

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN

STP REPORT #1

SUMMARY OF EXISTING CONDITIONS | AUGUST 2021

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TABLE OF CONTENTS

TABLE OF FIGURES	3
1.0 INTRODUCTION	1
1.1 PLAN PURPOSE	1
1.2 STUDY PROCESS	3
1.3 COMMUNICATION & CONSULTATION	4
1.4 REPORT STRUCTURE.....	6
2.0 COMMUNITY PROFILE	7
2.1 GEOGRAPHY	8
2.2 HISTORY.....	12
2.3 DEMOGRAPHICS.....	13
2.4 LAND USE CONTEXT & COMMUNITY DESTINATIONS	21
2.5 POLICY CONTEXT.....	28
2.6 ISSUES & OPPORTUNITIES	35
3.0 TRAVEL PATTERNS.....	37
3.1 WHERE DO WE TRAVEL?.....	38
3.2 WHY DO WE TRAVEL?.....	39
3.3 HOW DO WE TRAVEL?.....	42
3.4 HOW HAS COVID CHANGED TRAVEL PATTERNS?	46
3.5 ISSUES & OPPORTUNITIES	48
4.0 WALKING & ROLLING.....	49
4.1 POLICY CONTEXT.....	49
4.2 EXISTING INFRASTRUCTURE	51
4.3 ASSESSMENT.....	53
4.4 ISSUES & OPPORTUNITIES	57

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN

STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

5.0	CYCLING.....	60
5.1	POLICY CONTEXT.....	60
5.2	EXISTING INFRASTRUCTURE	64
5.3	ASSESSMENT.....	65
5.4	ISSUES & OPPORTUNITIES	69
6.0	TRANSIT	71
6.1	POLICY CONTEXT.....	71
6.2	EXISTING INFRASTRUCTURE	74
6.3	ASSESSMENT.....	76
6.4	ISSUES & OPPORTUNITIES	78
7.0	DRIVING / GOODS MOVEMENT.....	80
7.1	POLICY CONTEXT.....	80
7.2	EXISTING INFRASTRUCTURE	83
7.3	ASSESSMENT.....	85
7.4	ISSUES & OPPORTUNITIES	106
8.0	EMERGING MODES.....	108
9.0	SUMMARY & CONCLUSION.....	109

TABLE OF FIGURES

Figure 1-1: What is the STP?	2
Figure 1-2: Study Process.....	3
Figure 2-1: Maple Ridge in the Regional Context.....	8
Figure 2-2: Subareas and Town Centre.....	9
Figure 2-3: Topography.....	10
Figure 2-4: Average Road Slope.....	11
Figure 2-5: Population Growth.....	13
Figure 2-6: Current Population Density by Subarea.....	14
Figure 2-7: Population by Age Group.....	15
Figure 2-8: Concentration of Youth by Subarea.....	16
Figure 2-9: Concentration of Seniors by Subarea.....	17
Figure 2-10: Average Household Size.....	18
Figure 2-11: Median Income.....	19
Figure 2-12: Concentration of Low-Income Households.....	20
Figure 2-13: Community Destinations.....	22
Figure 2-14: Agricultural Land Reserve.....	23
Figure 2-15: Land Use Designation.....	24
Figure 2-16: Town Centre Transportation Network.....	25
Figure 2-17: Lougheed Transit Corridor Draft Concept Plan.....	26
Figure 2-18: Hammond Area Plan Connectivity Map.....	27
Figure 2-1: Trips per Person per Day.....	37
Figure 3-2: Distribution of All Daily Trips Originating in Maple Ridge.....	38
Figure 3-3: Purpose of Trips.....	39
Figure 3-4: Mode for Commute Trips Destined Outside of Maple Ridge.....	39
Figure 3-5: Walking Trips by Purpose Comparison.....	40
Figure 3-6: Mode Share.....	42
Figure 3-7: Mode Share Proportions Over Time.....	42
Figure 3-8: Proportion of Lower Mainland Trips Made by Sustainable Modes.....	43
Figure 3-9: Sustainable Transportation Mode Share.....	44
Figure 3-10: Proportion of Trip Distances Made by Maple Ridge Auto Drivers.....	45
Figure 3-11: 2019 vs. 2020 Average Daily Traffic Volume Comparison (Lougheed Highway West of Pitt River Bridge).....	46

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN

STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

Figure 3-12: Changes to Travel Patterns due to COVID-19	47
Figure 4-1: Pedestrian Network	52
Figure 4-2: Sidewalk Coverage.....	54
Figure 4-3: Pedestrian Collision Frequency.....	56
Figure 4-4: Walking Issues and Challenges	59
Figure 5-1: Interim Major Bikeway Network.....	62
Figure 5-2: Existing Cycling Network	64
Figure 5-4: Cyclist Collision Frequency.....	68
Figure 5-5: Cycling Issues and Challenges.....	70
Figure 6-1: PM Peak Transit Service Frequency	75
Figure 6-2: Transit Network.....	76
Figure 6-3: Existing Transit Speed and Reliability	77
Figure 6-4: Transit Issues or Challenges	79
Figure 7-1: Road Network	82
Figure 7-2: Traffic Signal	83
Figure 7-3: Posted Speed.....	84
Figure 7-4: Driving Mode Share	85
Figure 7-5: Trips by Vehicle	86
Figure 7-6: Daily Traffic Volumes (2021).....	88
Figure 7-7: 2035 Daily Traffic Volumes	90
Figure 7-8: 2050 Daily Traffic Volumes	91
Figure 7-9: AM Median Speed as a % of Posted Speed.....	93
Figure 7-10: PM Median Speed as a % of Posted Speed	94
Figure 7-11 Existing AM (PM) Intersection Level of Service on PM Median Speed as a % of Posted Speed.....	97
Figure 7-12: 2035 AM (PM) Intersection Level of Service (LOS)	99
Figure 7-13: 2050 AM (PM) Intersection Level of Service (LOS).....	100
Figure 7-14: Number of Collisions in Maple Ridge (2015-2019).....	101
Figure 7-15: Collision Frequency.....	102
Figure 7-16: Collision Rates.....	103
Figure 7-17: Collision Severity Index	104
Figure 7-18: Driving and Carpooling Issues and Challenges.....	107

1.0 INTRODUCTION

The City of Maple Ridge (City) is updating their Strategic Transportation Plan (STP) to help address current transportation challenges and shape the future of transportation in Maple Ridge. As Maple Ridge continues to grow the City's transportation system must evolve and be designed to move everyone efficiently and comfortably, no matter how people choose to get to their destinations. Transportation in the city is changing as it adapts to demand, and the addition of new development, technology and projects that alter how our community moves around. The STP will identify strategies and projects to build connections, improve systems, and plan for the long-term transportation future. The final STP will address all the ways people move around Maple Ridge including driving, walking, cycling, and taking public transportation, and will shape Maple Ridge's multi-modal transportation investments and decision-making over the next 20 years. Community involvement is an important part of the STP update. All community members are invited to be part of creating a new transportation plan that is inclusive, sustainable, and forward-thinking.

The City of Maple Ridge is a community of 82,000 residents in ten neighbourhoods and historic centres that span over more than 260 km² of land area between the Fraser River and the Golden Ears Mountains. While rapid population growth – more than doubling in 30 years – has created larger urban areas in Maple Ridge, the community still retains its agricultural and small-town roots. The geography provides stunning views and ample outdoor recreation opportunities with urban amenities and easy access to nearby population centres due to its location along Highway 7, along with the West Coast Express into downtown Vancouver.

1.1 PLAN PURPOSE

The STP is a long-term plan that will guide policy and investment within the City of Maple Ridge for all modes of transportation. The last STP was completed and adopted in 2014 and has resulted in improvements to the transportation network, including, 128th Avenue improvements, Haney Bypass improvements, and ongoing work on the 232nd Street improvements. Since 2014, the community has grown and changed, along with the regional, provincial, and global transportation context. It is important for communities to update their long-term plans every five to ten years to understand evolving issues, reassess priorities, and develop new long-term plans that will inform capital planning, ongoing operations and maintenance, as well as policy, programming, and additional studies that are required.

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN

STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

The City is challenged with maintaining and improving a large transportation network. Transportation decisions affect the community's health, environment, and economy. Effectively planning transportation improvements and policies ensures community members can safely move in and around Maple Ridge. Having a recent, relevant, and clear Strategic Transportation Plan will allow the City to respond to the policy directions and vision articulated in the Metro Vancouver Regional Growth Strategy and the City's Official Community Plan. It will also facilitate communication and partnership with neighbouring municipalities, First Nations, TransLink, and the British Columbia Ministry of Transportation and Infrastructure (MoTI). The purpose of the STP is illustrated in

Figure 1-1.

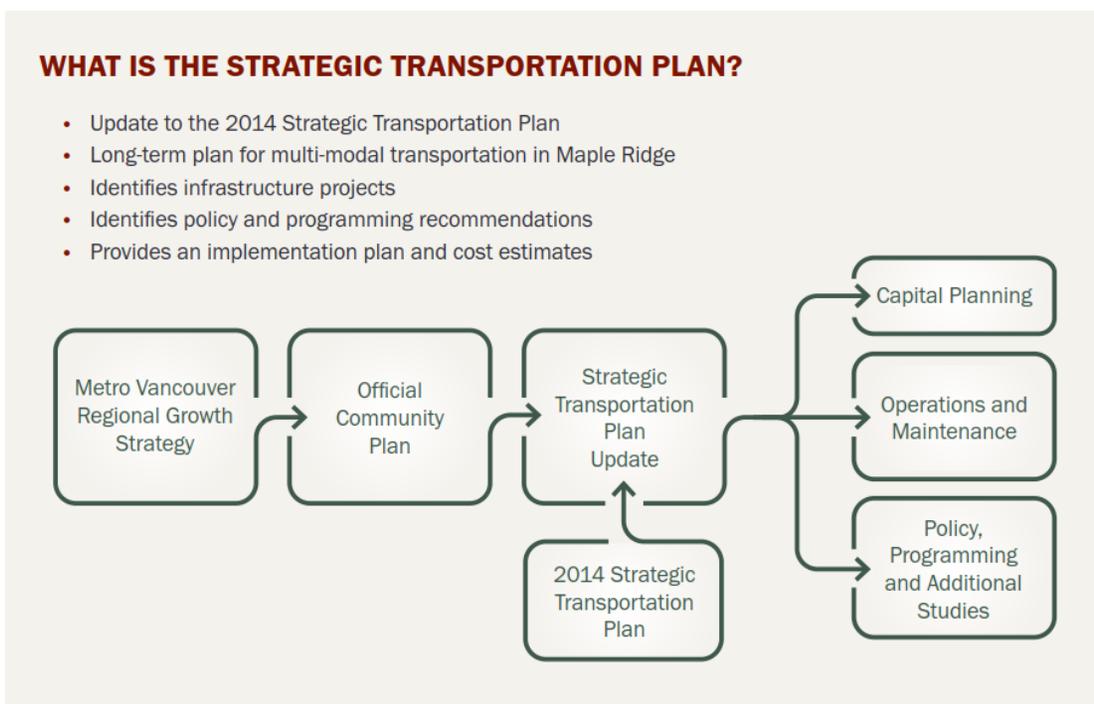


Figure 1-1: What is the STP?

1.2 STUDY PROCESS

The City of Maple Ridge is updating the STP over 18 months starting in January 2021. The Plan will be developed based on national best practices as well as local expertise and public input. This approach will result in a plan that responds to how we live today and how we want to live in the future. The STP process includes five phases as illustrated in **Figure 1-2** and summarized below:

- **PHASE 1:** Project Launch & Administration – this phase includes preliminary project start up tasks and coordination between the project team and City Staff.
- **PHASE 2:** Existing & Future Conditions – this phase focuses on technical analysis of existing and projected future conditions and the first round of public and stakeholder consultation.
- **PHASE 3:** Vision, Goals, and Plan Development – this phase includes the development of an overarching Vision and Goals to guide the STP and identification of high-level plans for multi-modal networks.
- **PHASE 4:** Strategy Development & Refinement – this phase results in the identification and assessment of strategies, as well as development, refinement, and assessment of potential infrastructure projects.
- **PHASE 5:** Implementation & Final Plan – this phase completes the study with project prioritization, costing, and development of the final STP.



Figure 1-2: Study Process

This report (STP Report #1 – Summary Of Existing Conditions) is the result of Phase 1 and 2 and focuses on a summary of existing and future conditions. It is informed by technical planning and engineering work focused on existing and projected future travel patterns, an assessment of existing transportation networks and performance, and a review of existing related policy and planning documents. It also incorporates the results of the first round of public and stakeholder engagement.

1.3 COMMUNICATION & CONSULTATION

The development of this plan is grounded in consultation with the community. The City sought feedback from a range of voices to create a vision for the future of transportation in Maple Ridge that is inclusive, sustainable, and forward-thinking. Maple Ridge residents were invited to use their voices to help create a plan that reflects how they move today and how they want to move in the future through online consultation using a StoryMap and survey. Stakeholder groups were contacted by letter to inform them of public consultation and encourage them to participate. Hard copies of surveys were also available at City Hall and distributed directly to stakeholder groups that are traditionally more difficult to reach through online consultation. The study also included consultation with the City's Transportation Advisory Committee. More information about the consultation approach and results for this project are included in **Appendix A**.

The objectives of the public and stakeholder consultation were:

1. To encourage meaningful dialogue about the future of transportation in Maple Ridge by:
 - a. ensuring balanced participation with diverse stakeholder representation
 - b. providing opportunities for input to ensure all voices were heard
2. To establish the context of the engagement process by:
 - a. clarifying the scope of the Strategic Transportation Plan
 - b. outlining a timeline for the planning process and implementation
 - c. providing information that is up-to-date and informative

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN

STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

3. To deepen community engagement and improve the relevance, depth, and range of voices represented through public feedback by:
 - a. utilizing online engagement tools that make it easy for people to participate
 - b. reaching out to harder-to-reach stakeholders
4. To ensure stakeholders and the public clearly understand how their feedback will be used to inform design decisions by:
 - a. clearly communicating who the decision makers are
 - b. reporting back in a way that demonstrates how feedback was used

As part of Phase 2 – Existing & Future Conditions, an ArcGIS StoryMap and survey were open from May 17 to May 31, 2021. The engagement was advertised on social media and the City’s website, through letters to stakeholder groups, and via print media. The study process and preliminary findings of Phase 2 were also presented for feedback from the Transportation Advisory Committee on May 26. This round of engagement focused on understanding existing transportation issues and how the City has progressed on goals from the 2014 STP.

The survey received 335 responses from Maple Ridge residents. Of the responses received, 26% were from those between the ages of 35-44, nearly doubling the weight of this age group in the survey. Those between the ages of 45-54 and 55-64 were also well represented, while those between the ages of 15-24 are underrepresented. The survey also had greater representation of women and single-family homeowners relative to population composition. The survey offers insight into current transportation challenges and opportunities, and helps to better understand the community’s priorities for future transportation improvements. The survey results will be used to inform the draft STP.

1.4 REPORT STRUCTURE

This Report summarizes existing conditions, including issues and opportunities, for transportation in the City of Maple Ridge. This report includes the following sections:

- **SECTION 1:** Introduction – this section provides background context about the study process and intent.
- **SECTION 2:** Community Profile – this section provides an overview of the community demographics, historic and projected growth, land use, and policy context.
- **SECTION 3:** Travel Patterns – this section explores how residents of Maple Ridge are currently travel.
- **SECTION 4:** Walking – this section describes the existing context around walking / rolling in Maple Ridge.
- **SECTION 5:** Cycling – this section describes the existing context around cycling in Maple Ridge.
- **SECTION 6:** Transit– this section describes the existing context around transit in Maple Ridge.
- **SECTION 7:** Driving/Goods Movement – this section describes the existing context around driving in Maple Ridge.
- **SECTION 8:** Emerging Modes – the final technical section of the report explores how emerging transportation modes and technologies are changing how people move in Maple Ridge. Emerging transportation includes mobility as a services, micromobility, car sharing, electric vehicles, and autonomous vehicles.
- **SECTION 9:** Summary & Conclusion – closes the report and outlines next steps.

This report also includes two Appendices:

- **APPENDIX A:** Public Consultation
- **APPENDIX B:** Large Format Maps
- **APPENDIX C:** Detailed Intersection Analysis

2.0 COMMUNITY PROFILE

The transportation system in the City of Maple Ridge has been shaped by geography, changing land uses, demographics, and local and regional policy contexts. Several major transportation corridors run through Maple Ridge and facilitate the local, regional, national, and international movement of people and goods. Highway 7 (Lougheed Highway) is under the jurisdiction of the Ministry of Transportation and Infrastructure (MoTI), provides east-west access north of the Fraser River in addition to being an alternative to Highway 1 (Trans-Canada Highway). The Golden Ears Bridge is under the jurisdiction of TransLink and was opened in 2009; it connects Maple Ridge and Pitt Meadows to Langley.

Highway 7 is paralleled by Canadian Pacific (CP) railway tracks, serving both goods movement capacity and the West Coast Express, a commuter rail service terminating in Mission that provides one-way peak hour commuter access to downtown Vancouver. Maple Ridge has seen improvements to transit service with TransLink's introduction of RapidBus that connects Maple Ridge to Coquitlam Central Station in approximately 30 minutes.

