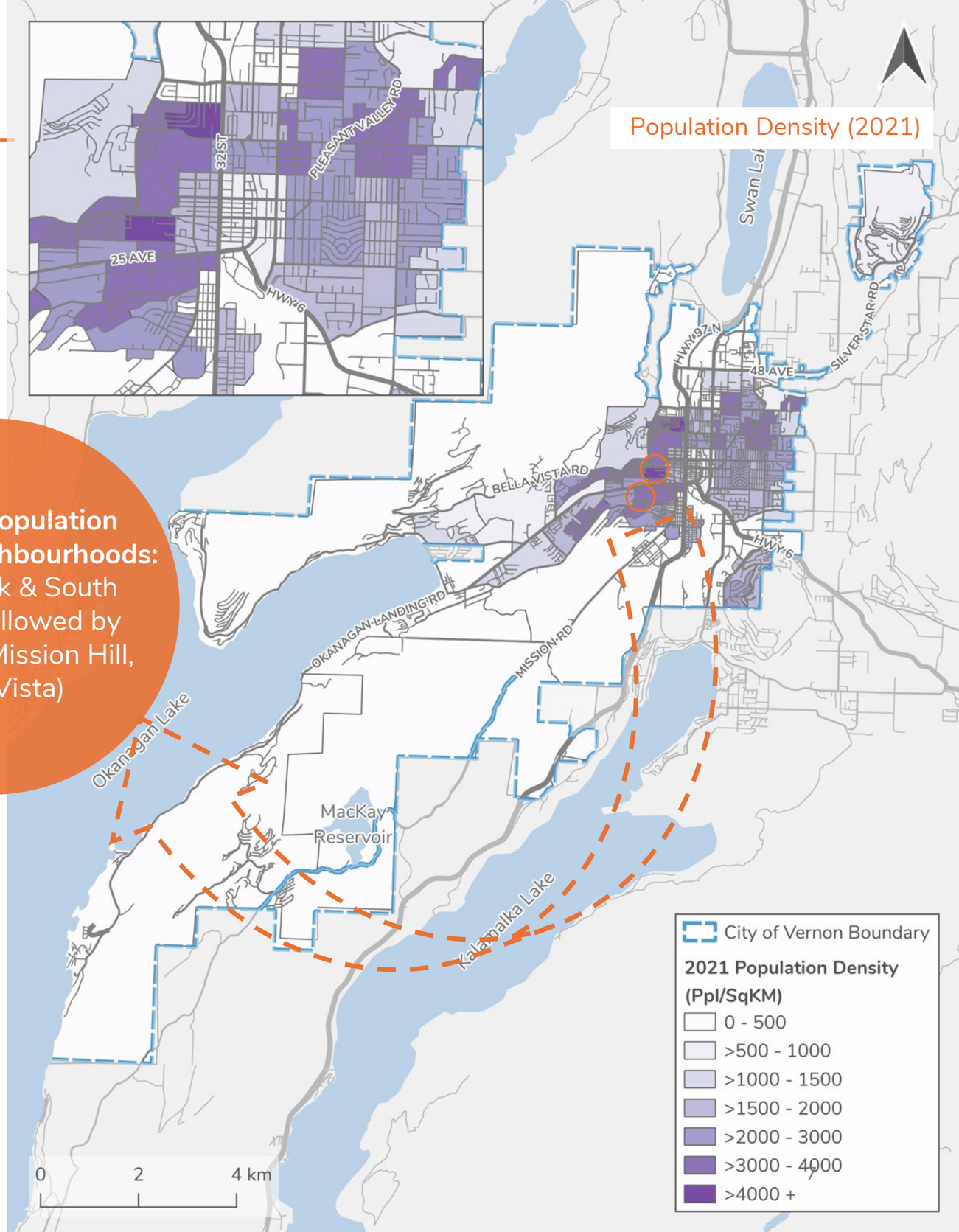
Community Details

Vernon is the largest city in the Regional District of the North Okanagan (RDNO) and therefore serves as the major service and resource hub for the region. Nearby communities within the RDNO include Coldstream, Lavington and Lumby to the east and Armstrong and Enderby to the north. South of Vernon are the District of Lake Country and the City of Kelowna, outside of the RDNO.

Currently, most density is focused within the centre of the city, with lower-rise, spread-out development on the periphery. Major industries include social and civic services, agriculture, construction, tourism and manufacturing, with the top employers being Vernon Jubilee Hospital, the City of Vernon, and the Regional District of the North Okanagan.

Vernon is a year-round recreational destination with golf courses, Okanagan Lake, Kalamalka Lake, and Silver Star Mountain Ski Resort within proximity.

Highest Population Density Neighbourhoods: Alexis Park & South Vernon (followed by Harwood, Mission Hill, Bella Vista)



Community Context

Transportation Details

In addition to being the major service and resource hub of the region, Vernon is also the regional transportation hub with three highways passing through the city:

- **Highway 97,** which connects south to Kelowna and north to the Trans Canada Highway at Monte Creek.
- **Highway 97A,** which connects north to the Trans Canada Highway via Sicamous and Enderby.
- **Highway 6,** which travels east through Lumby and connects through to the Kootenay region.

These are identified in red on the map to the right.

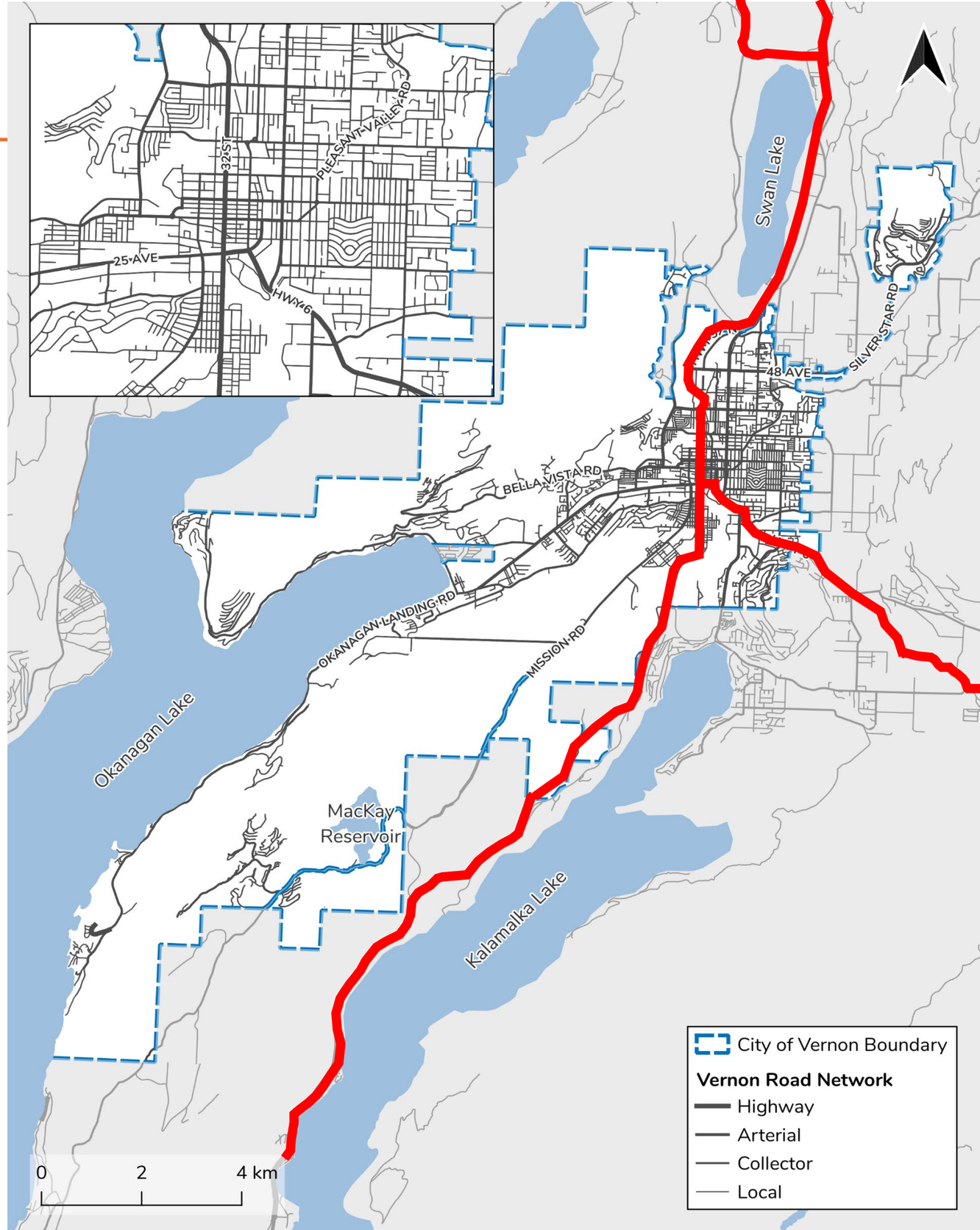
Driving a single-occupancy vehicle is the main mode of commuting in Vernon, followed by being a vehicle passenger. The least common modes of commuting are cycling and transit.

Mode Share (2021):



80% 8% 7% 1.5% 1.5%

This data was based on the 2021 Census. Due to COVID-19, transportation behaviors were different which caused transit use and ridesharing to decrease, and the use of single-occupancy or personal vehicles to increase.



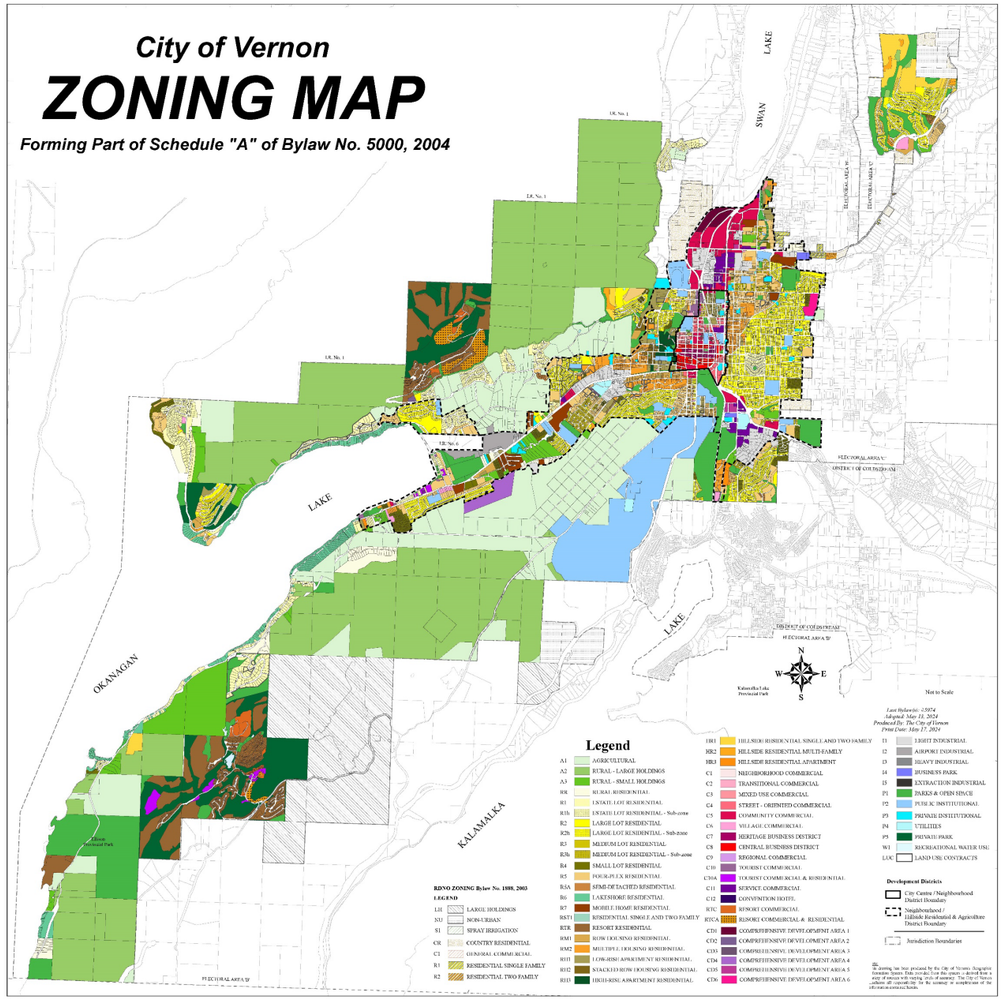
Community Context

Land Use

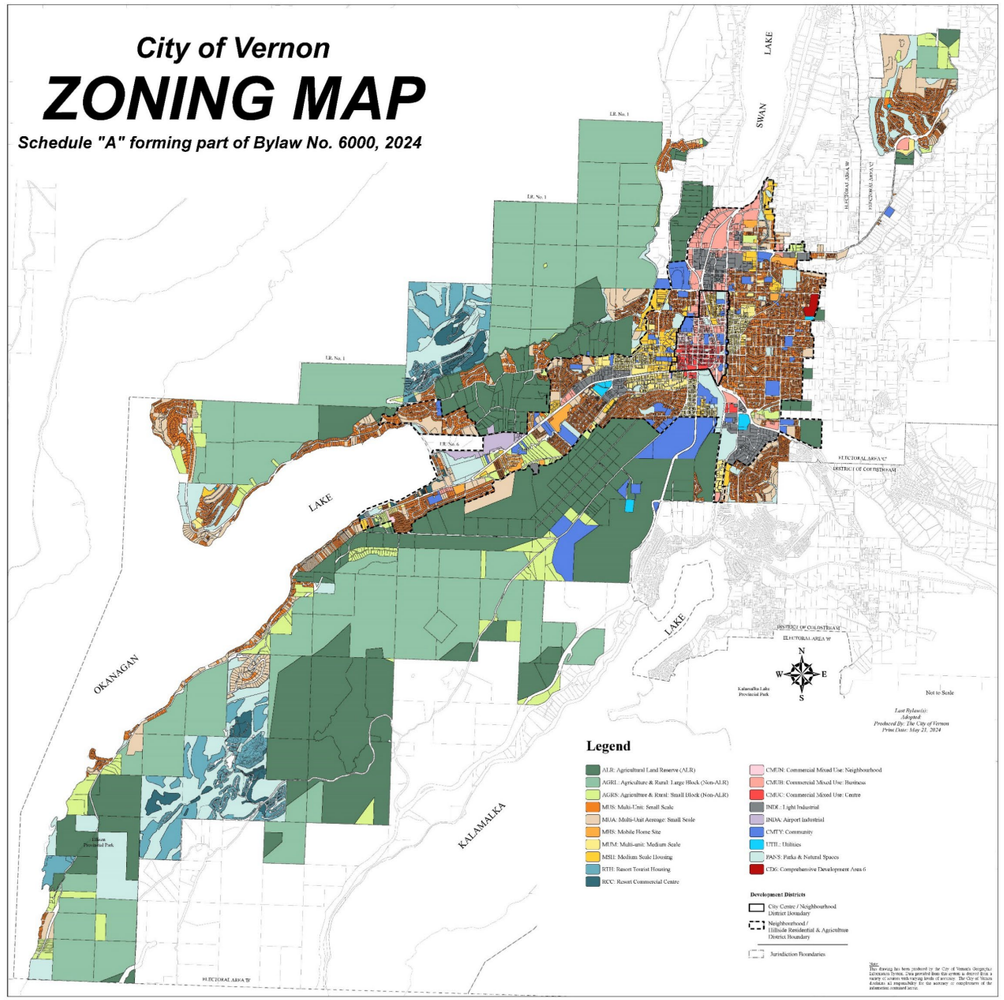
The City of Vernon updated their Zoning Bylaw in June 2024, which dictates permitted land uses across the city. Notable changes in the bylaw update include transitioning all single-family residential zoning to allow small scale, multi-unit housing (up to four units per property). Low-rise apartments can have a maximum of four storeys, and high-rise apartments can have a maximum of eight storeys.

All commercial zones are now permitted to be mixed-use (including residential uses). Two Transit-Oriented Development Areas (TODAs) have been identified around the Downtown Exchange and Village Green Exchange, meaning that development requirements within these areas will be subject to the province's TOD Areas regulations for density and the provision of parking.

Zoning Map (2004)



Zoning Map (2024)



Policy Review

Guiding Plans

Transportation and mobility in Vernon should be integrated with current and future land use goals to support a sustainable, vibrant community. To support this integration, existing community plans, policies and strategies can provide guidance and determine what the transit and active transportation network and priorities should look like. These guiding documents, and their relevance to the TATR, are summarized below.

25 Year Master Transportation Plan (MTP) (2014)

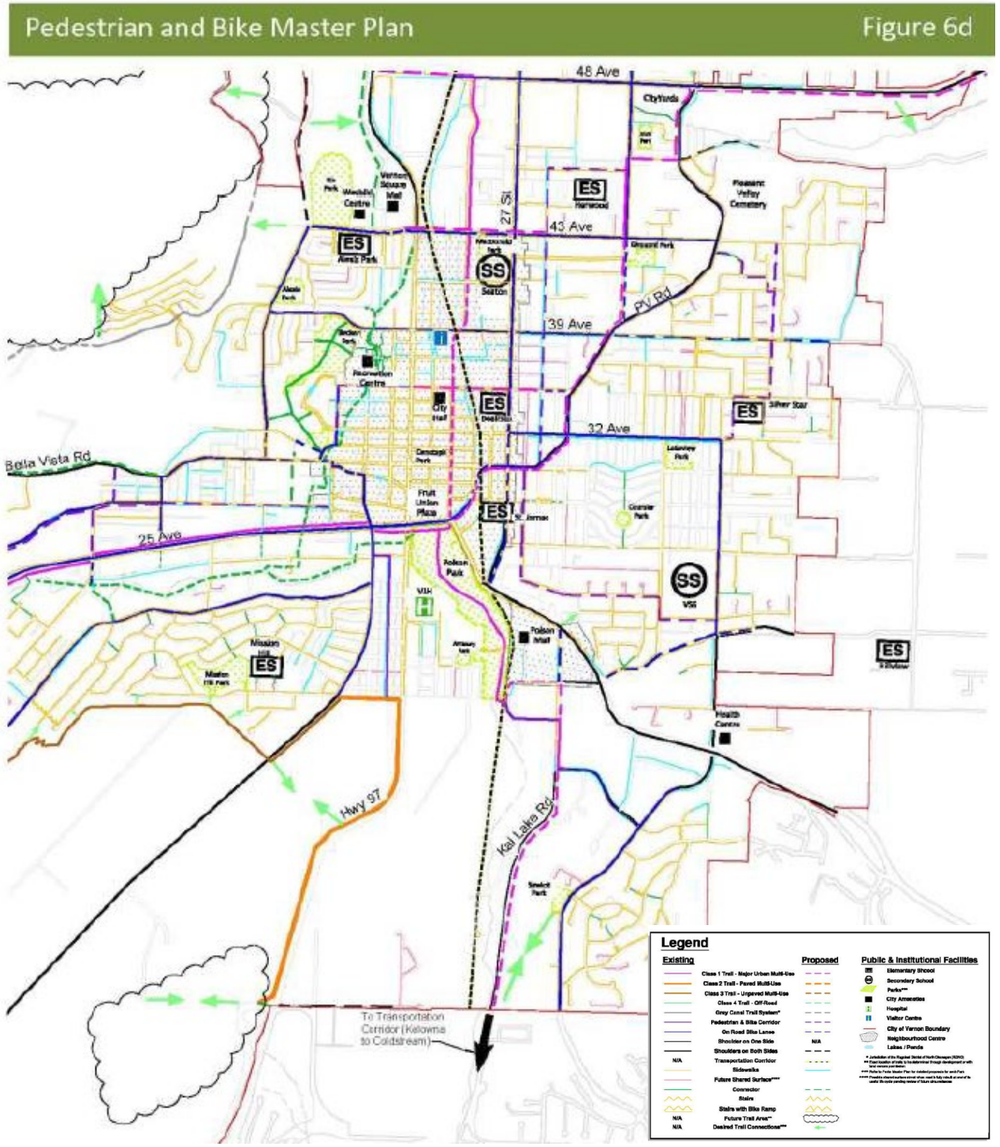
The last MTP was developed in 2014 and provided a framework for how the City should manage and prioritize its transportation network over the next 25 years. Pedestrian and cycling policy priorities laid out in the 2014 MTP, summarized below, have since been addressed. The proposed overall pedestrian and cycling network from the 2014 MTP is displayed in the map on the right.

2014 MTP Cycling Priorities:

- Standardize bike facilities & crossing treatments
- Utilize connectors between MUPs and trails and bike gutters on stairs to maximize connectivity

2014 MTP Pedestrian Priorities:

- Supporting local businesses and tourism
- Increase fully connected sidewalks
- Implement pedestrian priority areas
- Standardize pedestrian facilities & crossing treatments
- Utilize connectors between MUPs and sidewalks to maximize connectivity



Official Community Plan (OCP) – In Progress

The City of Vernon is currently updating their Official Community Plan (OCP).

Transportation Plan 2024 (TP) – In Progress

In tandem with the OCP, the Transportation Plan is also currently being updated to reflect revised land use plans and policies.

Policy Review

Guiding Plans

Council Strategic Plan (2023-2026)

Overview:

The Strategic Plan outlines five areas of strategic priorities that Council will collaboratively work towards from 2023-2026**: livability, vibrancy, recreation, parks and natural areas, environmental leadership, and governance and organizational leadership.**

Relevance:

The Plan identifies priority projects and initiatives that the AT & Transit Review can complement and build off of, such as the Polson Park Master Plan, Silver Star Road MUP, etc.

Climate Action Plan (2021)

Overview:

The Climate Action Plan provides guidance on how to adapt to climate change impacts and reduce emissions to leverage previous sustainability work and to build a safe, healthy and resilient future for Vernon residents.

Relevance:

Practical projects and initiatives to reduce the climate impact of transportation in Vernon are summarized, including updating the Transportation Plan concurrently with the OCP to prioritize active transportation investments with the goals of the Climate Action Plan.

Youthful Vernon Strategy (2018)

Overview:

The Youthful Vernon Strategy provides guidance on actions the City can take to better support children and youth to achieve the guiding principle of being a “youth-friendly city.”

Relevance:

The Strategy identifies key actions to better support youth, including specific transportation-related actions.

Age & Dementia Friendly Community Plan (2024)

Overview:

The Plan aims to ensure that the City understands and accommodates the needs of seniors and people living with dementia, as well as their caregivers, as Vernon continues to grow and develop.

Relevance:

One of the goals identified in the Plan involves creating welcoming, safe, accessible and age-friendly streets, trails and active transportation pathways, in addition to outlining actions to implement to achieve this goal.

Policy Review

Mode Share

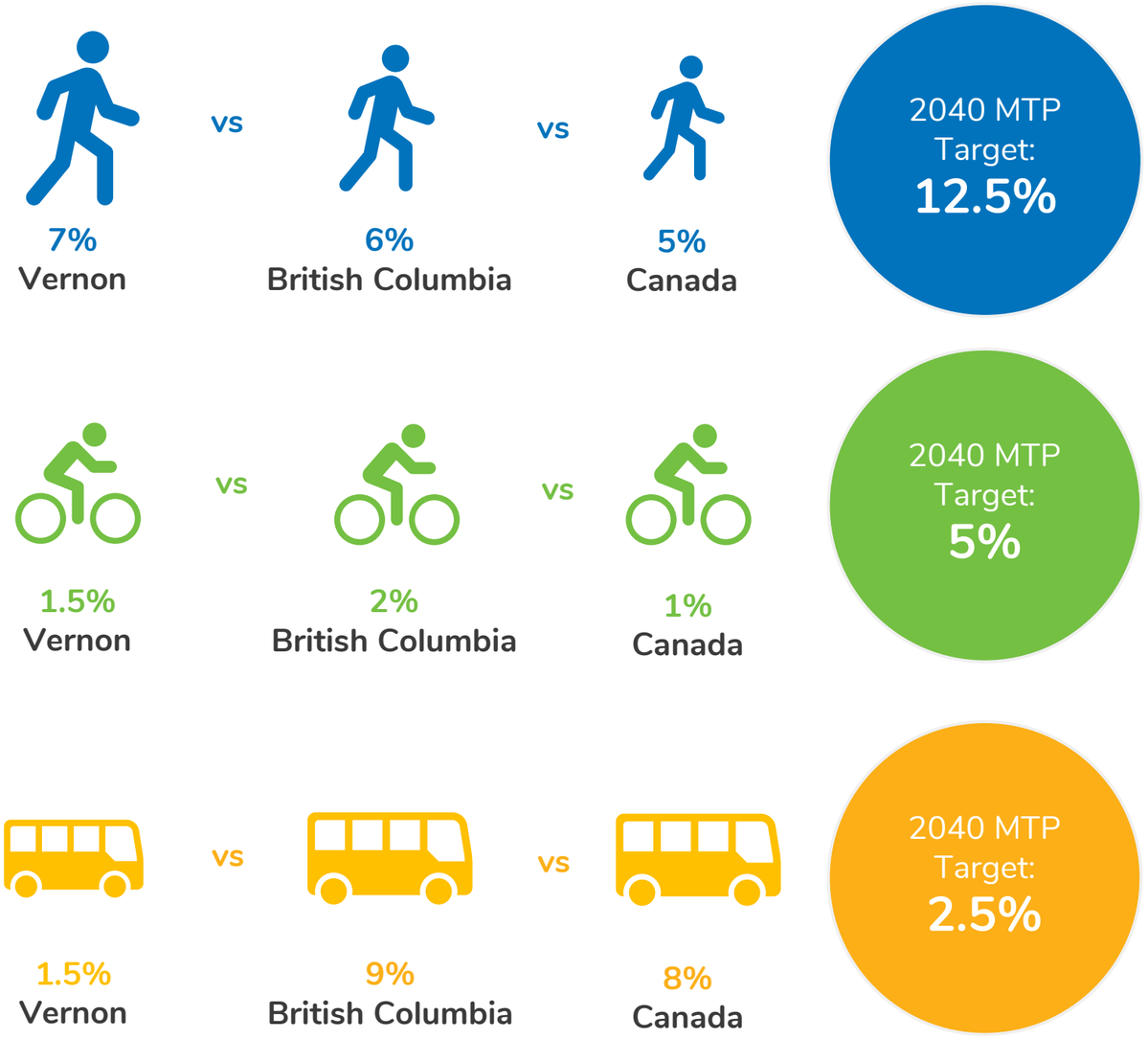
Mode share refers to the percentage of travellers using a particular type of transportation, or the number of trips using a particular type of transportation.

In Vernon, the mode share is largely represented by single-occupancy vehicles. According to 2021 Statistics Canada journey to work data, 88% of residents used a vehicle to commute to work as either a driver (80%) or passenger (8%). A combined 8.5% used active transportation modes (i.e., walking or cycling) and 1.5% used public transit. Walking (7%) was the second highest journey to work mode share, after using a vehicle as either a driver or passenger.

Compared to the rest of the province – and the rest of the country – **Vernon is either on par or exceeding in the use of active modes and is below average in transit usage**.

However, walking, cycling and transit mode shares have decreased in Vernon since 2013, and have a ways to go to meet the 2040 mode share targets identified in the 25 Year Master Transportation Plan.

Specific to transit, the 2040 mode share target of 2.5% is almost double the current mode share. The growth in mode share implies a corresponding increase in service hours, frequencies, service span and overall improvement of transit service coverage that will make transit more convenient for users, thereby supporting an increase in mode share. A simple correlation of mode share to transit service hours would imply almost doubling these hours at 70,000 hours by 2040 to achieve this proposed increase in mode share.



Data Source: Canada Census 2021

Baseline Conditions: Active Transportation & Transit



Active Transportation

Current Pedestrian Network

Vernon hosts a robust sidewalk and trail network that supports the active and recreational nature of the city as shown in **Map 1.** There are a wide variety of facility types that comprise the network, including:



Grade-separated Concrete Sidewalks



Off-street Paved Multi-use Pathways



Off-street Unpaved Multi-use Pathways & Trails



Recreational Trails



Minor Connectors

Key Connections

There are several streets in Vernon that serve as key pedestrian connections across the City. These include, but are not limited to:

North – South:

- Kalamalka Road
- 18th Street
- 20th Street
- 25th Street
- Pleasant Valley Road
- Alexis Park Drive
- Middleton Way / 15th Street
- 33rd Street / 34th Street
- 29th Street / 30th Street
- Anderson Way

East – West:

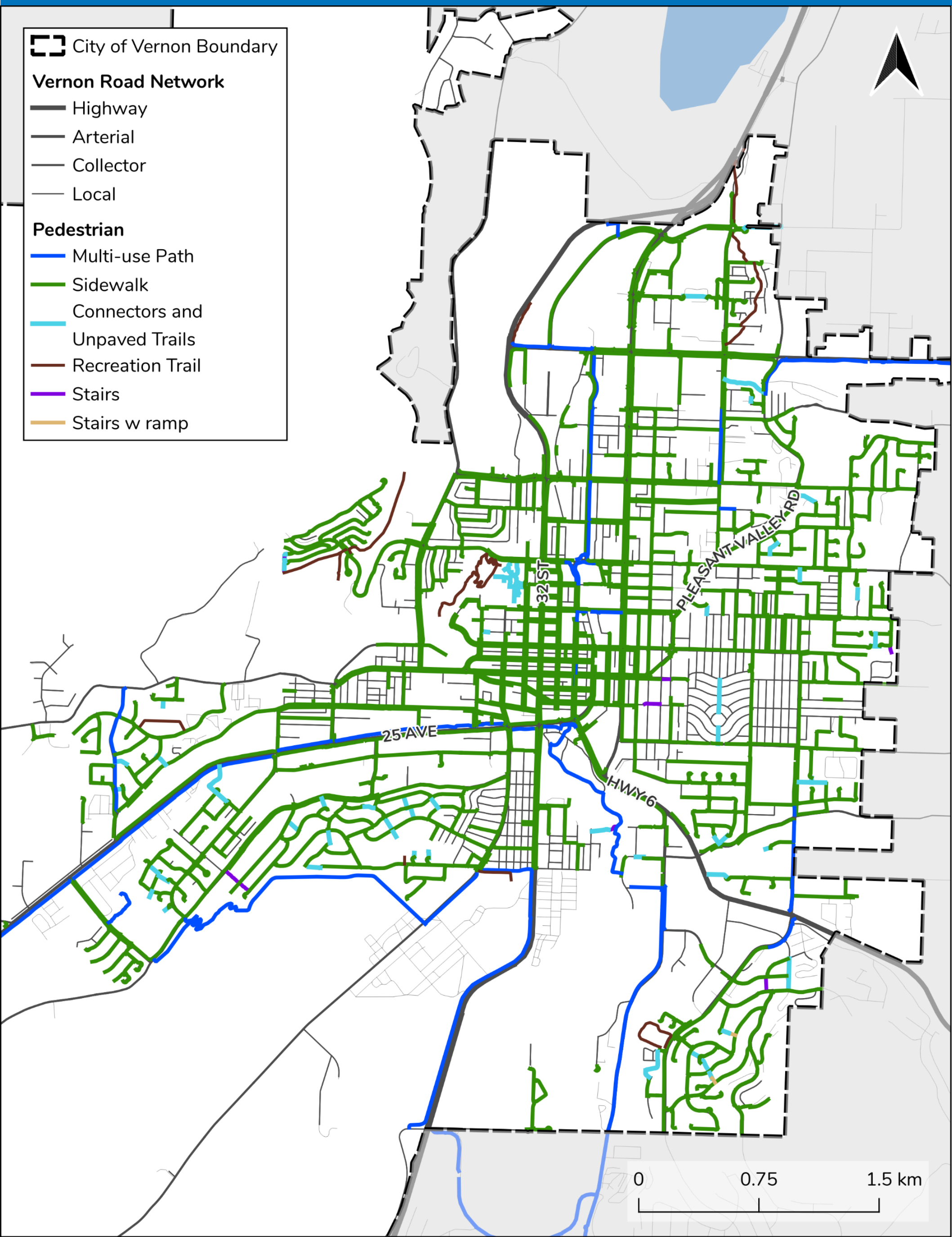
- 30th Avenue
- Okanagan Avenue
- Pottery Road
- 24th Avenue
- 25th Avenue
- 27th Avenue
- 39th Avenue
- 43rd Avenue
- 58th Avenue
- Bella Vista Road
- Silver Star Road / 48th Avenue

Regional Connections:

- Okanagan Rail Trail
- Grey Canal Trail

Map 1

Existing Pedestrian Network



Active Transportation

Pedestrian Network Issues

Upon reviewing the existing pedestrian network, facilities and community demographics in Vernon, the following issues emerged:

Lack of infrastructure:

While Vernon hosts a robust pedestrian network, there is still room for improvement by providing consistent infrastructure throughout the city. Some areas – particularly those with lower density – completely lack pedestrian infrastructure, while others have gaps in the network.

Navigating expansive intersections:

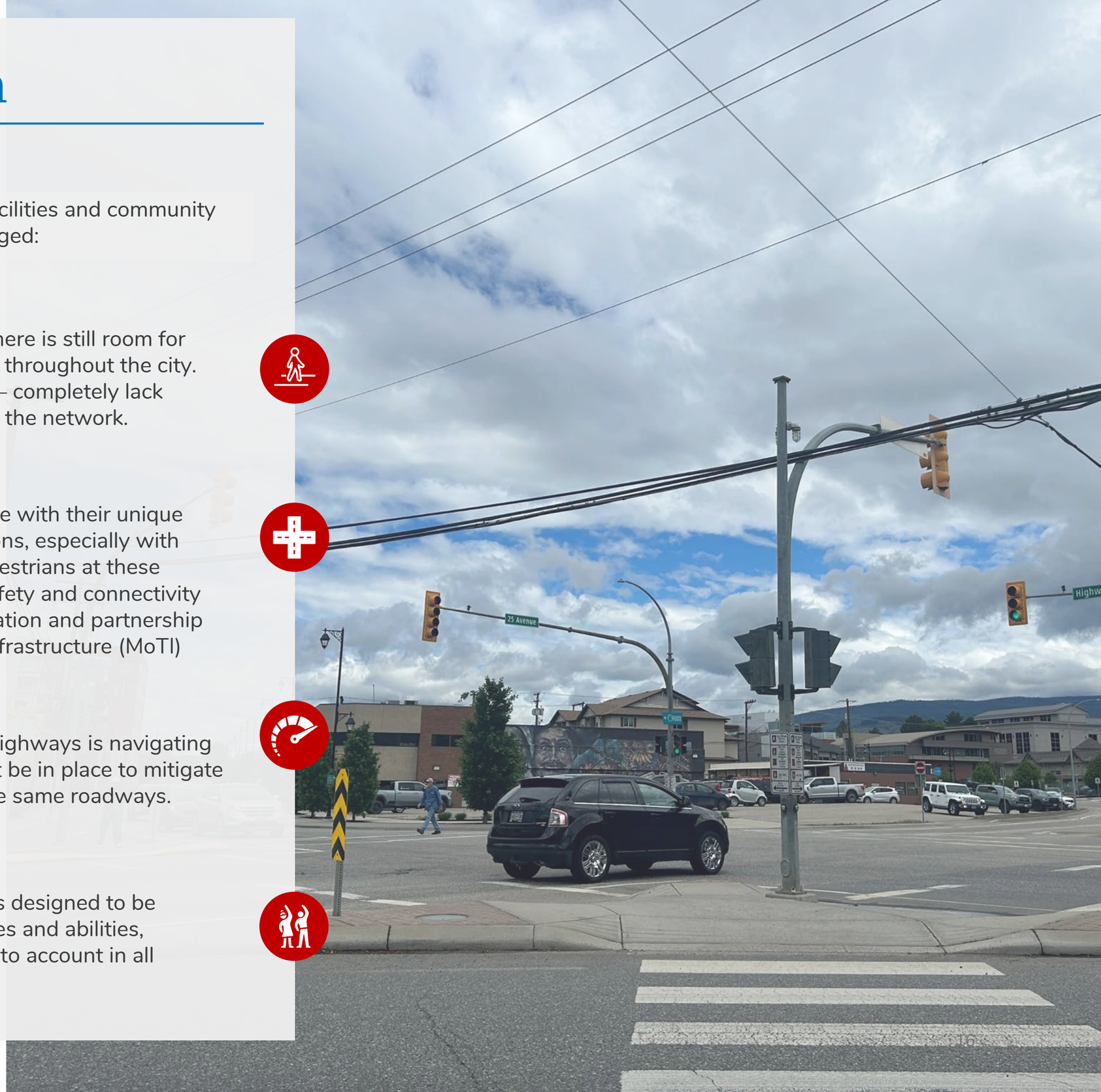
The three highways that pass-through Vernon come with their unique challenges; one of them being expansive intersections, especially with other arterial roads in the city. Accommodating pedestrians at these intersections can be tough but needed to ensure safety and connectivity in the pedestrian network. This will require coordination and partnership with agencies like Ministry of Transportation and Infrastructure (MoTI)

Navigating high-speed roadways:

Another implication of being home to three major highways is navigating vehicles travelling at higher speeds. Measures must be in place to mitigate safety concerns of active users who travel along the same roadways.