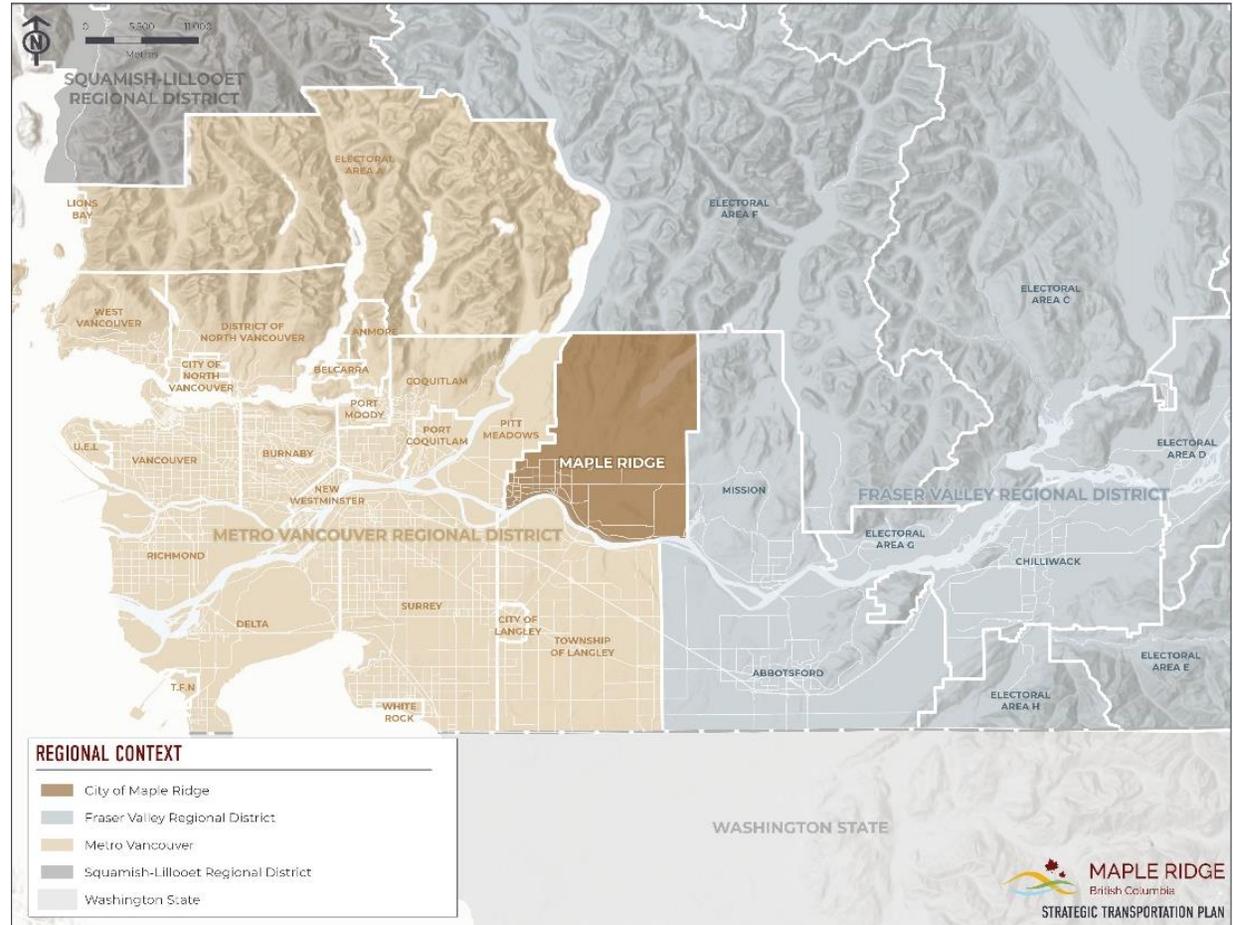
In addition, Maple Ridge has experienced rapid population growth and a transformation from a rural community to a regional hub – the City is challenged with maintaining and improving a large transportation network relative to its' population size. This section summarizes the key factors that shape mobility patterns in Maple Ridge.

2.1 GEOGRAPHY

The City of Maple Ridge is located on the northeastern corner of Metro Vancouver, nestled between the Fraser River to the south and the Golden Ears Mountains to the north.

As shown in **Figure 2-1**, Maple Ridge is situated 45 kms from Downtown Vancouver and 41 kms from the United States border. It is located between the growing communities of the City of Pitt Meadows to the west and the District of Mission to the east. The City's proximity to Downtown Vancouver and other employment hubs in the region, as well as its' relative affordability has attracted new families to the community at growing rates.

Traditionally an agricultural region, the community strives to maintain its roots and natural landscape with 15% of the land base Agricultural Land Reserve and 60% forested area.



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Figure 2-1: Maple Ridge in the Regional Context

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN

STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

The transportation network continues to grow as new neighbourhoods develop and existing neighbourhoods evolve. As illustrated in **Figure 2-2**, Maple Ridge has many unique neighbourhoods and historic centres that span more than 260 km² of land.

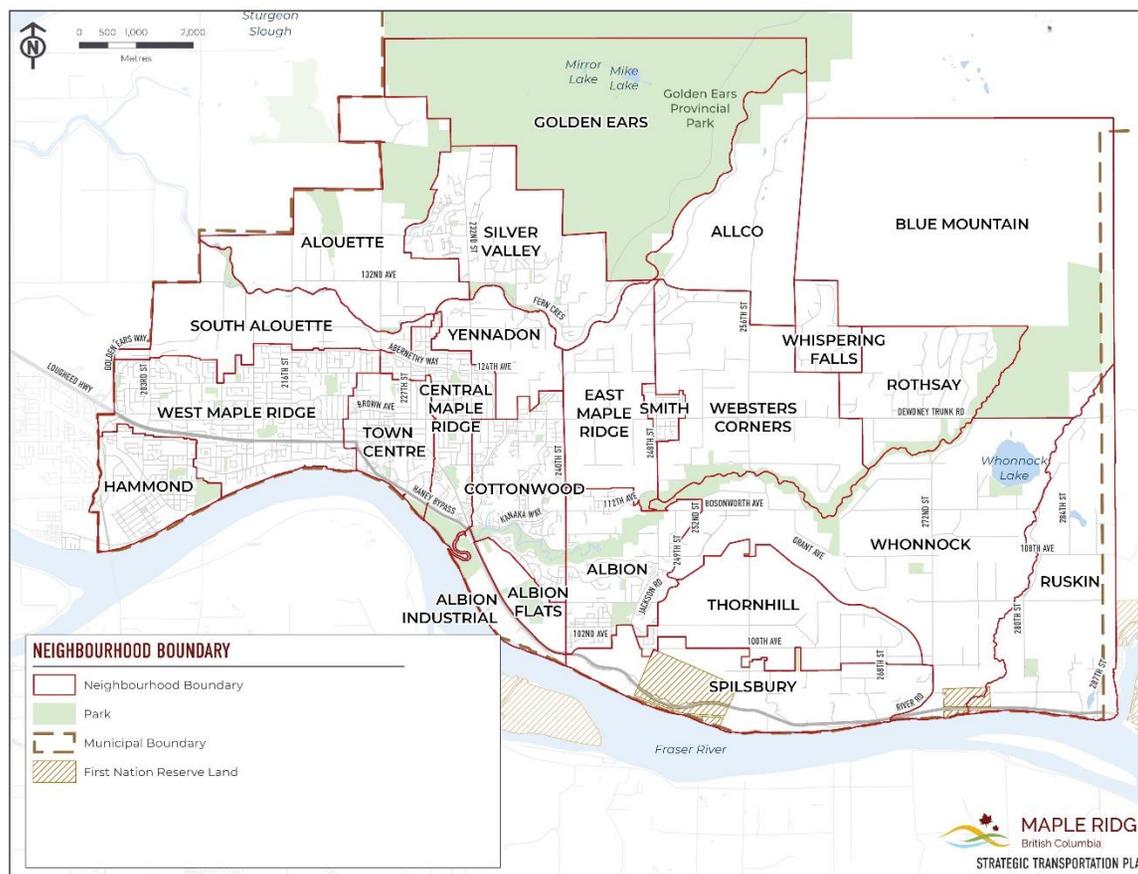


Figure 2-2: Subareas and Town Centre

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STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

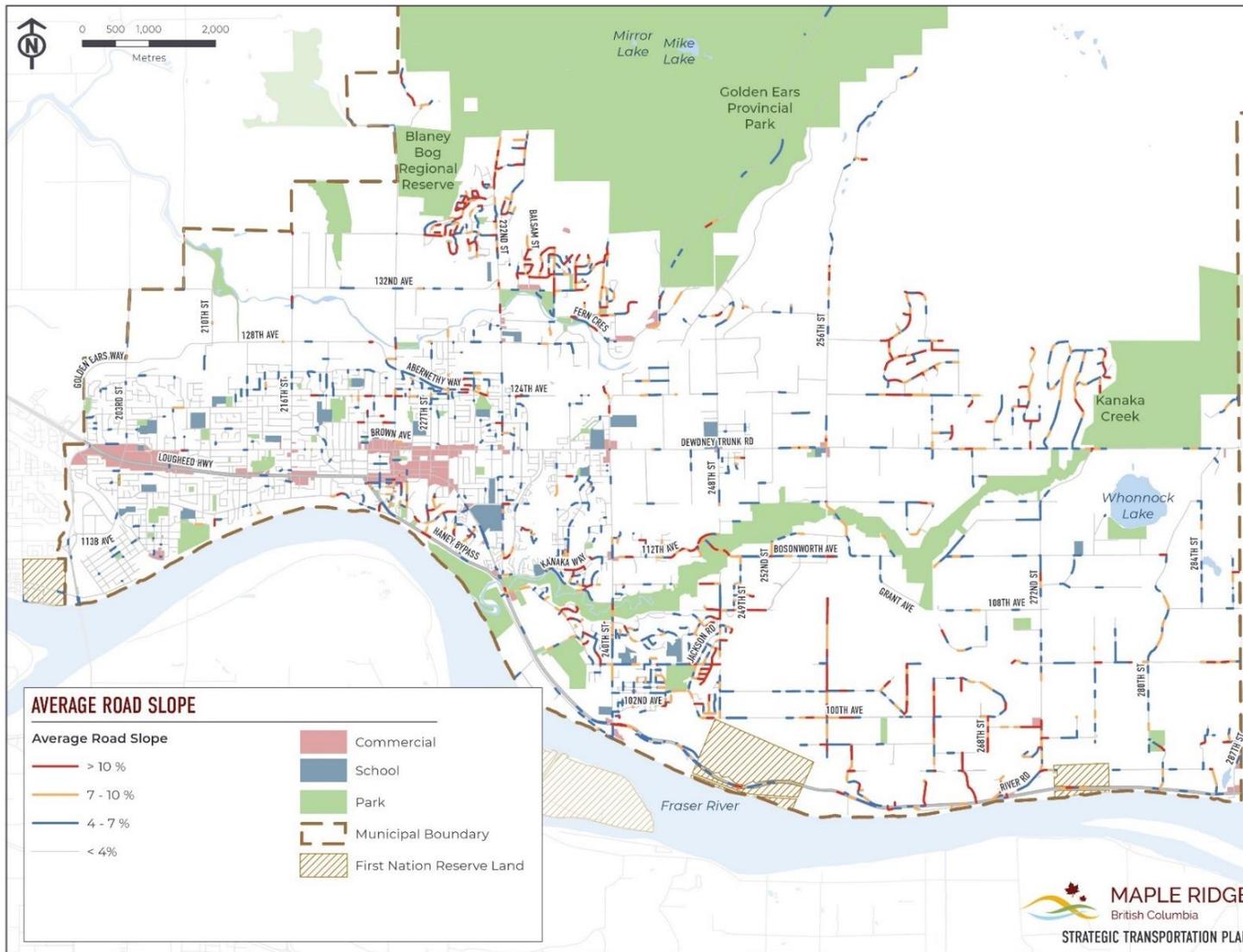
Maple Ridge is home to many rivers, lakes, trails, and parks such as the Alouette River and Golden Ears Provincial Park. As illustrated in **Figure 2-3**, the north is rugged and mountainous, and the western section is flat and open. The community is well-known for its beautiful and diverse landscape, but the natural barriers present unique challenges to growing and maintaining an efficient transportation system, especially amid rapid population growth.

This changing terrain creates a range of road grades across the City, as illustrated in **Figure 2-4**. Most roadways in the core and eastern areas are flat. With grades less than 4%, these roadways are typically comfortable for walking and cycling. Some roadways to the north and east have slopes exceeding 10%, which can be challenging for active transportation, transit, and heavy vehicles.



Figure 2-3: Topography

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STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS



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Figure 2-4: Average Road Slope

2.2 HISTORY

The City of Maple Ridge is located on the traditional, ancestral territories of the Katzie and Kwantlen since time immemorial. Traditionally, Maple Ridge was known by its hənq̓əminəm̓ name Q'wa?acstan' which translates into “place where the golden eagles are.” As pioneers came to the area via the Fraser River, the land became the District of Maple Ridge – one of B.C.'s first municipalities – in 1874.

Hammond, Whonnock, Webster's Corners, Ruskin, Albion, and Yennadon were established as separate neighbourhoods that identified with a significant cultural group or historical event. In 1895, when the Canadian Pacific Railway was completed, Maple Ridge grew enormously. The area has been home to fruit, dairy, and poultry farming with 15% of the land base as Agricultural Land Reserve in addition to forestry activities. Over time, Maple Ridge has grown, with the population more than doubling in 30 years and is projected to continue growing to 108,900 in 2031. The District incorporated to become the City of Maple Ridge in 2014, marking the region's growth and urban transformation.

Maple Ridge Town Centre is identified as one of seven Regional City Centres in Metro Vancouver's Regional Growth Strategy *Metro 2040: Shaping Our Future*. As one of the regional district's most eastern borders, Maple Ridge can play a key role in growth management.

2.3 DEMOGRAPHICS

2.3.1 POPULATION AND EMPLOYMENT

The City of Maple Ridge has been one of the fastest growing municipalities in the region, more than doubling its population over the last 30 years and is projected to sustain a steady growth rate to reach nearly 125,000 people by 2050. **Figure 2-5** displays the historic and projected growth trends for population in Maple Ridge.

Currently, there are approximately 30,000 jobs located within Maple Ridge – or about 2.93 residents per job. This is lower than the Metro Vancouver average of around 2.0 people per job. Looking forward to 2050, employment opportunities are expected to grow at a slightly faster rate than the population at 1.15% versus 1.10%, reaching more than 43,000 jobs by 2050. This increase in local employment opportunities is expected to enable more people to live and work within Maple Ridge and reduce the directionality of traffic during peak periods. To accommodate this growth in population and employment, Maple Ridge will need to strategically plan its growth and supporting transportation network. Although agriculture has historically been an economic driver in Maple Ridge, construction and retail trades represent the largest employment sectors in the city. The city's labour force is commuter reliant, with 61% of the labour force¹ commuting out of the City for work.

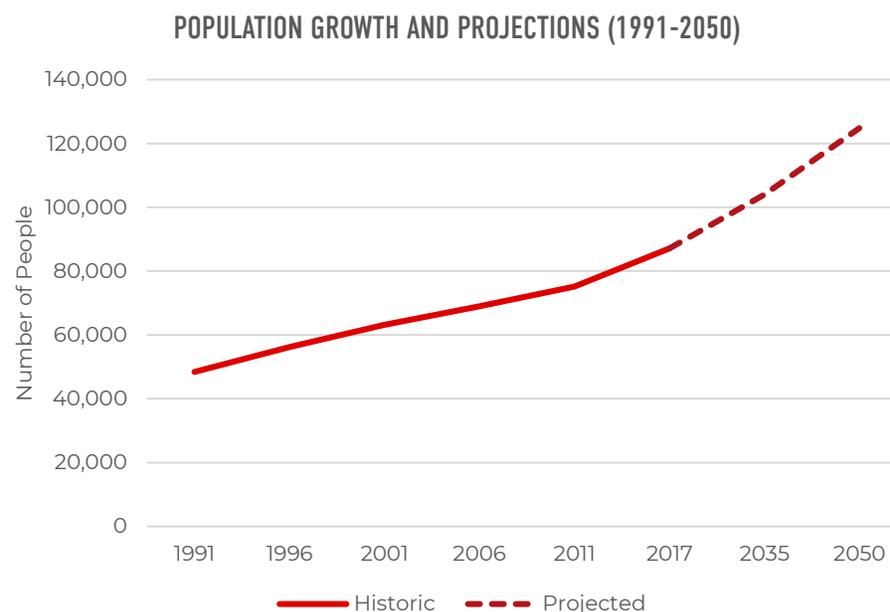


Figure 2-5: Population Growth

Source: Statistics Canada Census Data (Historic) Regional Transportation Demand Model (Projection)

¹ Source: Statistics Canada Census Data (2016)

2.3.2 POPULATION DENSITY & TRENDS

Population density is increasing in Maple Ridge. The land area of the City of Maple Ridge is 266.78 square kms and the population density in 2015 was 308.3 people per square km, up 7.5% from 2011 with 285.1 persons per square km.

This increase in population density has been focused in the Town Centre, Central Maple Ridge, West Maple Ridge, and Cottonwood with redevelopment to higher density residential and mixed uses (**Figure 2-6**). At the same time, the community has retained its agricultural roots in many areas. Some neighbourhoods – including Silver Valley and Albion – are transitioning towards suburban development patterns. As the population is forecasted to grow by 50% by 2041, half of that new residential growth is expected to take place in the Town Centre.

Transportation infrastructure in higher density areas can serve more people with a lower overall investment and operational costs – this is especially true for active transportation infrastructure and transit service.

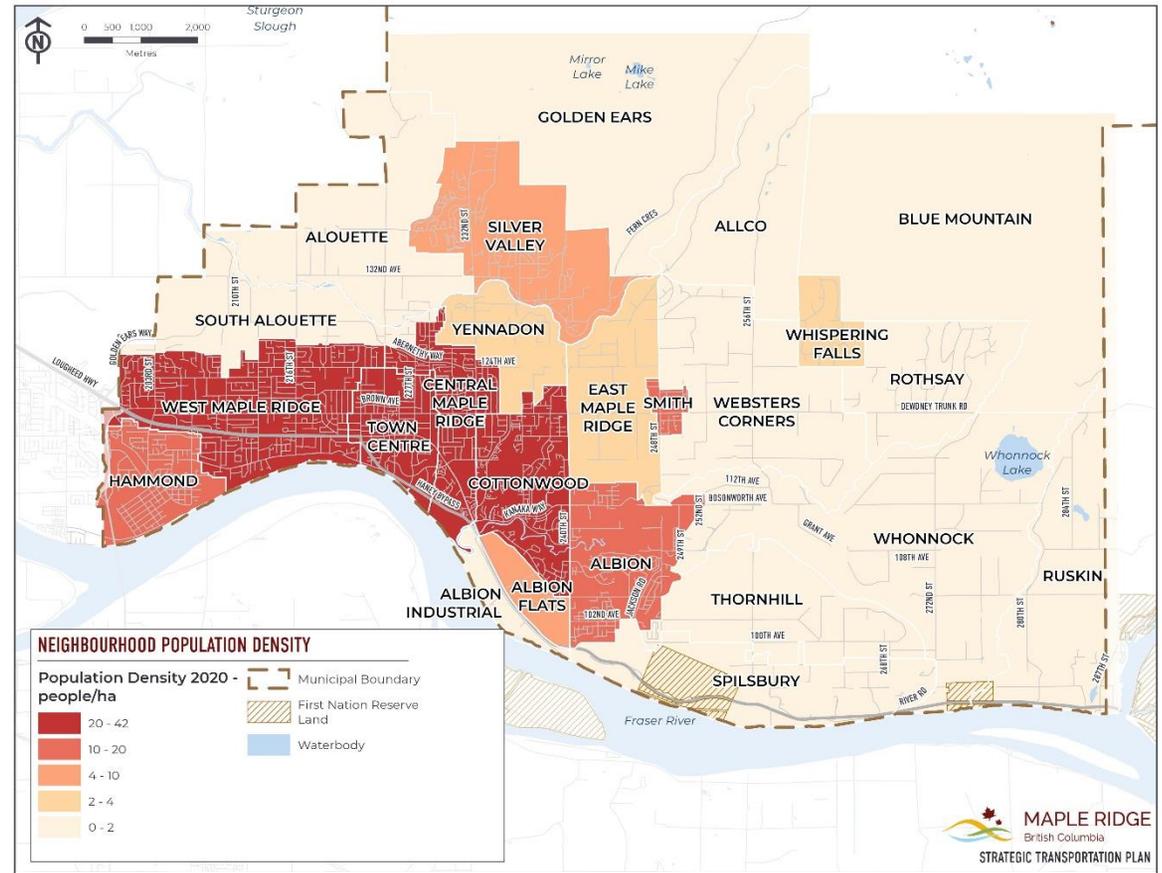


Figure 2-6: Current Population Density by Subarea

Source: Statistics Canada Census Data

2.3.3 AGE PROFILE

Maple Ridge is a relatively young, diverse, and growing community. The average age in Maple Ridge is approximately 40.1 years old (median 41.4). The average age has not changed much since 2011, when the average age was 40.2 years. The average age in Maple Ridge is consistent with the rest of the Metro Vancouver region. **Figure 2-7** highlights the population by age group, with 68% of the population between 15-64 and 17.5% under the age of 14.

Much of Maple Ridge has a family-oriented population with a higher proportion of youth aged 19 years and younger. The largest youth cohorts are between the ages of 15-19 years old (7% of the population), 10-14 years old, and 5-9 years old, each representing 6% of the population. As a result, many families in Maple Ridge have school aged children attending school, daycare, and extracurricular activities throughout the community. The rates of driving for these trips, especially to and from school, have increased across the region significantly, causing morning and afternoon peak congestion, safety concerns, and health problems. **Figure 2-8** shows the current concentration of youth between the ages of 0-14, and where emphasis should be paid to child and youth-friendly transportation infrastructure and programming.

The largest adult population cohort is between the ages of 50-54 years old, representing 8% of the population in Maple Ridge. This age cohort, along with others from the 'Baby Boom' generation are likely to require enhanced transportation options in the coming years. Seniors, like children and youth, have different travel patterns than other adult population age cohorts with varied schedules, in addition to a need for high quality transit services and accessible transportation infrastructure. **Figure 2-9** shows the current concentration of seniors in Maple Ridge, and should the focus of increased investment into these offerings.

Figure 2-8 illustrates that the Sliver Valley, Albion, and Cottonwood subareas have the highest concentration of youth. This reflects the growing neighbourhoods of more affordable housing types in these areas and the influx of younger families. The Town Centre has the highest concentration of seniors, with more than 20% of Town Centre residents being over the age of 65 and less than 10% being under the age of 14. Accessible transportation infrastructure – and in particular, walking / rolling infrastructure and access to transit – are important in areas with high concentrations of seniors.

POPULATION BY AGE GROUP, 2016

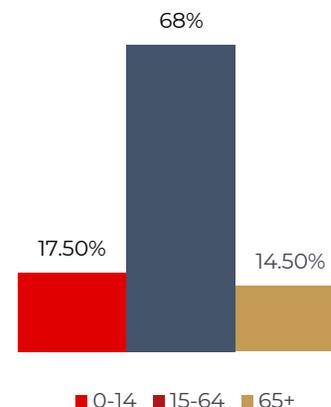


Figure 2-7: Population by Age Group

Source: Statistics Canada Census Data

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 STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

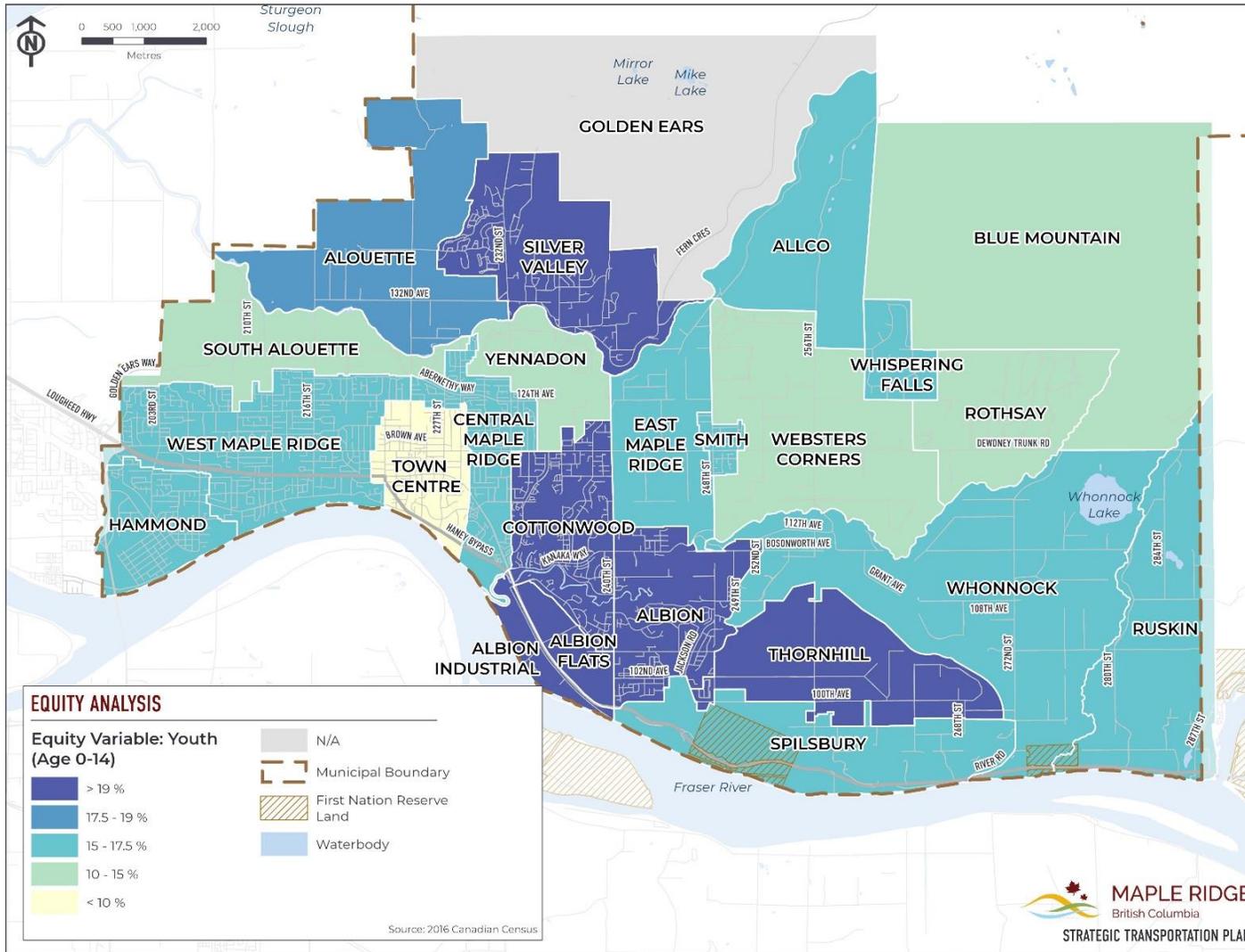
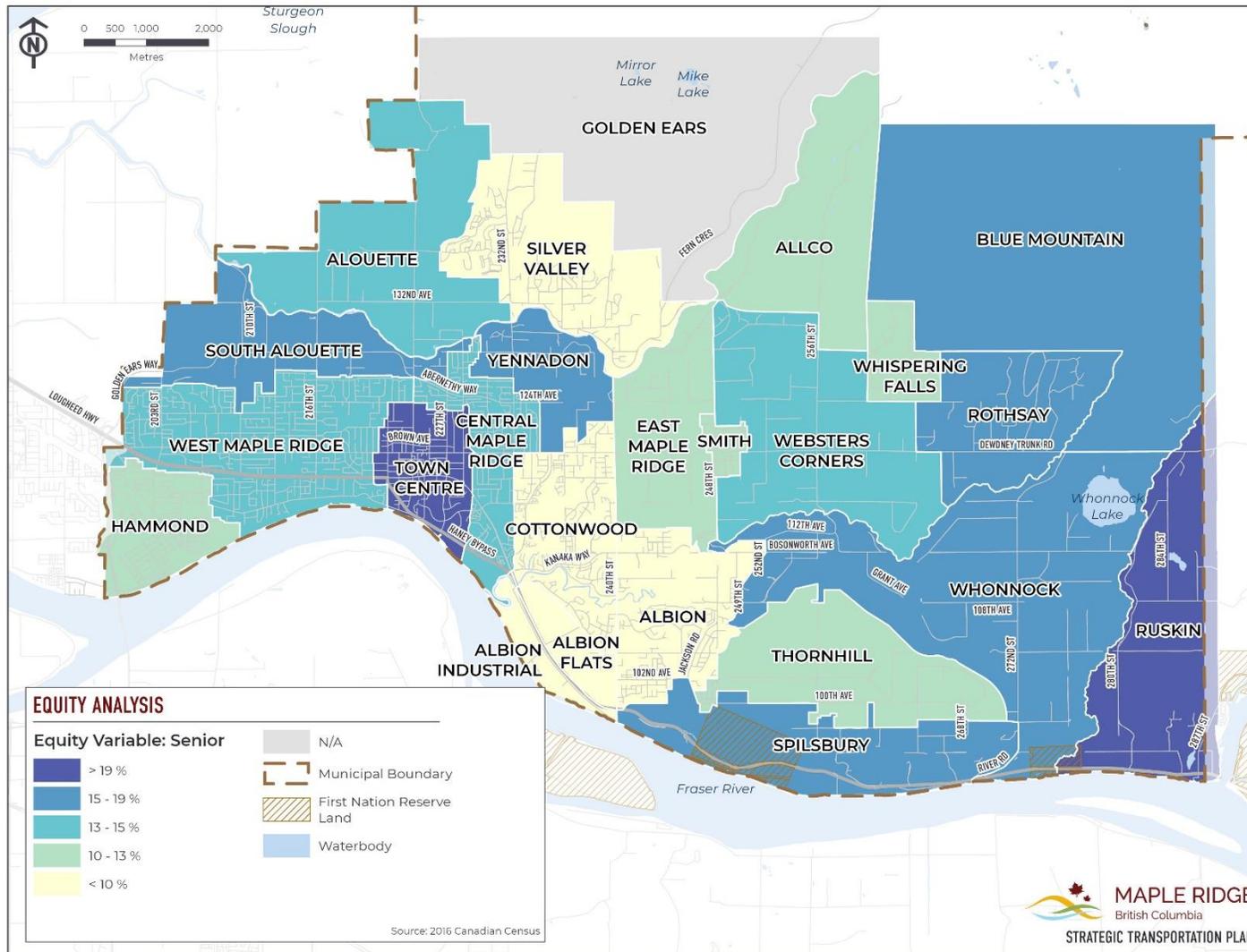


Figure 2-8: Concentration of Youth by Subarea
 Source: Statistics Canada Census Data

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 STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS



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Figure 2-9: Concentration of Seniors by Subarea
 Source: Statistics Canada Census Data

2.3.4 HOUSEHOLD SIZES TRENDS

As with most Canadian communities, the average household size in Maple Ridge has been declining steadily over the last three decades. This trend is illustrated in **Figure 2-10**. As of 2011, the average household size in Maple Ridge was 2.71 persons per dwelling and has maintained that number, based on 2016 Census Data. As a result of declining household sizes, housing in Maple Ridge has been growing at a faster rate than the City's population over the last 30 years. This trend towards smaller household size has been tempered by the City's draw for young families in their child rearing years. As a result, Maple Ridge has a much higher average household size than most other communities in Metro Vancouver (Maple Ridge - 2.77 people per household (2016), Metro Vancouver - 2.56 people per household (2016)) which can be attributed to the appeal of the City to young families.

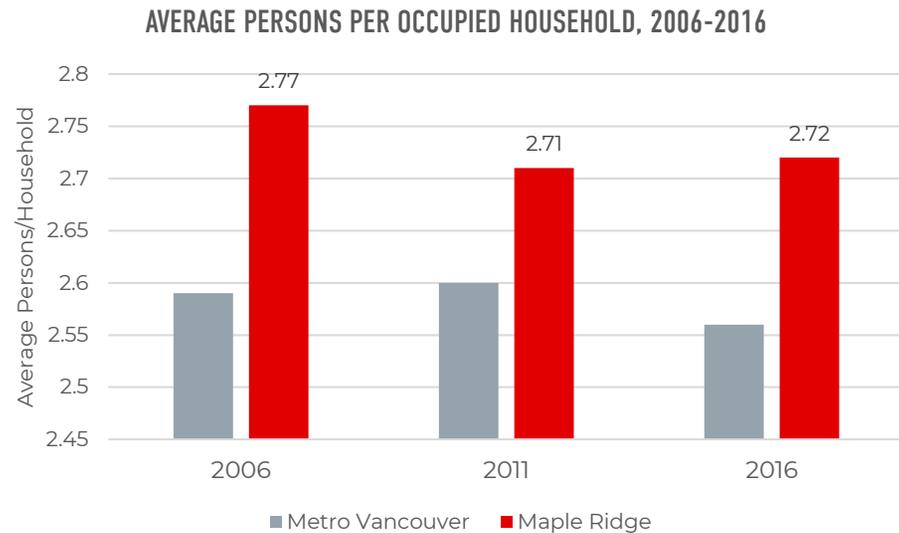


Figure 2-10: Average Household Size

Source: Statistics Canada Census Data

2.3.5 INCOME TRENDS

As the city grows, the level of income in Maple Ridge has also been changing. Median income in Maple Ridge has been steadily increasing since 1996 to \$37,508 annually. **Figure 2-11** shows the increase of individual median income. Understanding income trends and its impacts on the community will help to better understand equity issues, how to address transportation issues and shift mode share.

Maple Ridge also has a relatively small low-income² population with 10% of the population classified as low income, compared to B.C. (15.5%) and Metro Vancouver (16.5%). Maple Ridge has some of the most affordable residential real estate in Metro Vancouver and a young, fast-growing population. However, the availability of affordable housing is an issue for rental accommodation. There is a need for diverse forms of affordable housing ranging from studio units for single adults to three-bedroom units for families. The demand for seniors housing is anticipated to increase as the population in Maple Ridge and the Lower Mainland ages over the coming decades.