Accessibility (All Ages and Abilities):

All Ages and Abilities (AAA) infrastructure, which is designed to be comfortable, safe, and accessible for users of all ages and abilities, regardless of cycling experience, should be taken into account in all improvements moving forward.



Active Transportation

Pedestrian Network Issues

Upon reviewing the existing pedestrian network, facilities and community demographics in Vernon, the following issues emerged:

Lack of pedestrian data:

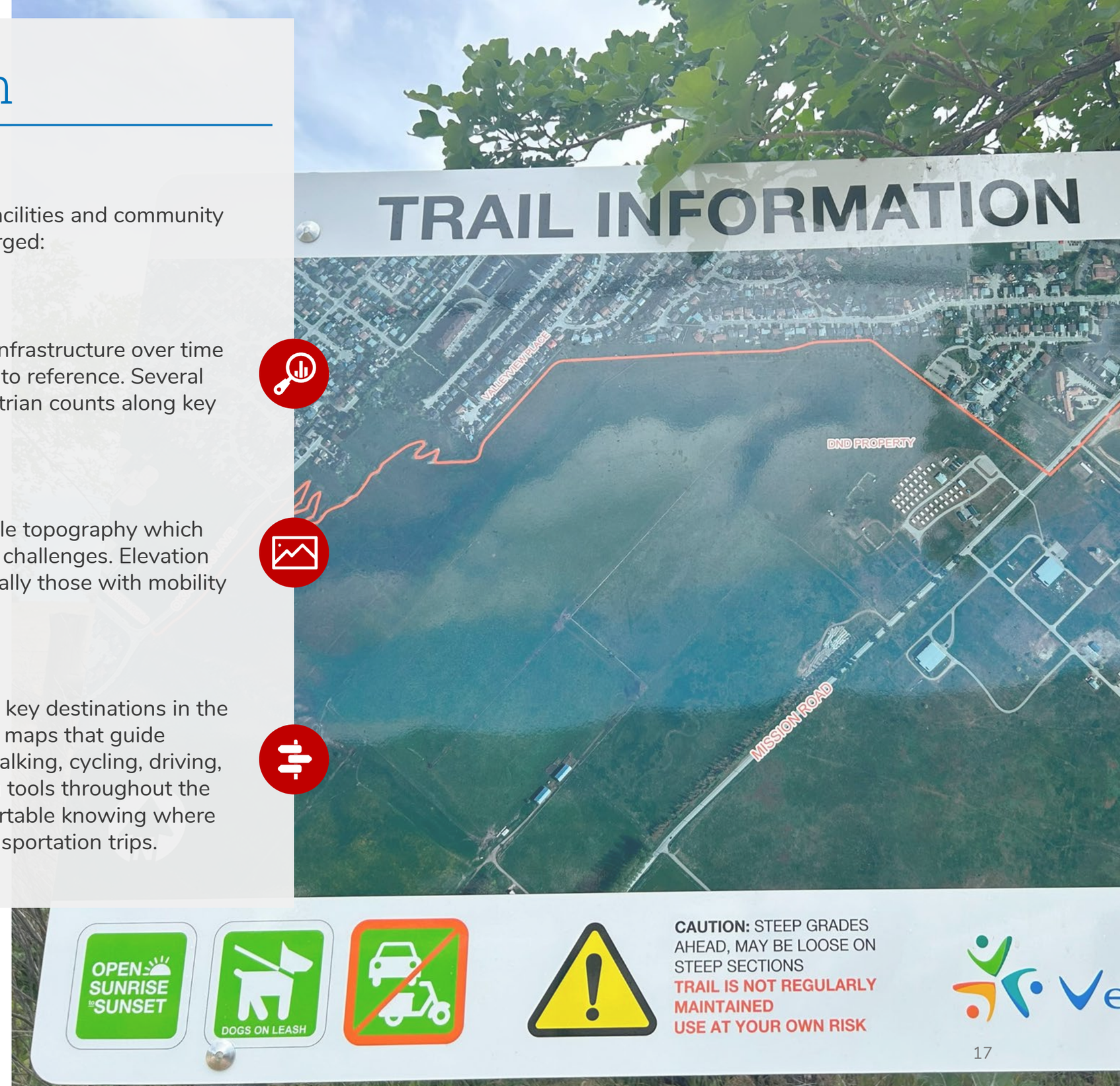
Measuring and evaluating pedestrian activity and infrastructure over time can be challenging without having applicable data to reference. Several communities collect this data by conducting pedestrian counts along key corridors every few years.

Variable topography:

Being in the Okanagan, Vernon is subject to variable topography which attracts people to the area but comes with its own challenges. Elevation and hills can create a barrier to pedestrians, especially those with mobility challenges.

Wayfinding:

Wayfinding helps people navigate to and between key destinations in the city. Wayfinding can entail directional signage and maps that guide people to routes based on their travel mode (i.e., walking, cycling, driving, etc.). Integrating more – and effective – wayfinding tools throughout the transportation network can help people feel comfortable knowing where they are going, which will support more active transportation trips.



Active Transportation

Pedestrian Network Opportunities

The current conditions of the pedestrian network also present the following opportunities:

Exploring additional facilities:

Understand preferred locations for new crosswalks, sidewalks, pedestrian signals, and other infrastructure that promotes pedestrian mobility.

Accessibility:

Evaluate the current pedestrian facilities to see if they are inclusive of all users, including seniors and people with disabilities, to see if improvements to existing infrastructure need to be made to meet the standards for universal design.

Key destinations:

Understand where key and cherished destinations are located in the community and if they are reachable by a complete pedestrian route.

New pedestrian facility types:

Determine which infrastructure types are most suitable and should be recommended as the city develops further.

Integration with transit and other modes:

Assess the proximity and design of pedestrian pathways to transit stops, bike racks, and parking areas to see how integration could be improved.



Active Transportation

Pedestrian Network Opportunities

The current conditions of the pedestrian network also present the following opportunities:

Traffic calming:

Explore appropriate traffic calming measures with quick-build and permanent infrastructure that can slow down traffic and increase pedestrian safety.

Education and awareness:

Plan ways to educate the public about safe travel behaviour, especially in high-risk areas or near schools, parks and playgrounds.

Weather considerations and maintenance:

Determine types of maintenance programs that could be implemented to keep pedestrian facilities safe and clear year-round.

Land use densification:

As the City updates the zoning bylaw and Official Community Plan to embrace more density, explore how pedestrian conditions can improve to support the movement of more people.

Wayfinding and signage:

Improve pedestrian routing, connectivity and safety through clear, easy to understand directional signage.

Active Transportation

Selecting Pedestrian Facilities

Different pedestrian facility types will be appropriate for different contexts throughout Vernon. The **BC Active Transportation Design Guide (BCATDG)** provides selection tools that help guide the decision for which facility types are applicable based on road classification and motor vehicle speeds. The BCATDG will be used to recommend future facility types where the City anticipates growth and demand for active transportation.

The BCATDG not only provides guidance on facility types, but also on the recommended design and materials to be used for different facilities based on the context.

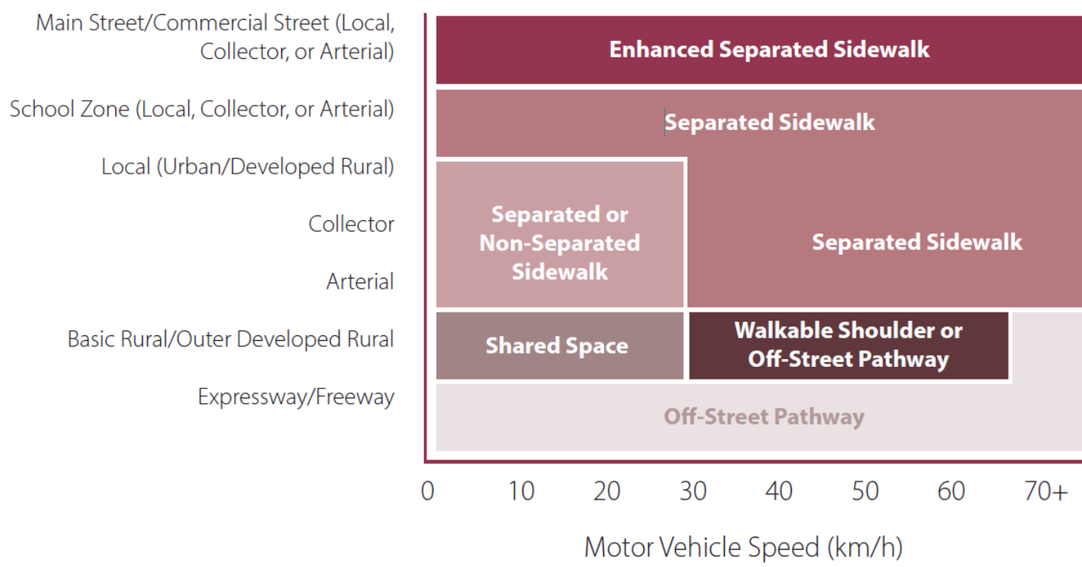
In planning for future pedestrian facilities in Vernon, it is imperative that the design and facility selection meet all ages and abilities (AAA) standards to accommodate the community context.

Excerpts from the BCATDG that guide pedestrian facility type selection for are presented below and to the right.



FIGURE C-19 // PEDESTRIAN FACILITY TYPE SPECTRUM

FIGURE C-20 // PEDESTRIAN FACILITY SELECTION DECISION SUPPORT TOOL



Active Transportation

Current Cycling Network

Vernon has a growing network of cycling infrastructure to support both commuter and recreational cyclists, shown in **Map 2.** The network is predominantly comprised of uni-directional bike lanes between 0.8 – 1.5 metres wide, along with several other facility types:



Grade-separated Cycle Track



Off-street Paved Multi-use Pathways



Off-street Unpaved Trails



Painted Bike Lanes



Recreational Trails



Shared Streets / Bicycle Boulevards



Road Shoulder

Key Connections

There are several streets in Vernon that serve as the key cycling connections across the City:

East – West:

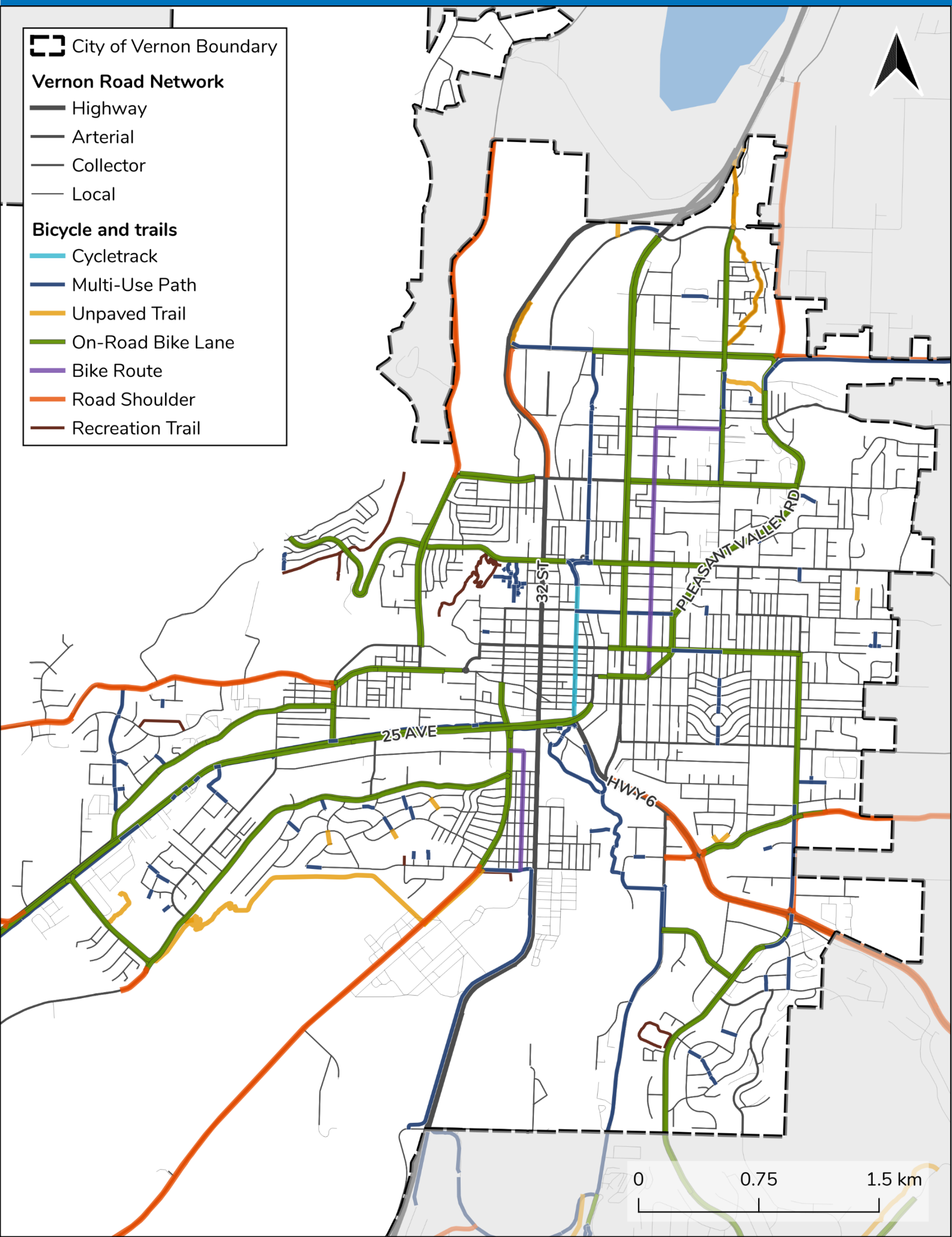
- Bella Vista Road / 30th Avenue
- Okanagan Landing Road / 25th Avenue
- Pottery Road
- 24th Avenue
- 27th Avenue
- 32nd Avenue
- 39th Avenue
- 43rd Avenue
- Silver Star Road / 48th Avenue
- Okanagan Avenue

North – South:

- Kalamalka Road
- Middleton Way / 15th Street
- Pleasant Valley Road
- 25th Street
- 29th Street / 30th Steet
- Alexis Park Drive

Map 2

Existing Cycling Network



Active Transportation

Cycling Network Issues

Upon reviewing the existing cycling network, facilities and the community context, the following issues emerged:

Gaps in infrastructure:

While the current cycling network in Vernon is still growing, it is discontinuous throughout the city and lacks consistency. Some facilities have dead ends or drop off suddenly, leaving cyclists to share the road with motor vehicles.

Navigating complicated multimodal intersections:

As with the pedestrian network, the cycling network is also impacted by expansive intersections. While most of the major intersections in Vernon already have cycling infrastructure, comfortably navigating the various lanes and multimodal facilities (motor vehicle roads, bike lanes, sidewalks) may be a challenge.

Lack of protection / separation on high-speed roadways:

As noted, Vernon already has cycling infrastructure along major roadways; however, the infrastructure provided is primarily painted bike lanes that lack physical separation from motor vehicles, which may feel unsafe for some cyclists.

Accessibility (All Ages and Abilities):

Similar to the pedestrian facilities, cycling facilities in Vernon must be designed to accommodate people of all ages, including young children and older residents with varying abilities. The All Ages and Abilities (AAA) design considerations should be taken into account in all improvements moving forward.



Active Transportation

Cycling Network Issues

Upon reviewing the existing cycling network, facilities and the community context, the following issues emerged:

Lack of cycling data:

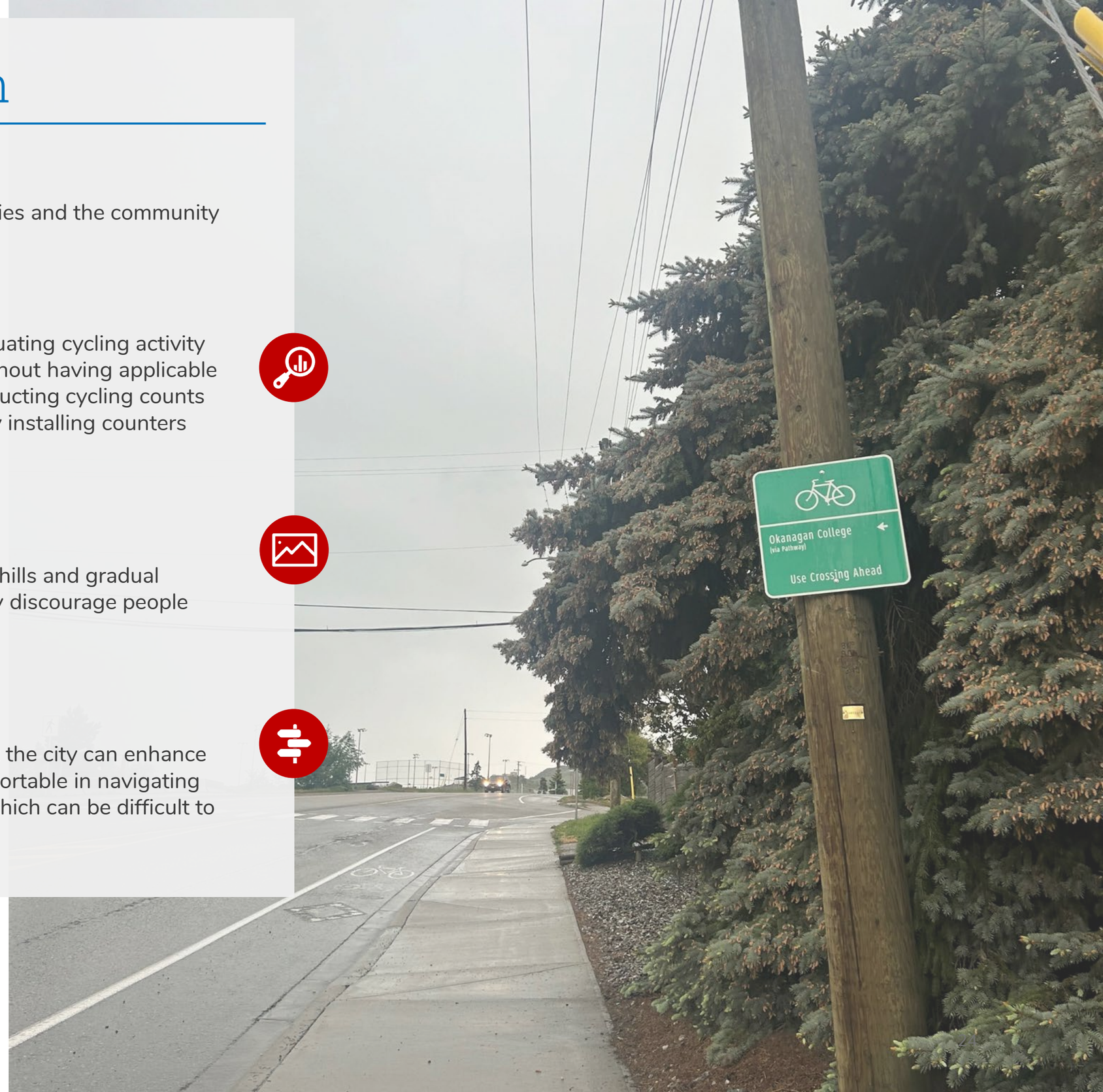
In line with pedestrian activity, measuring and evaluating cycling activity and infrastructure over time can be challenging without having applicable data. Several communities collect this data by conducting cycling counts along key corridors and trails every few years, or by installing counters along key active transportation routes.

Variable topography:

The variable topography in Vernon results in steep hills and gradual inclines, which creates barriers for cyclists, and may discourage people from choosing cycling as a mode of transportation.

Wayfinding:

Providing wayfinding for cycling routes throughout the city can enhance the cycling experience to allow cyclists to feel comfortable in navigating the network without depending on maps or GPS which can be difficult to access while riding a bike.



Active Transportation

Cycling Network Opportunities

The current conditions of the cycling network also present the following opportunities:

Perceived safety:

Address how the public feels about the existing cycling network in terms of safety to help prioritize improvements and facilities to address concerns in neighbourhoods and more urban areas.

Key destinations:

Identify key destinations like schools, parks and commercial areas that can guide how the future cycling network is designed, to enhance connectivity and safety between these key points.

Integration with transit and other modes:

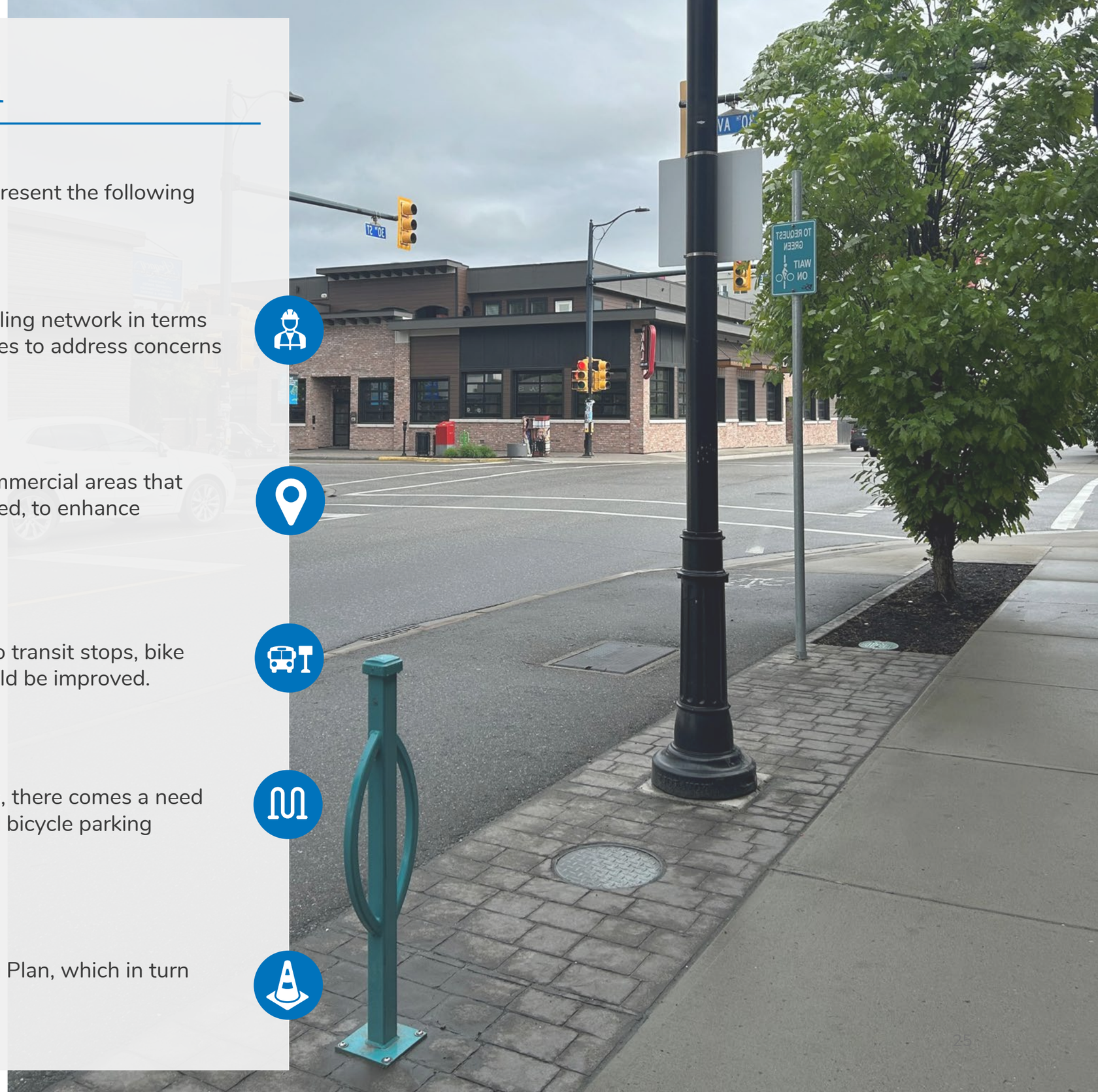
Assess the proximity and design of cycling routes to transit stops, bike racks, and parking areas to see how integration could be improved.

Bike parking:

By increasing and prioritizing cycling improvements, there comes a need for more adequate, secure and conveniently located bicycle parking facilities at key destinations.

Capital Projects:

This report is intended to inform the Transportation Plan, which in turn guides future capital planning.



Active Transportation

Cycling Network Opportunities

The current conditions of the cycling network also present the following opportunities:

Education and awareness:

Plan ways to educate the public about safe travel behaviour, especially in high-risk areas or near schools, parks and playgrounds.

Weather considerations and maintenance:

Determine types of maintenance programs that could be implemented to keep cycling facilities safe and clear of snow, ice and other elements year-round.

Land use densification:

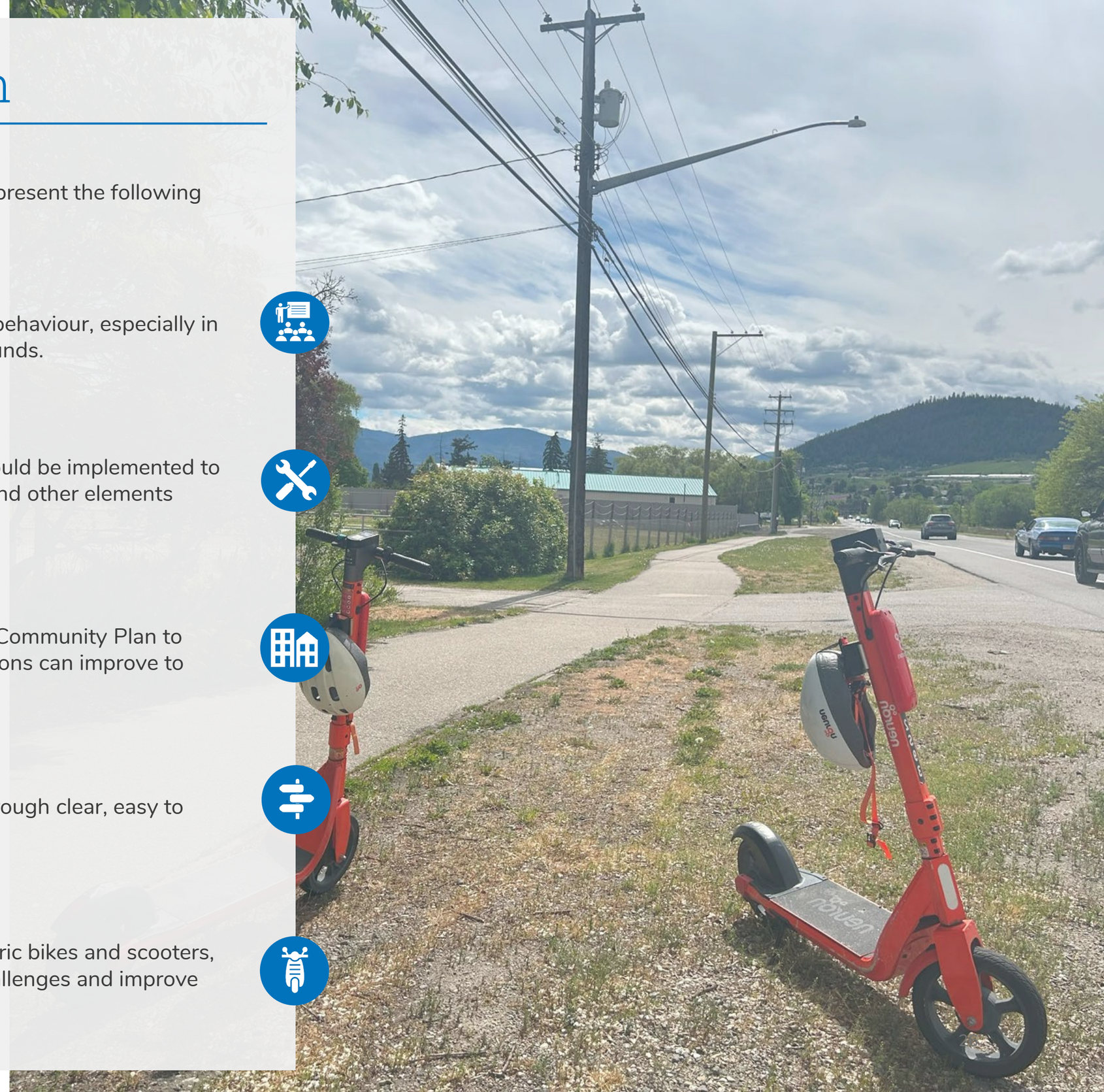
As the City updates the zoning bylaw and Official Community Plan to embrace more density, explore how cycling conditions can improve to support the movement of more people.

Wayfinding and signage:

Improve cycling routing, connectivity and safety through clear, easy to understand directional signage.

E-bikes and micromobility:

Explore how the uptake of e-mobility, such as electric bikes and scooters, can improve connectivity, reduce topographical challenges and improve overall trip distances.



Active Transportation

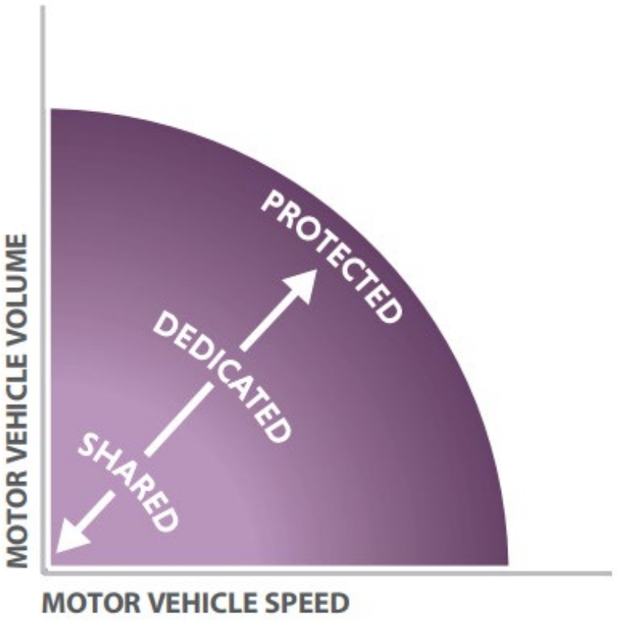
Selecting Cycling Facilities

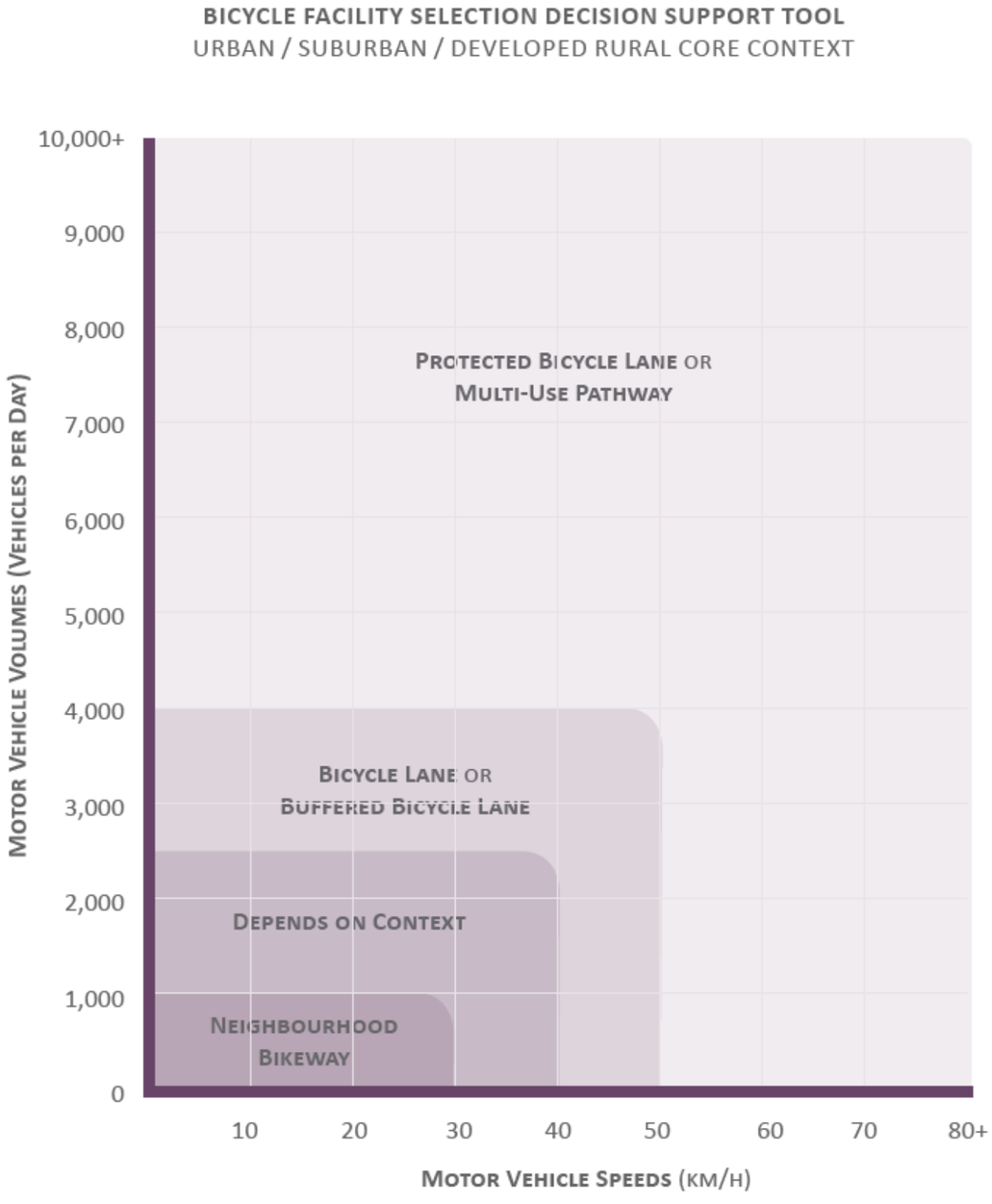
Similar to pedestrian facilities, different cycling facility types will be appropriate for different contexts throughout Vernon based on urban and suburban regions, roadway volumes and speeds, and volume of vulnerable road users. For instance, a higher degree of separation or protection may be warranted near schools or seniors housing.