At the same time, Maple Ridge has experienced an influx of people who identify as homeless or are experiencing homelessness. A recent homeless count across Metro Vancouver found 124 individuals in Maple Ridge and Pitt Meadows, up from 44 counted in 2005, a 182% increase in people identifying as homeless in the area.³

INDIVIDUAL MEDIAN INCOME, 1996-2016

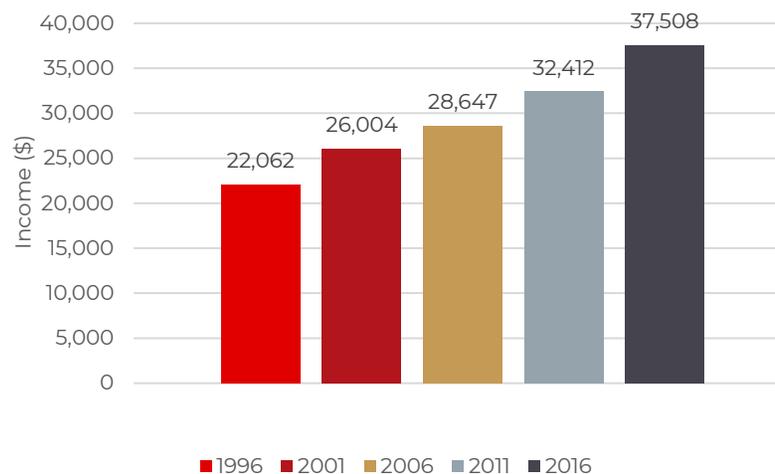


Figure 2-11: Median Income
Source: Statistics Canada Census Data

² Low-income status is determined based on low-income measure, after-tax (LIM-AT). For a one-person household, the after-tax low-income measure (LIM-AT) was \$22,460 in 2015. For larger households, this amount was adjusted upward by multiplying it by the square root of household size. Persons in a private household with after-tax income below this threshold were considered to be in low income. (<https://www12.statcan.gc.ca/census-recensement/2016/as-sa/fogs-spg/Facts-CMA-Eng.cfm?TOPIC=6&LANG=Eng&GK=CMA&GC=933>)

Source: 2017 Homeless Count in Ridge Meadows Data Brief, BC Non Profit Housing Association and M Thomson Consulting (2017)

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN
 STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

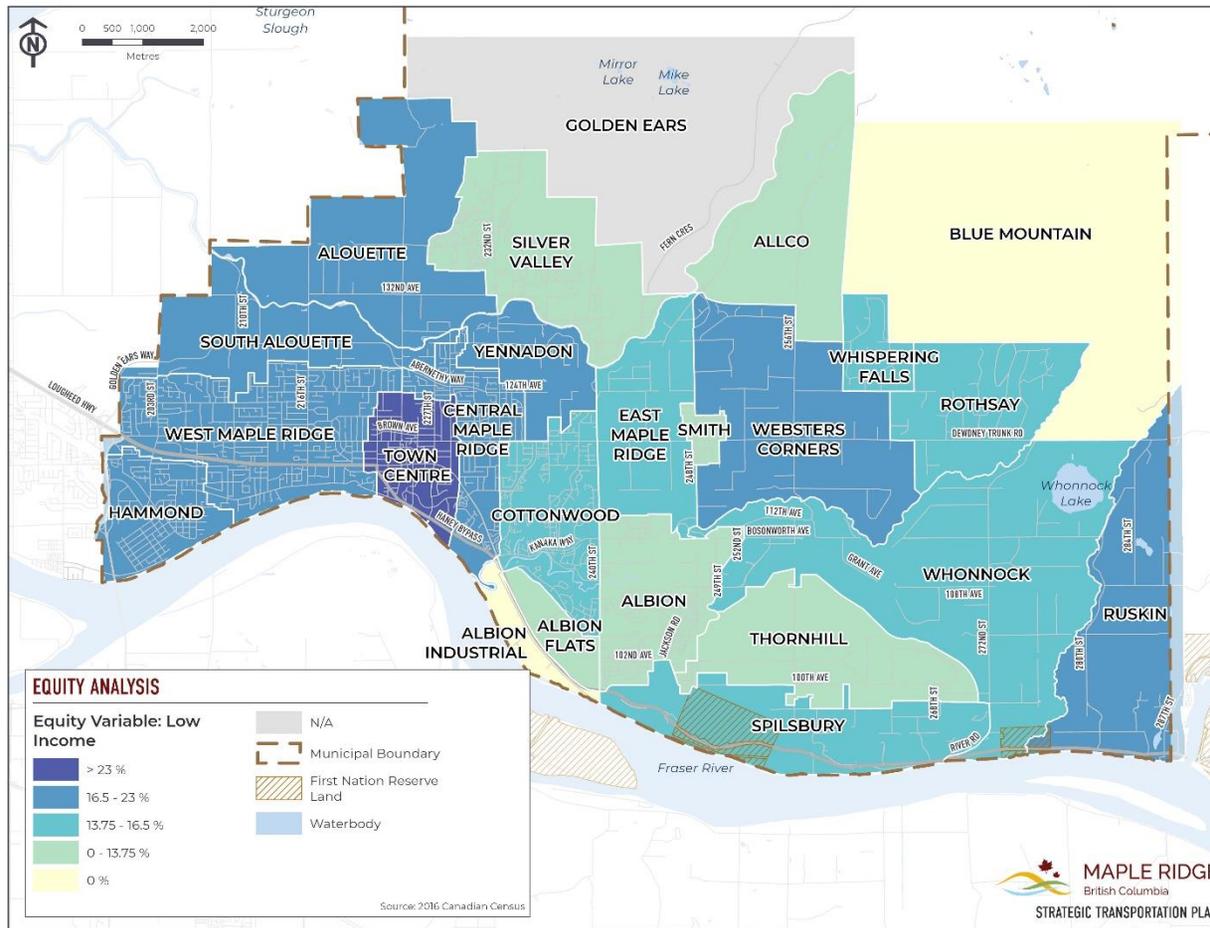


Figure 2-12: Concentration of Low-Income Households

Based on LIM-AT. Source: Statistics Canada Census Data

Low-income households are not distributed evenly across Maple Ridge's neighbourhoods. As illustrated in **Figure 2-12**, more than 23% of households in the Town Centre are low income, while less than 13% of households in Silver Valley and Albion are low income. People in low-income households may rely more on transit, walking, or cycling to access their daily needs; however, some low-income households may also rely on jobs and services that are difficult to access by transit and require a private vehicle.

2.4 LAND USE CONTEXT & COMMUNITY DESTINATIONS

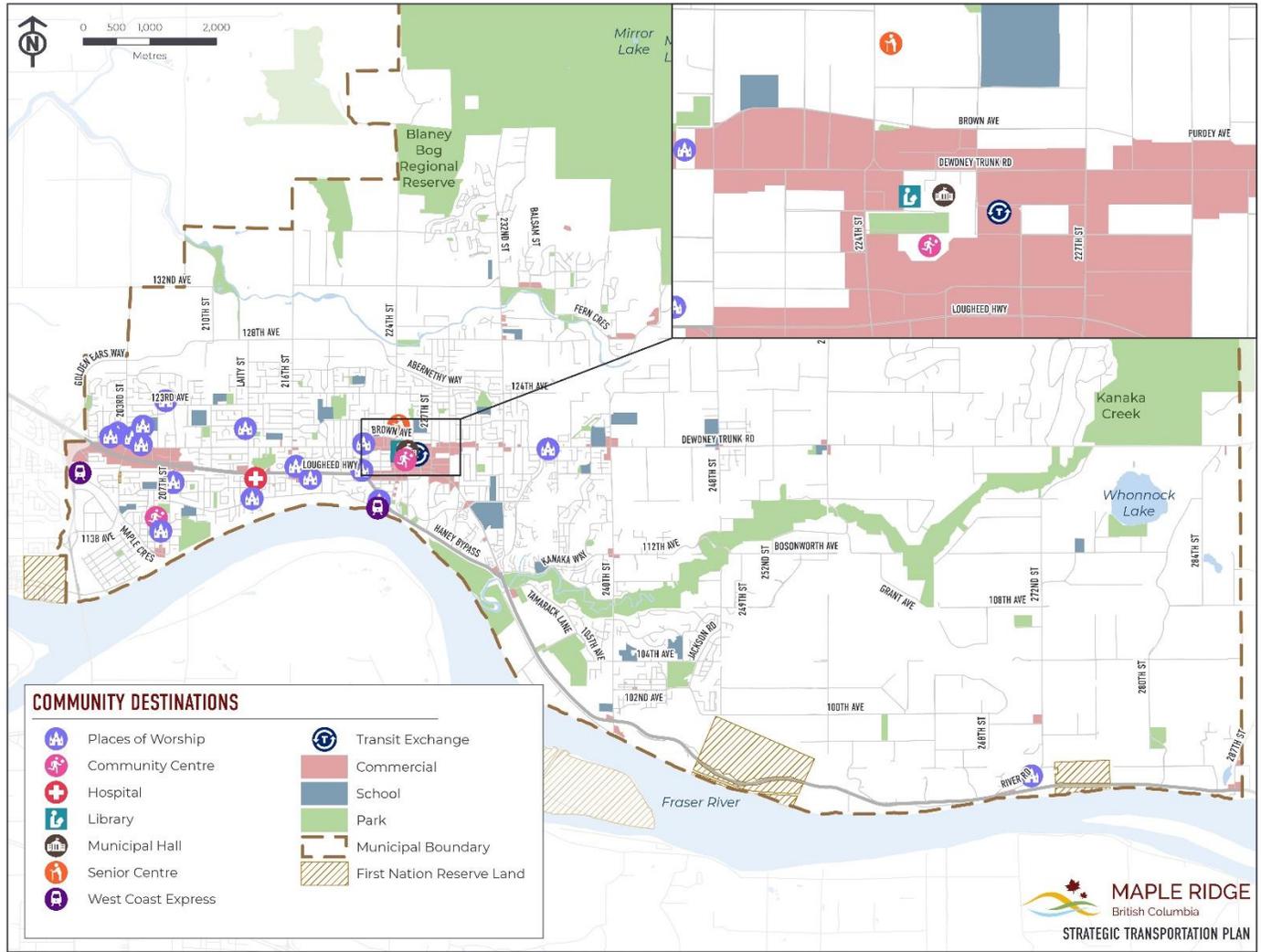
The City of Maple Ridge contains a mixture of urban, industrial, rural, and natural environments. Key land uses in the City include the amenities within the Town Centre, and a number of schools and parks. The OCP notes that nodes within Maple Ridge include historic commercial centres, village commercial nodes, and community commercial nodes. Just beyond the borders of Maple Ridge, Meadowtown Centre in Pitt Meadows and Fremont Village in Port Coquitlam attract shoppers. Key community destinations, including schools, community centres, the seniors' centre, the library, the hospital, parks, retail, and transit stations are identified in **Figure 2-13**.

The core area of Maple Ridge is a neighbourhood of unique character and opportunity. The Town Centre shoulders Highway 7 and includes lands as far north as 124th Avenue, west to 221st Street, and east to Burnett Street. Many amenities are housed in this area, including historic points of interest, a central business district, the Municipal Hall, and a West Coast Express station.

Outside of the core area, Maple Ridge is characterized by rural land, forest, and waterbodies, including Golden Ears Provincial Park, Alouette Lake, and other recreational areas which attract visitors from across the region to recreate and visit the stunning landscape. Approximately 15% of Maple Ridge is Agricultural Land Reserve (**Figure 2-14**). Land use throughout Maple Ridge is illustrated in **Figure 2-15**. The City's OCP and Area Plans guide future growth. Area plans such as the Albion Area Plan, Lougheed Corridor Concept Plan, and the Town Centre Area Plan support increasing residential density in these areas. The STP must respond to growth, which creates opportunities to deliver safe, comfortable, multi-modal transportation options. In particular, growth areas that add density or increase services can be an opportunity to realize higher walking, cycling, and transit mode share. Density can also create challenges for demand, as well as for other amenities, such as access to greenspace.

The **Agricultural Land Reserve (ALR)** is a collection of agricultural land throughout the province where agriculture is the priority use. There is 47,000 square kilometers of ALR in British Columbia, of which approximately 38 km² is in Maple Ridge. ALR faces and creates unique pressures in Maple Ridge – a desire by the community to maintain its roots and rural character by maintaining ALR and development pressures to support the growing community.

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN
 STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS



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Figure 2-13: Community Destinations

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN
STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

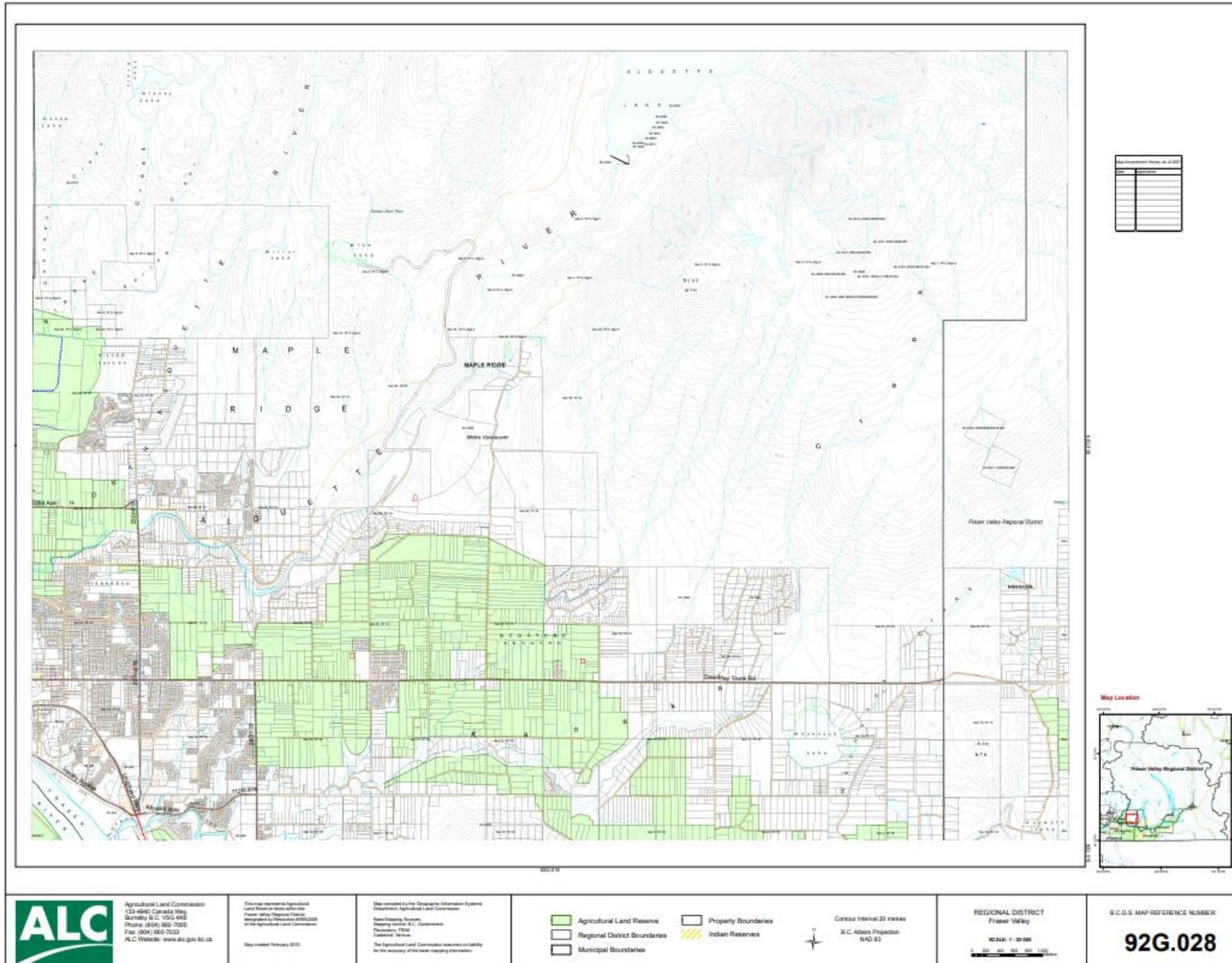


Figure 2-14: Agricultural Land Reserve

Source: Provincial Agricultural Land Commission

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN
STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

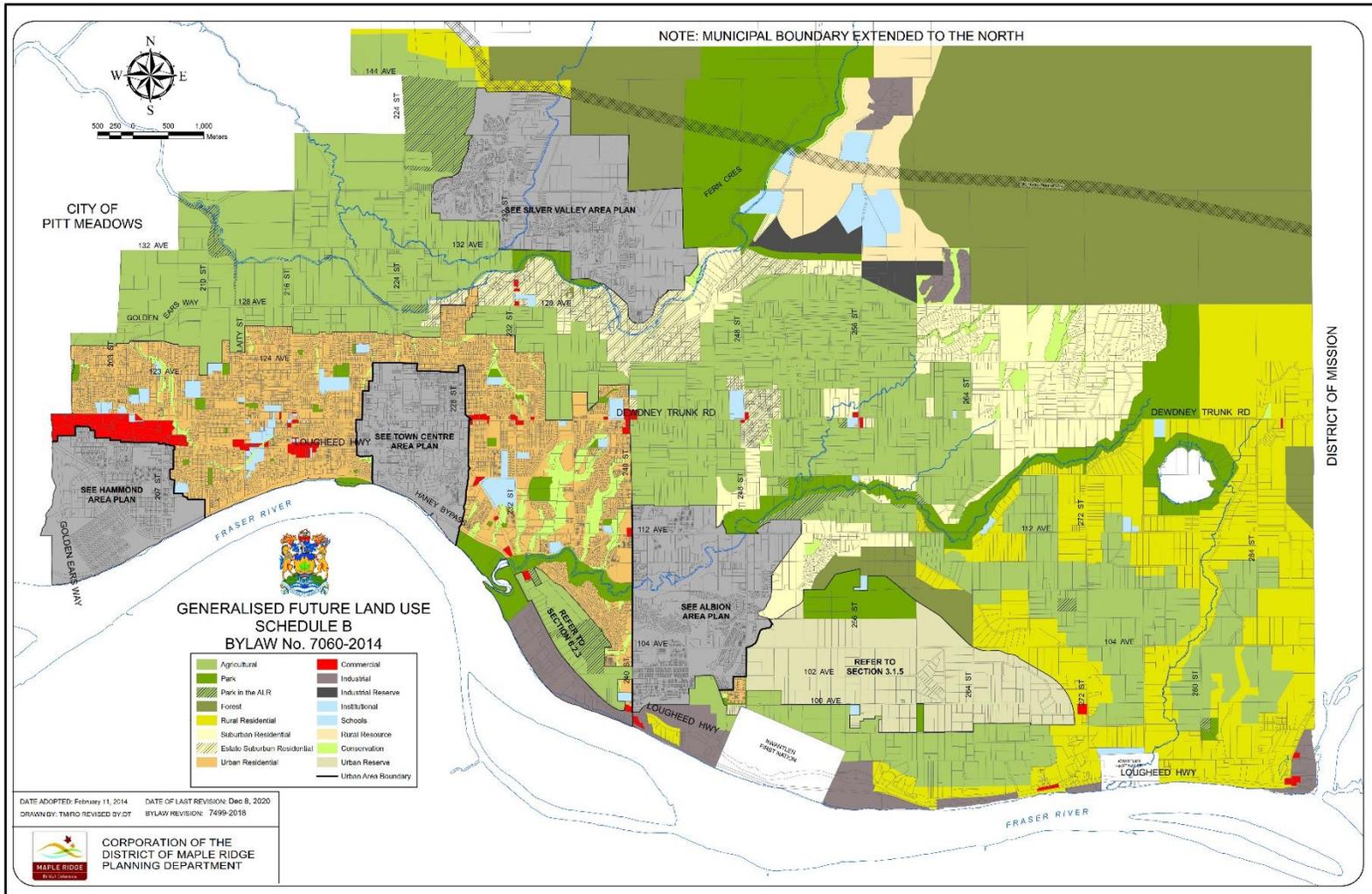


Figure 2-15: Land Use Designation
 Source: City of Maple Ridge Official Community Plan (2014)

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN

STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

The Town Centre is where the most growth is expected in Maple Ridge in future years and the most recent Zoning Bylaw update supports density within the Town Centre. **The Town Centre Area Plan** encourages increasing residential and commercial density, with a mix of housing types that cater to a broad mixture of uses, including shops, services, cultural facilities, and recreation. The land use plan aims to increase density with a result of 70 to 100 persons per hectare with an additional 6700 units, particularly within the Central Business District. The Town Centre Area Plan also identifies several new park locations, a Green Corridor Network, and a Waterfront Network. The proposed Town Centre Transportation Network from the Official Community Plan provided context and served as a foundation for development of Long-Term Cycling Network developed as part of the 2014 Strategic Transportation Plan as noted in **Figure 2-17**.