The British Columbia Active Transportation Design Guide (BCATDG) also provides selection tools for cycling facility types, including the recommended design and materials depending on the context.

Selecting facility types and following guidelines that meet all ages and abilities (AAA) standards will be a priority and recommended where appropriate.

An excerpt from the BCATDG that guide cycling facility type selection for are presented below and to the right.





Transit

Current Transit Network

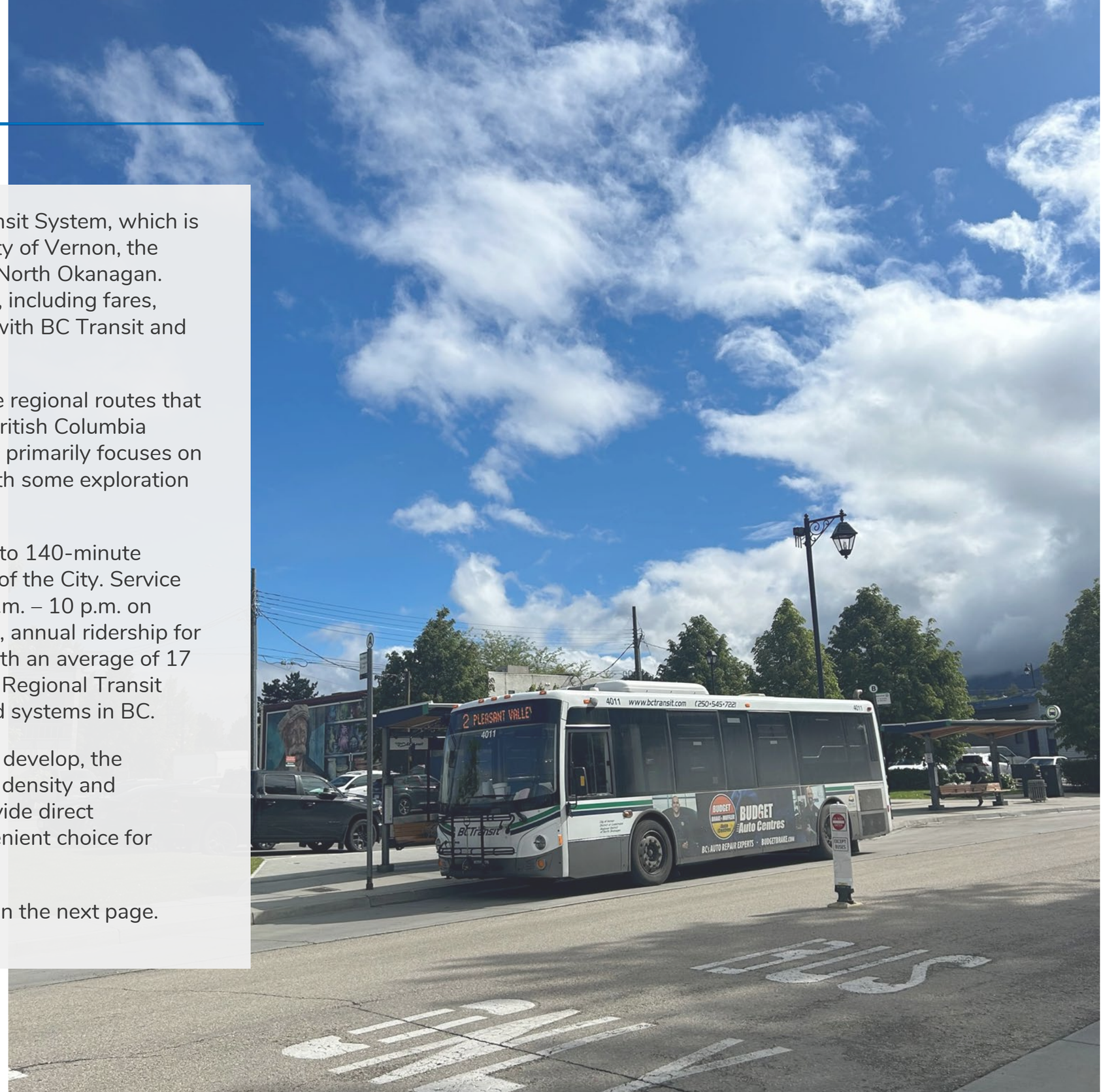
Vernon is part of BC Transit's Vernon Regional Transit System, which is delivered through a cost-sharing model with the City of Vernon, the District of Coldstream, and the Regional District of North Okanagan. Decisions about the transit system and its priorities, including fares, routes, and service levels are made collaboratively with BC Transit and the local government partners.

Within Vernon, there are nine local routes and three regional routes that connect to Lumby, Enderby, and the University of British Columbia Okanagan (UBCO) campus in Kelowna. This review primarily focuses on the local transit network within City boundaries, with some exploration into opportunities for regional route efficiencies.

The current transit network ranges from having 30 to 140-minute frequency and provides coverage throughout most of the City. Service span varies from 6 a.m. – 10 p.m. on weekdays; 8 a.m. – 10 p.m. on Saturdays, and 8 a.m. – 7 p.m. on Sundays. In 2023, annual ridership for the entire system surpassed 600,000 boardings, with an average of 17 boardings per hour. Based on this data, the Vernon Regional Transit System performs well in comparison to similar sized systems in BC.

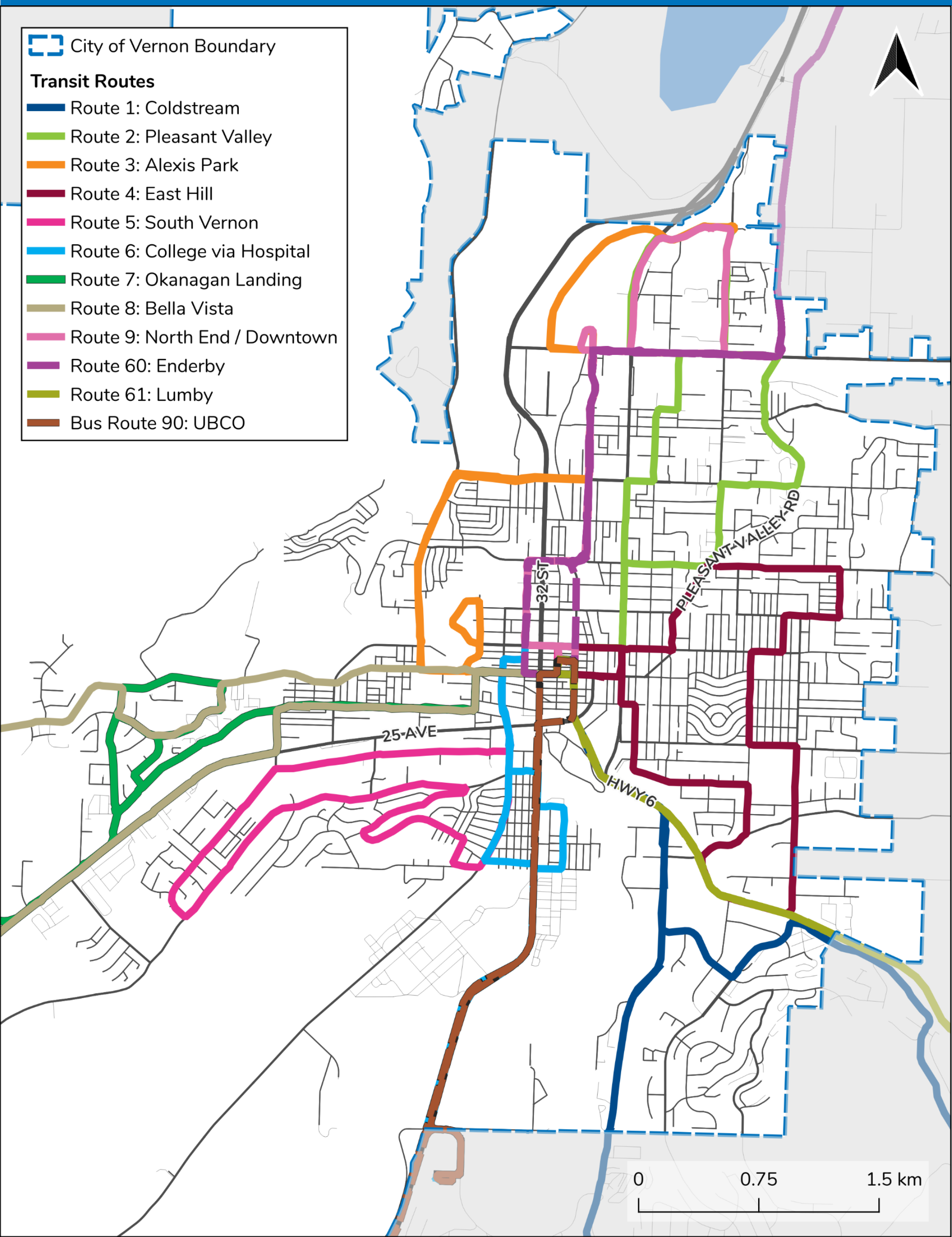
However, as the community continues to grow and develop, the network will need to better serve areas with higher density and proposed development, improve efficiency and provide direct connections to make transit an attractive and convenient choice for residents into the future.

The current transit network is presented in **Map 3** on the next page.



Map 3

Existing Transit Network



Transit

Transit Future Action Plan

The Vernon Regional Transit System has not undergone major changes in routing or a service expansion in many years. Future planning for the system is documented in the Transit Future Plan (TFP) and Transit Future Action Plan (TFAP).

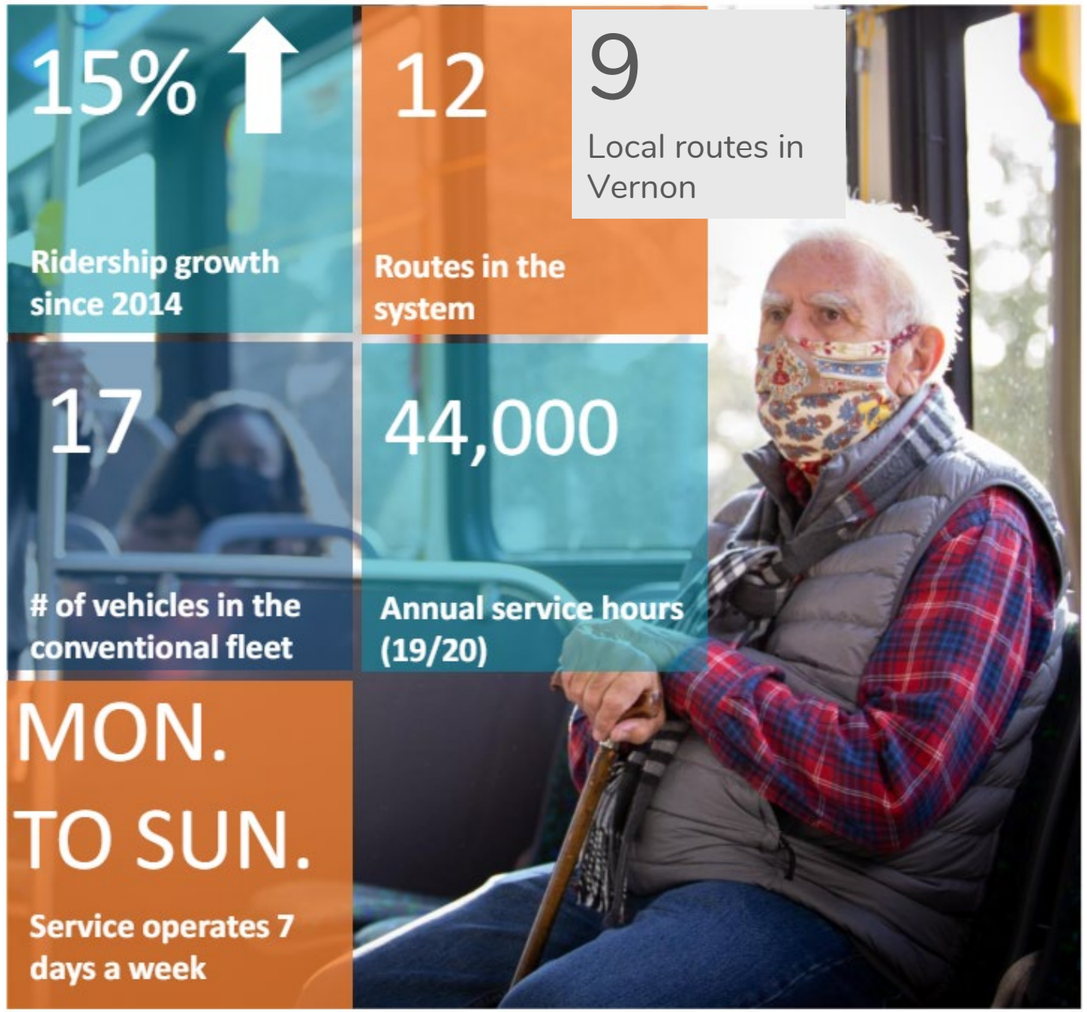
The TFP is a twenty five-year outlook for the system. The last one was completed ten years ago in 2014.

The TFAP is a shorter plan, focusing on priorities for service improvements and infrastructure over the next three to five years . The Vernon Regional Transit System TFAP was completed in 2021 and summarizes the system service performance and outlines service and infrastructure priorities for 2022 – 2025 and 2026 - 2029.

Priorities from both documents that are relevant to the City of Vernon have been summarized in **Appendix A.** The key features of both plans that are significant to this planning effort are:

- New route 10 Middleton Mountain
- Realigned routes 9 and 60 in downtown Vernon
- Shortened route 4

While this planning work builds off the two above documents, it focuses on reimagining the network in Vernon for the future, while seeking to reinforce multimodal connections and integration with the Active Transportation network where possible.



Transit

System Performance

The nine local routes in Vernon use a majority of the Vernon Regional Transit System's total 34,800 revenue service hours and supported approximately 500,000 annual boardings in 2023.

While the COVID-19 pandemic affected system ridership, similar to systems across Canada and the world, ridership has since recovered, and 2023 ridership grew by close to 14% compared to 2019 ridership.

2023 System Stats:

Number of Local Routes: 9

Number of Regional Routes: 3

Number of buses: 17

Annual Boardings: 611,267

Annual Revenue Hours: 34,800

Highest ridership routes: 3, 9, 5

Lowest ridership routes: 4, 1, 8

If the regional routes were included, Route 90 would also be counted among one of the high ridership routes, similarly Route 61 would be included among the lower ridership routes

Highest boardings between: 2:00 – 4:00 p.m.

City of Vernon's share of costs: 37%

Cost per revenue hour: $143.45 (+16% since 2019/2020)

Annual Cost per capita: $40.80

Revenue hours per capita: 0.9

Operating cost per passenger: $5.99

Operating cost per trip: $7.57

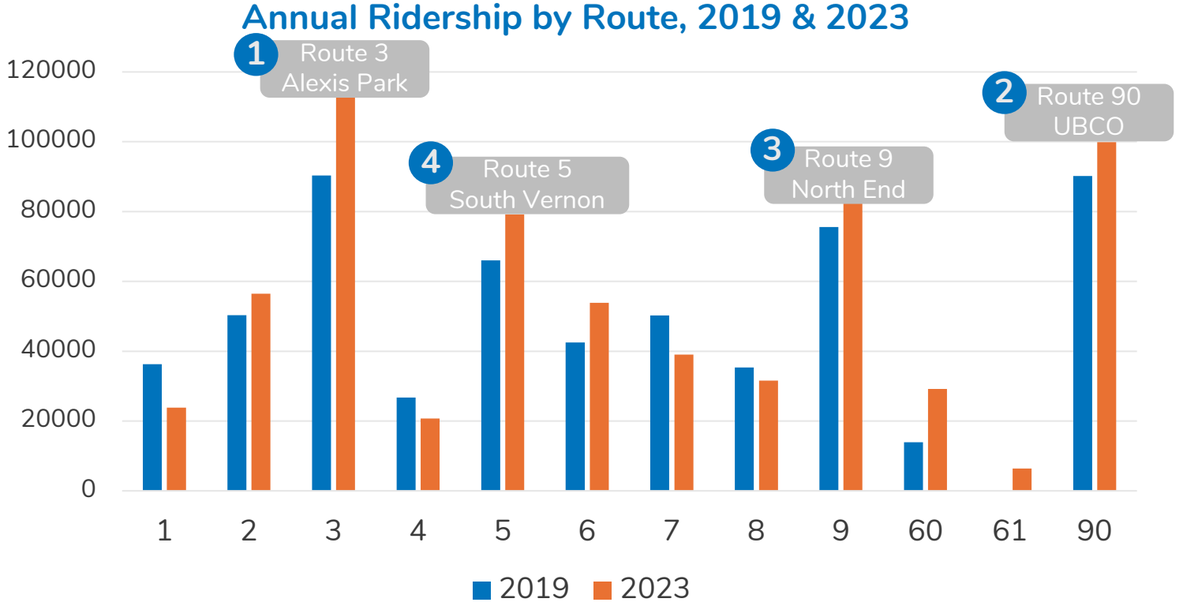
As a point of comparison, Revenue hours per capita over 1 indicate a good distribution of service. In the case of Vernon, there is work to be done to get here

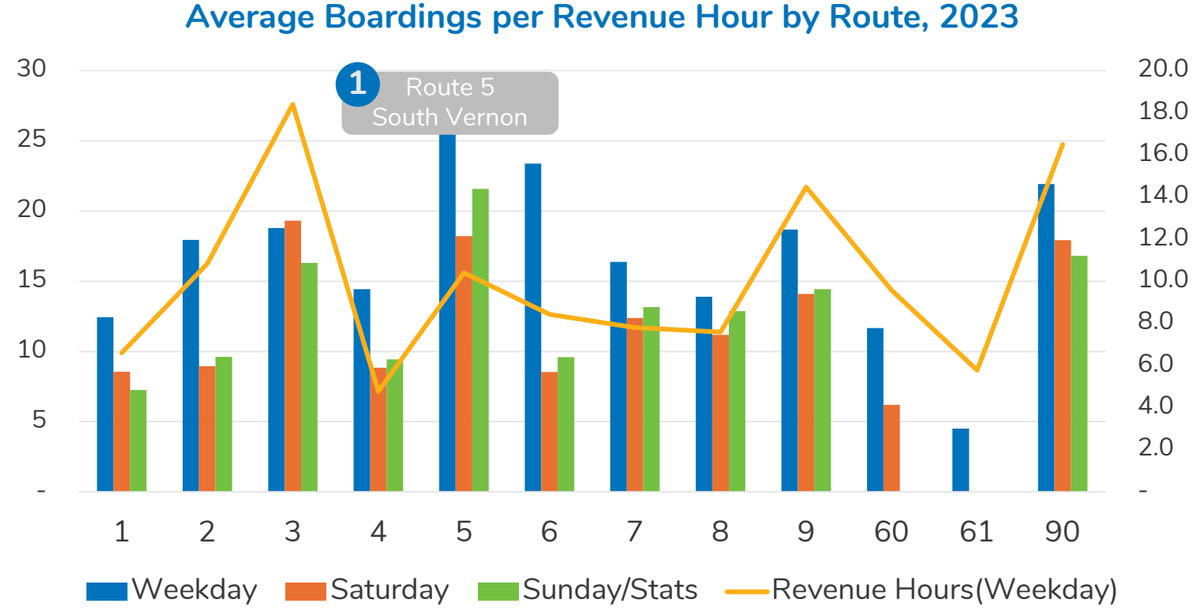
Transit

System Performance

In 2023, **Route 3 Alexis Park** experienced the highest ridership numbers in the system, followed by Route 90 UBCO / Vernon, Route 9 North End, and Route 5 South Vernon, respectively. Route 4 East Hill saw the fewest riders among the local transit routes in 2023, with Route 61 Lumby seeing the fewest riders across the entire regional system. More information about route-level ridership is summarized in **Appendix B.**

Across all routes, ridership was highest on weekdays and lowest on Sundays. On average, boardings were highest in the afternoon between 2:00 p.m. – 4:00 p.m. Typically, public transportation services are most used during peak morning and evening commuter hours (i.e., 7:00 a.m. – 9:00 a.m. and 4:00 p.m. – 6:00 p.m.); however, this shows not to be the case in Vernon. Trips before 8:00 a.m. and after 6:00 p.m. had the fewest number of riders on average – which can also be representative of the lower service levels provided in the early morning and late evening.





Transit

System Performance: Stop Activity

The Vernon Regional Transit System operates a **"hub and spoke"** model, meaning all routes connect at the Downtown Exchange **(hub)** from where the routes disperse in all directions **(spokes)**.

Outside of the Downtown Exchange and the UBCO Exchange (Route 90), the bus stops in Vernon with the highest number of boardings are:

- **Village Green Centre**
- **Okanagan College**
- **30 Avenue at 35 Street** – *Fresh Co*
- **58 Avenue at 20 Street** – *Walmart*
- **58 Avenue at 2400 Block** – *Walmart*
- **34 Street at Coldstream** – *Orchard Valley Retirement Residence*
- **Anderson Block 4960** – *Superstore*
- **35 Street at 15 Avenue** – *The Church of Jesus Christ of Latter Day Saints, Emmanual Baptist Church, Kingdom Hall of Jehovah's Witnesses, Gurdwara Vernon Sikh Temple and Mission Hill Elementary School*

Boardings refer to when people get on (board) the bus.

Alightings refer to when people get off (unload) the bus.

Average boardings and alightings help to understand where people are travelling to and from in Vernon, which guides decisions about prioritizing where improvements to service and infrastructure should be made.

The top five stops in Vernon with the **highest boarding and alighting activity**, outside of the Downtown Exchange, are:

1. **Okanagan College**
2. **Village Green Centre**
3. **Walmart (58 Avenue at 20 Street)**
4. **Fresh Co (30 Avenue at 35 Street)**
5. **Superstore (Anderson Block 4960)**

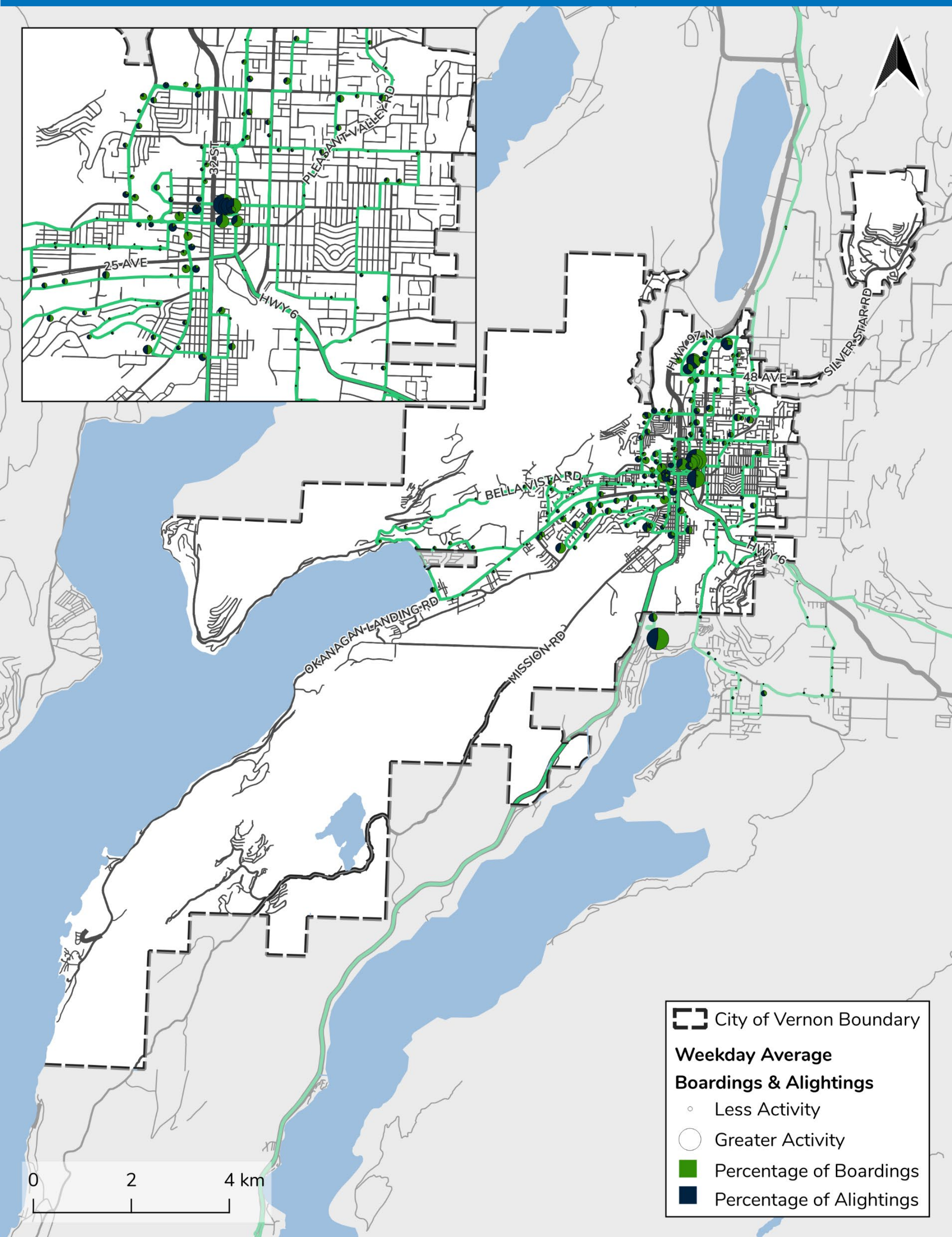
The bus stops with the **least amount of boarding and alighting activity** include:

- 33 Street at 38 Avenue
- 27 Avenue at 43 Street
- Lakeshore at 2630 Block
- 39 Avenue at 30 Street
- Lakeridge at Bella Vista

Map 4 on the next page illustrates the average boarding and alighting activity per stop on weekdays.

Map 4

Average Weekday Boardings and Alightings per Stop



Transit

Issues and Observations

Based on the transit system's current performance and review of baseline conditions, the following issues and observations have been presented:

Issues

Low frequency:

Frequency refers to how often the bus arrives at a particular stop. Route 9 North End is currently the most frequent route in the system, with 15-minute frequency during peak periods and 30-minute frequency in off-peak periods. However, most other routes operate with a frequency range between 40 to 70 minutes (or 2 hours for some of the regional routes). Infrequent service can make taking transit inconvenient and inefficient.

Limited service span:

Service span is the length of time that transit operates throughout the day. Transit service currently operates between 6:00 a.m. to 10:00 p.m. on weekdays, 8:00 a.m. to 10:00 p.m. on Saturdays, and 8:00 a.m. to 7:00 p.m. on Sundays, with some routes having shorter service spans. A lack of early morning and late evening service can prevent people from using transit regularly, particularly for shift workers, people in the hospitality industry, and event attendees.

Lack of clockface headways:

Clockface headways are schedules with consistent times (i.e., when the bus comes every five minutes past the hour, etc.). Currently, the schedules vary throughout the day which can make it challenging for transit riders to become familiar with the schedule.

One-way loops:

The current network is designed primarily with one-way loops, which can be easy to understand, but tend to be indirect and inefficient due to being circuitous nature. Also, because travel is only in one direction, they serve only one side of the street for both boarding and alighting and that can be confusing.

Tight schedules:

Routes 7 Okanagan Landing and 8 Bella Vista typically run behind schedule, especially during peak times and tourist season (summertime). These routes provide service along Lakeshore Road where many pedestrians access the beach and speed limits are lower (30 km/h). Due to the hub and spoke model, tight schedules can impact route connections and timings for the rest of the day.

Transit System Observations

- There is only one-way travel from Village Green Centre to Walmart (there is currently no trip from Walmart to Village Green Centre)
- On-board displays sometimes present inaccurate next stop information
- Lack of timely service alerts for service interruptions
- Higher boardings in the afternoon – how are people travelling in the morning and evening?
- Buses on Route 3 Alexis Park and Route 5 South Vernon (on the morning school run) can be at capacity during peak times
- Lack of visible hierarchy on route maps showing frequent or regional routes

Transit

Opportunities

Issues and observations derived from the existing transit network helped to identify the following opportunities for Vernon's transit future:

Improve frequency:

Frequency can be improved across all routes to make transit a convenient transportation choice for people in Vernon. Further, there lies an opportunity to build out a Frequent Transit Network (FTN) to connect between key destinations and exchanges to move people more efficiently around the city.

Policy updates:

Recent provincial legislation requires updated zoning regulations to allow for more small-scale, multi-unit housing in traditionally low-density areas and increased density around transit exchanges (transit-oriented development). As the City works toward updating the zoning bylaw and Official Community Plan, there is an opportunity to align the transit network with new, higher-density land uses.

Transit exchanges:

There are currently two transit exchanges in Vernon: the Downtown Exchange and Village Green Centre. While all routes connect to the Downtown Exchange, only two routes utilize Village Green Centre. To enhance connectivity throughout the city, there could be more utilization of Village Green Centre, and additional exchanges implemented at key destinations (i.e., Polson Place or Okanagan Landing, to name a few).

Infrastructure and technology improvements at exchanges, such as real-time displays, can enhance the transit rider experience in a system that relies on exchange transfers.

Review schedules:

A Hub and Spoke system only works if all the routes come in at the "hub" at the same time, transfers occur and then the routes disperse. If one bus is running late, the meet or connection does not happen and if the buses are waiting at the "hub" for the late bus, it in turn delays all the other buses. Adding additional run time to the schedules would be one way of ensuring the hub and spoke model works well. An example for the Vernon system is the possibility of adding more time in routes 7 and 8 that tend to run behind and tightening time in routes that regularly run early (i.e., routes 2 and 4).

Transit

Opportunities

Bidirectional routes:

Bi-directional routes can be more efficient than one-way loops as they provide direct service to destinations in both directions. Bi-directional routes are common in larger transit systems with higher frequencies.

Optimize routes:

Some existing routes (for instance, Routes 7 Okanagan Landing and 8 Bella Vista) have similar route patterns where service overlaps. These routes can be optimized to be more time and cost efficient to prevent unnecessary service duplication.

Expand service span:

Introducing earlier and later service can attract new transit riders who work or need to travel outside of “regular” times.

Transit passes:

Several other transit systems in British Columbia collaborate with institutions to provide transit passes, such as the U-PASS program with post-secondary schools and ProPASS program with employers.

Clockface headways:

Implementing clockface headways may make the schedules easier to understand for both new and existing transit riders; especially for youth, seniors, people with disabilities, and new residents who may typically require assistance with navigating the transit system.

Summary

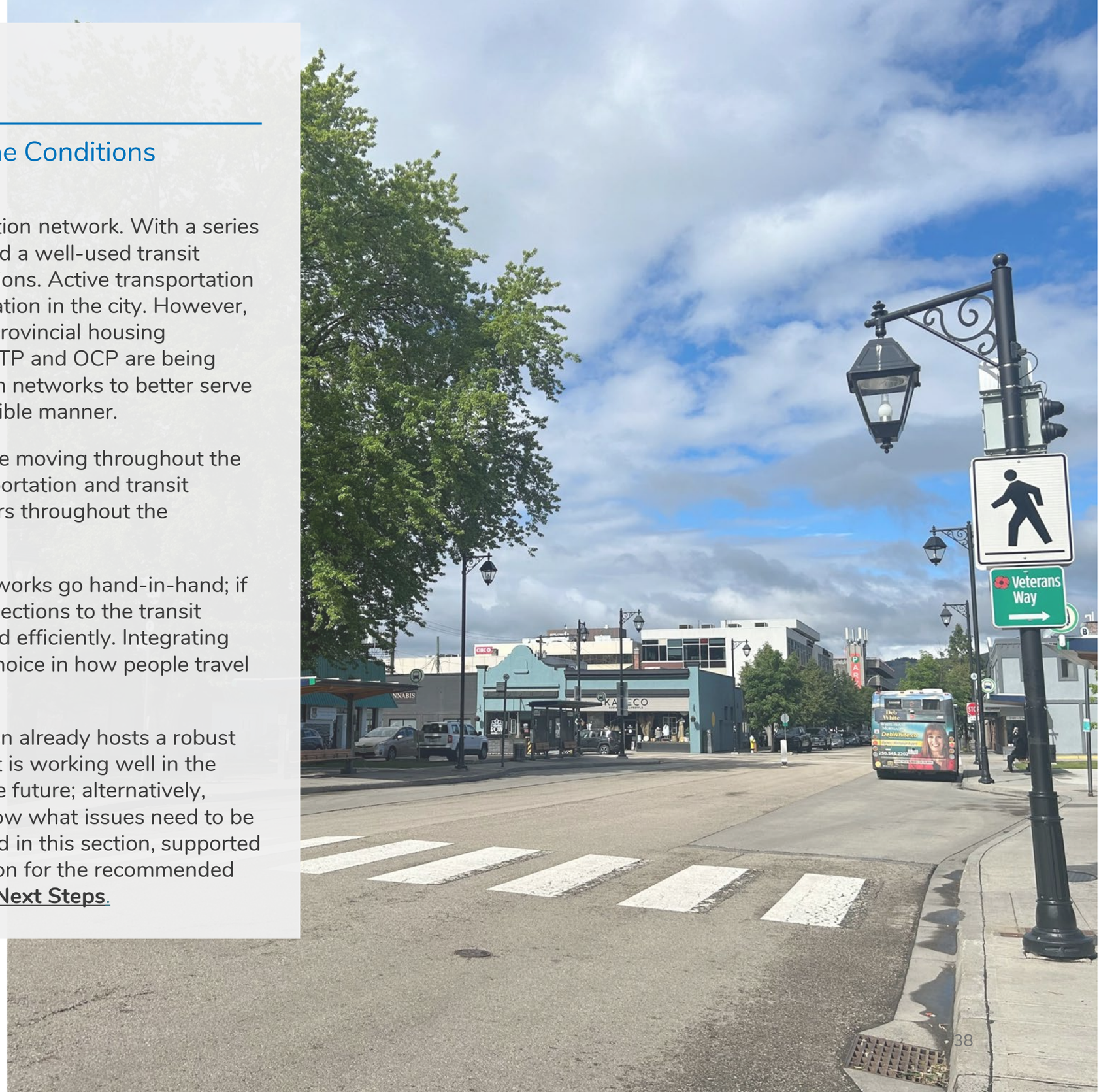
Active Transportation and Transit Baseline Conditions

Vernon is home to a diverse multimodal transportation network. With a series of off-street pathways, trails, on-street facilities, and a well-used transit network that connect to local and regional destinations. Active transportation and transit are generally viable modes of transportation in the city. However, as the city continues to grow and densify to meet provincial housing mandates, this is an opportune moment, when the TP and OCP are being updated to plan for improving and building out both networks to better serve the community in an efficient, equitable and accessible manner.

Population growth results in more traffic and people moving throughout the city on a daily basis; by enhancing the active transportation and transit networks, it can help distribute residents and visitors throughout the multimodal network and reduce congestion.

Improving the active transportation and transit networks go hand-in-hand; if pedestrian and cycling infrastructure provides connections to the transit network, people are able to access transit safely and efficiently. Integrating multiple modes of transportation allows for more choice in how people travel to and between local and regional destinations.

As the baseline conditions review found that Vernon already hosts a robust multimodal network, it is important to identify what is working well in the current network that can be leveraged further in the future; alternatively, identifying what is not working so well helps to know what issues need to be addressed. The issues and opportunities highlighted in this section, supported by a **Needs & Equity Analysis** formed the foundation for the recommended future network presented in **Recommendations & Next Steps**.