The **Lougheed Transit Corridor Concept Plan** aims to create a dense, mixed-use corridor along Lougheed Highway, that will facilitate future rapid transit. The Lougheed Transit Corridor Concept Plan supports the creation of two mixed-use high-density transit-oriented development nodes where Lougheed Highway intersects with 203 Street and Laity Street. These two transit nodes are intended to be places for people to live, shop, work, and play and will be served by RapidBus and potential LRT or BRT as outlined in the Draft TransLink Transport 2050 Plan. The 203 Street node will be a transit-oriented community with a range of residential developments within walking distance of RapidBus. The plan includes four 'high streets' connecting Dewdney Trunk Road and Lougheed Highway – 203 Street, 207 Street, Laity Street, and 216 Street. The 'high streets' are envisioned as pleasant, walkable destinations with local shopping and employment.

A greenway between is planned to connected the Town Centre to the western City boundary to enhance mobility choice and to create re-imagined green spaces that connect people, and nature.

Figure 2-17 illustrates the draft concept plan for the Lougheed Transit Corridor, including the planned greenway and transportation connections.



Figure 2-16: Town Centre Transportation Network
Source: City of Maple Ridge Official Community Plan (2014)

DRAFT CONCEPT PLAN



Lougheed Transit Corridor

A **Connected Community** where diverse families can put down roots, completing errands takes you through parks and open spaces, commuting within Maple Ridge can count as exercise, and green spaces form the heart.

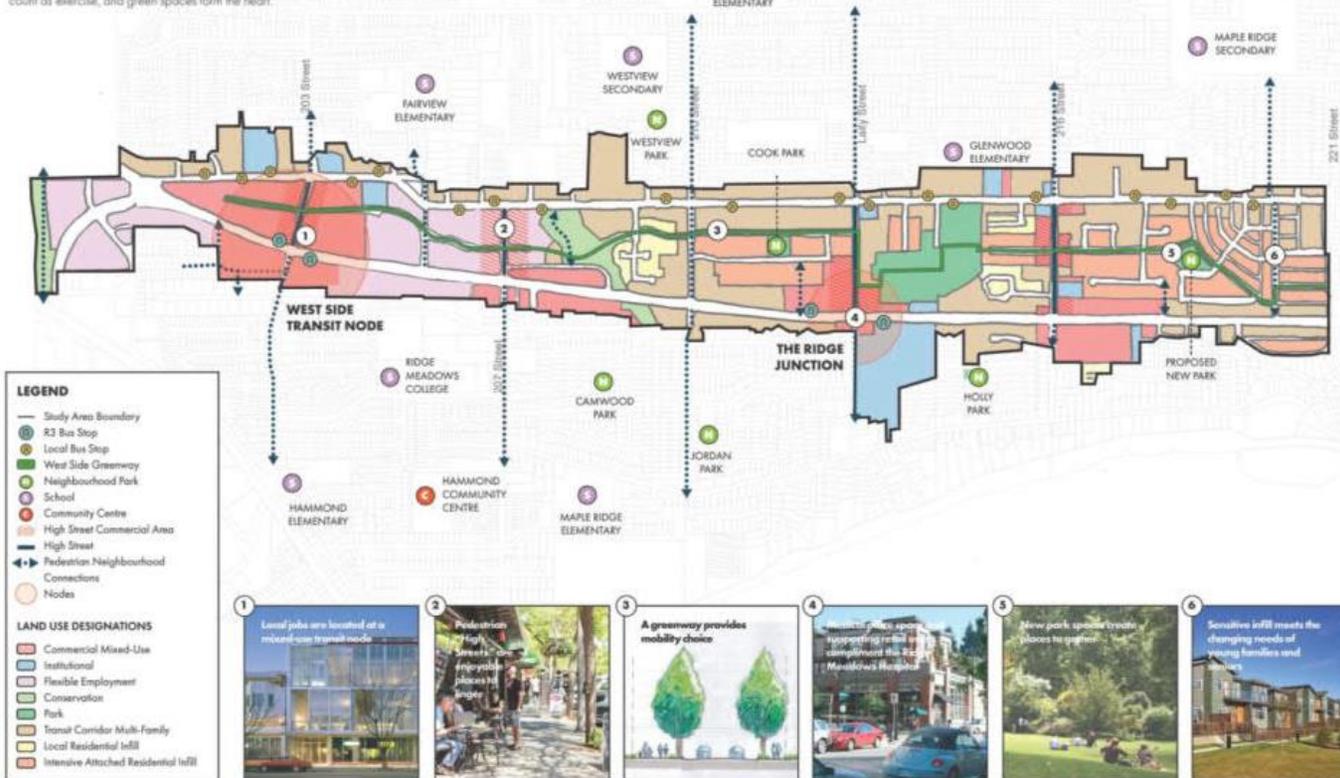


Figure 2-17: Lougheed Transit Corridor Draft Concept Plan

Source: Lougheed Transit Corridor Concept Plan (Draft, 2019)

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN

STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

The Hammond Neighbourhood, which houses a West Coast Express station, is guided by the Hammond Area Plan. This plan allows single-family dwellings, duplexes, and triplexes to provide for some increased density, while maintaining the existing single-family form and neighbourhood character. The Hammond Area Plan calls for improved accessible pedestrian connectivity, transit service, and a new multi-modal rail crossing between the Hammond Business Park and Lower Hammond. **Figure 2-18** illustrates connectivity improvements identified in this plan.

Maple Ridge is interested in pursuing mixed-use urban development in the Albion Flats area, much of which is currently Agricultural Land Reserve. The urban development of the Albion Flats Area would promote mobility choice through transit and active transportation options, such as a transit node with a West Coast Express station, trails, green links and a waterfront trail. A portion of the area, North East Albion, has its own area plan. The North East Albion Concept Plan proposes a co-located park and elementary school with a sports field, playground, and pathways to meet the needs of the growing community. For example, a Spine Trail will connect the northern portion of the area to the school.

The Thornhill neighbourhood is 560 hectares of largely undeveloped land in eastern Maple Ridge. The majority of the area is currently designated as Urban Reserve and the OCP identifies potential for future residential development after the remainder of Maple Ridge's residential neighbourhoods are built out. At the time of writing of this report, the City is exploring future potential for employment lands in the Thornhill area. Future development would require a detailed transportation study to determine the alignment and capacity of future multi-modal transportation connections.

There are also a number of areas where greenfield development is anticipated, including Silver Valley and Albion. These areas include a mix of low, medium, and high density residential served by schools and pockets of commercial uses. The Silver Valley Area Plan aims to create a complete community with a diverse mixes of housing types and integrated land uses. The streets in the area are to be designed for people and to accommodate traffic generated by a population of 11,000 residents and much of the growth

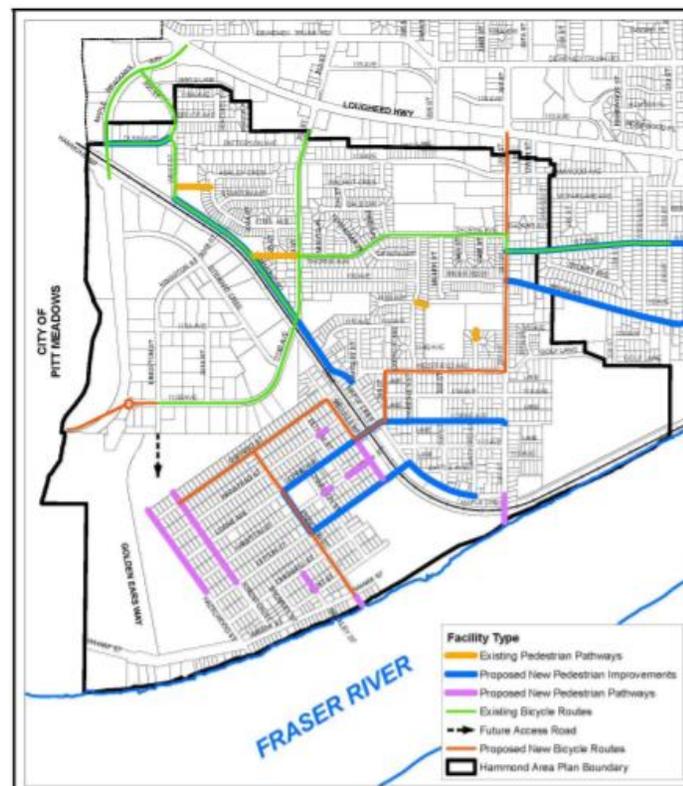


Figure 2-18: Hammond Area Plan Connectivity Map

Source: Hammond Area Plan (2017)

in Maple Ridge. The Silver Valley Area Plan identified three elementary and one Secondary school site equally distributed throughout Silver Valley in order to provide short walking distances for students. At the time of writing of this report, none of the schools have been constructed. This has resulted in challenging school transportation conditions around Yennadon Elementary School and Garibaldi School, which were not intended to serve the growing local population of these areas.

2.5 POLICY CONTEXT

The Maple Ridge STP is closely linked to several other Acts, plans, and policies at the local, regional, and provincial levels. These documents set the overarching goals, visions, and objectives for land use, transportation, and other key long-term planning considerations in the City of Maple Ridge and beyond.

2.5.1 REGIONAL CONTEXT

Metro 2040: Shaping Our Future – Regional Growth Strategy (2011), Metro Vancouver

The City of Maple Ridge is a member municipality of Metro Vancouver and has adopted the Regional Growth Strategy, *Metro 2040*, which sets out goals, strategies, and policies to guide the future growth of the region in order to accommodate the additional one million people and over 500,000 jobs expected over the next 25 years. It provides the land use framework for transportation, economic, housing, utility (water, liquid waste and solid waste), environmental, and climate change planning. Key goals include:

- Channeling growth into vibrant, livable Urban Centres,
- Supporting land use and transportation patterns that improve the region's ability to adapt to climate change,
- Building complete communities, and
- Integrating land use and transportation planning to support sustainable transportation choices, enable the safe and efficient movement of goods and people, and reduce greenhouse gas emissions.

Metro 2040 defines Maple Ridge as a Regional City Centre, whose land uses are mixed with frequent transit, regional-scale employment, major institutions, mixed housing stocks, industrial uses, and parks. It is projected that Maple Ridge will have a population of 132,000, and 48,000 jobs by 2040. As a result, Metro 2040 aims to increase dwelling units in all Regional City Centres by 11% to 162,000 and employment by 14% to 237,000 by 2041. Metro 2040 also aims to extend the Frequent Transit Network between Maple Ridge's Town Centre to Langley, Port Coquitlam and Coquitlam. Metro Vancouver also established the Urban Containment Boundary to prevent urban sprawl, with Maple Ridge being at the outer edge of the region.

Metro 2050: Regional Growth Strategy Update (Under Development), Metro Vancouver

Metro Vancouver is currently updating the Regional Growth Strategy to reflect significant drivers of change and integrate the strategy with TransLink's *Transport 2050*. The updated strategy (Metro 2050) is anticipated to be complete in 2022. It focuses on containing growth to compact, transit-oriented urban areas and corridors to reduce greenhouse gas emissions and support land use and transportation efficiency. The plan identifies both Urban Centres and Frequent Transit Development Areas where growth will be concentrated.

Goal 5 of the Draft Metro 2050 is to Support Sustainable Transportation Choices, including expanding opportunities for transit, walking, cycling, and multiple occupancy vehicles. Transportation strategies identified in Metro 2050 include coordinating land use and transportation to encourage transit, multi-occupancy vehicles, cycling, and walking; and to support safe and efficient movement of vehicles for people, goods, and services.

Transport 2040 (2008), TransLink

In 2008, the Mayors' Council prepared *Transport 2040*, which was designed to identify the strategies for Metro Vancouver's transportation future over the next 30 years through rolling 10-year implementation plans. *Transport 2040* outlines demographic, economic, traffic, and climate trends. It established six strategic goals and four strategies to achieving those goals, including investing in sustainable transportation, optimizing the region's assets, and finding innovative funding streams. Transport 2040 planned rapid transit connecting Maple Ridge Town Centre to Pitt Meadows and the Northeast Sector along Lougheed Highway.

Transport 2050 (In development), TransLink

Transport 2050 is a shared strategy for transportation in Metro Vancouver for the next 30 years, outlining transportation projects, services, and policies. It will cover all modes and explore new and emerging technologies, such as automated, connected, electrified, and shared transportation. Transport 2050 is currently being developed, with Phase 1 consultation complete. The Phase 1 Shaping Out Transportation Future, Together engagement report identifies six key themes, including providing more and better transit, building complete communities close to transit and amenities, and creating a transportation system that is efficient, cost-effective, and environmentally friendly.

In Phase 2 of the development of Transport 2050, TransLink has identified five overarching goals for transportation in the Metro Vancouver Region. These goals are that transportation is convenient, reliable, affordable, healthy, and carbon-free. This phase also identified three transformative actions: creating people-first streets, building out the next generation of rapid transit, and leveraging automated vehicles.

Regional Transportation Strategy: Strategic Framework (2013), TransLink

Following *Transport 2040* and *Metro 2040*, TransLink prepared a *Strategic Framework for the Regional Transportation Strategy (RTS)* in 2013 to guide planning and development of the transportation systems, with a goal of supporting the Regional Growth Strategy as well as regional economic and provincial objectives. The RTS set a target of 50% of all trips to be made by walking, cycling, and transit by 2040. The overarching goal is getting people and goods where they need to go as reliably, safely, efficiently, and cleanly as possible. The RTS lays out three key transportation levers to achieve this, including investing strategically to maintain and expand the transportation system, managing the transportation system to be more efficient and user-focused, and partnering at the local, regional, provincial levels to make it happen. Specific to Maple Ridge, the strategy recommends that the Lougheed Corridor into Maple Ridge support higher levels of service to support regional growth management objectives. The strategy is currently undergoing an update.

Maple Ridge-Pitt Meadows Area Transport Plan (2021), TransLink

The *Maple Ridge-Pitt Meadows Area Transport Plan (ATP)* establishes a “blueprint” for improving the transportation network in Pitt Meadows and Maple Ridge over the next ten years in a way that is responsive to local needs and consistent with regional objectives in *Metro 2040* and *Transport 2050*. The plan makes recommendations around transit service and infrastructure, walking, cycling, and regional roads and goods movement, ensuring that municipal land use and transportation plans support existing and expected land use and travel patterns.

Strategies include:

- Improving the frequency and hours of operation of transit service on some routes.
- Routing changes to make service more direct and functional.
- Road network improvements to increase speed and reliability.
- New services to regional destinations.
- Improvements to transit system access and amenities.
- Improved walking connections and amenities for the R3 RapidBus, FTN corridors, and the West Coast Express.
- Improved walking, safety, and accessibility with the Maple Ridge Town Centre and major employment areas, and along the Major Road Network.
- Complete the Major Bike Network and connect it to other destinations.
- Develop a cycling grid in the urban cores.

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN

STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

In response to local needs in Maple Ridge, the Final ATP includes four key recommended actions:

- Complete a corridor study along Golden Ears Way to assess and plan for capacity improvements between Lougheed Highway and 210 Street and advance any required improvements through existing funding programs or an Investment Plan process.
- Deliver expanded bus priority lanes along the Lougheed Highway corridor.
- Identify future potential travel demand in the North Albion area.
- Complete a West Coast Express Strategy to identify opportunities to increase service and provide an additional station near Albion.

Other Supporting Documents

- Cycling for Everyone: A Regional Cycling Strategy for Metro Vancouver (2011), TransLink
- Regional Transportation Investments: A Vision for Metro Vancouver (2014), Mayors' Council on Regional Transportation
- Climate 2050: Strategic Framework (2018, revised 2019), Metro Vancouver
- Lougheed Corridor Working Group Report (2019)
- Strategic Examination of Light Rail Transit (2007)

2.5.2 LOCAL CONTEXT

Council's Strategic Plan (2019)

Maple Ridge Mayor and Council created a plan to prioritize issues and opportunities facing the community, of which growth is a key item. Council has committed to implement strategic plans related to local infrastructure and the economy including commercial and industrial land base, transportation corridors, transit, neighbourhood plans, and key amenities. Council's strategic priorities are:

- Community Safety
- Inter-governmental relations
- Growth
- Community pride & spirit
- Natural environment

Official Community Plan (2014)

The *Official Community Plan (OCP)* outlines the long-term vision for growth and development in Maple Ridge and emphasizes a multi-modal transportation network that supports travel by all modes and for people of all abilities and growth management via density in the Urban Area Boundary. The OCP operates on the assumption that active mode share will become more attractive if facilitated through density. In May of 2021, the OCP was amended to adjust the City's community greenhouse gas emissions targets to align with the global reductions required to limit global warming to 1.5 degrees Celsius.

The vision of the OCP is:

“The District will strive to protect its Community Values into the future, as it becomes more vibrant and prosperous, offering residents a strong local economy, stable and special neighbourhoods, thoughtful development, a diversity of agriculture, and respect for the built and natural environments.”

The OCP includes 45 community principles. The principles that are most applicable to the STP include:

- Principle 8: Unique and enjoyable communities and places are created through community improvements, quality design, less obtrusive signage, pedestrian friendly environments, accessibility and viewscales.
- Principle 25: Providing access to nature by way of a trails system is important as a means to optimize recreational resources in an environmentally friendly way.
- Principle 34: An integrated system of centres or nodes is supported as an important framework for community development.
- Principle 38: Expanding services concurrently with development is regarded by the community as good planning and development practice.
- Principles 40: A well-planned transportation network is central to providing transportation choices that accommodate multi-modal transportation within the community, and connecting with other places.
- Principles 41: The need to address the east-west road capacity issue is recognized as important.
- Principle 42: Improved community bus service is important to provide connections between neighbourhoods and transit services.
- Principle 43: The community desires more frequent West Coast Express trains, with safer pedestrian access to stations.
- Principle 44: Adequate roadway capacity, especially for emergency vehicles, is an important component of developing new areas.
- Principle 45: Citizens value a pedestrian friendly environment that includes a trail network for horses, walking and cycling for recreation and access to amenities, employment, and services.

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN

STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

Zoning Bylaw (2020)

Maple Ridge updated the Zoning Bylaw for the first time since 1985 to better align with the City's current policies and regulations, to meet current Provincial legislative requirements, to respond to emerging market trends and address the City's sustainability goals and vision. The update divided the City into zones, including residential, commercial, industrial, institutional, agricultural and comprehensive development zones, concentrating density and growth along key corridors. These changes are reflected in the previous discussion of land use and community destinations.

Strategic Transportation Plan (2014)

The *Strategic Transportation Plan (STP)* addresses challenges and opportunities facing the transportation system in Maple Ridge around access and mobility, transportation choice, community and environment, and affordability. STP notes the growing population and emerging growth areas as indicators of why a more interconnected and multi-modal transportation is important. STP addresses a distinct part of the city's transportation system separately and by mode with a Road Network Plan, Pedestrian Plan, Bicycle Network Plan and Transit Strategy.

The goals for the STP are as follows:

1. Access and Mobility: provide for safe, convenient and accessible movement of people, goods and services throughout the City
2. Transportation Choice: provide residents and visitors with attractive choices for moving around the city and connecting with other areas of Metro Vancouver
3. Community and Environment: provide transportation infrastructure and services that enhance quality of life in Maple Ridge and the quality of the natural environments in the city.
4. Affordable Transportation System: provide transportation infrastructure and services in a cost-effective and efficient manner that makes best use of existing facilities and projected resources

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN

STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

Area Plans

Maple Ridge area plans focus on specific areas and their unique context to provide a greater level of detail for land use, density, form, character and the pacing of development. The following area plans guide the development of new communities or the redevelopment of existing ones:

- Albion Flats Concept Plan (Endorsed)
- Albion Area Plan
- Hammond Area Plan
- North East Albion Land Use and Servicing Concept Plan (Endorsed)
- Silver Valley Area Plan
- Town Centre Area Plan
- Lougheed Transit Corridor Concept Plan (Endorsed)

In the future, area plans will be developed for the historic communities The Ridge, Port Haney/Haney, Yennadon, Webster's Corners, Whonnock, and Ruskin. Work is currently ongoing to determine the future of the Thornhill neighbourhood.

Other Supporting Documents

- Design Criteria Manual Design and Construction Documents (2015)
- Five-Year Tourism Strategy (2017)
- Citizen Survey (2020)

2.6 ISSUES & OPPORTUNITIES

A number of overarching transportation issues and opportunities have been identified through the technical review of the community context, and by residents and stakeholders. These issues and opportunities include:

- **Maple Ridge has a relatively large land mass with many kilometres of transportation infrastructure.** The City faces unique growth constraints with its topography and agricultural land reserves. The rapidly growing community has an opportunity to better position its transportation network for sustained growth.
- **The City is experiencing growth in greenfield areas, as well as infill along Lougheed Corridor and in the Town Centre.** Maple Ridge has the opportunity to plan for future growth and align its transportation network to serve the needs of these communities. Existing and future residents require safe, reliable transportation. At the same time, increasing density in the Town Centre and along Lougheed Corridor will create opportunities to move more people by walking, cycling, and transit.
- **Steep grades and stormwater management challenges have resulted in challenging conditions in some neighbourhoods.** Steep grades can create challenges for heavy vehicles, cyclists, and pedestrians. In many of established areas of Maple Ridge, roads have rural cross-sections with stormwater flow managed in ditches – this can make it difficult and expensive to deliver some types of transportation infrastructure. Previous work has identified stormwater management challenges that could be addressed holistically alongside transportation gaps.
- **There are populations within Maple Ridge that face unique and intersecting challenges when navigating the transportation system.** People within these groups may be uncomfortable walking, rolling, and cycling due to personal safety concerns, including the threat of discrimination and violence as noted by survey respondents. Some populations – including seniors and youth – can be particularly vulnerable to traffic fatalities and serious injuries. Populations that are socio-economically disadvantaged, experiencing homelessness, or facing other challenges may not have the same level of access to motor vehicles or transit.
- **Maple Ridge schools and subareas with high proportions of youth have more vulnerable road users needing safe and comfortable walking and cycling infrastructure.** Safe and comfortable walking and cycling infrastructure around school supports the health and wellbeing of youth through increased levels of physical activity and mobility. Active transportation infrastructure around schools can also support community access to services and opportunities to gather.

- **The Town Centre is home to a higher concentration of seniors and low-income households.** This area requires investment in accessibility and high-quality transportation infrastructure and services to support these groups as they age in place and support Maple Ridge's economy. Transportation costs are second only to housing as a percentage of household spending in North America, and transportation spending is disproportionately high among low- and moderate-income families. This lack of access to transportation services can limit individual economic development and cause social exclusion. Active transportation is an affordable transportation option that can help all residents participate fully in society, as long as personal safety and accessibility needs are met.

3.0 TRAVEL PATTERNS

Understanding the way Maple Ridge residents travel offers evidence and insight as to how to best address current and potential transportation issues. Maple Ridge residents make more than 270,000 trips each day – or around 3.1 trips per person per day – travelling an average of 40 km daily. The average vehicle kilometres traveled per day is 31 km per capita. The number of trips per capita is consistent with the Metro Vancouver average of 3.1 trips per person per day; however, residents of Maple Ridge travel farther on average than residents in other parts of the region, with the Metro Vancouver average being 18.1 km per person per day.

As shown in **Figure 2-1**, the number of trips per day and per capita are increasing over time, in addition to the percentage of trips using automobiles. This section explores where, why, and how residents of Maple Ridge travel.

TRIPS PER CAPITA, 2008-2017

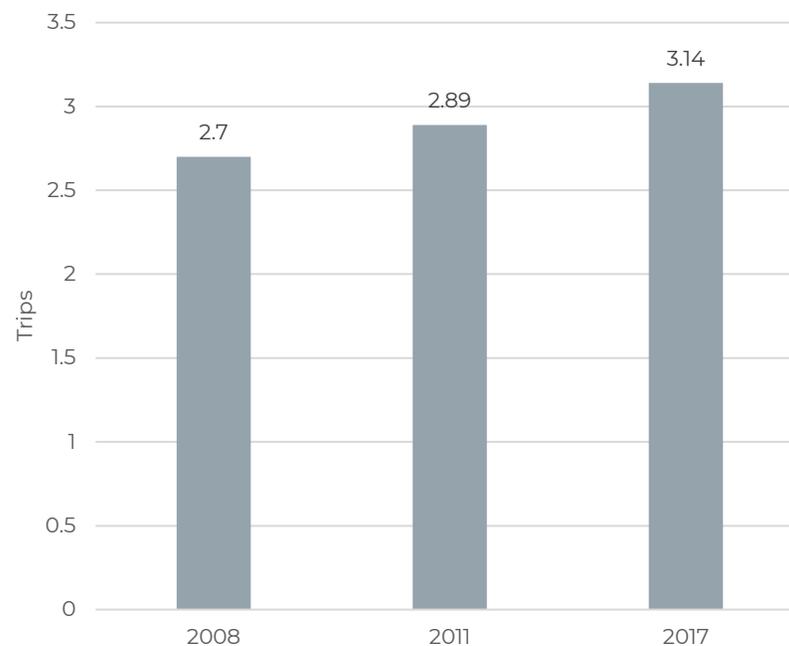


Figure 2-1: Trips per Person per Day

Source: 2008, 2011 & 2017 TransLink Trip Diary)

3.1 WHERE DO WE TRAVEL?

As illustrated in **Figure 3-2**, the vast majority of daily trips (68%) originating within Maple Ridge remain within the borders of the City – this means that many residents are able to meet many of their daily needs within the boundaries of Maple Ridge. Another 28% of trips originating in Maple Ridge are destined to locations west or south of the City and use the constrained western gateway around Golden Ears Way / Lougheed Highway or the West Coast Express. The most common destinations outside of the City are Pitt Meadows (6%) and Coquitlam/Port Coquitlam/Port Moody (7%).

There is local travel demand within Maple Ridge that can be served with safe and comfortable walking and cycling infrastructure. Providing direct and attractive transit and cycling connections to key regional destinations can improve mode choice for residents crossing municipal boundaries.

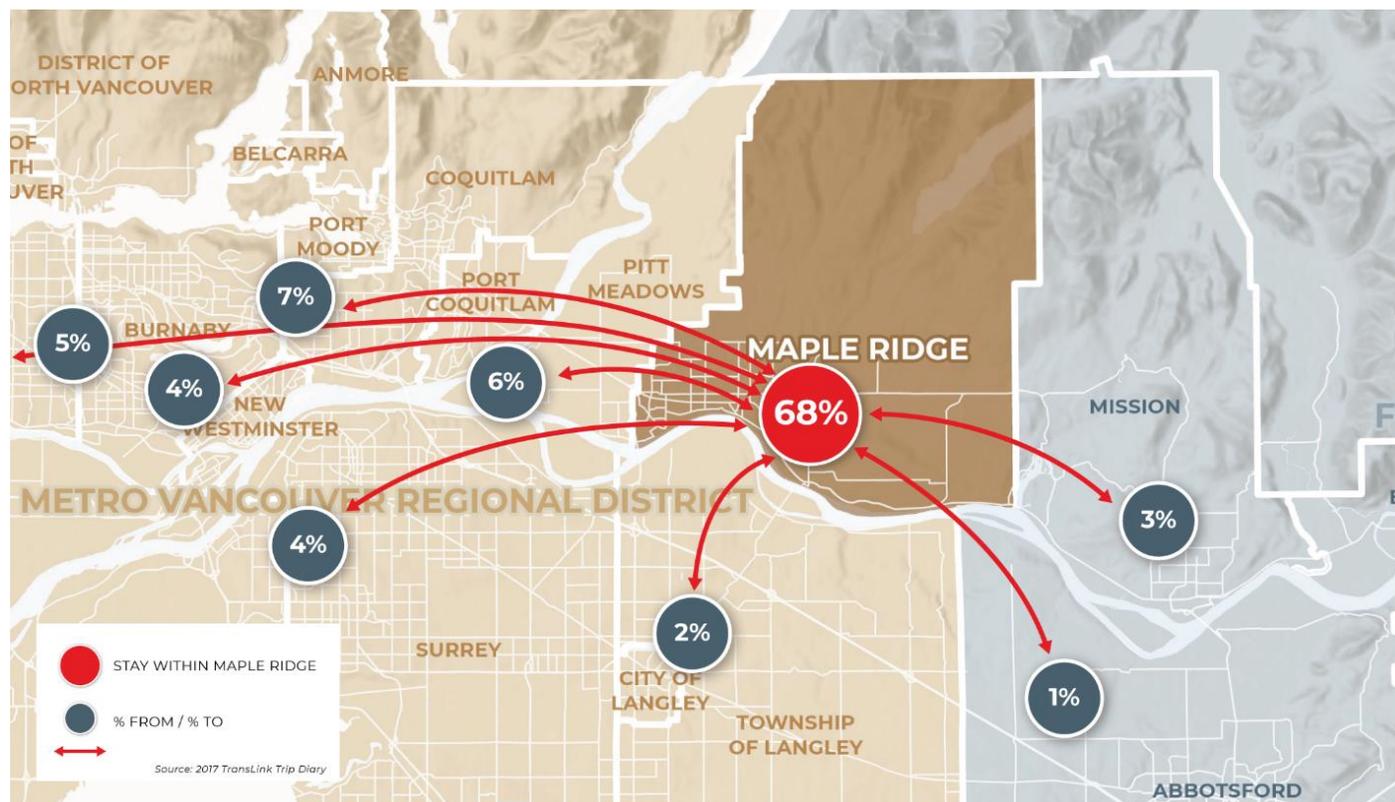


Figure 3-2: Distribution of All Daily Trips Originating in Maple Ridge

Source: 2017 TransLink Trip Diary

3.2 WHY DO WE TRAVEL?

People travel daily to meet many different needs – to work or school, to recreate, to shop, or for some other purpose. The overall travel pattern, including mode of transportation and trip distance, can vary by trip purpose. As illustrated in **Figure 3-3**, most daily trips made by Maple Ridge residents are to work or post-secondary school (31%) and for shopping or personal business (30%). 17% of trips are for social, recreational, or dining purposes. Trips to work or school are typically to consistent locations and during consistent times of day, while trips for social, recreational, dining, shopping, and personal business are typically less predictable and occur throughout the day with some concentration in the afternoon. As explored further below, the distribution of trip purposes is different for each mode – indicating that within Maple Ridge some modes are more comfortable or convenient for some trip types.

Transit is most commonly used for commuting to and from work or post-secondary school - 48% of daily transit trips were for one of these purposes. An additional 24% of daily transit trips were for shopping and personal business and 10% were for social, recreational or dining purposes. A significant number of trips (16%) use transit to and from grade school. However, few residents in Maple Ridge use public transit to commute to other cities for work. Of the 69% of residents that commute to other areas of the Lower Mainland for work, only 5% use transit. There may be an opportunity to increase transit ridership by improving the comfort, efficiency, and reliability of regional transit (see **Figure 3-4**).

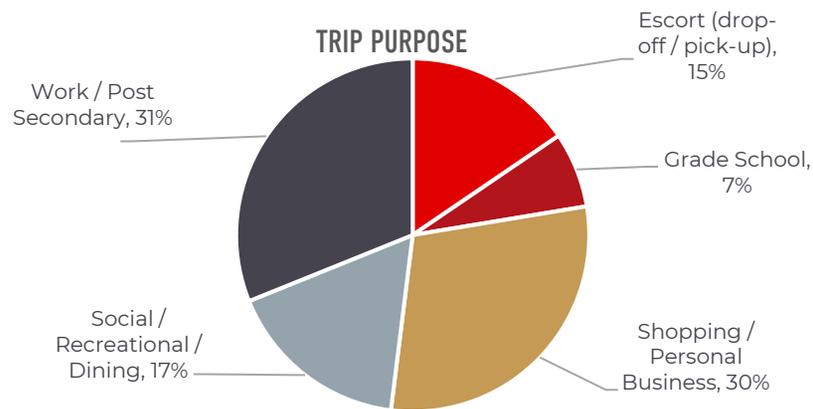


Figure 3-3: Purpose of Trips
 Source: 2017 TransLink Trip Diary)

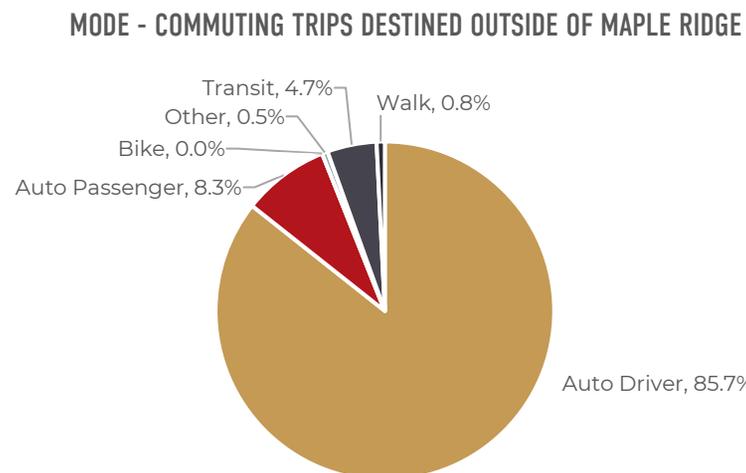


Figure 3-4: Mode for Commute Trips Destined Outside of Maple Ridge
 Source: 2017 TransLink Trip Diary)

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN

STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

Most walking trips are to and from grade school (41%) and shopping and personal business (19%) – this indicates the importance of providing safe and comfortable walking trips to school and to meet daily needs within neighbourhoods. Only 9% of daily walking trips by Maple Ridge residents were to work or post-secondary school, compared to 21% regionally (see **Figure 3-5**).