Needs & Equity Analysis



Needs Analysis

Framework

A **Needs Analysis** was conducted to understand which populations in Vernon have low access to the existing pedestrian, cycling and transit networks and where resources should be invested to improve accessibility of these networks. The framework used to conduct this analysis is illustrated in the table below and described further on the next page.

Criteria	Rationale	Suggested Weighting
Pedestrian Network		
Road Classification	Busier roads are less comfortable to walk next to and may require higher levels of safety intervention	24%
Trip Generators (Schools, shopping, cultural, religious, etc.)	Key destinations in the community will be where people want to go to and return from (does not include schools)	25%
Lack of sidewalk	Sidewalks are important for walkability and safety	15%
Pedestrian Utilization (Strava)	Provides an indication of current pedestrian desire lines	4%
Population Equity Score Ranking	Potential to improve equity in transportation system	25%
Cycling Network		
Road Classification	Busier roads are less comfortable	20%
Lack of cycling infrastructure	Where cycling infrastructure does not exist currently	15%
Trip Generators (Schools, shopping, cultural, religious, etc)	Key destinations in the community	25%
Cycling Utilization (Strava)	Provides an indication of current cycling desire lines	15%
Population Equity Score Ranking	Potential to improve equity in transportation system	25%
Transit Network		
Trip Generators (schools, cultural, hospital, key destinations, etc). (Within 250/500m of a stop)	Key destinations in the community	25%
Population and employment density	Higher density of people and jobs supports transit	20%
Stop Level Current Usage (Within 250/500m)	Indicates current demand for transit within an area	20%
Population Equity Score Ranking	Potential to improve equity in transportation system	35%

Needs Analysis

Framework

The analysis assessed each network against a set of evaluation criteria, developed collaboratively with City staff and the consulting team. The criteria represented the highest priority needs in the community, in terms of population groups, travel patterns, destinations, and infrastructure.

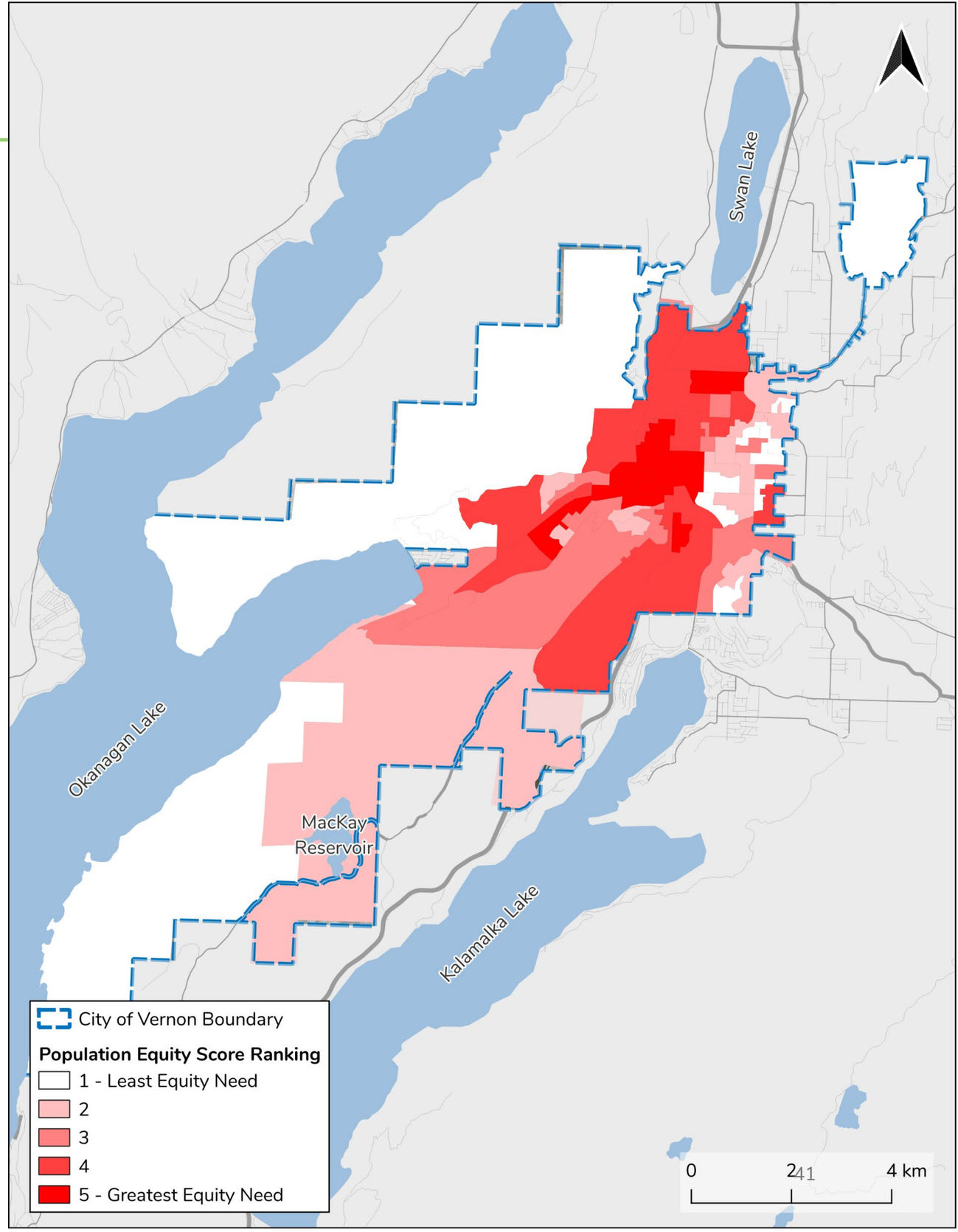
An equity lens was applied to the criteria, using a Population Equity Score Ranking. The Population Equity Score Ranking shows where there are higher concentrations of groups prioritized by the City when considering whether the system is adequately serving everyone in the community. Areas with a greater score have higher concentrations of multiple potentially vulnerable groups.

In addition to the Population Equity Score Ranking, other criteria involved in the analysis included road classification, key destinations, gaps in the network, and travel patterns. Each criterion established was weighted according to the City's values and priorities for improving equity in the overall transportation network. The ultimate goal of the analysis was to identify locations and/or corridors in Vernon that should be prioritized for pedestrian, cycling and/or transit improvements based on ensuring equitable access for groups that may benefit from improved mobility, such as seniors, youth, low-income individuals, immigrants, and people with Indigenous identities.

The framework for the analysis of each network is outlined in the table on the previous page with the results presented in **Maps 5-7.**

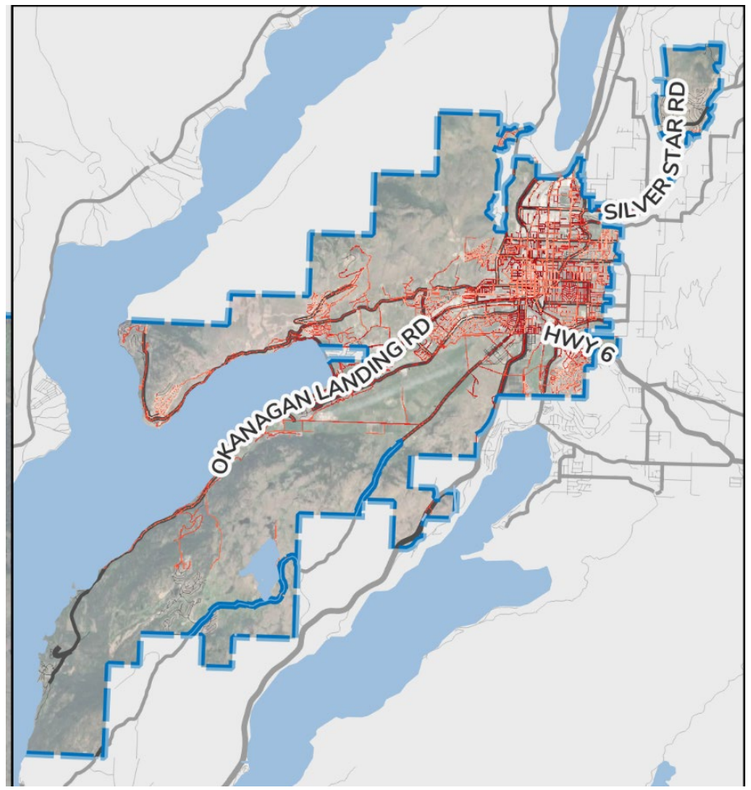
The map on the right illustrates the areas of the greatest equity need in the city based on the Population Equity Score Ranking described above.

A similar pattern emerges as we map out the results of the Needs Analysis with respect to each of the networks: Pedestrian, Cycling and Transit as illustrated in **Maps 5-7.**

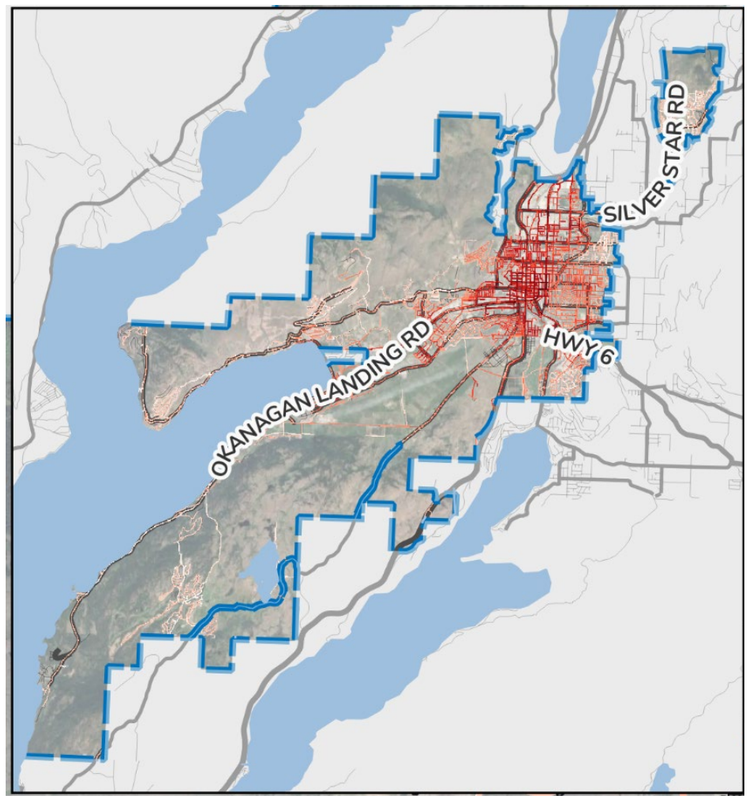


Needs Analysis

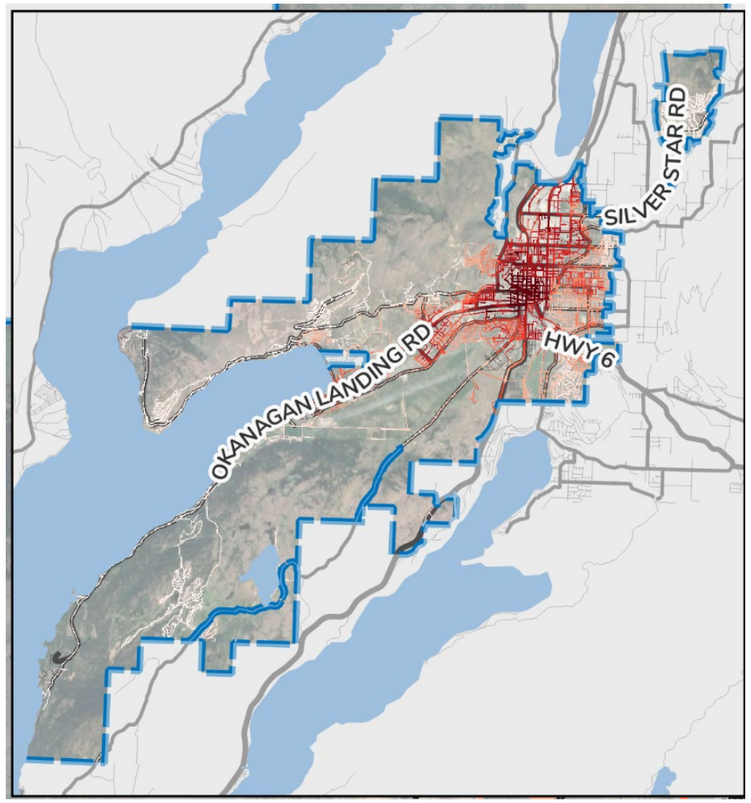
Needs Analysis Results: Pedestrian, Cycling and Transit Networks



The pedestrian network shows to have the most need for facilities along arterials and collectors in the City.



The cycling needs analysis identifies a higher need for facilities along major corridors throughout the city.

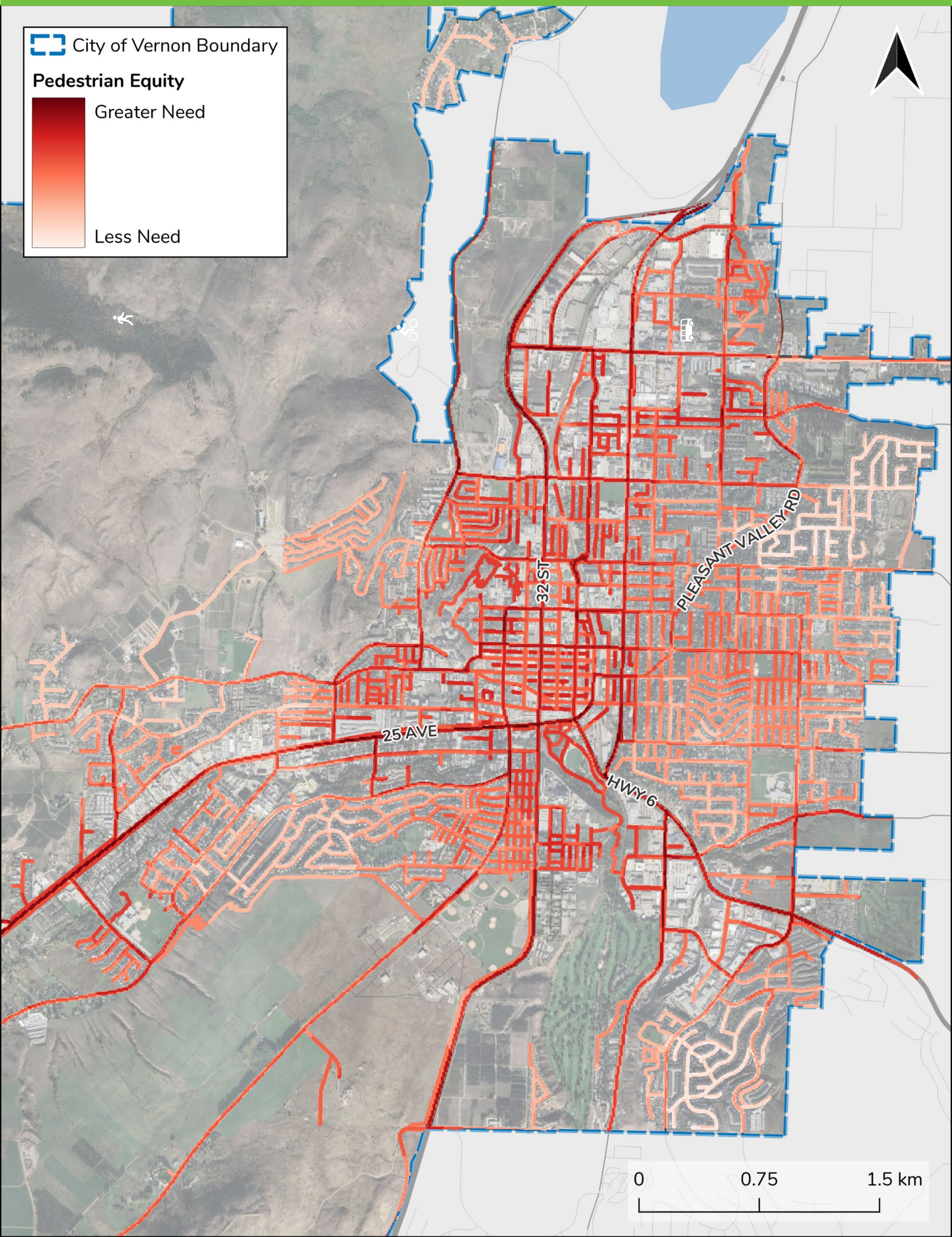


In terms of transit, the needs analysis indicates higher need in the downtown core, in addition to South Vernon and the North End.

It is to be noted that the Needs Analysis for all three networks is a starting point for the work done in this report. Recommendations in this report are based on ground truthing conditions and are focused on the current challenges of the community and priorities of the City.

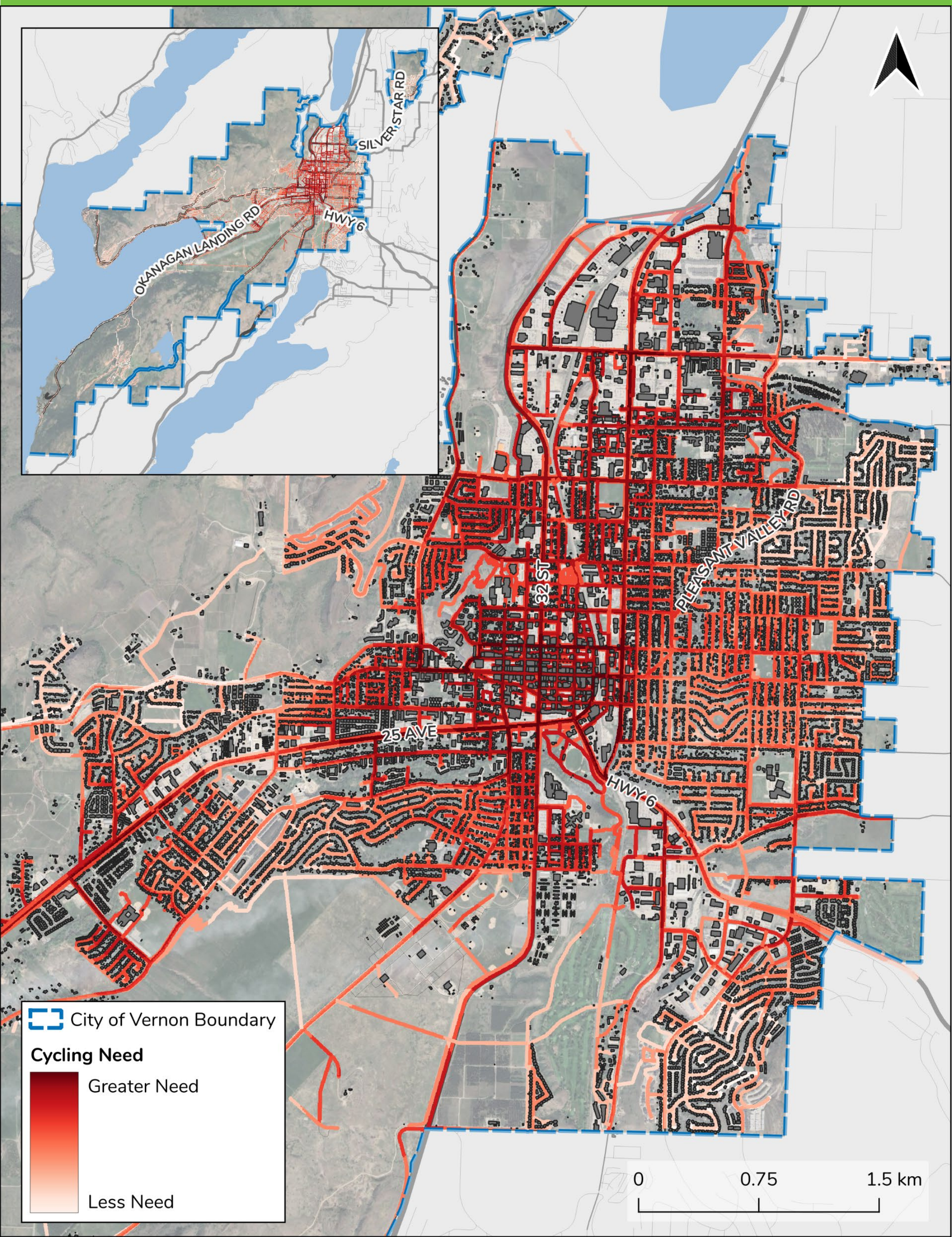
Map 5

Pedestrian Needs Analysis – Existing Network



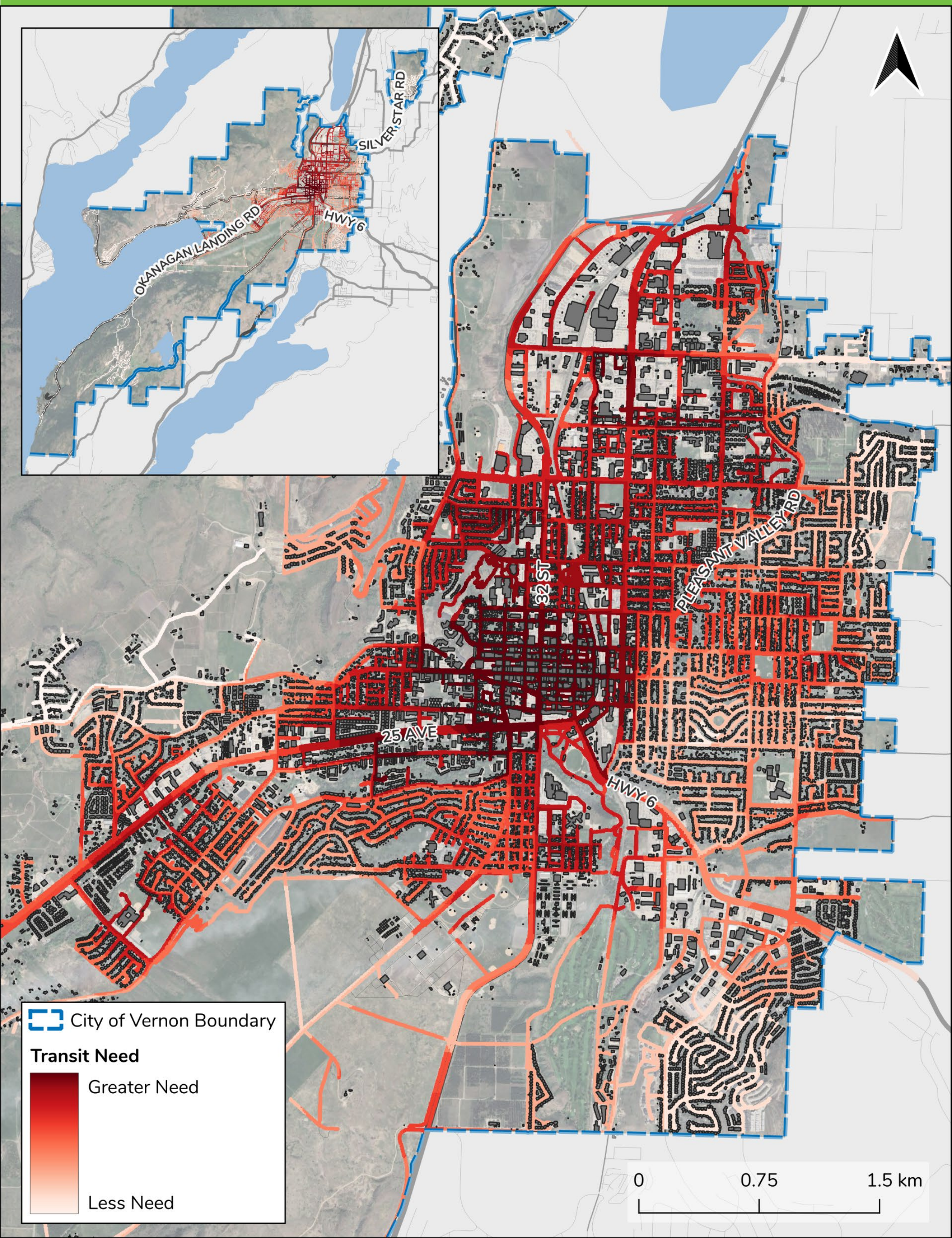
Map 6

Cycling Needs Analysis – Existing Network



Map 7

Transit Needs Analysis – Existing Network



Equity Analysis

Methodology

To further support the Needs Analysis, an **Equity Analysis** was undertaken to show how different groups of people may have different access to services. Understanding how many people in a community have access to types of services is helpful to evaluate if any particular group is experiencing more barriers than others in accessing daily needs.

Cycling Network

Using data from the City of Vernon, cycling facilities were grouped based on the level of protection or segregation from vehicle traffic. Each grouping was then buffered 500 metres. Those buffers were used to determine the proportions of each dissemination area (DA) covered by a type of service. If multiple types of service provided coverage in the same space, the area was assigned to the more protected classification of cycling facility.

Though road shoulders presumably exist on many roads, only road shoulders where indicated by the City of Vernon data were considered. A fifth category of “no infrastructure” was created for those not within 500 metres of any of the official cycle infrastructure.

The results of the analysis are presented on the next page.

Groups of cycling facilities:

Group 1	Separated facilities (i.e., unpaved trail, cycle track, multi-use path)
Group 2	Bike route
Group 3	On-road bike lane
Group 4	Road shoulder

Transit Network

Similar to how bike lane buffers were created, the transit routes were grouped and then buffered by grouping. The buffers were compared to dissemination areas to determine the percentage of each DA covered by the buffer and the population within that DA was proportioned based on the area covered. Like the bike analysis, having 30–59-minute frequency was considered the highest categorization and thus people covered by multiple routes with different frequencies were grouped based on the highest frequency route. Average transit frequency was calculated between 9:00 a.m. and 3:00 p.m. on a weekday using service available in May 2024. Services were grouped according to how frequently they provided service.

The results of the analysis are presented on the next page.

Groups of transit frequency:

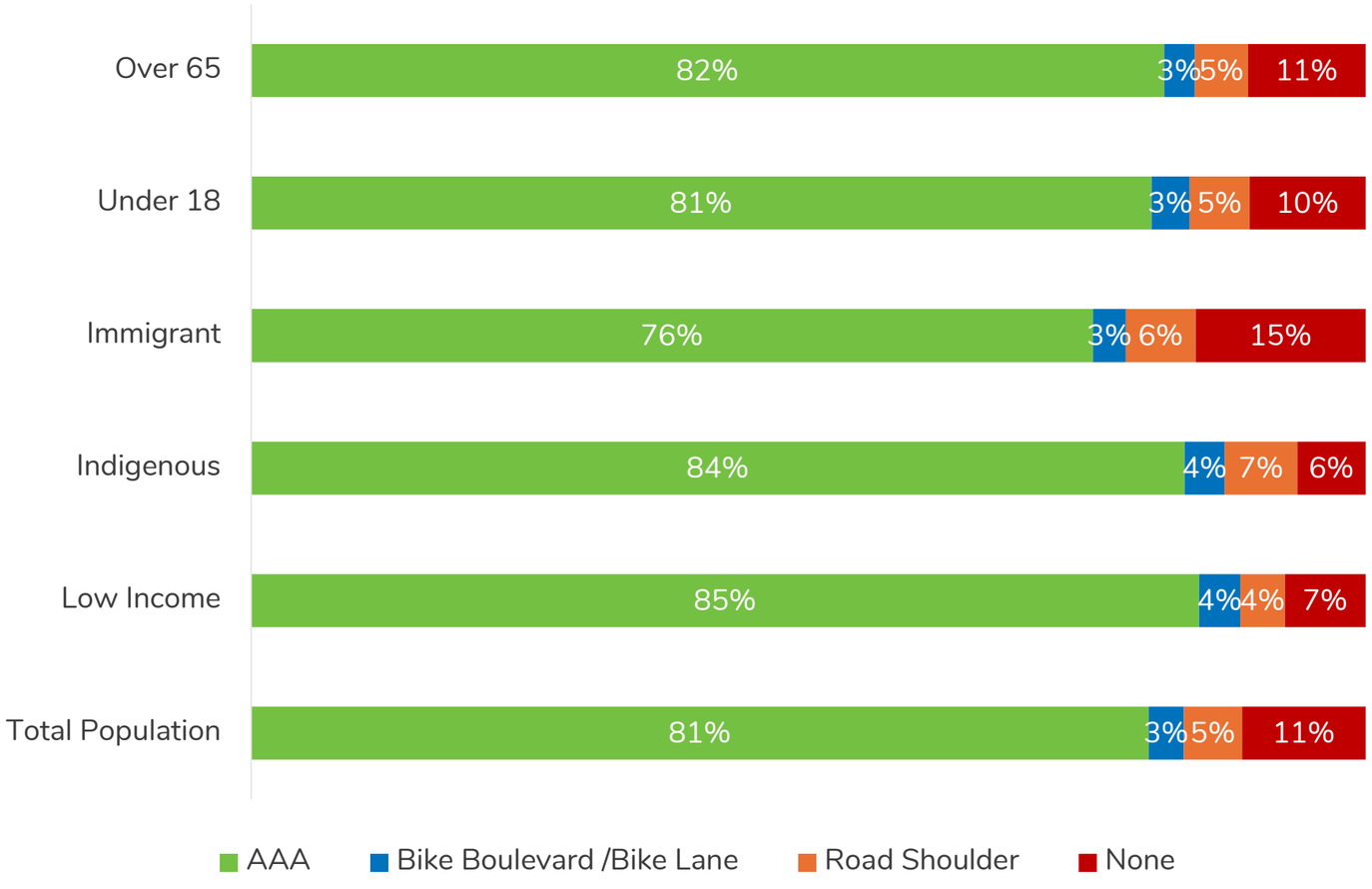
Group 1	30 – 59 minute frequency
Group 2	60 – 75 minute frequency
Group 3	75+ minute frequency

Equity Analysis

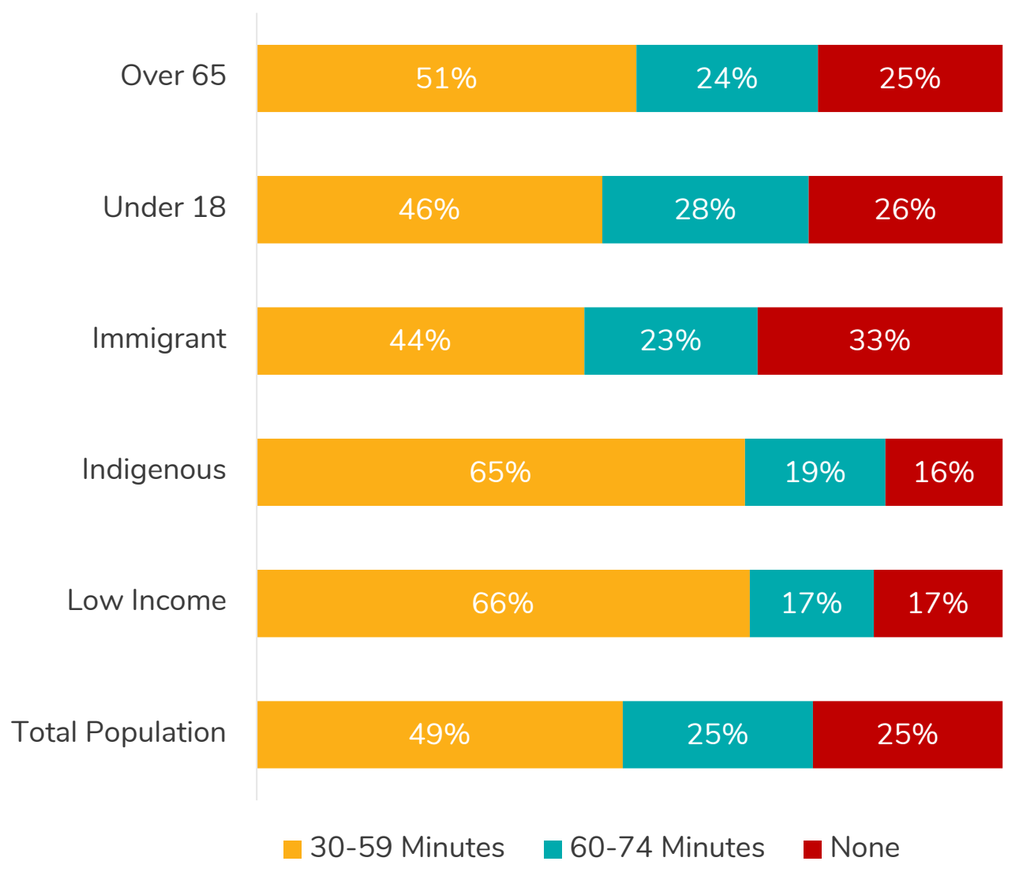
Results

Overall, the analysis, restricted to city limits only, found that the existing network aligns well with land use patterns, with equity seeking groups concentrated in the city core. Immigrants in Vernon tend to have less access to transit services and bicycle infrastructure.

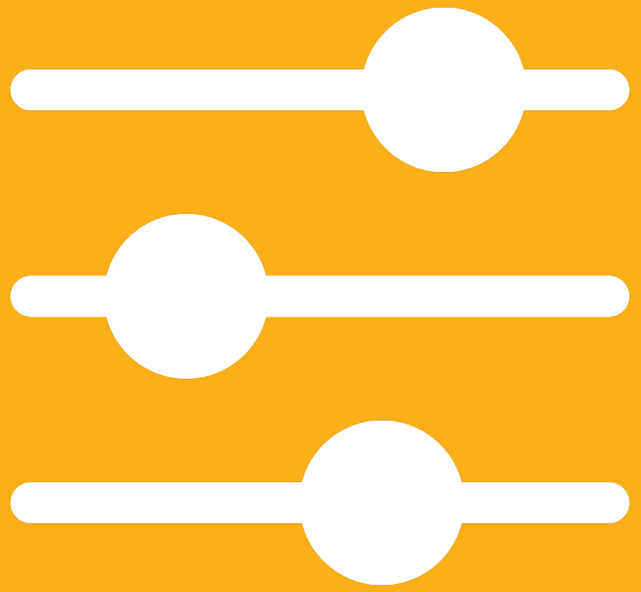
Cycling Network



Transit Network



Network Development



Pedestrian Network Development

Inputs & Process

A variety of data inputs were considered to develop the future pedestrian network.

Pedestrian Needs Analysis:

The basis for the future pedestrian network development was the pedestrian needs analysis. Recommended locations for new pedestrian infrastructure focused on addressing critical gaps in areas with high need. For the purposes of network development, the pedestrian needs analysis data was reclassified to be categorized on a scale from one to ten, with one being low need and ten being high need. The future network focuses on addressing areas with the highest need, and as such, only the categories from seven to ten (inclusive) were used to develop the future network.

Existing Pedestrian Network:

The existing pedestrian network was considered when developing the future network. The existing network is composed of sidewalks on both sides of the road, sidewalks on one side of the road, multi-use pathways, and trails. Where the analysis indicated existing infrastructure was inadequate or required improvement, the future network prioritized upgrades to ensure safety and accessibility for all users. In some cases, the needs analysis called for improvements in areas where there was existing infrastructure. In those cases, the future network is shown over the existing sidewalk to indicate a desired improvement. In other cases, the existing network was used to determine where gaps are.

Transit:

The future transit network was a key consideration when developing the future pedestrian network. The new network works to connect people of all ages and abilities to the future transit exchanges, transit routes, and TOD areas.

Civic Projects:

The development of the future pedestrian network worked to tie into planned civic projects that include active transportation components over the next five years, ensuring a continuous network.

Key Destinations:

The future pedestrian network strived to provide safe and direct access to key destinations across the city. By doing so, the future network works to enable people of all ages and abilities to choose walking as a preferred mode of transportation, supporting a healthier, more connected community.

Road Classifications:

Future road classifications were considered when developing the network, as higher classifications of roads have higher vehicle volumes and speeds which directly impact pedestrian safety.

Pedestrian Network Development

Inputs & Process

To create the future pedestrian network, definitions were established on what would qualify a route to be Priority 1, Priority 2, or Priority 3. These definitions are provided below:

Priority 1

Identified as a route where no infrastructure exists, or only has existing sidewalk on one side of the road, that should be AAA because it achieves **all of** the following:

- Provides access to major destinations
- Improves safety for all ages along a high classification road
- Is a key connection to transit

Priority 2

Identified as a route where no infrastructure exists or where infrastructure exists that should be upgraded to AAA due to being highlighted in the pedestrian needs analysis and achieving **two or more** of the following:

- Provides access to major destinations
- Improves safety for all ages along a high classification road
- Is a key connection to transit
- Coincides w/ future AAA cycling network

Priority 3

Is a supporting facility (non-separated sidewalk or walkable shoulder) or improvements to an existing facility. These routes have been identified because they help improve the connectivity of the overall proposed pedestrian network or are a gap in the existing network which can be filled as land develops or could be considered a quick win. Alternatively, these routes have been identified because they were highlighted in the pedestrian needs analysis and achieve **one** of the following:

- Provides access to major destinations
- Improves safety for all ages along a high classification road
- Is a key connection to transit
- Coincides w/ future cycling network

In addition to the priority definitions above, pedestrian **desire lines** were identified to address unmet demand and future opportunities as a component of the future pedestrian network. A desire line is an alignment that would benefit the new network and should be considered in the future as future right-of-way or easements become available.

Cycling Network Development

Inputs & Process

A variety of data inputs were considered to develop the future cycling network.

Cycling Needs Analysis:

The basis for the future cycling network development was the cycling needs analysis. The goal of the future cycling network was to address the gaps in the existing cycling network, while working to create a connected network across the city. For the purposes of network development, the cycling needs analysis data was reclassified to be categorized on a scale from one to ten, with one being low need and ten being high need. The future network focuses on addressing areas with high need, and as such, only the categories from seven to ten (inclusive) were used to fine tune the future network.

Existing Cycling Network:

Existing cycling infrastructure was an important consideration for developing the future network. A particular focus was placed on AAA infrastructure, which included existing cycle tracks and multi-use pathways. These facility types were viewed as an existing spine of the network that could be built off and expanded upon. Existing bike routes were also considered, and while they currently do not meet AAA standards, they were identified as an opportunity to be upgraded to bike boulevards. The final facility type considered were unpaved trails, which provide off-road connections throughout the city. On-road bike lanes and road shoulders were not considered, as they would ultimately be replaced if additional infrastructure was required.

Civic Projects:

The future network development incorporated civic projects planned over the next five years that already included active transportation components, creating a cohesive, connected cycling network aligned with upcoming urban improvements.

Key Destinations:

The future cycling network strived to provide safe and direct access to key destinations across the city, including schools, workplaces, transit hubs, and commercial centres, to make cycling a convenient option for all users.

Additional Data Inputs:

Additional data inputs included future road classifications and previous recommendations from the Moving Forward with Active Transportation in Vernon, BC report completed in 2023, authored by Ribbons of Green, reflecting the cycling community's awareness of gaps in the network.

The future cycling network was split into six categories and are defined as:

- **Priority 1** – is a primary AAA connection
- **Priority 2** – is a secondary AAA connection
- **Priority 3** – is a supporting connection in the form of a bike boulevard or bike lane
- **Priority 4** – is shoulder widening on a rural route
- **Priority 5** – is a potential regional connection
- **Desire Line** – is an alignment that should be considered in the future as property becomes available

Transit Network Development

Service Design Types

The design of transit systems – and transportation options in general – draws from a suite of different service design types. For Vernon, a future network is conceptualized as a mix of different service types to reflect the varied densities, land uses and travel markets in the city. The difference between fixed and flexible is summarized below:

Fixed Route Services:

Operate using a published schedule and route map with set bus stops. The current conventional Vernon transit service operates as a fixed route system.



Flexible Services:

Offer service between specific locations and times as need arises. The current custom transit service in Vernon (handyDART) is an example of flexible service as an accessible, door-to-door shared transit service for people with disabilities.

Another example is On-Demand service, which is currently being piloted by BC Transit in other communities. On-Demand operates without a schedule by using an operating time window and specialized technology for trip booking and tracking vehicles.



Each service design type may be used to serve specific community needs based on expected ridership, commonality of travel patterns, land use and layout of communities, and the level of physical mobility for passengers.

However, sometimes one design is not a “one size fits all” solution; service types can also be layered together. Using several different types has its advantages – fixed route services will normally carry more passengers for a lower cost, whereas on-demand services are provided at a higher cost but can be more suitable for lower-density areas – to attempt to meet all community needs.

The four conceptual options developed for the future transit network (discussed on the following pages) include a mix of service design types to present a variety of opportunities for what service could look like in Vernon and determine what combination (if any) would best address community needs, as per the issues and opportunities identified and the Needs and Equity Analysis framework. The options are meant to be a macro-level, conceptual demonstration of the types of services and network opportunities that could enhance transit service in Vernon to be more convenient, efficient and equitable. There is need for further refinement and feedback as transit improvements move toward implementation.

The network options are summarized in the next few pages with the recommended network option presented in **Recommendations & Next Steps.**

Transit Network Development

Inputs to Define Travel Patterns and Key Connections

In order to reimagine a transit network for the future it is critical to understand current and future key connections and travel patterns in the City.

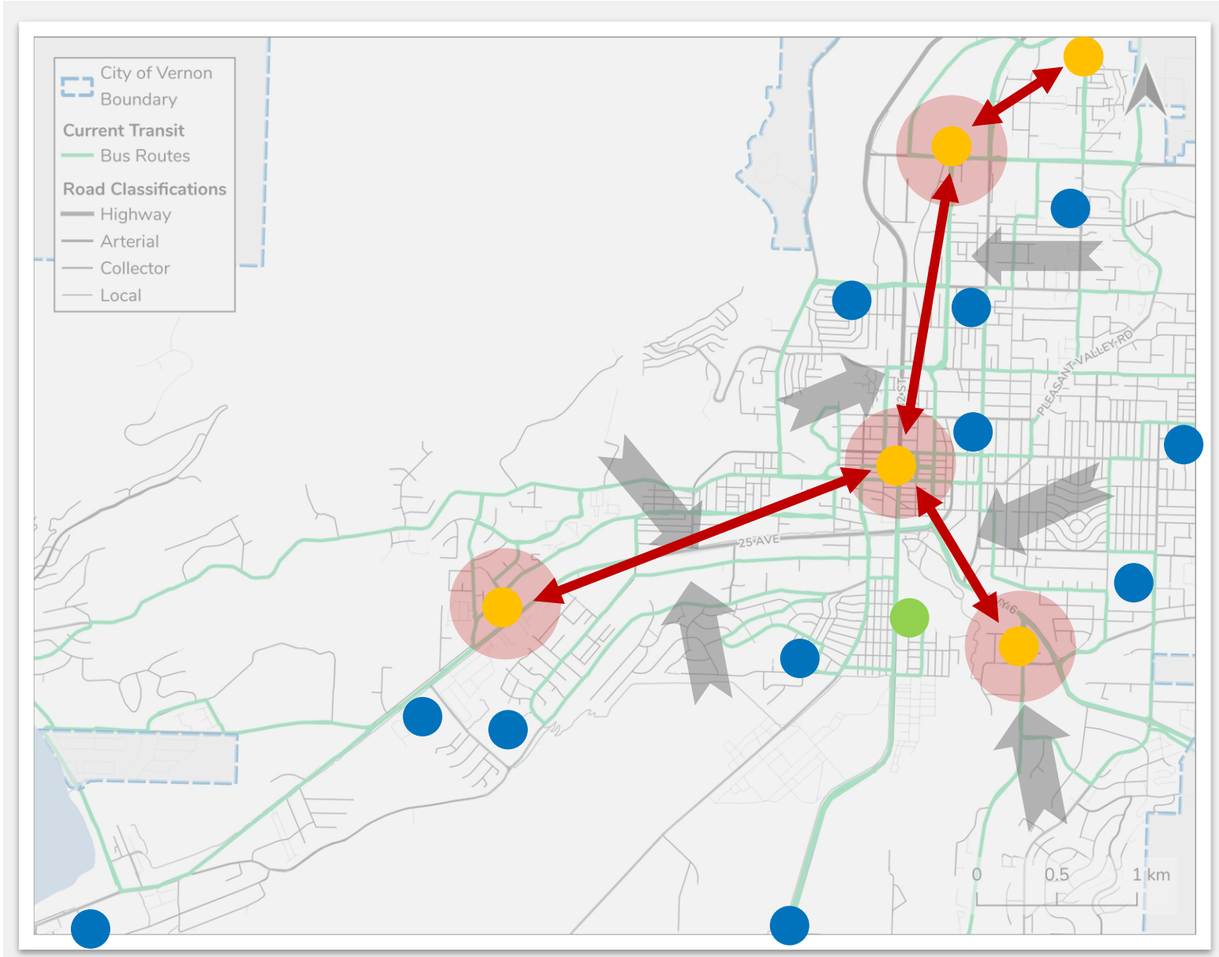
Based on current and proposed land uses, density projections as well as key destinations in Vernon, a very clear pattern of movement emerges, one that is anchored by the four proposed Transit Oriented Areas (village centres) in Vernon.

The diagram to the right represents a high-level concept of these movement patterns.

Three major corridors (identified by red arrows in the diagram) forming key connections in the city provide the underpinning for Frequent Transit Network (FTN) connections.

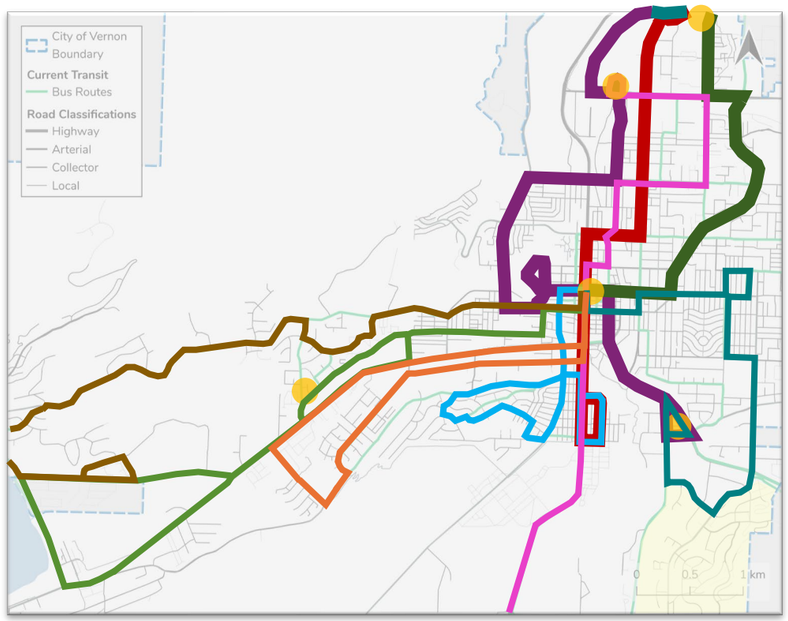
These potential FTN corridors are anchored at both ends by key destinations and/or proposed exchanges/transfer locations, denoted by the yellow dots on the diagram. These transfer points form the multimodal nodes or “joints” between these corridors. Secondary connections start to form at these nodes and at various points along the FTN corridors.

Four network options derived from the outcomes of the baseline conditions review, needs analysis, equity analysis, and workshops with City staff, using the above travel concept as their foundation. Each option aimed to serve the high-priority corridors identified by the needs analysis and to meet the City’s goal of planning for an innovative, equitable and effective transportation network. The options are described in more detail in the following pages.



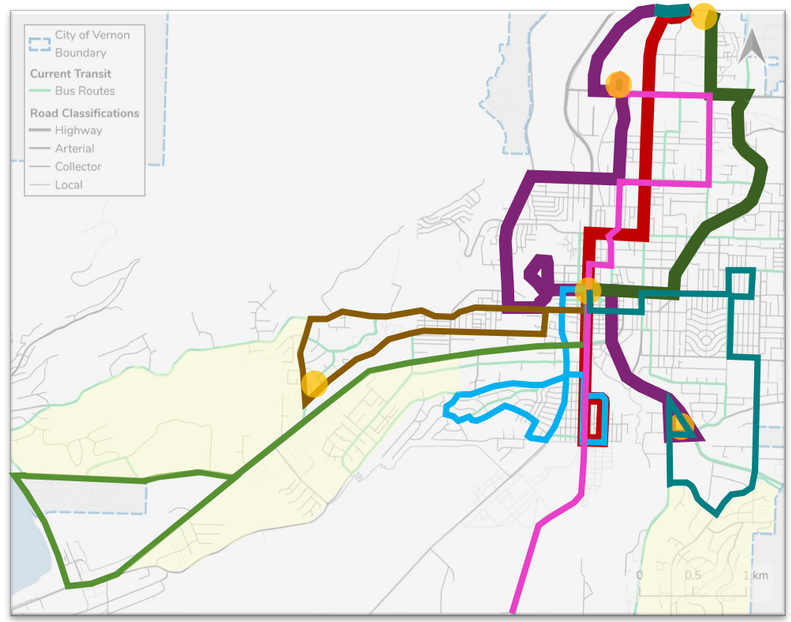
Transit Network Development

Network Option 1: Fixed Route Only



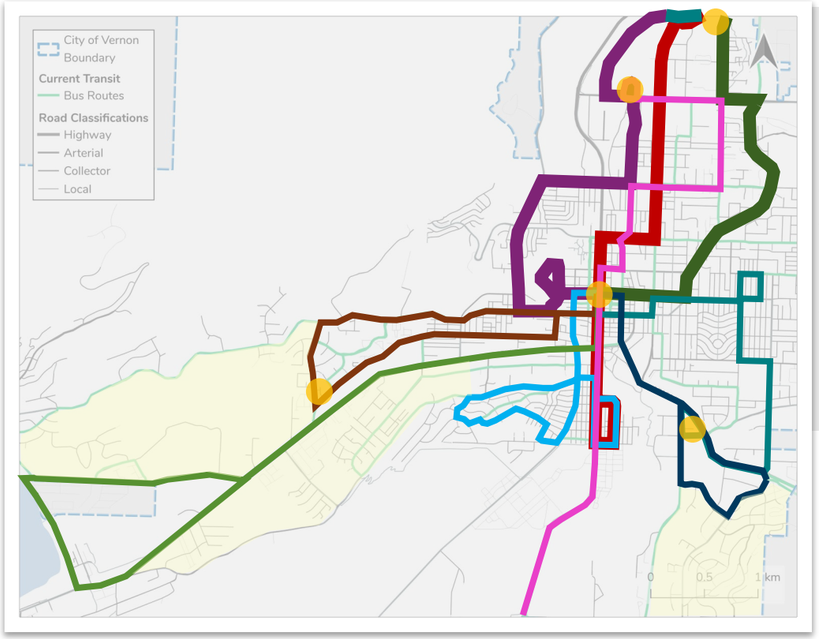
This option introduces a Frequent Transit Network (FTN), comprised of three routes that would operate with 15-30 minute frequency. The remaining local routes connect or feed into the FTN at transit exchange points to bring people toward the frequent network.

Network Option 2: On Demand + FTN to Hospital and Polson Exchange



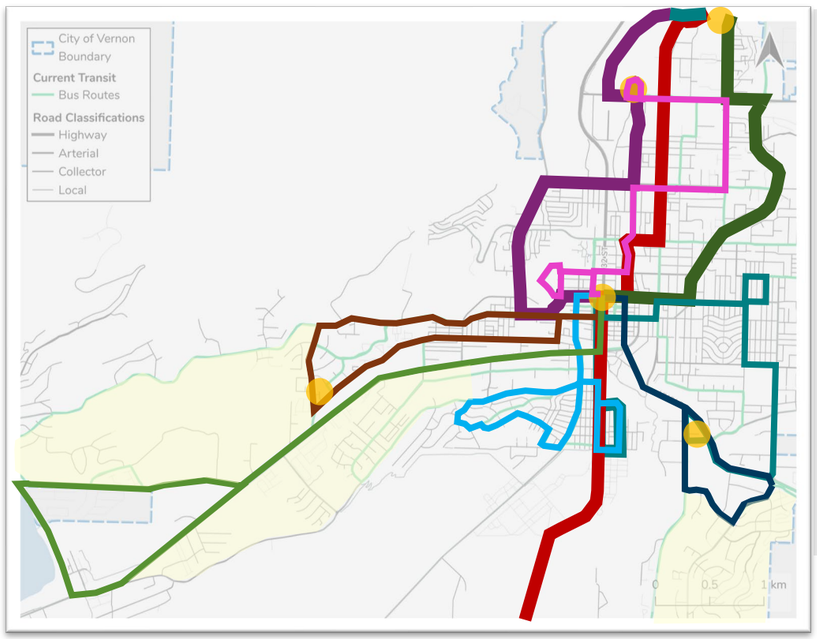
Option 2 presents the same FTN as Option 1, with service to the hospital and Polson Exchange. However, this option introduces more On Demand service (faded in yellow in the diagram), which would serve Middleton Mountain, Bella Vista and parts of Okanagan Landing.

Network Option 3: On Demand + FTN to Hospital



Similar to Option 2, Option 3 is a combination of both On Demand and fixed route service. The main difference in this option is that the FTN would serve the hospital.

Network Option 4: On Demand + FTN to Okanagan College



In Option 4 through a combination of fixed route and On Demand service in the lower density areas, the FTN connects to both the hospital and Okanagan College. Providing a frequent, direct north-south connection in the city, all the way from Walmart to Okanagan College.

Recommendations & Next Steps



Future Pedestrian Network

Map 8 on the next page illustrates the recommended future pedestrian network. While Priority 1 and Priority 2 are defined as AAA routes, the exact facility types are not designated. Priority 3 routes will either be a non-separated sidewalk or a walkable shoulder. The facility type for all routes will vary on a case-by-case basis. Considerations include the surrounding existing and future active transportation infrastructure, available right-of-way width, land-use context, and budget. Further design guidance on pedestrian facilities, both AAA and supporting, is provided in the BCATDG.

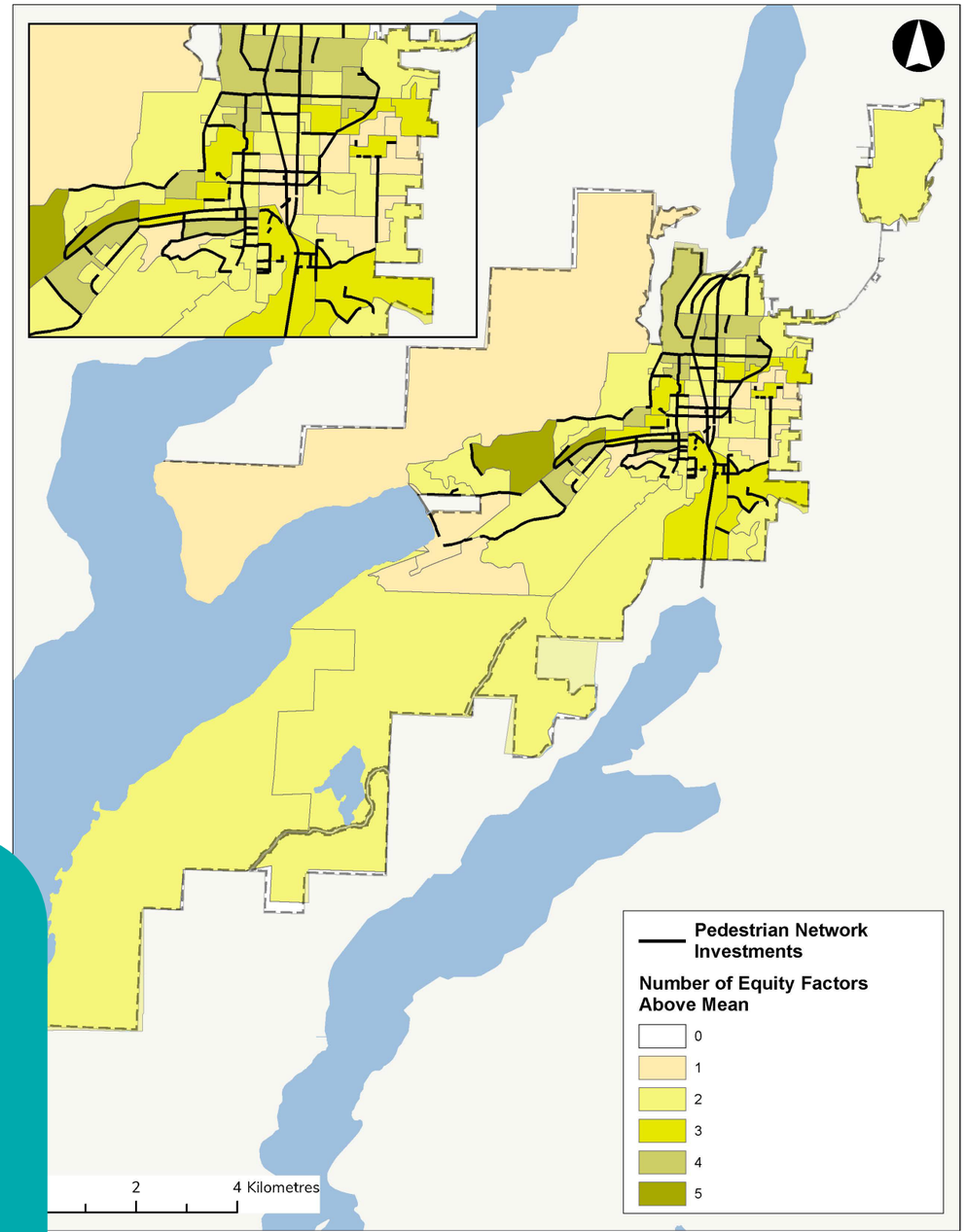
Some items of note:

- 30th Avenue is a unique route where portions of the sidewalk already meet AAA standards. Despite this, it was included as a Priority 2 route based on the needs analysis. For AAA-standard sections, traffic calming or pedestrian priority zones are recommended.
- When a Priority 3 route is along a roadway that has existing sidewalk on one side, it is recommended that an additional sidewalk be added to the opposite side of the roadway.
- Consideration should be given to where the future cycling network and future pedestrian network overlap. When this scenario occurs, a multi-use pathway should be considered as a facility type.

The analysis of the future pedestrian network focused on ensuring equitable access for groups that may benefit most from improved walkability. The analysis identified areas with higher concentrations of seniors, youth, low-income individuals, immigrants, and people with Indigenous identities.

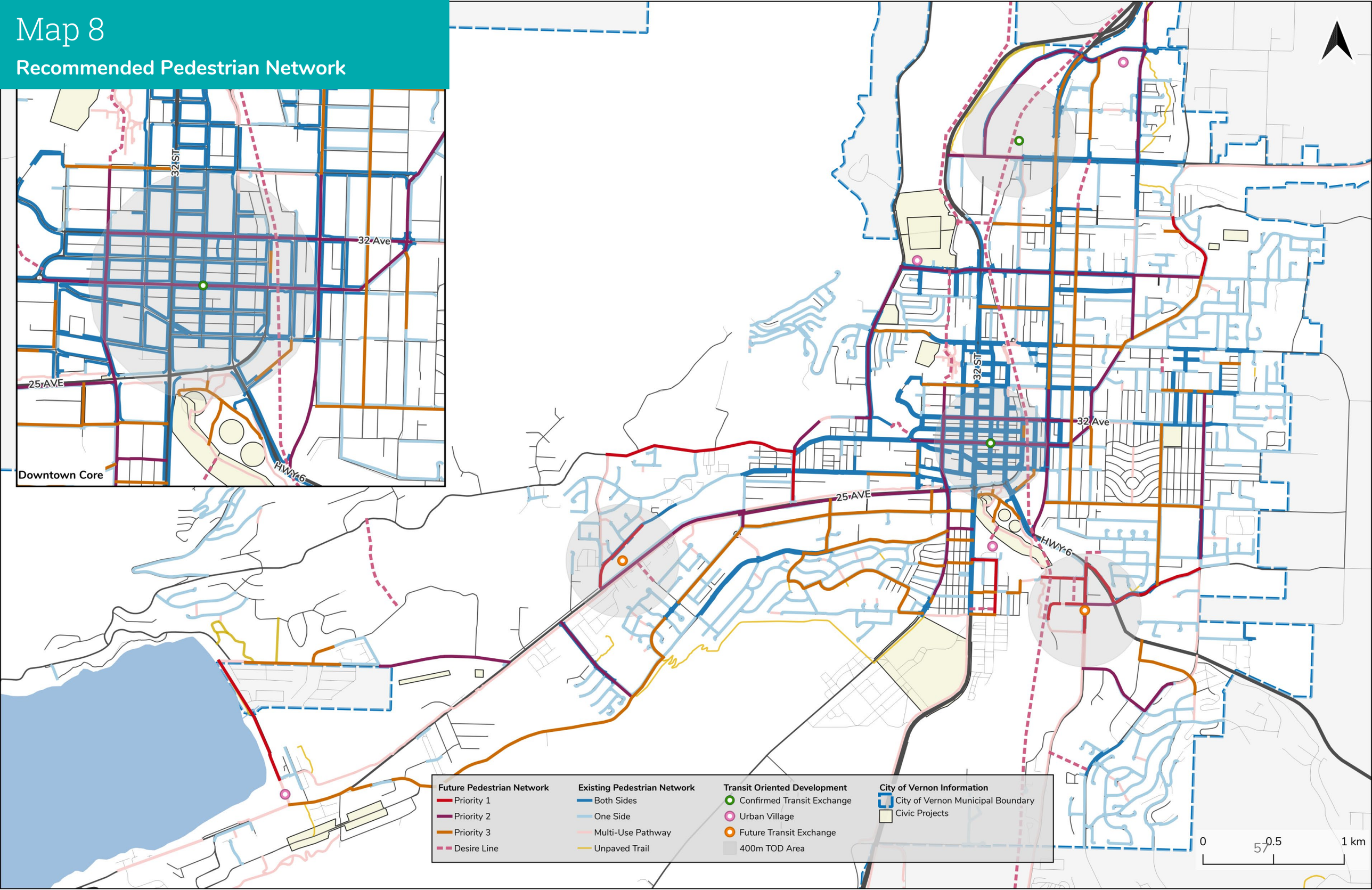
The map to the right shows the City of Vernon, the proposed future pedestrian network, and the dissemination areas with higher concentrations of these population groups. Areas with two or more of these high-need groups were classified as especially high-need. In total, **83.1% of the planned investments** are directed towards these high-need areas, reflecting a focus on creating a pedestrian network that serves the most vulnerable populations.

By focusing on these areas, the future pedestrian network aims to improve access to safe, comfortable, and inclusive walkability options for everyone, particularly those who need it most.



Map 8

Recommended Pedestrian Network



Future Cycling Network

Map 9 on the next page illustrates the recommended future cycling network. While Priority 1 and Priority 2 are defined as AAA routes, the exact facility type is not designated. Facility types for these routes will be determined case by case, considering existing and future active transportation infrastructure, available right-of-way width, and budget. Priority 3 routes are designated as bike lanes or bike boulevards. Priority 3 facility types will be dependent on road classification, as bike boulevards are only suitable for roads with low vehicles speeds and volumes. Further design guidance on cycling facility types is provided in the BCATDG. Items of note:

- The future cycling network does not show any anticipated future roadways. As future roadways come online, it is recommended they are built to follow the City's standard cross-sections and include active transportation infrastructure as required. This will ensure the cycling network is continued to be built out.

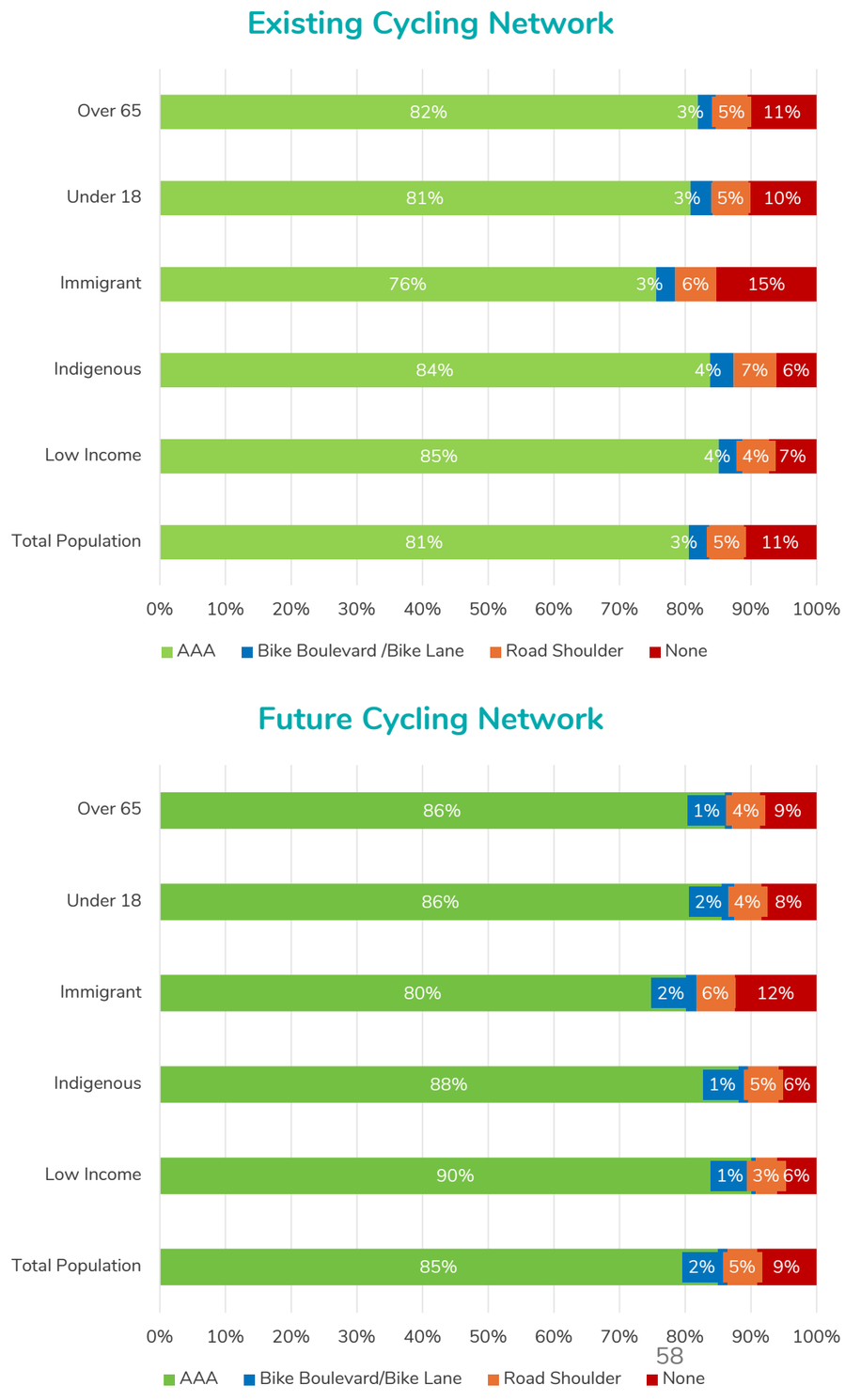
- Consideration should be given to where the future cycling network and future pedestrian network overlap. When this scenario occurs, a multi-use pathway should be considered as a facility type.

- On the recommended future cycling network, Bella Vista Road is shown as a Priority 2 connection from Tronson Road to 41st Street. This is a best-case scenario, and an AAA facility type may only realistically be built on Bella Vista Road from Allenby Way to 41st Street. If that is the case, the remainder of Bella Vista would likely be slated for shoulder widening when the roadway is re-paved.

The graphs to the right represent how different groups of people may have different access to cycling infrastructure in Vernon. The top graph shows the existing access to the cycling network and the bottom graph shows the future access to the cycling network.

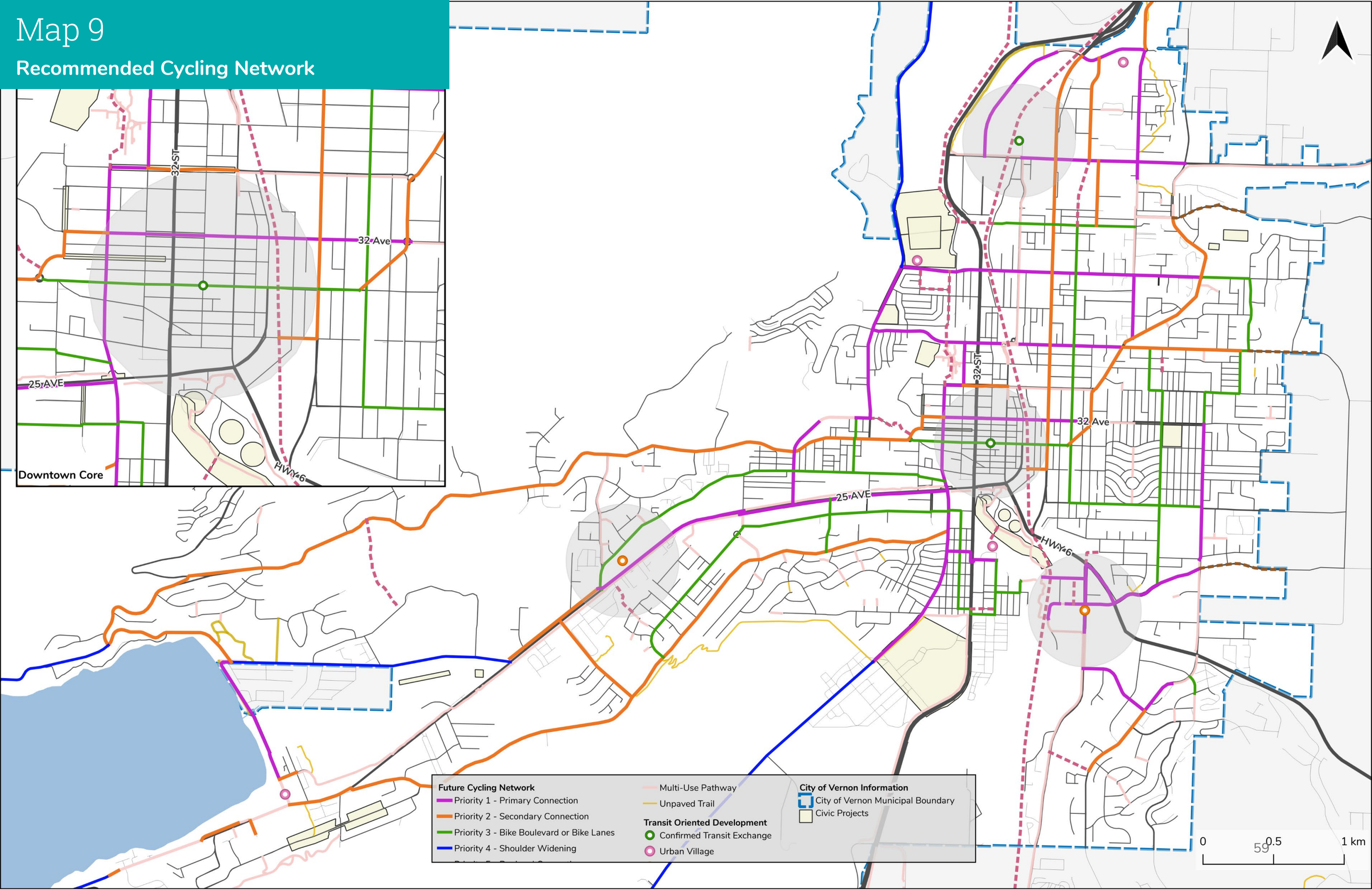
When planning for equitable capital investments, it is important to assess how many people in a community have access to infrastructure services and compare this access across different groups to ensure no one is left behind.