Most trips by bike (61%) are for shopping or personal business while 22% of trips are for social, recreational or dining purposes.

Respondents to the STP survey shared that they typically prefer to travel by car, except in the case of exercise or recreation, in which case they prefer to walk (35%) or cycle (18%). Taking transit to work (11%) or school (7%) were the most popular ways to use public transit, and walking was the most common mode after driving or carpool for most destination options.

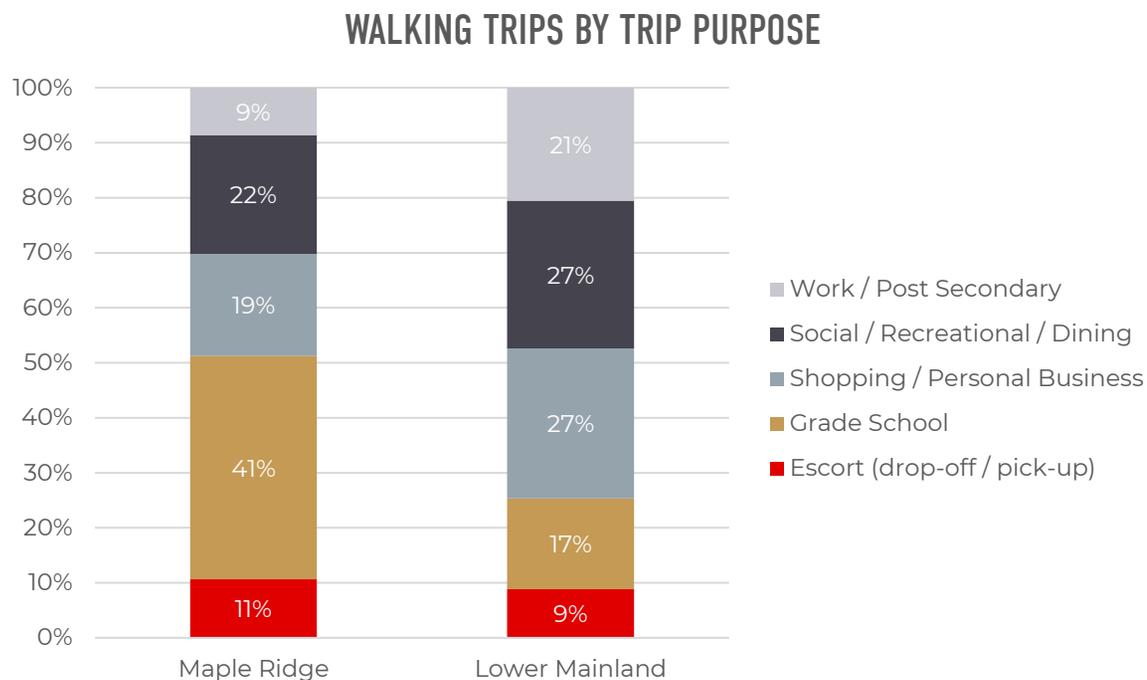


Figure 3-5: Walking Trips by Purpose Comparison

Source: 2017 TransLink Trip Diary)

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN

STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

Working age adults (19-64) are most likely to rely on automobiles as their primary form of transportation, using a vehicle for 84% of all trips. As Maple Ridge residents age, the likelihood of being an auto passenger increases. Daily mode share for each age demographic is summarized in **Table 3-1**.

Table 3-1: Trip Purpose by Age Group

MODE	0-18	19-64	65-84	85 +
Auto Driver	5%	84%	76%	71%
Auto Passenger	68%	10%	15%	29%
Bike	1%	0%	0%	0%
Other	1%	1%	0%	0%
Transit	4%	3%	3%	0%
Walk	21%	3%	6%	0%

Source: 2017 TransLink Trip Diary)

3.3 HOW DO WE TRAVEL?

Based on data from TransLink’s 2017 Trip Diary survey, most daily trips made by Maple Ridge residents are by motor vehicle, including approximately 72% of trips by vehicle drivers and 19% by passengers. Active and sustainable transportation (defined as active transportation such as walking, cycling and transit) makes up approximately 9% of daily trips made by Maple Ridge residents, including walking (5.8%), transit (2.8%), and cycling (0.3%). See **Figure 3-6**.

As shown in **Figure 3-7**, mode share for driving has been increasing over time (from 60% in 2008 to 72% in 2017), while mode share for passengers, transit, walking, and cycling has been decreasing. This is a different trend than most of the Metro Vancouver region, where mode share for driving has been decreasing over time.

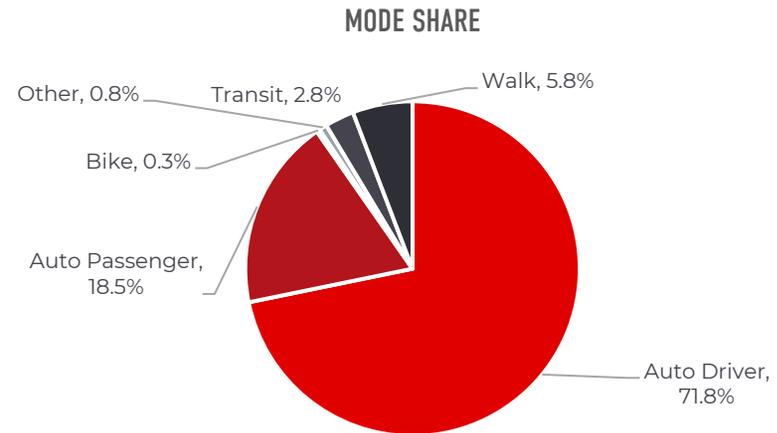


Figure 3-6: Mode Share
 Source: 2017 TransLink Trip Diary

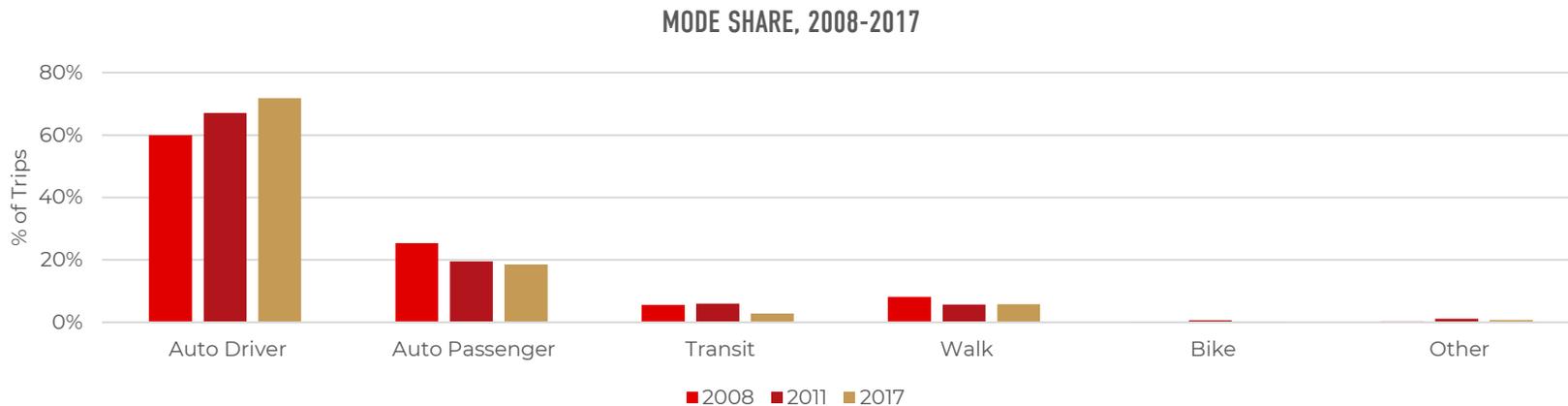


Figure 3-7: Mode Share Proportions Over Time
 Source: 2008, 2011, and 2017 TransLink Trip Diaries

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN

STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

As illustrated in **Figure 3-8**, the proportion of trips made by walking, cycling, and transit in Maple Ridge (9%) is well below many communities in Metro Vancouver, but comparable with many other communities in the Fraser Valley such as Mission, Abbotsford and Chilliwack.

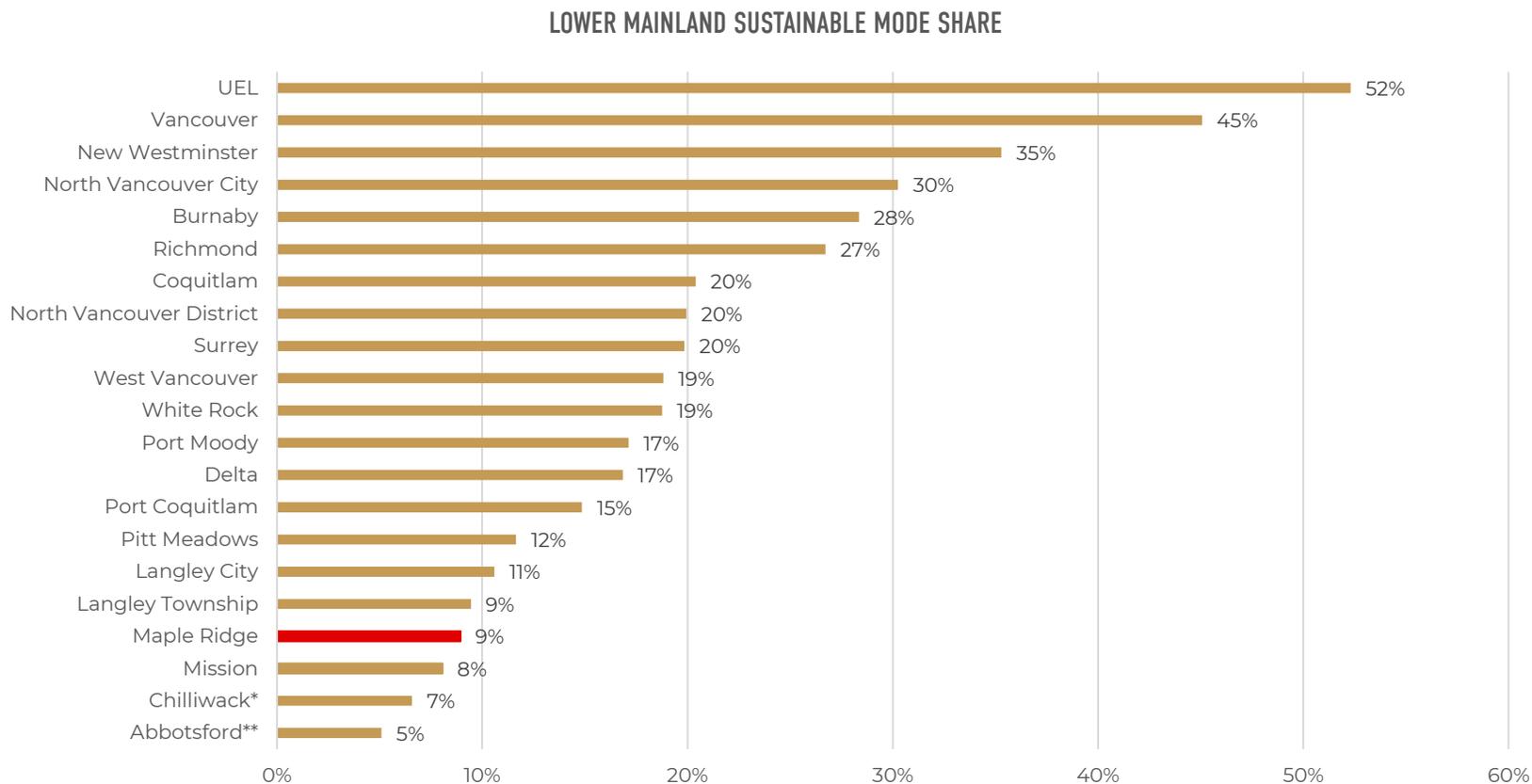


Figure 3-8: Proportion of Lower Mainland Trips Made by Sustainable Modes

Source: 2017 TransLink Trip Diary

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN
 STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

The mode share to work by sustainable transportation modes is different in different parts of Maple Ridge. As illustrated in **Figure 3-9**, the Town Centre, West Maple Ridge, Hammond, South Allouette, and Central Maple Ridge have the highest sustainable transportation mode shares for travel to work and the lowest driving mode share. These areas also have the highest population densities, a mix of residential and commercial uses, and are along the most frequent transit corridors.

Low density throughout much of Maple Ridge may be a contributing factor to the high auto mode share and average daily travel distance. As land uses intensify and more jobs and services are available locally, the average trip distance and auto mode share can be expected to decrease. Increasing density will also improve the business case for continued investment in rapid transit service to Maple Ridge.

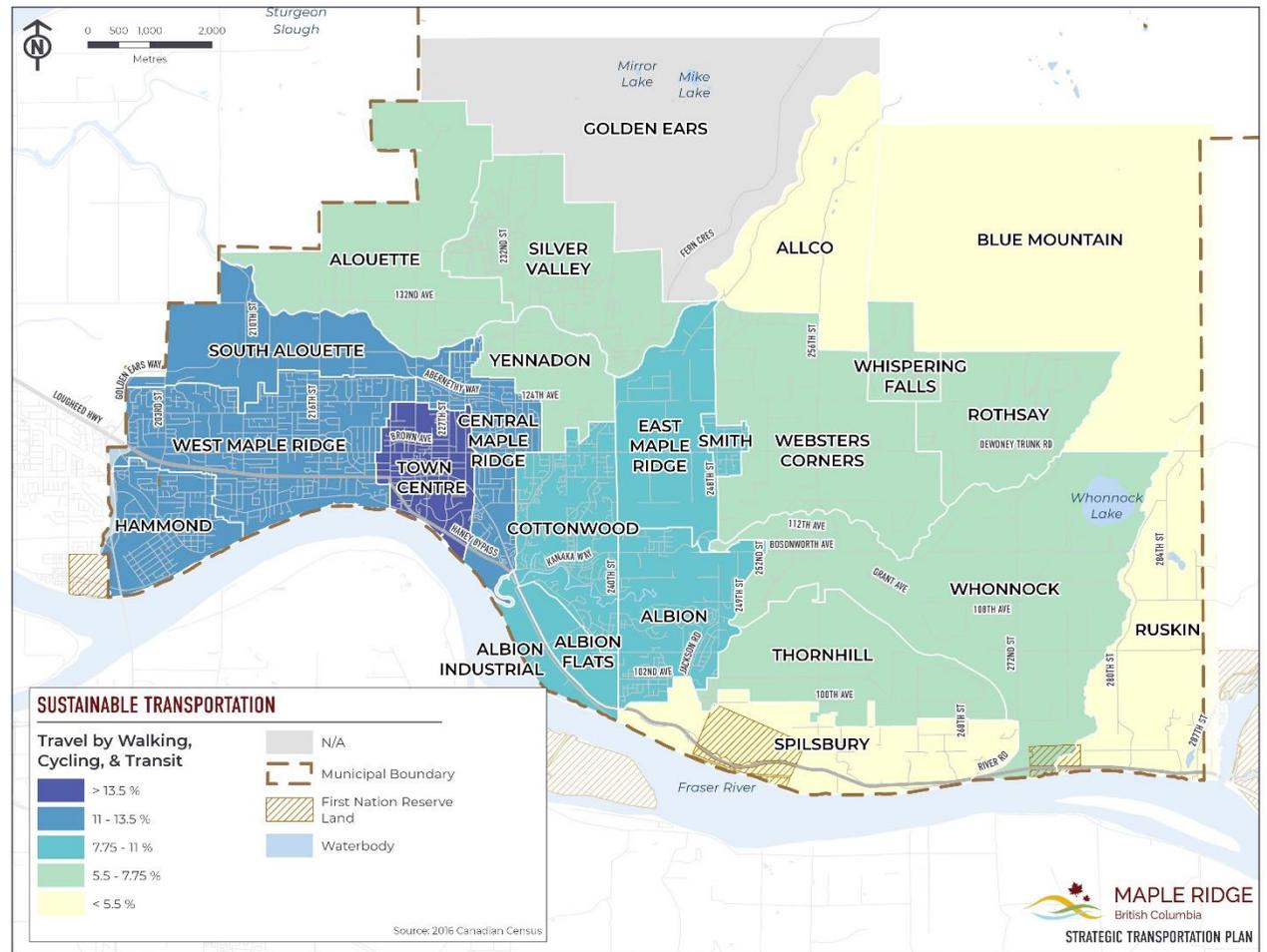


Figure 3-9: Sustainable Transportation Mode Share

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN

STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

Average distance for individual trips varies significantly based on the mode of transportation and trip purpose – Maple Ridge residents traveled an average of 13.9 kms per trip when driving, 24.6 kms per trip when taking transit and 1 km per trip while walking.

Although the average distance for driving trips is 13.9 kms, this masks the significant variation in driving trip distances, as 43% of all driving trips are less than 5 kms. The distribution of trip distances for driving trips is illustrated in **Figure 3-10**. Trips less than 2 km can be comfortable walking trips, while trips less than 5 km can be within a comfortable range for cycling. Emerging transportation technology that uses lightweight electric powered vehicles – including e-bikes and e-scooters have a longer range of comfortable trips. The implications emerging technology are discussed further in Section 8.