An emphasis on equity was placed on the development of the future cycling network, which is reflected in the results of the two graphs. With the future cycling network, access to AAA cycling infrastructure increases for all of the population groups. Of note, low-income households' access to AAA cycling infrastructure increased from 85% to 90%.



Map 9

Recommended Cycling Network



Future Transit Network

Recommended Option

Upon presenting all transit network options to the Working Group, a final network was developed using preferred characteristics from each option.

The following characteristics were prioritized to develop the final option:

- Future transit exchanges at or near Polson Place Mall and Okanagan Landing (in addition to Village Green Centre and the Downtown Exchange), with Polson Place Mall as the priority. A consideration would be that Walmart be designated as Secondary Exchange.
- Frequent Transit Network that serves Walmart, Vernon Jubilee Hospital, Okanagan College, and Polson Exchange (in addition to the Downtown Exchange and Village Green Centre).
- Removal of the Centennial Drive loop in Alexis Park from the Frequent Transit Network to enhance efficiency. Local route to provide service to this area instead.
- On Demand service in areas with lower density and ridership (Middleton Mountain, parts of Okanagan Landing and Bella Vista).
- A direct connection between Okanagan College and the Polson Exchange to enhance transit connectivity to and from the College.

The recommended future transit network is presented in **Map 10.**

It comprises of:

- Three proposed FTN routes
- Five proposed local routes
- Three distinct areas for On Demand type services

All connected by five exchange/transfer points, of which two are existing and three are proposed.

Recommended Option: Details & Rationale

Frequent Transit Network

- The FTN routes were designed based on their connections to key destinations in the city and where the flow of people is highest in the current transit network. Near-term frequency increases are proposed for the connection along 27 Street. For the rest of the FTN the frequency increase is proposed to be phased in.

- Based on cycle times and desired frequency, two of the FTN routes can operate as a standalone route (purple and red routes in **Map 10**), whereas the third route (green) can interline with another local route, to be determined at the implementation planning stage.

- The frequency of the FTN at a minimum will be 20 minutes and then gradually can build up to 15-minute service or higher frequency depending on the ridership. For 15-minute service, the red route would require three buses, the purple route four, and the green route two.

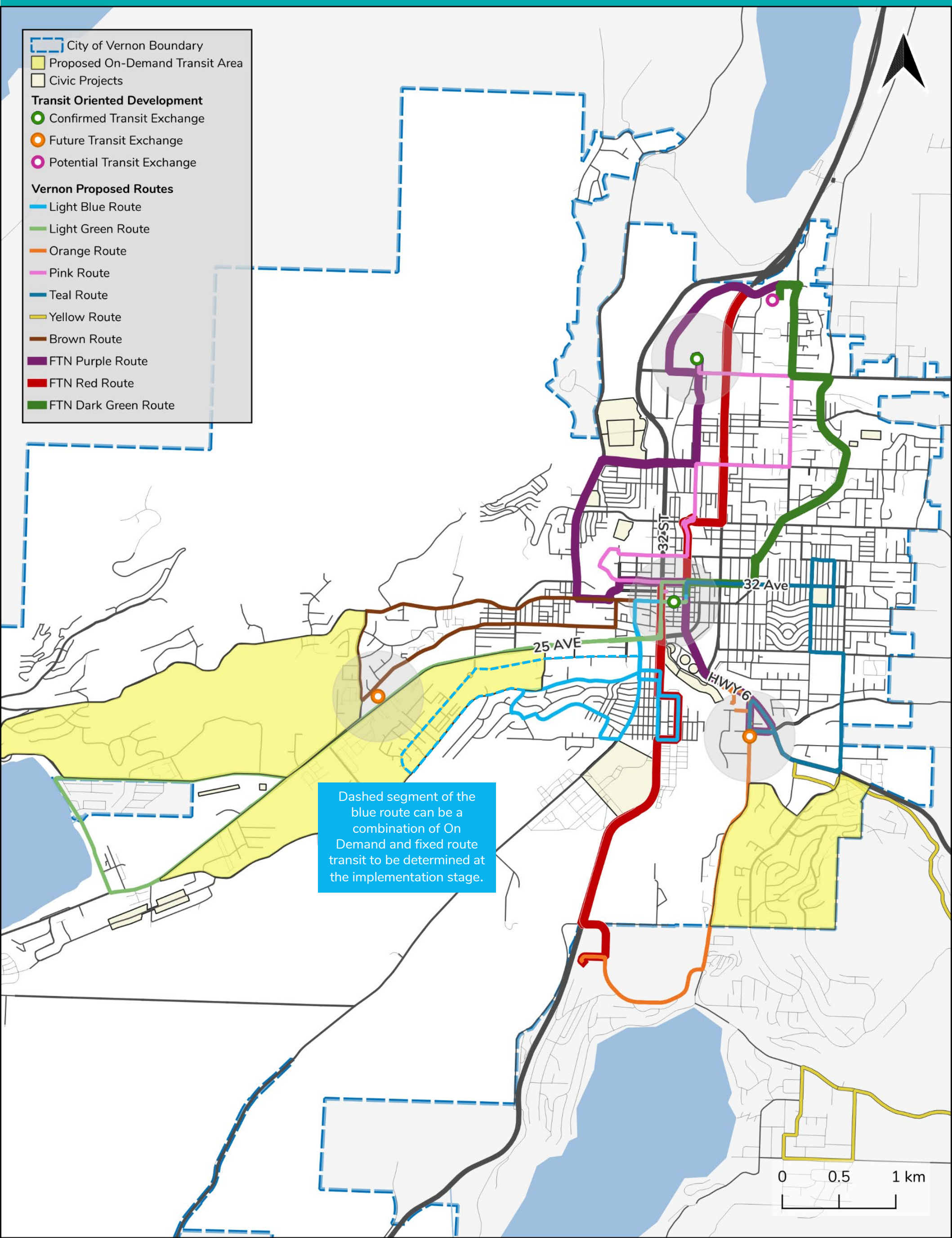
Local Transit Network

- All of the proposed local transit routes have total cycle times between 15 – 30 minutes, allowing for interlining opportunities and the ability to improve frequency as the system matures. It is recommended that routes are interlined in such a way that cross city connectivity is provided (i.e., interlining the brown route and the teal route shown in **Map 10** to provide a complete east – west connection).

- Similar to the FTN, the local routes have been designed to reflect the strong routes in the current system, in addition to areas that require improvement. For instance, the light blue route closely mirrors Route 5 South Vernon, which sees the highest boardings per hour in the current network.

Map 10

Recommended Transit Network



Future Transit Network

Additional Recommendations and Considerations

In addition to the new network routing, the following improvements are recommended to enhance the overall efficacy of the Vernon Regional Transit System:

Regional Routing

- Bidirectional routing on Route 1 Coldstream (and other proposed routes) could enhance efficiency and directness. It is recommended that the current loop is revised to provide bidirectional routing between the future Polson Exchange and Kalamalka Secondary School via Sarsons Road / Middleton Drive. The eastern portion of current Route 1 would be served by the proposed route between Okanagan College and Polson Exchange via Kalamalka Lake Road.
- Upon the implementation of the new network within Vernon city limits, regional routes have the potential for cost savings by connecting to proposed transit exchanges on the periphery of the city instead of travelling all the way to the Downtown Exchange. For instance, Route 60 Enderby could start/end at the future Walmart exchange, and Route 61 Lumby could start/end at the future Polson Exchange. Transit riders would be able to transfer seamlessly to the Frequent Transit Network and local routes from both exchanges to get to downtown. This change, would however, introduce a transfer in their journey to downtown Vernon.

Service Areas

- This review focused on enhancements to existing transit service areas to improve convenience, efficiency and equity in the network as TODA within Vernon continue to densify. However, there are several neighbourhoods on the outskirts of the city that could eventually benefit from transit service as the population grows and more development occurs. These include, but are not limited to, the **Foothills and Blue Jay** areas. On Demand service could be the first step in introducing transit.

Staff Shuttles / Resort Partnerships

- Vernon is situated between two popular Okanagan resorts: Silver Star and Predator Ridge. Many employees at both resorts reside in Vernon. At some time in the future, the City and BC Transit could partner with Silver Star and/or Predator Ridge to provide staff shuttles to and from Vernon, especially within the resorts' peak season (winter for Silver Star, summer for Predator Ridge). These shuttles could be expanded to the public if demand calls for it. This is only an optional recommendation if worker transportation is a future concern.

Technology and Infrastructure

- Since the transit system (both current and proposed) rely on transit exchanges to transport riders across the city, real-time bus information at each exchange could enhance the user experience and provide comfort in making transfers. This could first be provided at the Downtown Exchange, where all current routes transfer, and expand to other exchanges as the network transitions to new routing.

U-PASS and ProPASS Programs

- Many other transit systems, including the Victoria Regional Transit System, offer a U-PASS program at post-secondary institutions to reduce on-campus parking demand. The City and BC Transit could explore this opportunity with Okanagan College to encourage transit use among college students residing in Vernon, given the proposed FTN service to the college.
- The Victoria Regional Transit System also offers the ProPASS, a program available to employees through employer payroll deductions. The ProPASS offers employees unlimited access to transit services at a discounted rate. Similar to the U-PASS, the City and BC Transit could work with major employers in Vernon to offer the Pro-PASS program, such as the Vernon Jubilee Hospital, the City of Vernon, the Regional District of North Okanagan, etc.

Future Transit Network

Recommended Option: Phasing

Transitioning to a new transit network with new, or additional, resources requires strategic planning and gradual phasing to balance costs and build comfort with the public. Introducing the new network in phases creates the chance to develop new infrastructure over time (i.e., bus stops in new service locations, transit exchange amenities, On Demand technology, etc.) re-allocate services and resources as the system transitions to save on up-front expenses. The proposed phasing plan to transition from the existing to the recommended network is outlined in the table below.

	Phase 1: 2025 to 2027	Phase 2: 2028 to 2030	Phase 3: 2030 & beyond
Frequency	Route 9 North End frequency increase (15 minutes). Additional resources would be needed for this including a vehicle.	Current route 3 Alexis Park frequency increase (15-20 mins). Route 5 South Vernon frequency increase (20 mins).	Local route frequency increases in alignment with routing changes.
Routing	Route 7 and 8 routing changes to proposed Green and Brown route alignments where applicable. Savings from shortening Route 8 could support frequency increases on Route 9.	Current route 3 extension to Polson Place Mall (Purple route alignment). Current route 1 realigned to connect to Okanagan College (Orange route). Current Routes 9 and 6 interlined to provide connection to Okanagan College (Red route alignment).	Current routes 2, 4 and 5 realignment to Pink, Green, Teal and Blue routes respectively (as per Map 10). Route 60 and 61 shortened to stop at Village Green Centre & Polson Place Mall.
Span	No change.	Span increase on FTN lines to 12 a.m.	Span increase on local routes to 12 a.m.
Infrastructure	Continue to improve stops in and around TOD areas.	New stops to accommodate connection to Okanagan College and Polson Place Mall.	New stops to accommodate routing changes as needed.
Revenue Hours	Given the conceptual approach to the network, it is anticipated that BC Transit will develop hours and vehicle requirements closer to implementation.	Given the conceptual approach to the network, it is anticipated that BC Transit will develop hours and vehicle requirements closer to implementation.	Given the conceptual approach to the network, it is anticipated that BC Transit will develop hours and vehicle requirements closer to implementation.
Service	Introductory On-Demand service in place of Route 8 Bella Vista.	Additional On-Demand service areas: Middleton Mountain + Coldstream (refer to Map 10).	On-Demand service in outlying neighbourhoods.

Future Transit Network

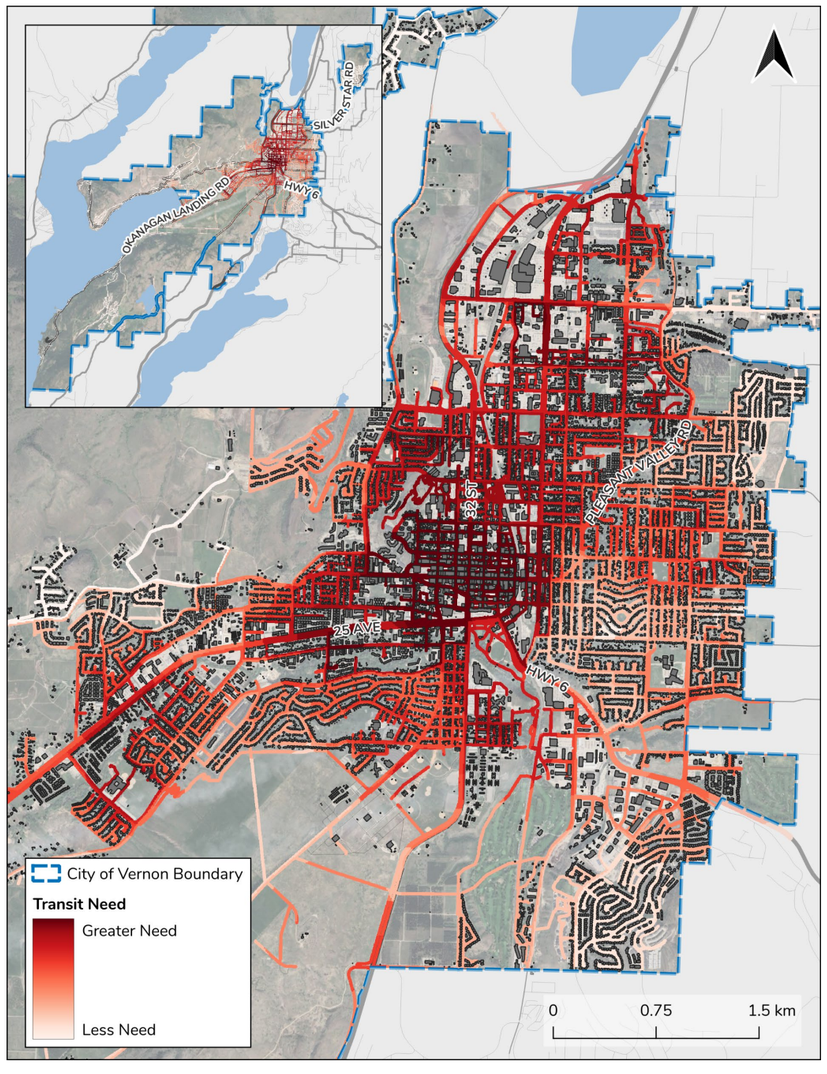
Recommended Option: Addressing Needs and Equity

The recommended network was measured for addressing need and equity using the same methodology from the **Needs and Equity Analysis** section.

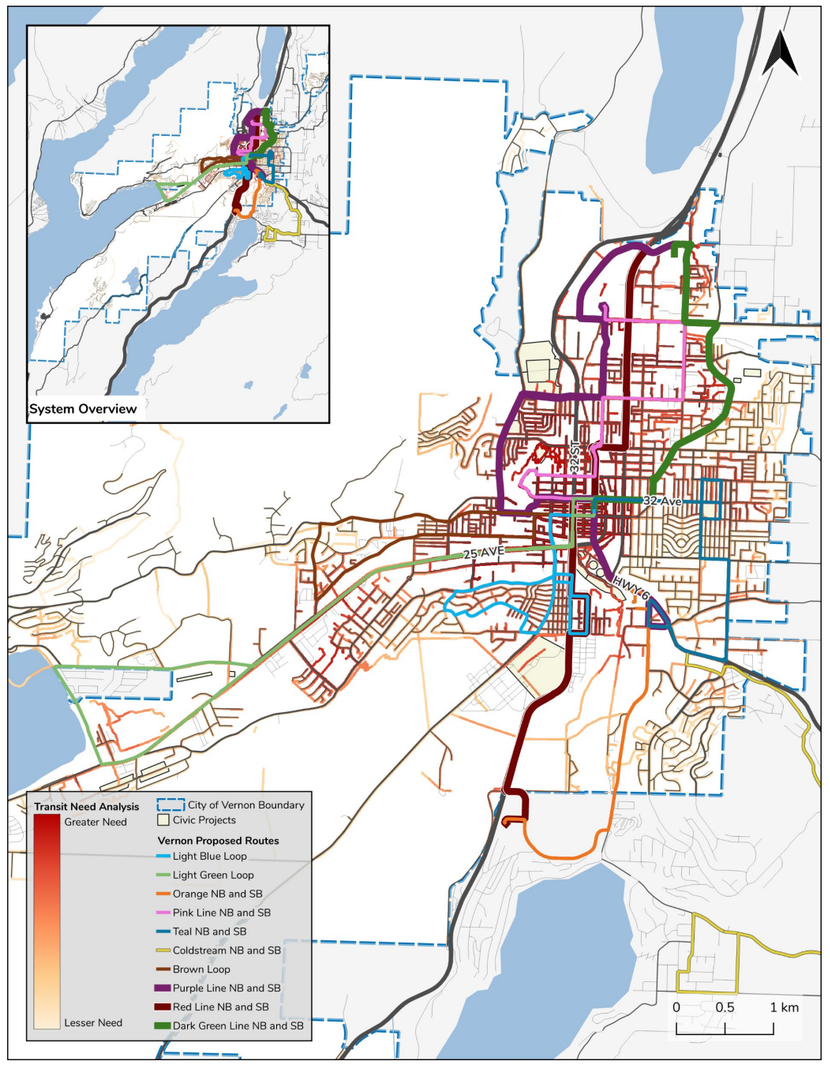
Needs Analysis

Map 11 shows the recommended transit network compared to the Needs Analysis, which shows the level of transit need based on the set of values and priorities criteria established when evaluating need in the current network. The map shows that the recommended network largely serves areas with greater need with the Frequent Transit Network. On Demand service is provided in areas with lower need.

Transit Needs Analysis



Future Transit Network + Transit Needs Analysis



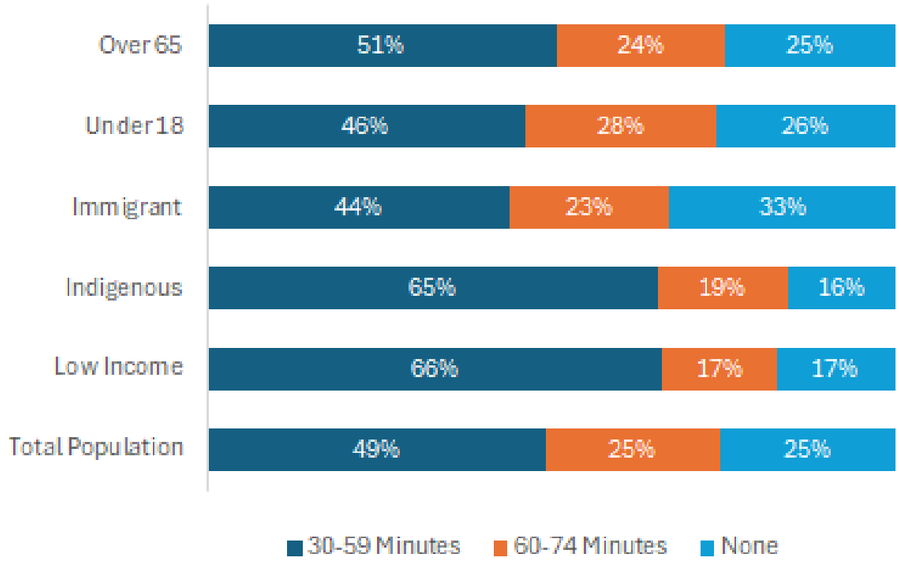
Future Transit Network

Recommended Option: Addressing Needs and Equity

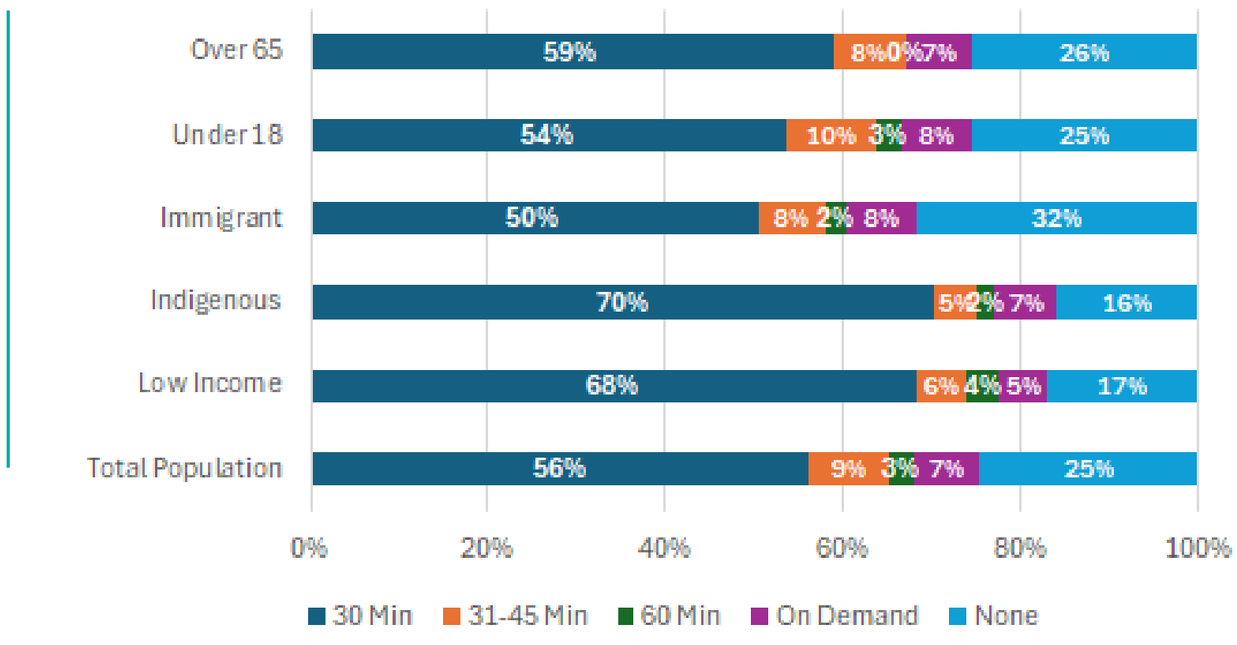
Equity Analysis

Using the new routing identified in the recommended network and 2021 Census data, it was examined who in Vernon would have access to higher service levels (transit frequency). Compared to the existing network, access to 30-minute or better transit frequency improved across all population categories. However, those with no access to transit service remained the same across all categories. Thus, the equity analysis shows that although the recommended network doesn't enhance service coverage, it does improve service for those who currently have access to the network. It is to be noted that long range recommendations to outlying neighbourhoods in Vernon, have not been considered in this analysis. Also to be noted that the current network has frequencies that range from 30 minutes and greater and so the analysis only illustrates two time bands, unlike the proposed network where there are more time bands proposed.

The results of the equity analysis for both the recommended network and existing network are shown below.



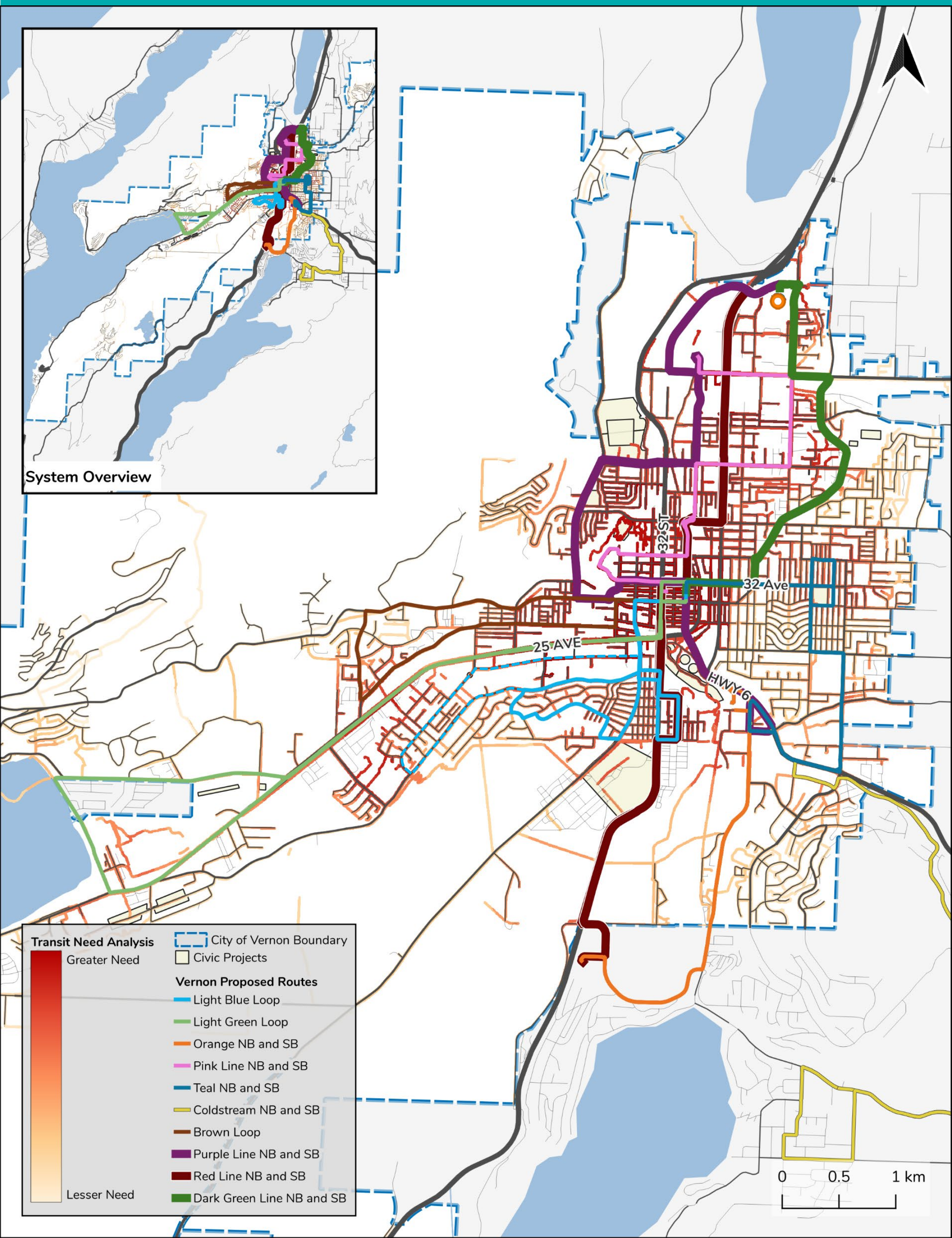
Access to Transit Frequency – Existing Network



Access to Transit Frequency – Recommended Network

Map 11

Needs Analysis - Recommended Transit Network



Summary

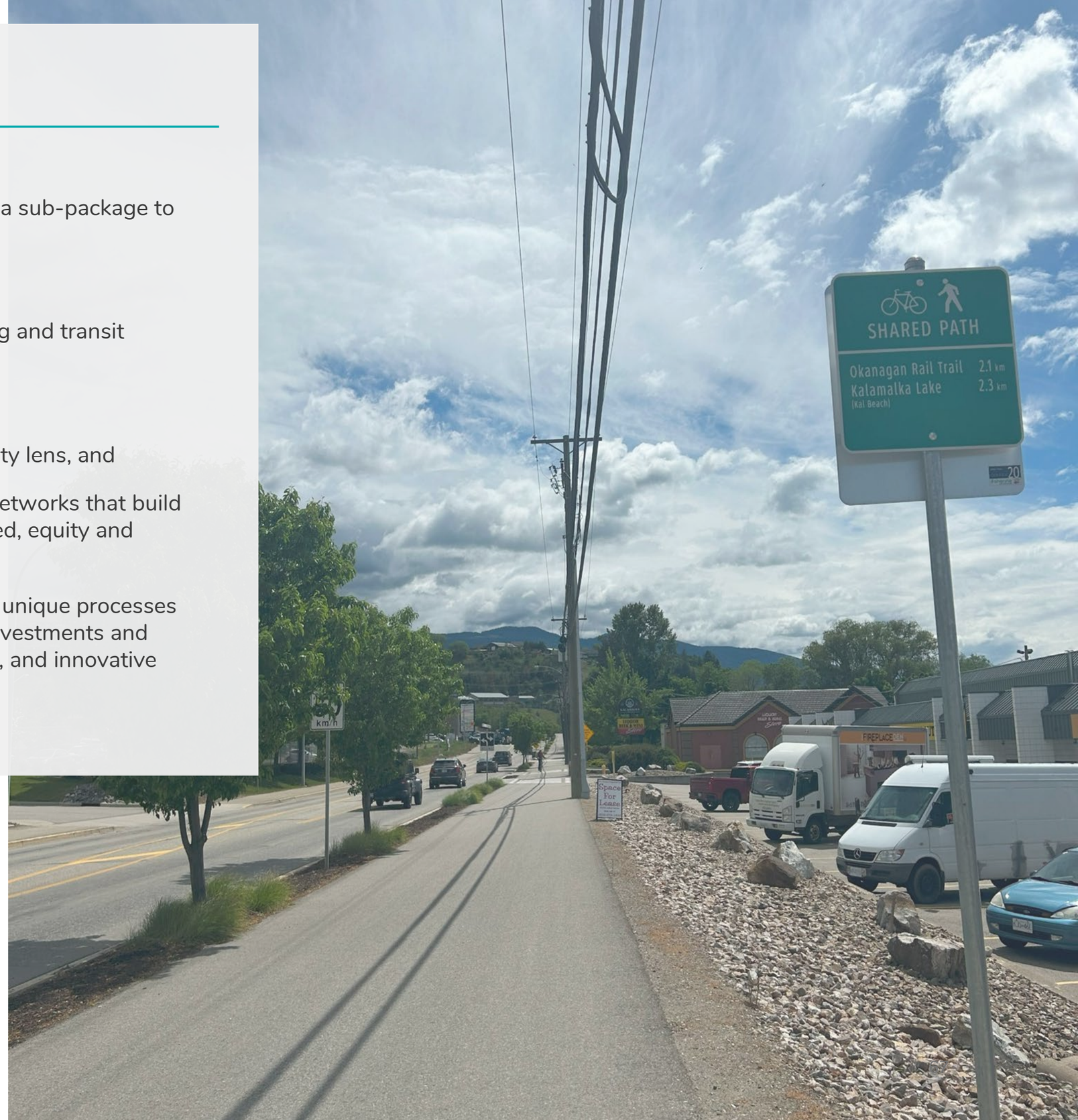
Transit and Active Transportation Review

The Transit and Active Transportation Review serves as a sub-package to the City of Vernon's Transportation Plan update.

The TATR:

- Reviews the baseline conditions of pedestrian, cycling and transit facilities in the city,
- Evaluates the level of need for each network,
- Measures the level of access to facilities from an equity lens, and
- Recommends future pedestrian, cycling and transit networks that build off existing facilities and efforts to better address need, equity and community priorities.

Recommendations developed for each network involved unique processes that identified key priorities for the City to focus future investments and decision making to work toward an integrated, equitable, and innovative multi-modal transportation network in Vernon.



Appendix A

Transit Future Action Plan:
Service and Infrastructure Priorities for Vernon

TFAP Service Priorities 2022-2025	
Priority	**Description**
Service span and frequency increases local and core transit routes (1-10)	Transit service on these routes will run from 6 a.m. to 10 p.m. on weekdays and 7 a.m. to 10 p.m. on weekends, with improved frequency on all days.
Modification of Route 9: downtown Vernon and Village Green Centre	Route 9 currently only serves Village Green Centre on outbound trips. This proposal would introduce inbound service to the mall, adding three minutes to each trip. Simultaneously, route 9 would be modified so the bus travels inbound via the newly completed 29th/30th Street roundabout.
Improve regional connections to Kelowna	Increase frequency on route 90, providing hourly weekday service between 7 a.m. and 7 p.m.
Modification of Route 60 in downtown Vernon	Modify route 60 to travel inbound via the newly completed 29th/30th Street roundabout. Buses would enter downtown via 30th Avenue and leave downtown via the pre-construction routing on 33rd Street.
TFAP Service Priorities 2026-2029	
Route 4 restructure	Restructure route 4 East Hill to short-turn after Vernon Secondary School, travelling inbound via 21st Avenue.
Route 6 schedule optimization	Optimize the schedule of route 6 College to better match Vernon Jubilee Hospital shift times and Okanagan College schedules. Resource requirements would be determined after implementing span and frequency increases on route 6.
Routes 7 and 8 restructure – Bella Vista Road and Heritage Drive loop	Investigate opportunities to streamline routes 7 and 8, enhancing rider clarity and reducing service duplication. Options include optimizing routing in the Heritage Drive loop and introducing route 8 bidirectional service along Bella Vista Road. This priority would be subject to further public engagement.
Expand transit service to areas of new demand	Introduce new Local Transit (LTN) routes to Waterfront Neighbourhood Centre, Foothills, Blue Jay, BX and Paddlewheel.

TFAP Infrastructure Priorities 2022-2025	
Priority	**Description**
Invest in bus stop infrastructure	Improve safety, accessibility, and provide additional amenities at bus stops. • Seek investment in shelters through the BC Shelter Program • Seek investment through municipal capital planning streams • Minor Betterments funding
Implement secondary exchange at Polson Neighbourhood Centre	Provide transfer opportunities between routes 1 and 10 via a secondary exchange at Polson Neighbourhood Centre.
Identify and develop formalized Park & Ride site near Okanagan College	Continue monitoring for future opportunities to provide a Park & Ride at Okanagan College for route 90 users.
Examine the feasibility of Kiss and Ride Stations at the downtown Vernon exchange	On and off-street parking currently meets the demand at the downtown Vernon transit exchange. In the medium-term, consider providing Kiss and Ride stations at the exchange as a transportation demand management tool.
TFAP Infrastructure Priorities Beyond 2025	
Examine construction of Kiss & Ride stations at Foothills, Okanagan Landing and Waterfront Neighbourhood Centre	Provide drop-off opportunities as service is introduced to the Foothills and Waterfront Neighbourhood Centre, and as demand develops at Okanagan Landing. Longer-term, examine transfer points and/or secondary exchange possibilities at Okanagan Landing and Waterfront Neighbourhood Centre.

Appendix B

Vernon Regional Transit System: Route Performance (2023)

Route Performance (2023)

Route 1: Coldstream

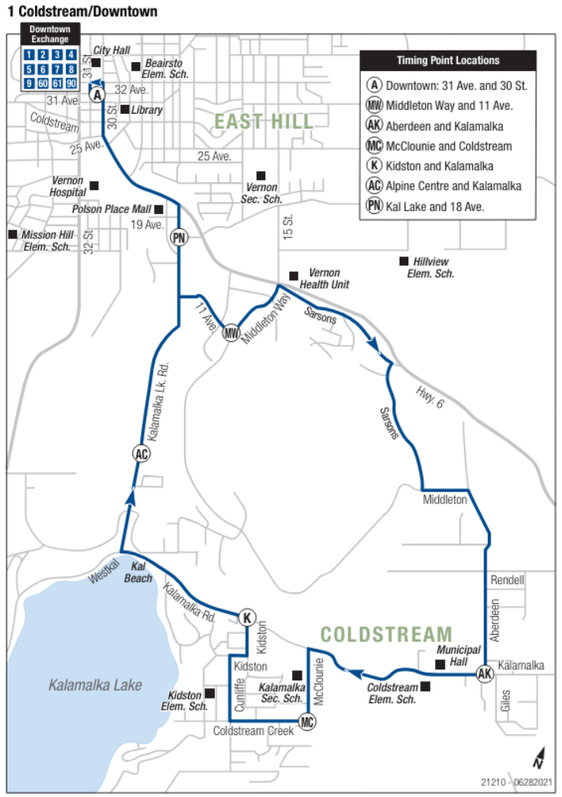
Travels between Downtown Exchange – Coldstream

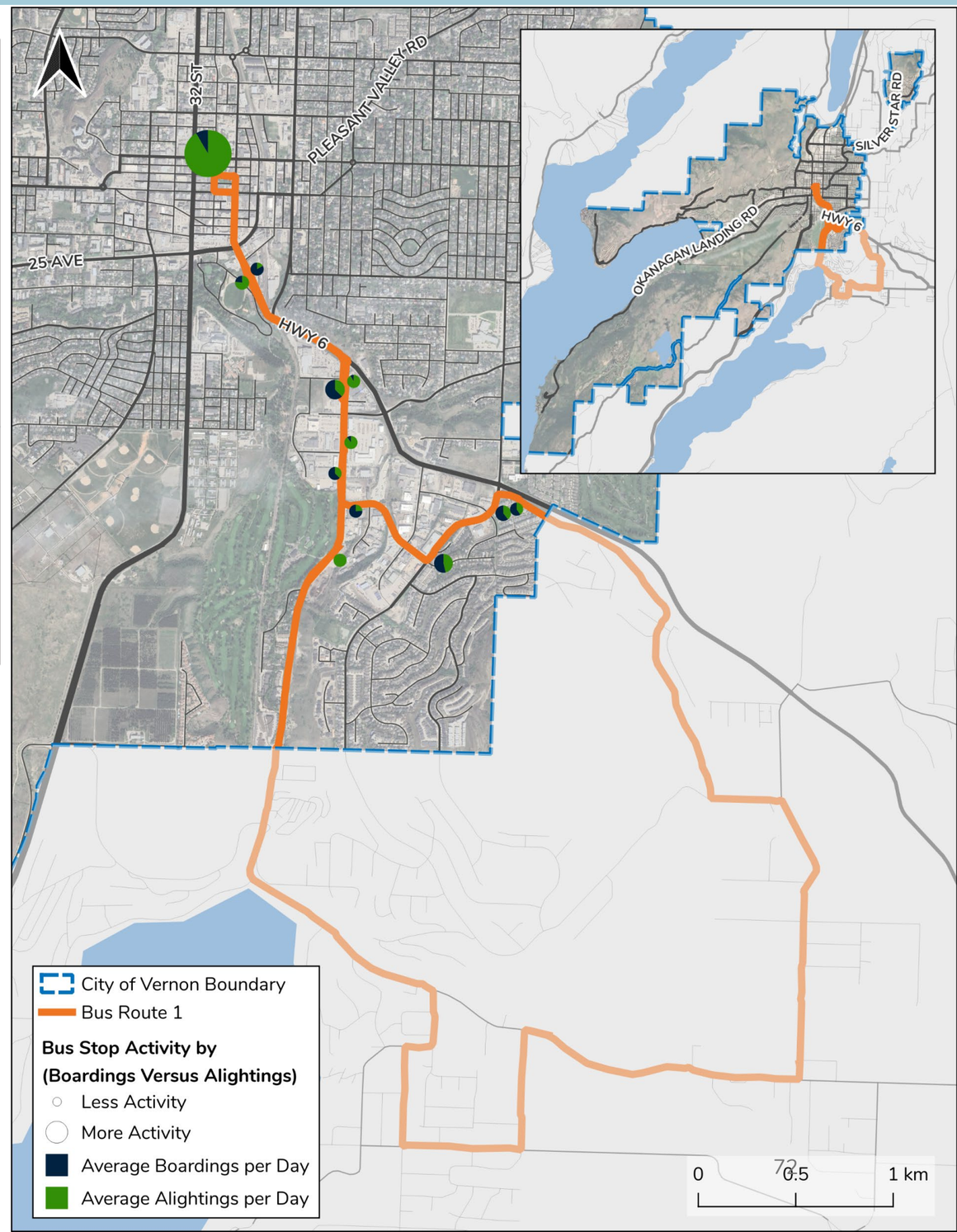
Weekday:
- 12 round trips / day between 6 AM – 7 PM
- 70-minute frequency

Saturday:
- 10 round trips / day between 8 AM – 7 PM
- 70-minute frequency

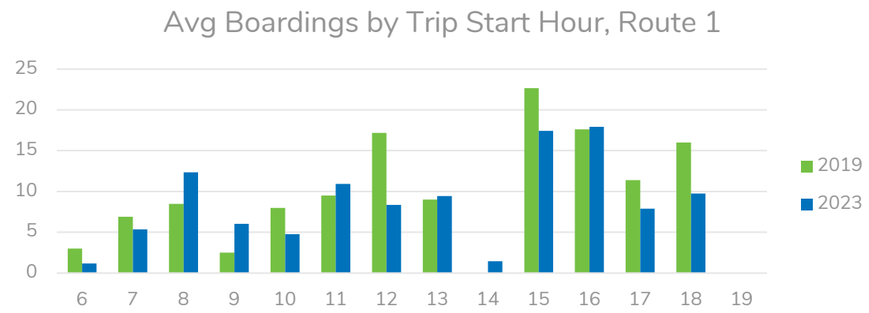
Sunday:
- 5 round trips / day between 11 AM – 5 PM
- 70-minute frequency

Avg Boardings per Weekday: 82
Avg Boardings per Rev Hour: 12
Annual Boardings: 23,824
Annual Revenue Hours: 2,067
Ranking: #8 highest boardings within Vernon in 2023





Other Findings
- Requests for increased frequency and expanded service to 10pm



Route Performance (2023)

Route 2: Pleasant Valley

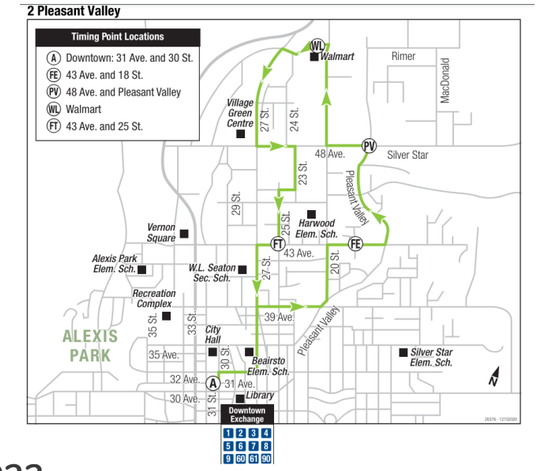
Travels between Walmart (North end), Pleasant Valley, Downtown Exchange

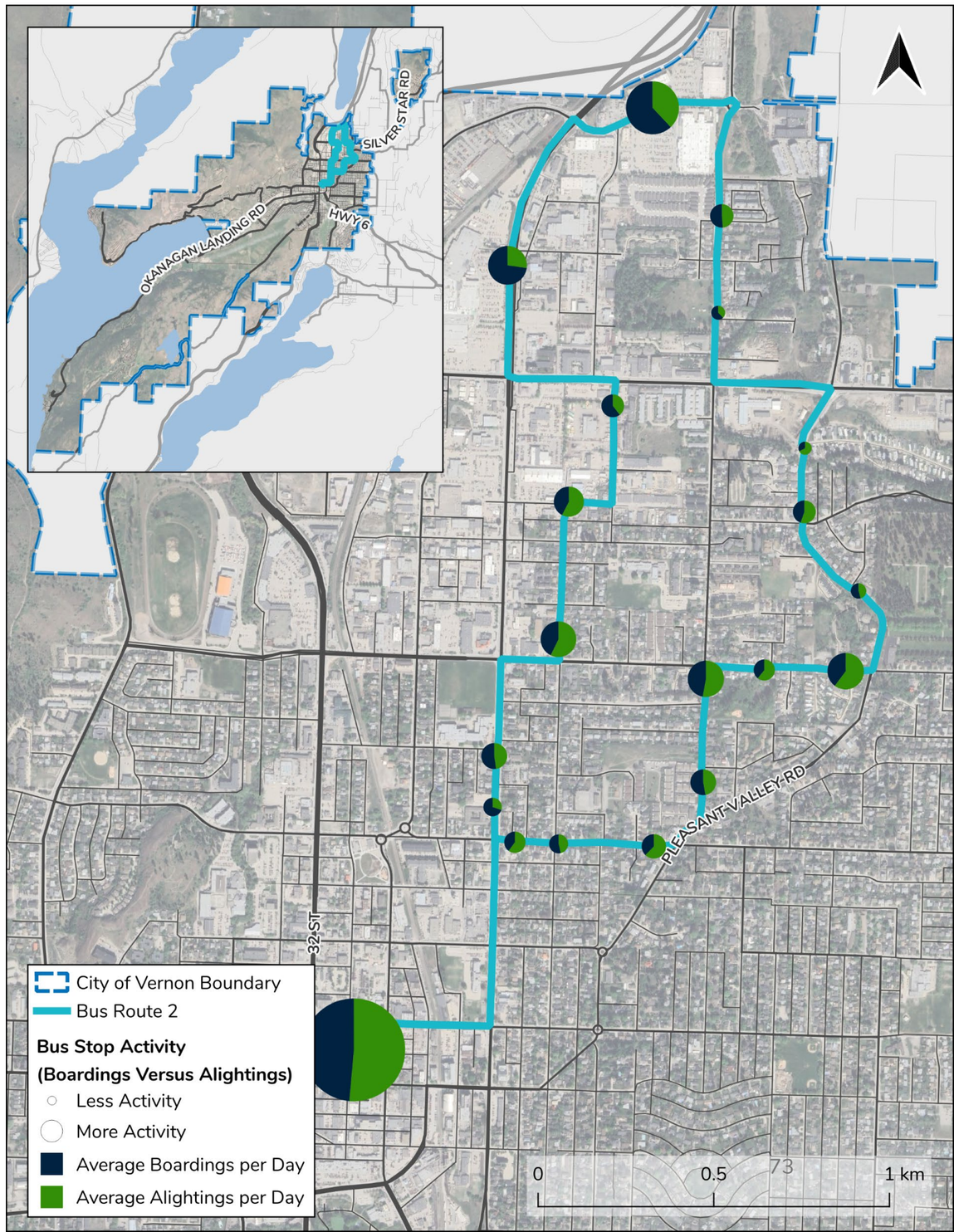
Weekday:
- 26 trips between 6:30 AM – 8:00 PM (10 PM on Fri)
- 30-minute frequency

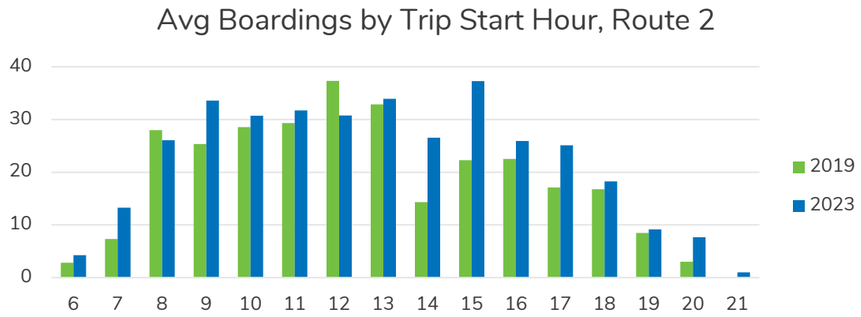
Saturday:
- 25 trips between 8:30 AM – 10:00 PM
- 30-minute frequency

Sunday:
- 15 trips between 8:30 AM – 6:30 PM
- 30-minute frequency

Avg Boardings per Weekday: 194
Avg Boardings per Rev Hour: 18
Annual Boardings: 56,460
Annual Revenue Hours: 3,656
Ranking: #5 highest boardings within Vernon in 2023







Other Findings
- Room in schedule
- Issue with bus driver taking different routes and skipping stops
- Predominantly student ridership
- Opportunities for bidirectional service

Route Performance (2023)

Route 3: North End via Alexis Park

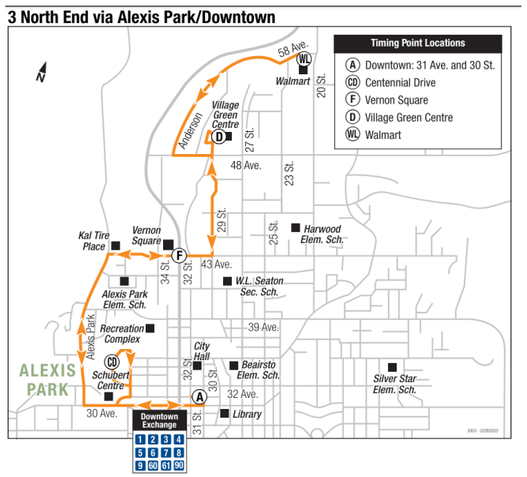
Travels between Downtown Exchange – Walmart (North End) via Alexis Park / Vernon Square

Weekday:
- 24 round trips between 6 AM – 7 PM
- 40- minute frequency

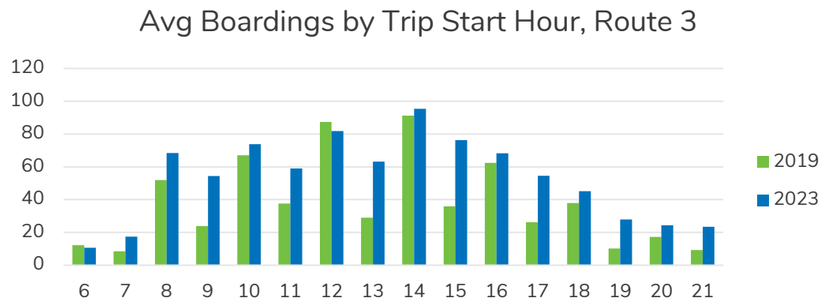
Saturday:
- 21 round trips between 8 AM – 10 PM
- 40 min frequency

Sunday:
- 7 round trips between 8:45 AM – 7 PM
- 40 min frequency

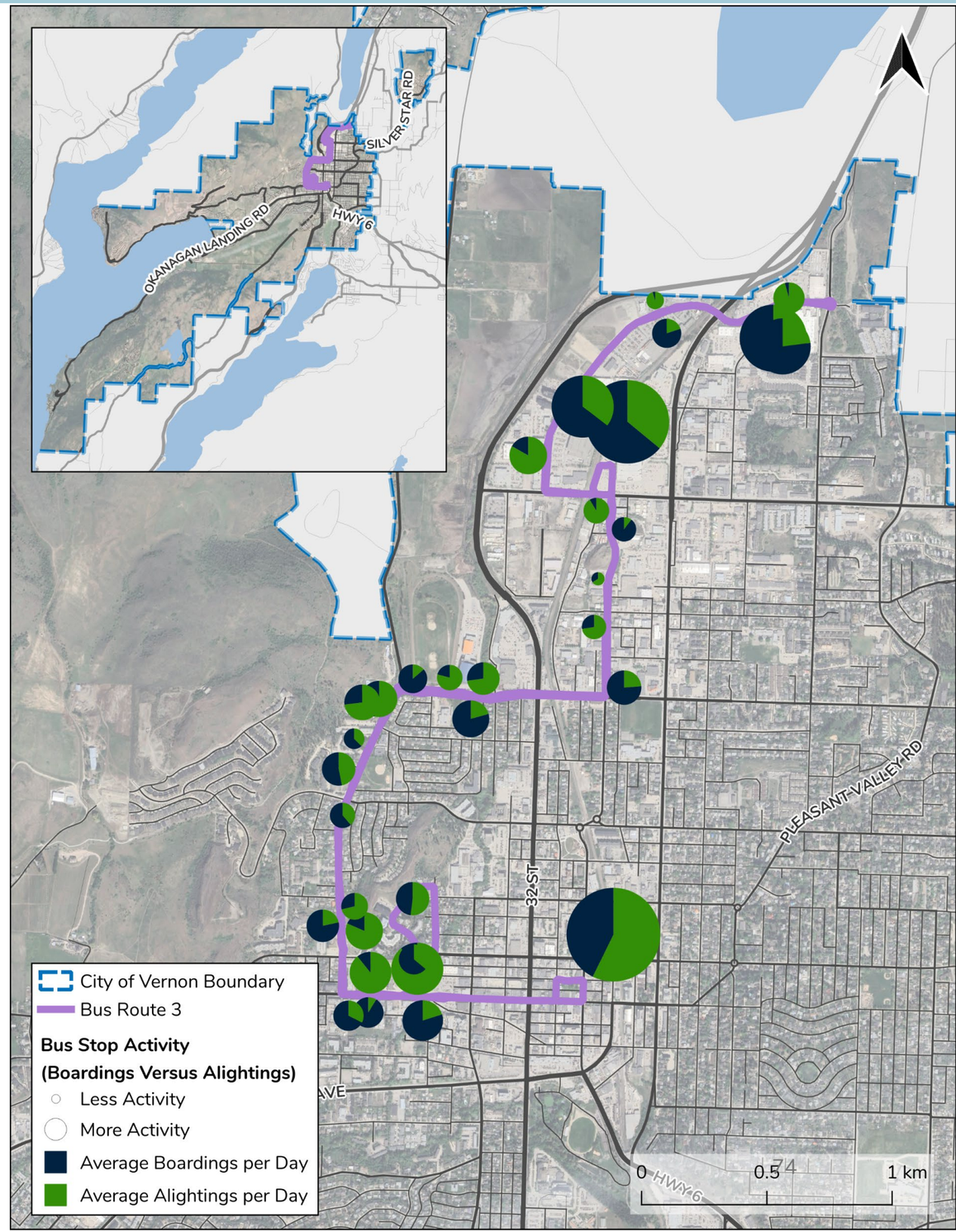
Avg Boardings per Weekday: 345
Avg Boardings per Rev Hour: 19
Annual Boardings: 112,828
Annual Revenue Hours: 6,072
Ranking: #1 highest boardings in 2023



Other Findings
- One of the tightest routes for run-time
- When full, buses can be uncomfortable (stuffy, warm)
- Needs improved frequency
- Some glitches on website for this route



#1 Avg Daily Boardings



Route Performance (2023)

Route 4: East Hill

Loop route that travels from Downtown Exchange, to Silver Star Elementary, to Vernon Health Unit & Vernon Secondary School

Weekday:

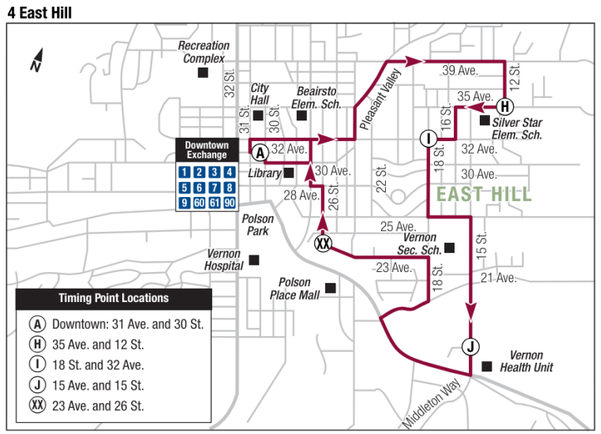
- 7 round trips between 6:30 AM – 8 PM
- 70-minute frequency

Saturday:

- 6 round trips between 8:45 AM to 9 PM
- 70 min frequency

Sunday:

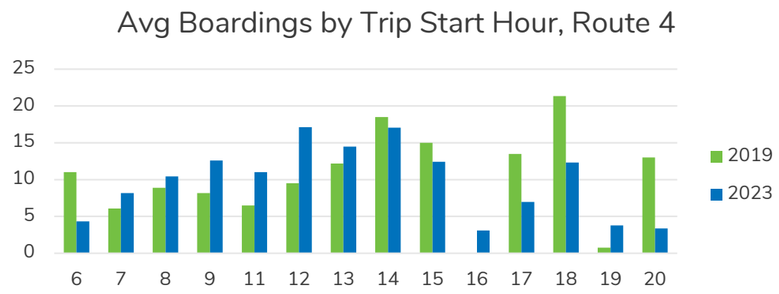
- 5 round trips between 8:45 AM – 6:30 PM
- 70 min frequency

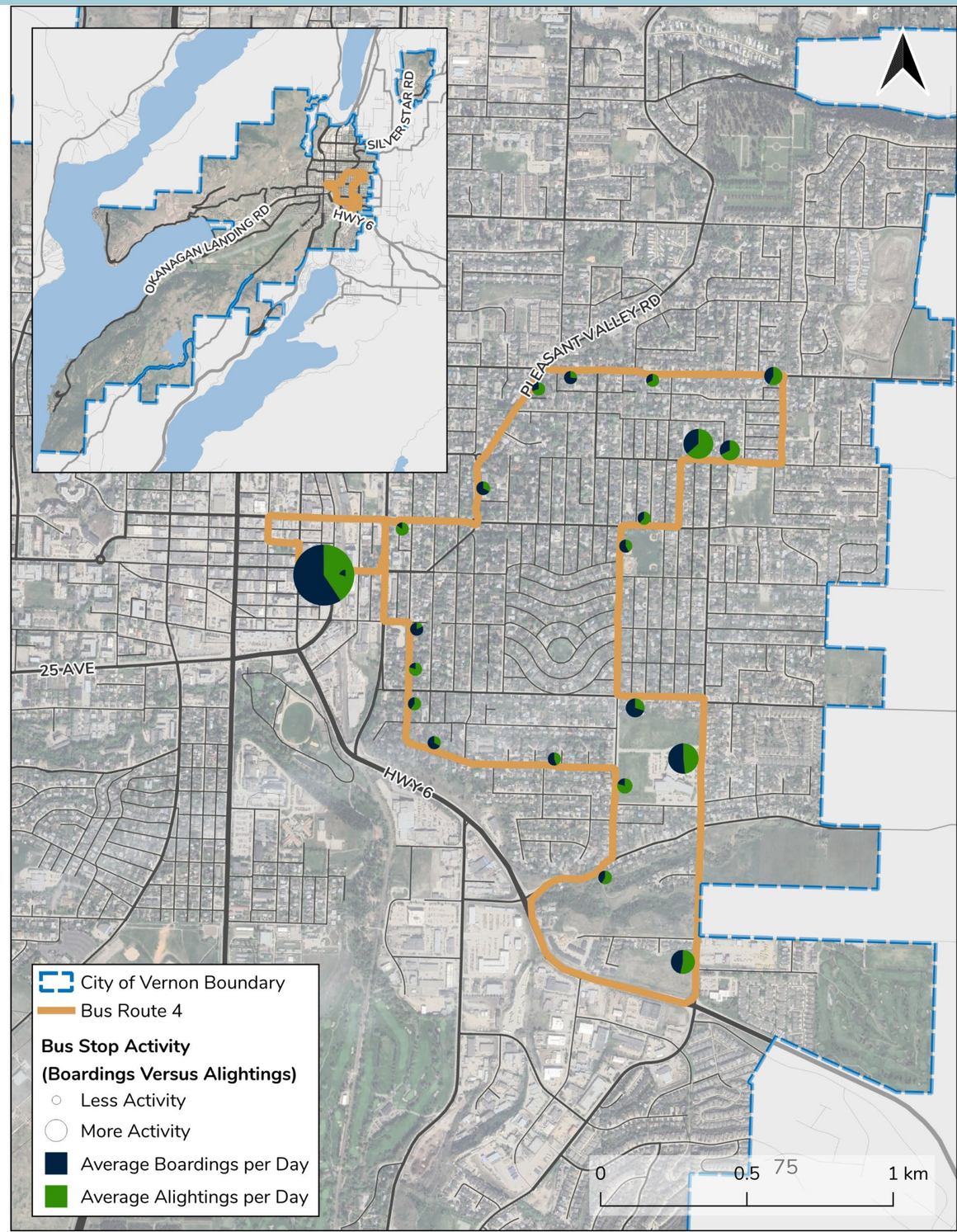


Avg Boardings per Weekday: 67
Avg Boardings per Rev Hour: 14
Annual Boardings: 20,726
Annual Revenue Hours: 1,604
Ranking: Least amount of boardings within Vernon in 2023

Other Findings

- Room in schedule
- 4:11 trip cancelled due to earlier delay – upset riders waiting / no alert
- Needs improved frequency





Route Performance (2023)

Route 5: South Vernon

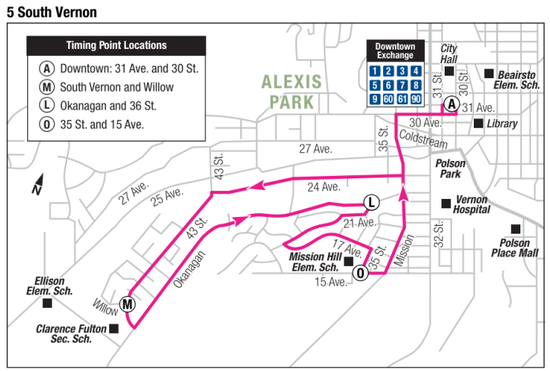
Loop route that travels from Downtown Exchange, to Clarence Fulton Secondary School & Mission Hill Elementary School

Weekday:
- 24 trips between 6 AM – 10 PM
- 40 min frequency

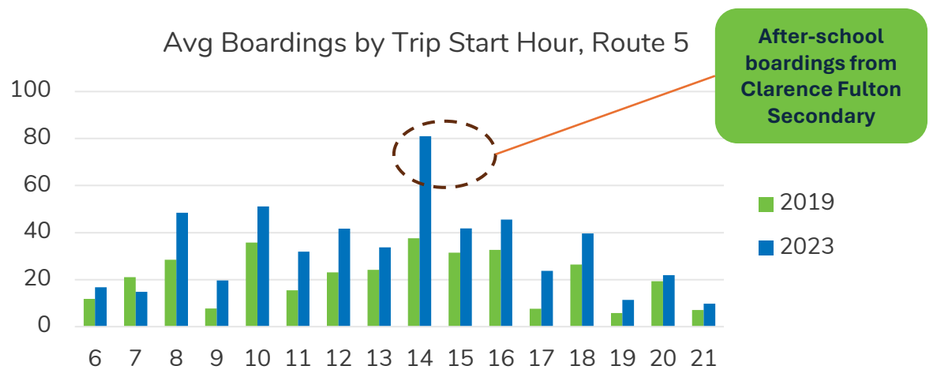
Saturday:
- 21 trips between 8:00 AM – 10:00 PM
- 40 min frequency

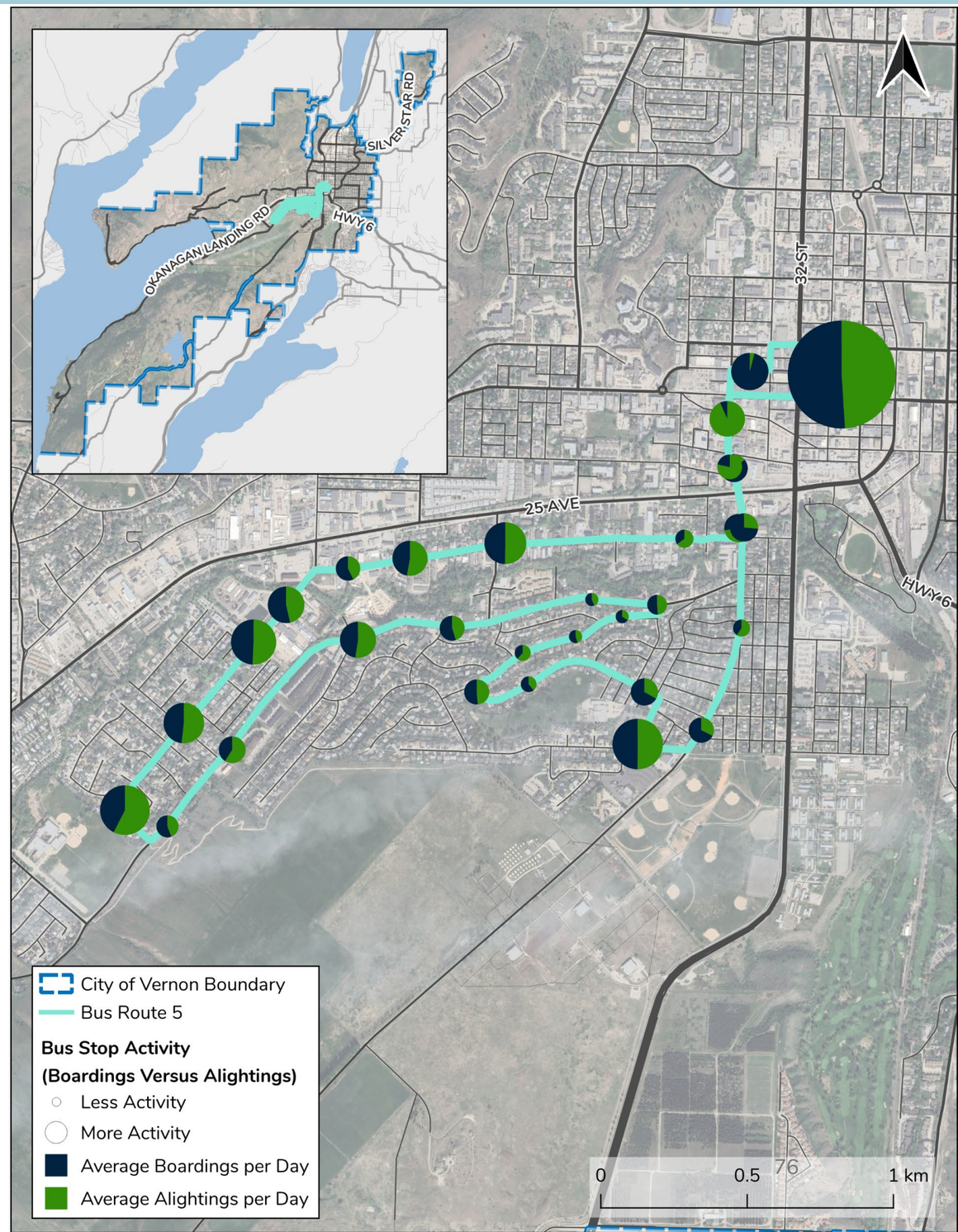
Sunday:
- 8 trips between 9:00 AM – 7:00 PM
- 80 min frequency

Avg Boardings per Weekday: 268
Avg Boardings per Rev Hour: 26
Annual Boardings: 79,202
Annual Revenue Hours: 3,250
Ranking: #3 highest boardings within Vernon in 2023



Other Findings
- Needs improved frequency
- Primarily ridership from schools and cultural centres
- Opportunities to straighten route to Mission Hill area
- Opportunities to coordinate with bell times





Route Performance (2023)

Route 6: College / Downtown via Hospital

Travels between Downtown Exchange, to Vernon Hospital, to Okanagan College

Weekday:

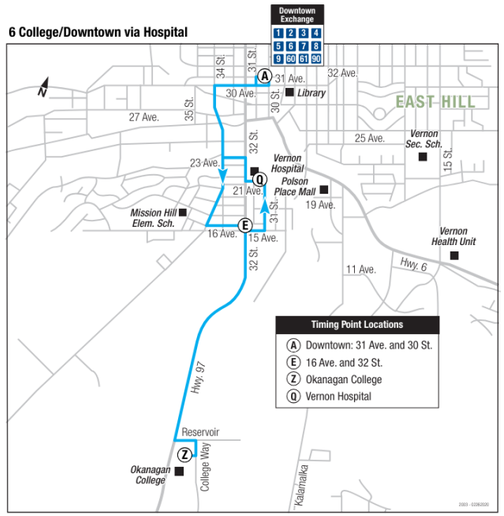
- 22 round trips between 6:30 AM – 7:30 PM (8:30 PM Fri)
- 30-minute frequency

Saturday:

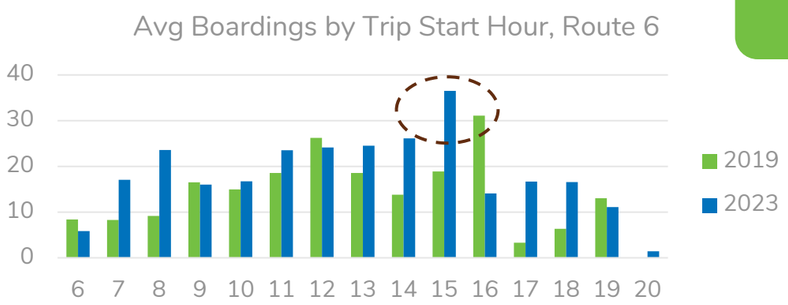
- 20 round trips between 8:45 AM – 8:30 PM
- 30-minute frequency

Sunday:

- 8 round trips between 8:45 AM – 6:30 PM
- 80 min frequency

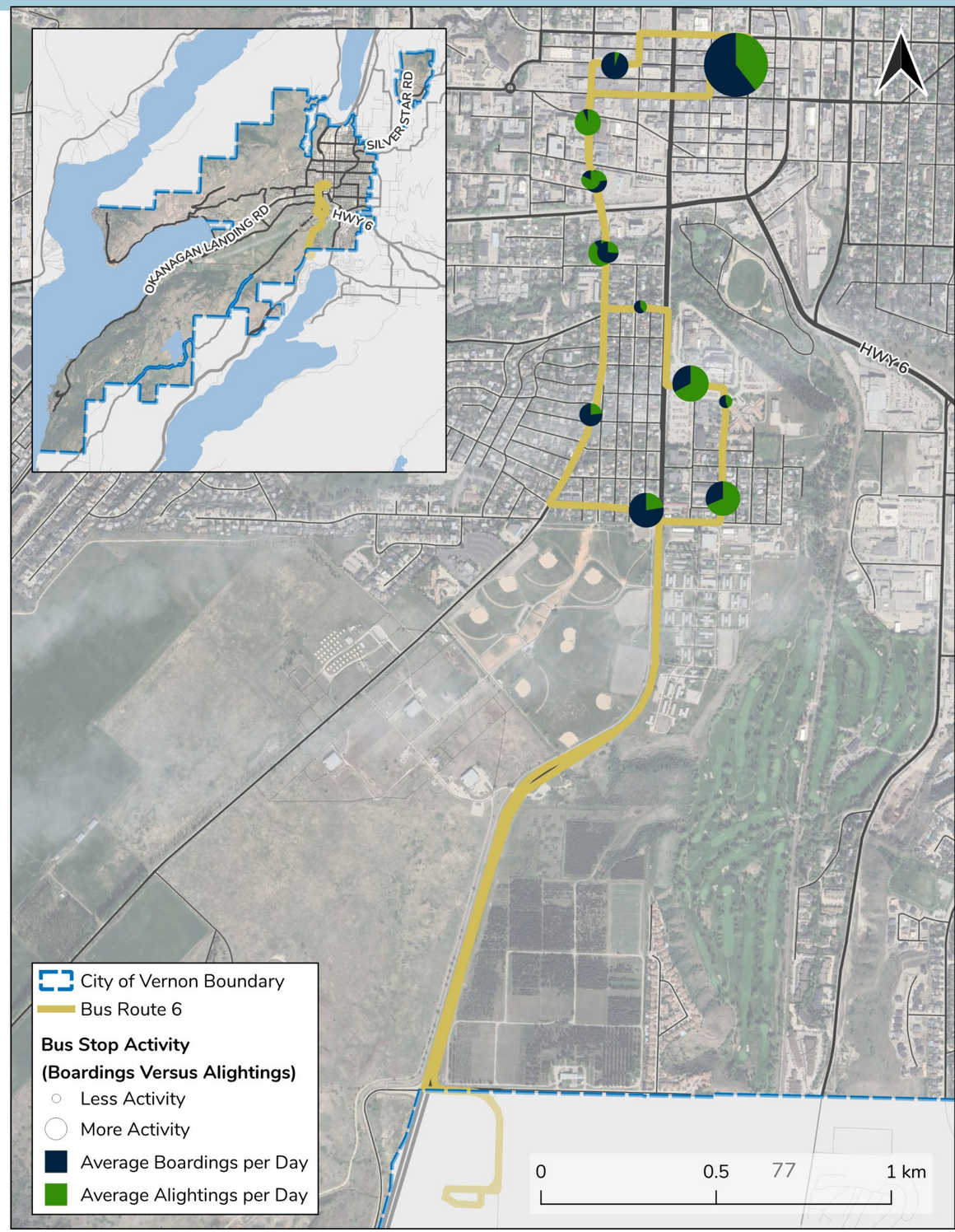


Avg Boardings per Weekday: 197
Avg Boardings per Rev Hour: 23
Annual Boardings: 53,847
Annual Revenue Hours: 2,705
Ranking: #4 highest boardings within Vernon in 2023



After-school boardings from OK College

No UPass offered at Okanagan College



Route Performance (2023)

Route 7: Okanagan Landing

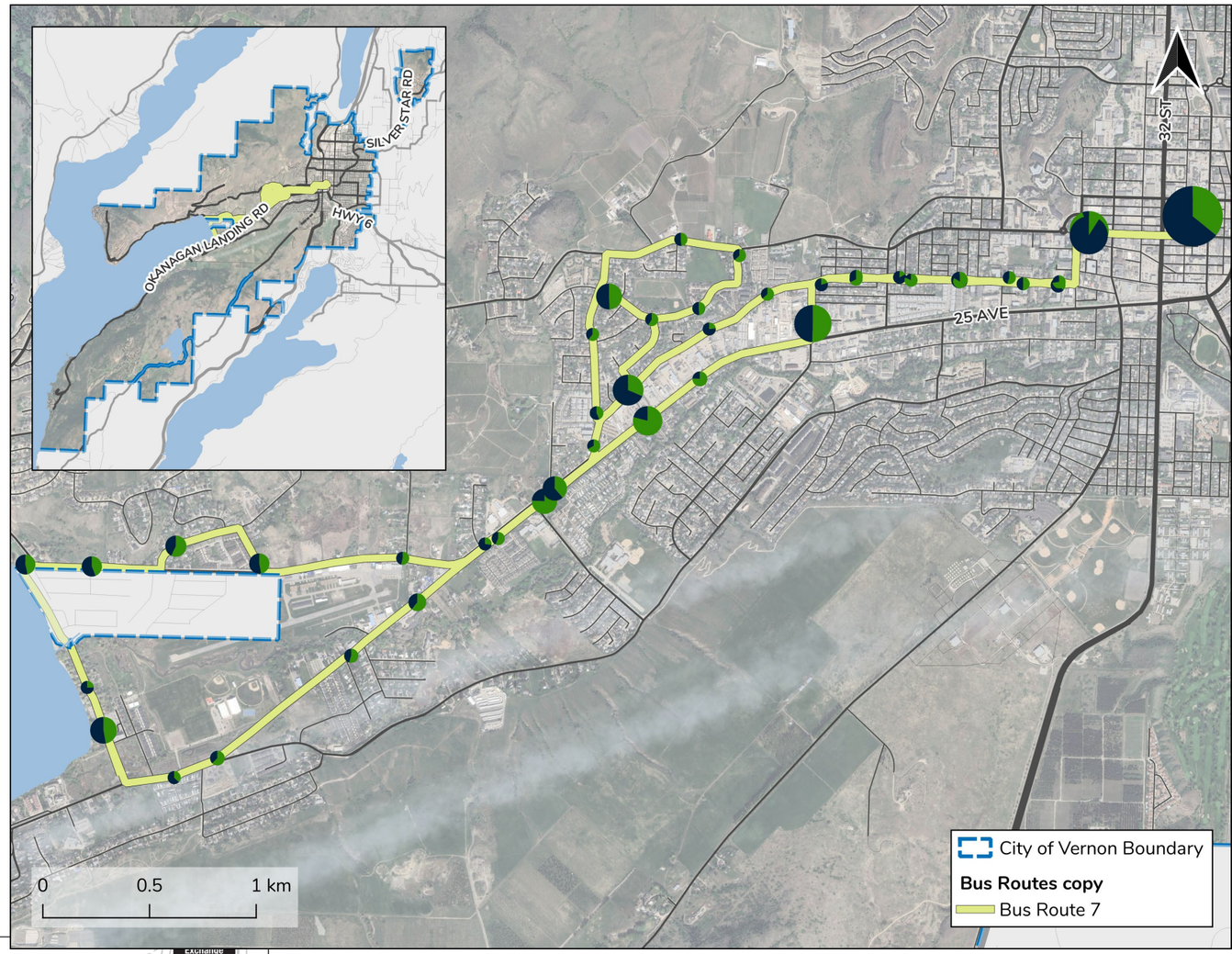
Loop route that travels from Downtown Exchange, to Bella Vista, to Vernon Airport & OK Landing Elementary School

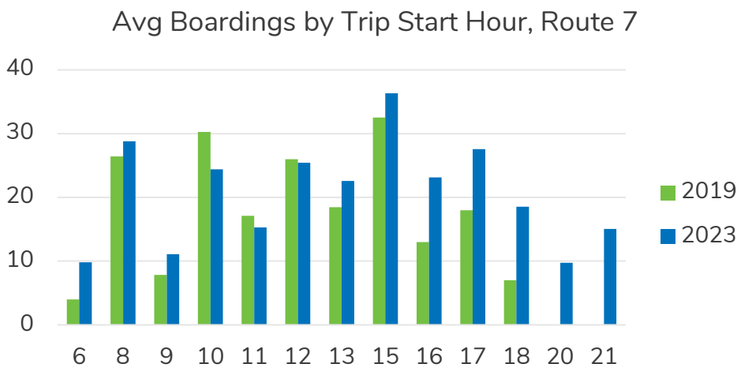
Weekday:
- 13 trips between 7 AM – 10 PM
- 70-minute frequency

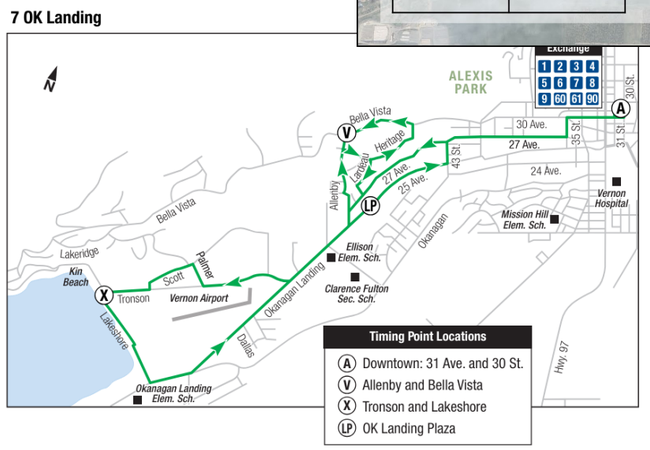
Saturday:
- 12 trips between 8:00 AM – 10:00 PM
- 70 min frequency

Sunday:
- 6 trips between 8:00 AM – 7:00 PM
- 140-minute frequency

Avg Boardings per Weekday: 128
Avg Boardings per Rev Hour: 16
Annual Boardings: 39,041
Annual Revenue Hours: 2,517
Ranking: #6 highest boardings within Vernon in 2023







Other Findings
- One of the tightest routes for run-time
- Operator's suggestion: eliminate Lardeau loop and Scott loop

Route Performance (2023)

Route 8: Bella Vista

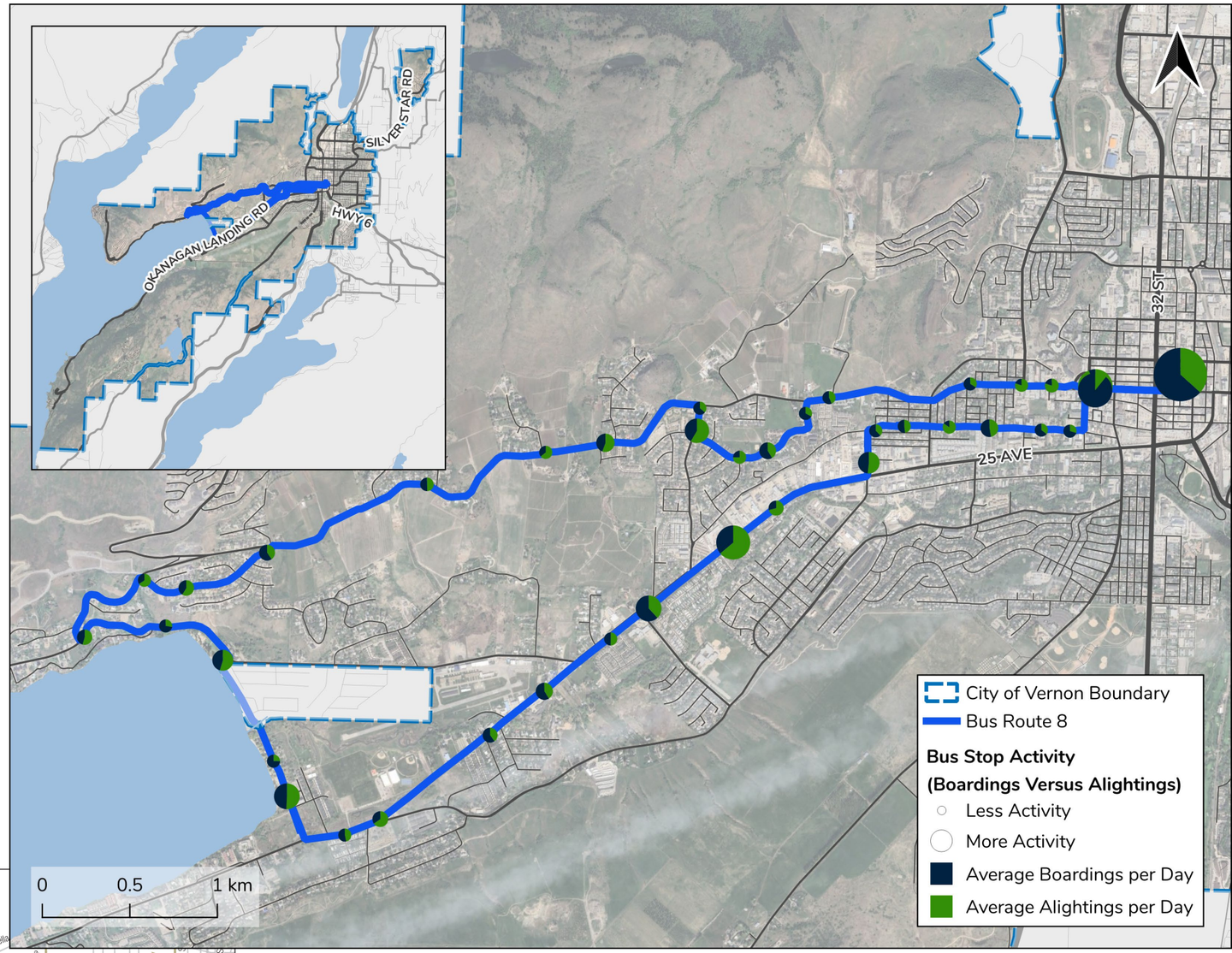
Loop route that travels from Downtown Exchange, to Bella Vista, to OK Landing Elementary School (same route as Route 7, but extends to Kin Beach and does not service airport)

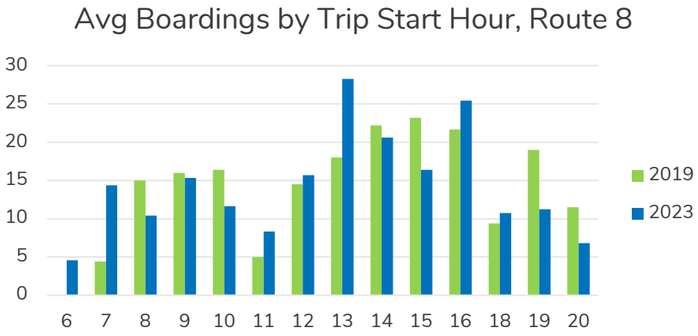
Weekday:
- 13 trips between 6:15 AM – 9:15 PM
- 70 min frequency

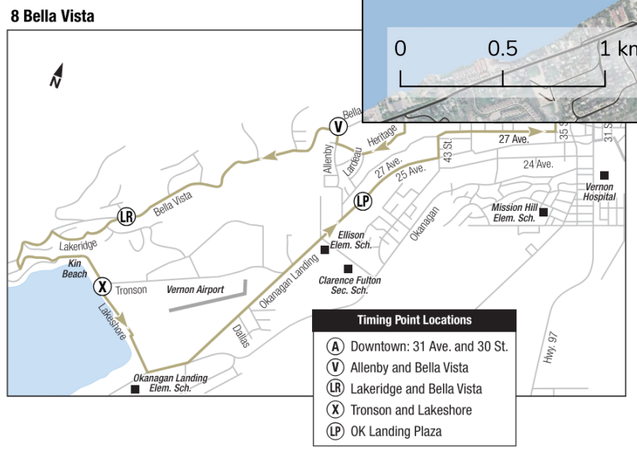
Saturday:
- 11 trips between 8:30 AM – 9:15 PM
- 70 min frequency

Sunday:
- 4 trips between 9:00 AM – 4:45 PM
- 140-minute frequency

Avg Boardings per Weekday: 105
Avg Boardings per Rev Hour: 14
Annual Boardings: 31,560
Annual Revenue Hours: 2,345
Ranking: #7 highest boardings within Vernon in 2023







Other Findings
- One of the tightest routes for run-time

Route Performance (2023)

Route 9: North End / Downtown

Travels between Downtown Exchange, Village Green Centre, Walmart

Weekday:

- 31 round trips between 7 AM – 7:45 PM (10 PM Fri)
- 30-minute frequency (15-minute frequency in peak times)

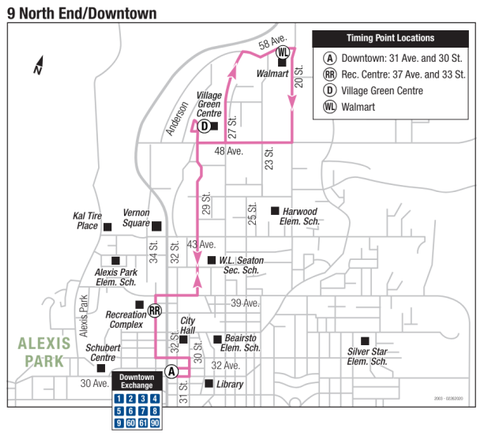
Saturday:

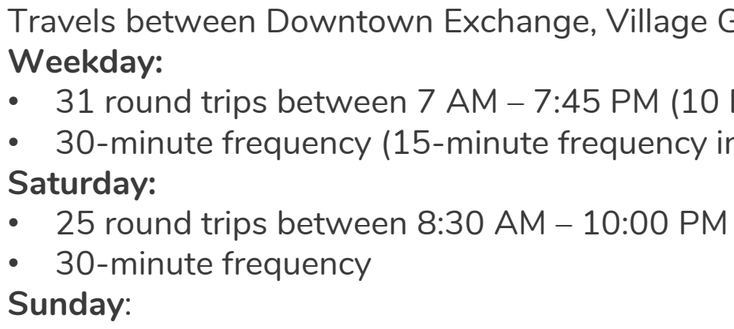
- 25 round trips between 8:30 AM – 10:00 PM
- 30-minute frequency

Sunday:

- 18 round trips between 9:00 AM – 6:30 PM
- 30-minute frequency

Avg Boardings per Weekday: 270
Avg Boardings per Rev Hour: 19
Annual Boardings: 82,582
Annual Revenue Hours: 7,629
Ranking: #2 highest boardings within Vernon in 2023

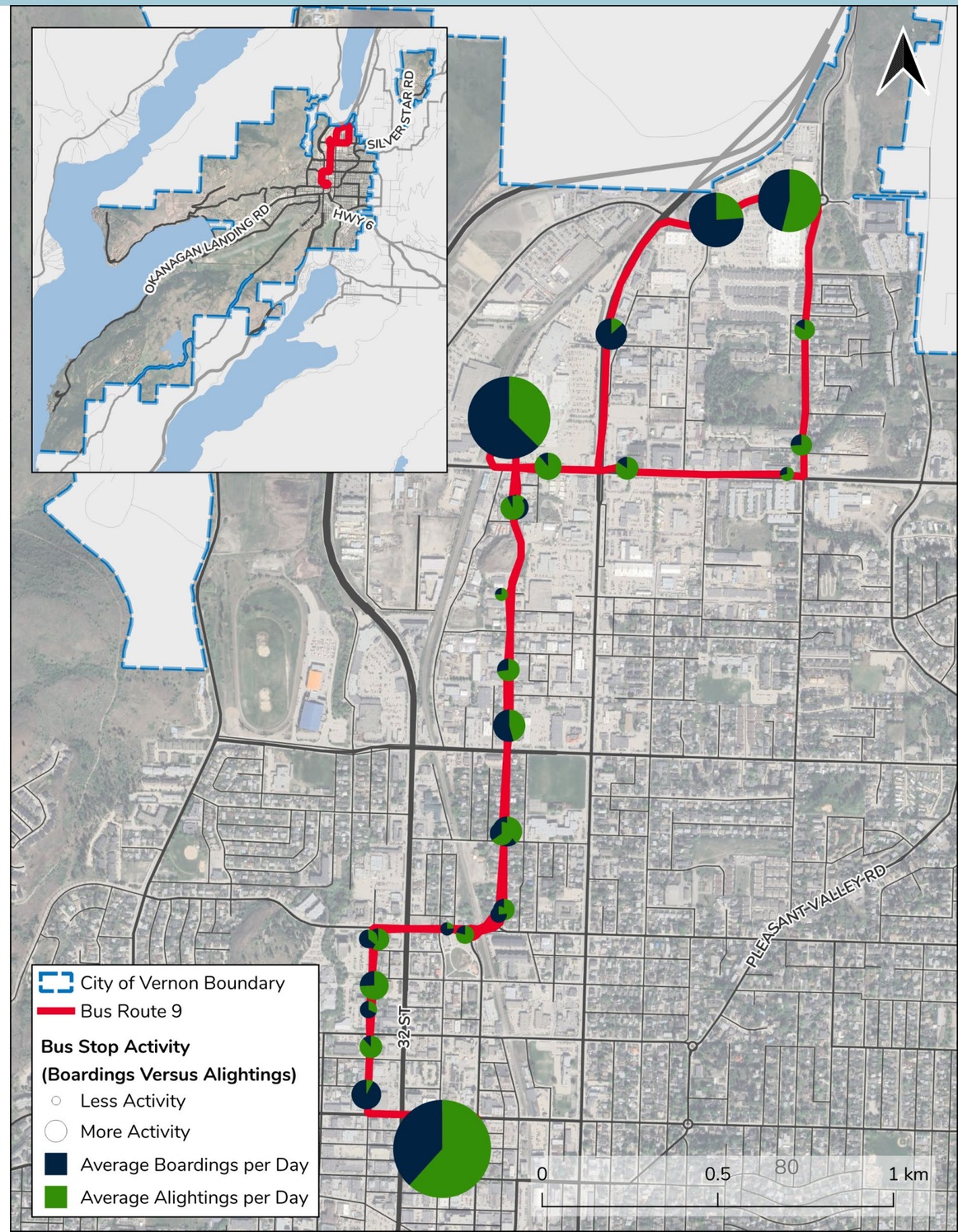




Other Findings

- Reported issues with hostile behaviour from bus driver
- Operator's suggestion: shift bus service order to Walmart -> VGC -> Downtown

#3 Avg Daily Boardings



Route Performance (2023)

Route 60: Enderby

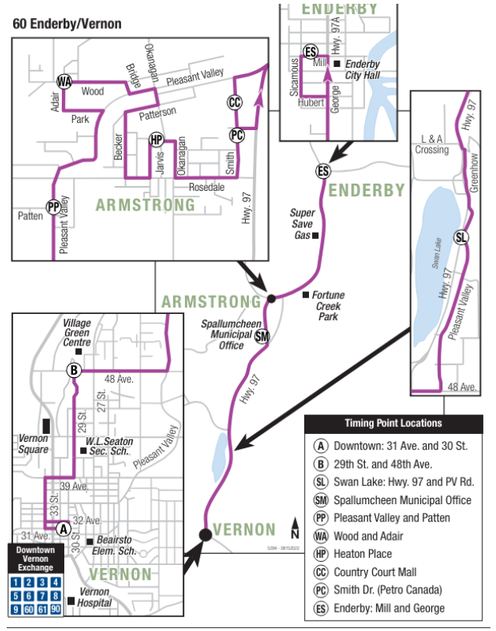
Travels between Downtown Exchange and Enderby, stopping in Village Green Centre and Armstrong

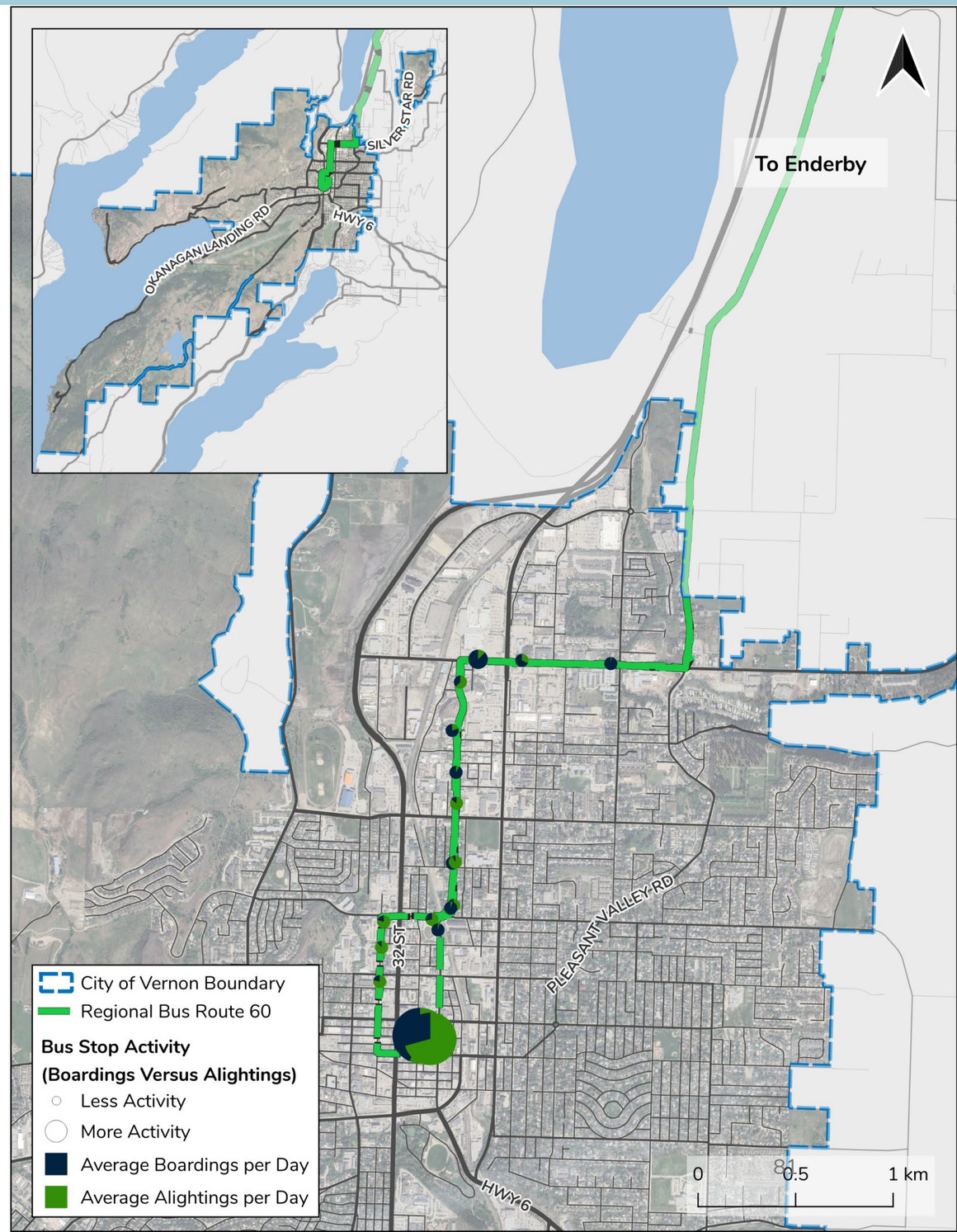
Weekday:
- 5 round trips between 6:15 AM – 7:00 PM
- 150-minute frequency

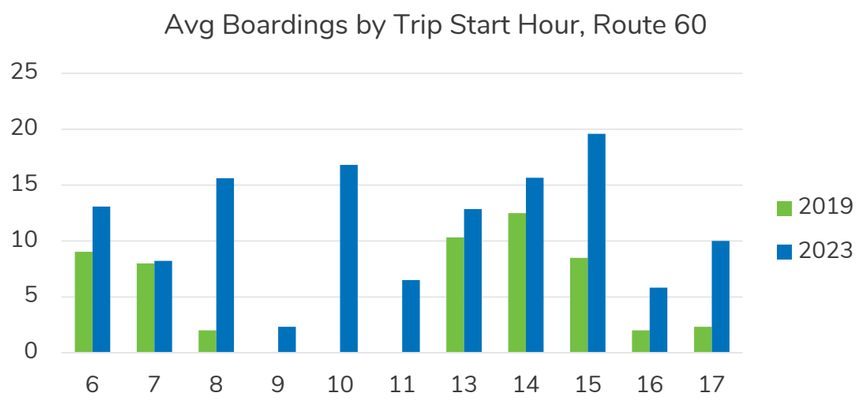
Saturday:
- 4 round trips between 10:00 AM – 4:30 PM
- 90 – 150-minute frequency

Sunday:
- No Sunday service

Avg Boardings per Weekday: 112
Avg Boardings per Rev Hour: 12
Annual Boardings: 29,208
Annual Revenue Hours: 2,628







Other Findings
- Issues with buses being at capacity and skipping stops

Route Performance (2023)

Route 61: Lumby

Travels between Downtown Exchange, Village Green Centre, Walmart

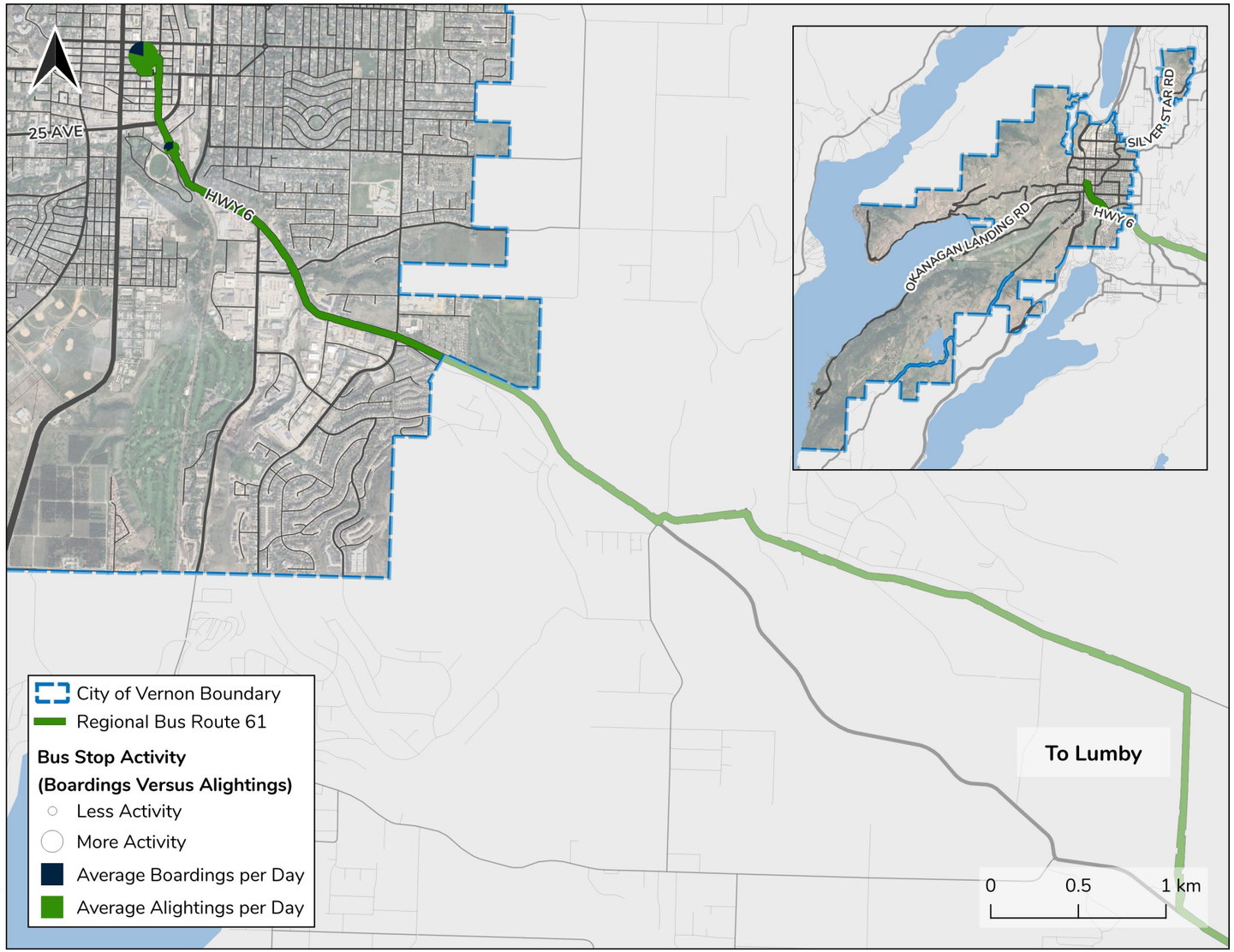
Weekday:

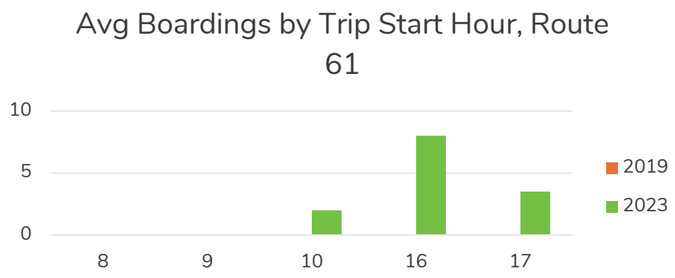
- 5 round trips between 6 AM – 7 PM
- 80 – 170-minute service

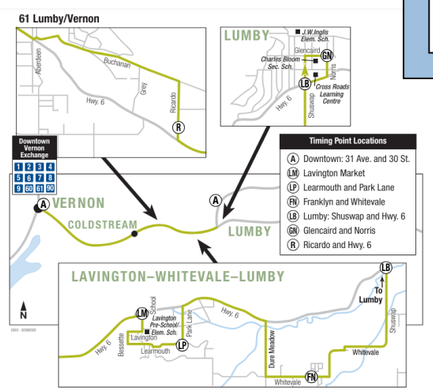
Saturday & Sunday:

- No weekend service

Avg Boardings per Weekday: 26
Avg Boardings per Rev Hour: 5
Annual Boardings: 6,422
Annual Revenue Hours: 1,425
Ranking: Lowest boardings in 2023 in the overall regional transit system







Route Performance (2023)

Route 90: UBCO / Vernon

Travels between Downtown Exchange and UBCO, stopping at Okanagan College, Oyama, Lake Country and the Kelowna Airport

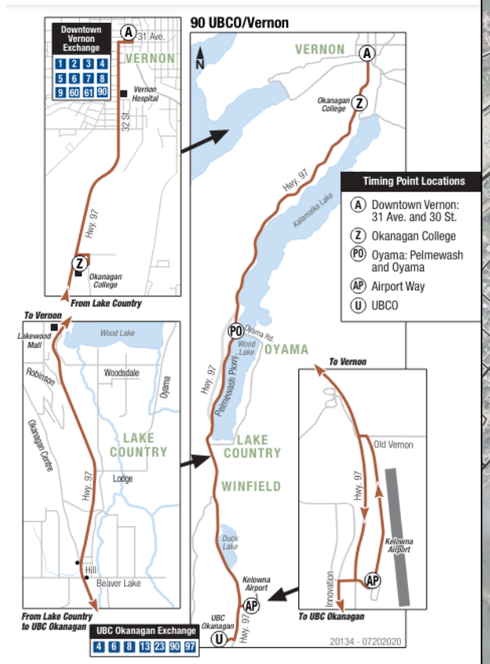
Weekday:
- 10 round trips between from 7:00 AM – 9:00 PM
- 60 – 120-minute frequency

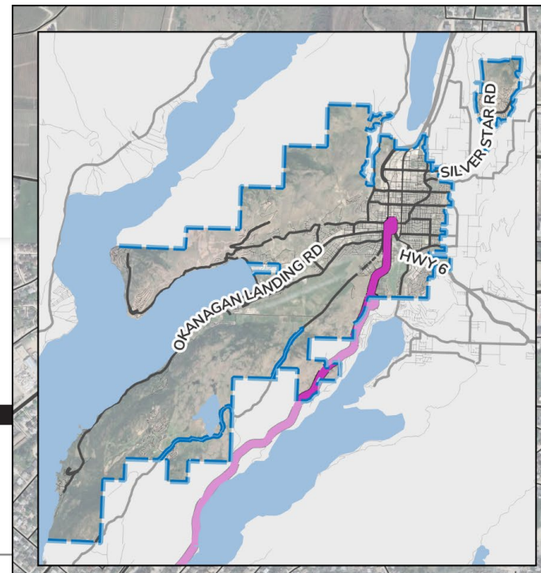
Saturday:
- 4 round trips between 8:00 AM – 7:00 PM
- 120-minute frequency

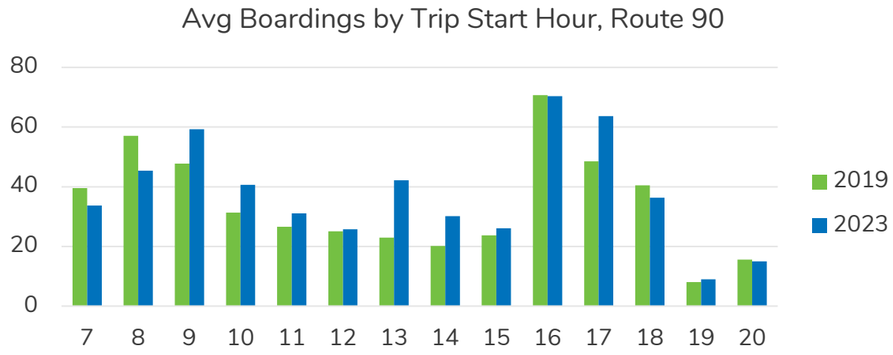
Sunday:
- 3 round trips between 9:00 AM – 6:00 PM
- 240-minute frequency

Avg Boardings per Weekday: 362
Avg Boardings per Rev Hour: 22
Annual Boardings: 99,865
Annual Revenue Hours: 4,715

Route 90 is a well-utilized route that has the second highest average daily boardings in the overall regional transit system.







Other Findings

- One of the tightest routes for run-time
- Needs improved frequency