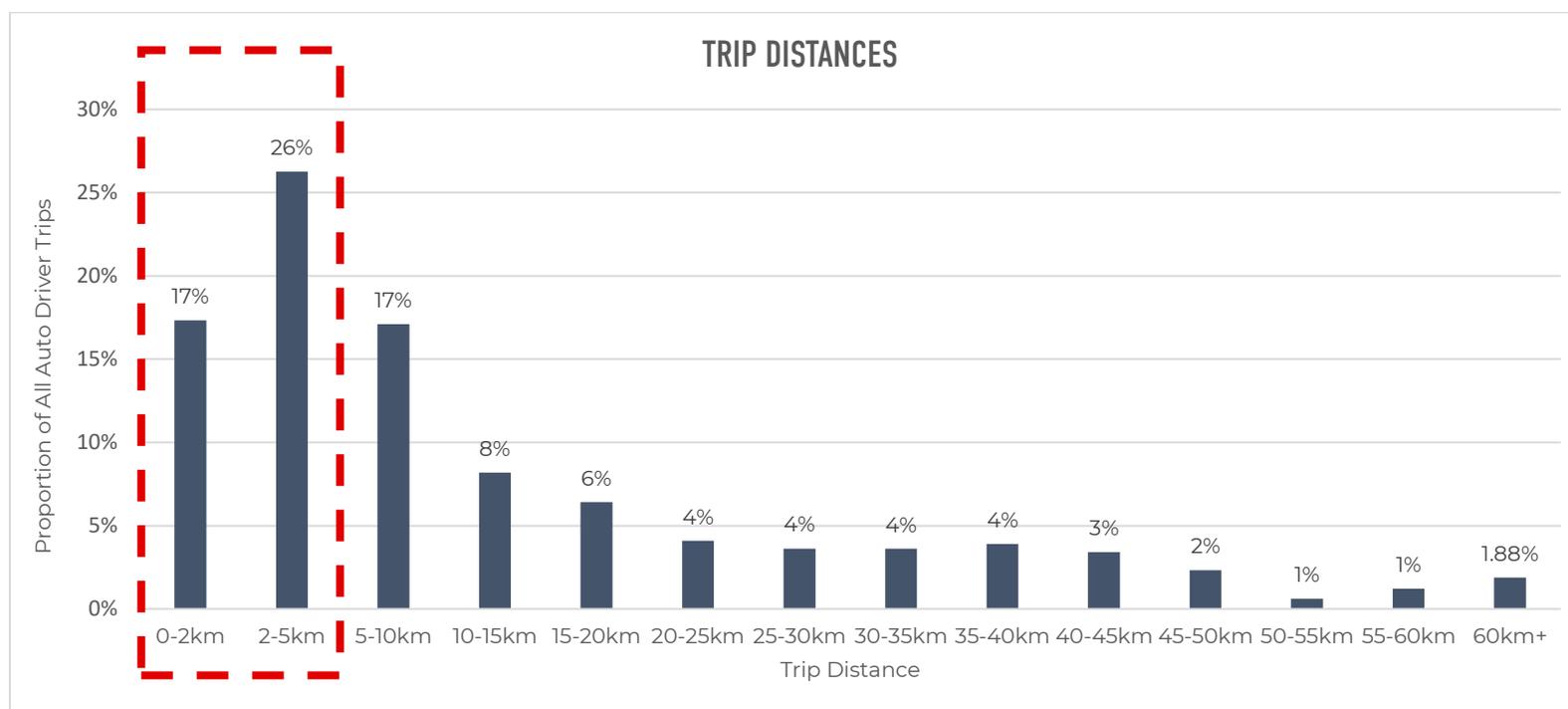


Figure 3-10: Proportion of Trip Distances Made by Maple Ridge Auto Drivers

Source: 2017 TransLink Trip Diary

3.4 HOW HAS COVID CHANGED TRAVEL PATTERNS?

In cities across North America, travel patterns changed dramatically as a result of the COVID-19 pandemic. Many cities around the world saw drastic decreases in both motor vehicle traffic volumes and transit use, both of which often decreased by 50% or more. Local data exploring changes in mobility patterns during COVID is limited; however, regional traffic count data indicates that daily traffic volumes returned to within 10% of pre-pandemic levels by May of 2020. Daily patterns and mode choice remain altered at the time of writing of this report – morning and afternoon peak period traffic volumes over major crossings remain lower than historic levels and transit ridership remains suppressed.

The average daily traffic volumes by month from the MOTI’s permanent traffic count on Lougheed Highway west of Pitt River Bridge suggest a similar pattern. As shown in **Figure 3-11**, while the traffic volumes were 8% higher in February 2020 than in 2019, they began to drop significantly starting from March and were 32% down in April compared to 2019. Traffic volumes returned to within 5% of 2019 levels by August before dropping again in the fall. Beginning in 2021, daily traffic volumes continued to trend towards historic levels and were only 3% lower than 2019 in the month of June. The impact of changing health guidance on travel patterns in fall of 2021 is to be determined.

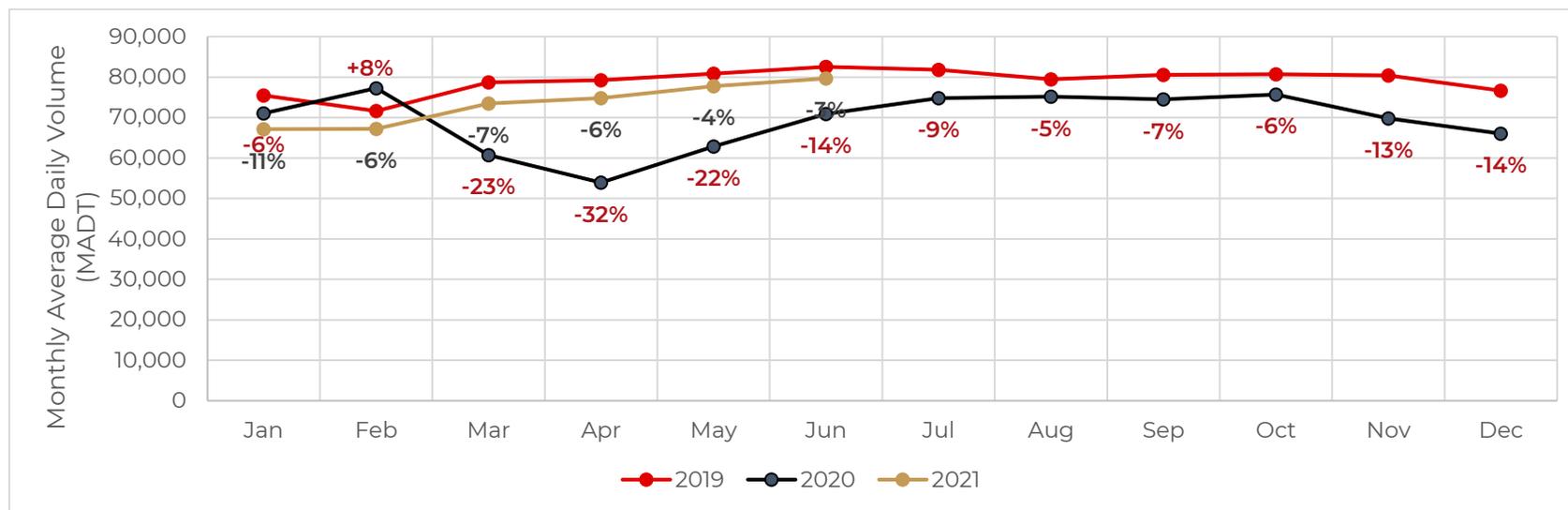


Figure 3-11: 2019 vs. 2020 Average Daily Traffic Volume Comparison (Lougheed Highway West of Pitt River Bridge)

Source: MOTI Permanent Traffic Counts (P-17-10EW)

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN

STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

A traffic volume comparison for the City's road network where data is available also suggests a similar pattern. In addition, it was observed that morning traffic had a much more significant reduction than afternoon traffic volumes. At 132 Avenue west of 210 Street, the January 2021 counts were approximately 30% less than the October 2019 counts in the morning peak between 6:00 to 9:00 am and are only 5% lower in the afternoon peak period between 3:00 to 6:00 pm. Given that the traffic volumes are typically lower in January than October, the volume difference will likely be less when comparing the same month. Similarly, at 128 Avenue west of Laity Street, a comparison of the January counts in 2020 (pre-COVID) and 2021 (COVID) shows that the traffic volumes only reduced by 8% in the morning peak period and even increased by 14% in the afternoon peak period. These patterns align with the regional trends which are likely due to changes in travel behaviours. For example, the region has seen fewer commuting trips in the morning because of working from home and more trips in the afternoon for personal business purpose.

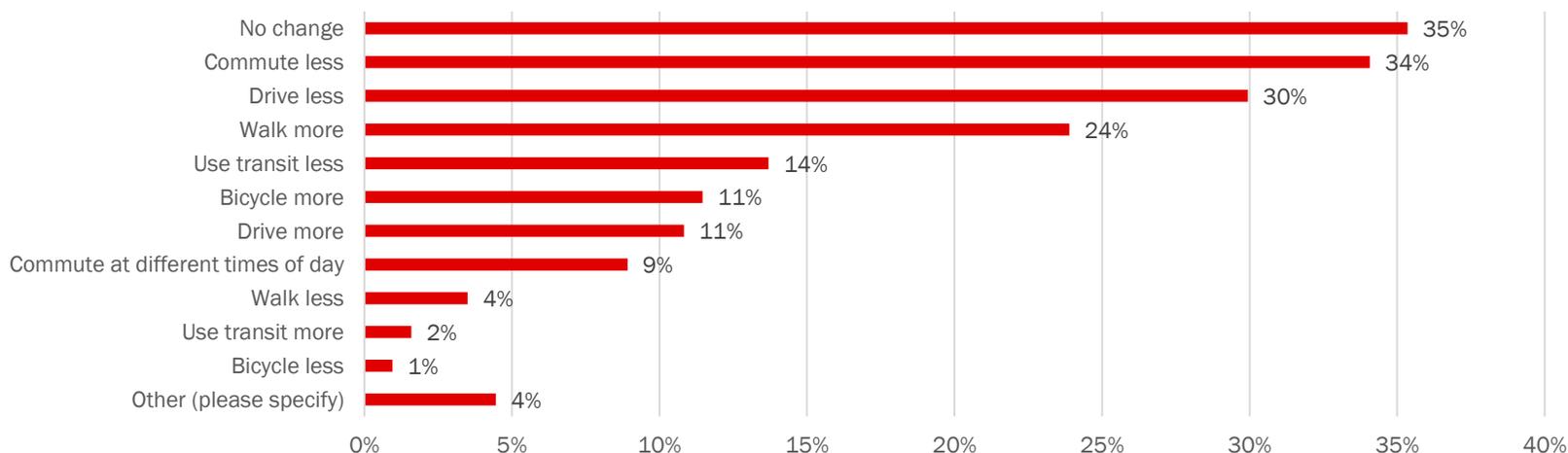


Figure 3-12: Changes to Travel Patterns due to COVID-19

As illustrated in **Figure 3-12**, the public consultation survey for the STP indicates that 34% of respondents commute less than they did before COVID-19. Respondents also reported driving less (30%), walking more (24%), and using transit less. COVID-19 has changed the ways we interact with our communities and use transportation infrastructure. Although the permanent impact on travel patterns remains uncertain, there may be opportunities for lasting reductions in commute travel for some population segments during peak periods and more overall demand for neighbourhood active transportation infrastructure.

3.5 ISSUES & OPPORTUNITIES

A number of overarching transportation issues and opportunities have been identified through the technical review travel patterns, and by residents and stakeholders. These issues and opportunities include:

- **The growing number of trips and mode shift towards driving are increasing pressure on the road network.** The number of vehicle trips originating in Maple Ridge has grown faster than population due to a growing number of trips per capita and increasing driving mode share. This is different than the trend throughout much of the rest of Metro Vancouver and challenges the City’s ability to provide reliable transportation networks. Growing driving trips also limit the City’s ability to meet it’s climate change targets.
- **There is an opportunity to increase the number of trips that can be made by walking, cycling, and transit, since most trips are local and many are within 5 km.** The majority of trips by Maple Ridge residents are local to the City (68%) and more than a third of driving trips are within 5 km. Many trips are already staying within the City and there is an opportunity to improve mode choice by investing in the safety and comfort of the walking, cycling, and transit networks.
- **Most trips originating in Maple Ridge that leave the City are destined to the west and south, putting pressure on the western gateway.** Approximately 28% of all trips originating in Maple Ridge are destined to communities to the west and south and travel through the western gateway around Lougheed Highway and Golden Ears Way or on the West Coast Express. Capacity constraints at the western gateway contribute to delay and low reliability, particularly during peak hours. **The COVID-19 pandemic has created an opportunity to sustain shifts towards working from home for some people, some of the time, and to increase shorter, local trips by active transportation throughout the day.** Residents who continue to work from home – fully or part-time – will reduce peak hour vehicle trips on the road network. These residents may rely more on walking and cycling to local destinations to meet their daily needs, supporting local businesses and requiring strong active transportation connections to local destinations. More than a third of STP survey respondents indicated that they commuted less in Spring 2021 than they did pre-pandemic, while 30% walk more.

4.0 WALKING & ROLLING

Walking, including using a mobility device, is the most fundamental form of transportation. Walking is a part of every trip, whether that trip is made by car, transit, or bicycle. If suitable conditions exist within a community – such as having a complete, connected sidewalk network and major destinations nearby to where people live – walking can also be a convenient alternative to the automobile for almost all short trips. Increasing the proportion of trips made by walking can help reduce automobile dependence and GHG emissions, improve public health outcomes and help to create more liveable and vibrant communities.

Walking accounts for almost 6% of all trips by residents of Maple Ridge. Beyond this, 17% of all driving trips are 2 km or less and areas where density is increasing will see more opportunity for short, walking trips. Survey respondents indicated that building more comfortable, well-lit sidewalks and pathways would encourage more walking trips. The STP will seek to identify meaningful investments in infrastructure and policies that will make walking safer and more comfortable. This section of the existing and future conditions report outlines how existing policy is expected to shape the future of walking in Maple Ridge, identify existing infrastructure, and assess issues and gaps.

4.1 POLICY CONTEXT

The policy documents reviewed earlier include policies and guidance for the delivery of walking infrastructure in Maple Ridge. This guidance is highlighted below:

- **Maple Ridge's OCP** Principle 45 states that “Citizens value a pedestrian friendly environment that includes a trail network for horses, walking and cycling for recreation and access to amenities, employment, and services”. Its objectives support an integrated, multi-modal transportation system that includes walking.
- **The Maple Ridge-Pitt Meadows ATP** identified several walking issues. For example, the ATP notes that there are gaps in the sidewalk network along the new R3 RapidBus corridor, as well as north-south connections to planned future RapidBus stops. In addition, there are limited pedestrian facilities along several corridors, including the MoTI owned Haney Bypass, which sees high speeds, making it difficult to cross safely. Safety issues include visibility, lighting near transit stops, vehicle speed, safe crossing opportunities, and long distance between designated crosswalks.
- **Subdivision Bylaw No. 4800-1993** stipulates sidewalk requirements for each roadway classification. All urban through roadways and all roadways in commercial zones require sidewalks on both sides. Exceptions may be granted for local roads if the road is not a pedestrian link to a destination or a continuation of a road with two sidewalks. Limited urban local roads,

some local roads within Silver Valley, and cul-de-sacs require a sidewalk on only one side. The minimum clear width of sidewalks is 1.5 m, except for in exceptional circumstances where a clear width of 1.2m is allowed around permanent features, subject to the approval of the Municipal Engineer. Typical specifications call for monowalks (sidewalks without boulevards to separate pedestrians from traffic and / or parking lanes) on local and collector roadways and separated walks with boulevards on urban arterial roadways. Sidewalks are not required on rural roadways.

- **Neighbourhood plans** each have specific guidelines for walking infrastructure, as explored below:
 - **Albion Flats Concept Plan (Endorsed)** aims to promote mobility choice through active transportation options such as a waterfront trail, trails and a green link, as well as mixed-use density that supports employment, commercial and residential development on the current Agricultural Reserve Land.
 - **North East Albion Land Use and Servicing Concept Plan (Endorsed)** envisions residential pockets nestled between existing watercourses, linked by a network of pathways and trails, including a Spine Trail that connects the northern part of the area to a newly built school and park.
 - **Town Centre Area Plan** identifies several new pedestrian infrastructure projects that support the Green Corridor Network and the Waterfront Network, such as the Civic Area Ring Route, Civic Core Pedestrian Network, Connective Pedestrian Network, proposed Greenway Trails, and a Boardwalk along the water. The Civic Core Ring Route and Civic Core Pedestrian Network aims to create wide, pedestrian-friendly sidewalks with street trees, hanging baskets, and wayfinding signage. The Connective Pedestrian Network should be designed to enhance the pedestrian experience with separated sidewalks on both sides of street, street trees, and wayfinding signage. The Secondary Ring Route will include separated sidewalks on both sides of the street, street trees, and wayfinding signage.
 - **Lougheed Transit Corridor Concept Plan (Endorsed)** aims to create walkable places and greenway destinations through Neighbourhood High Streets. Four high streets have been identified in the plan that connect Dewdney Trunk Rd and Lougheed Highway at 203 St, 207 St, Laity Street and 216 Street. They are intended to provide enjoyable routes that link local bus services on Dewdney Trunk Road to regional bus routes on Lougheed Highway, and are focal mixed-use areas that function with the node. The plan also includes the West Ridge Greenway to connect the Town Centre to the western City boundary. The greenway will support pedestrian and cycling movement continuously from 202 Street to 224 Street and will permit vehicular traffic between 203 and 207 Street, between 210 and Laity Street, and east of 216 Street.

The Lougheed Transit Corridor Concept Plan notes several new pedestrian connections:

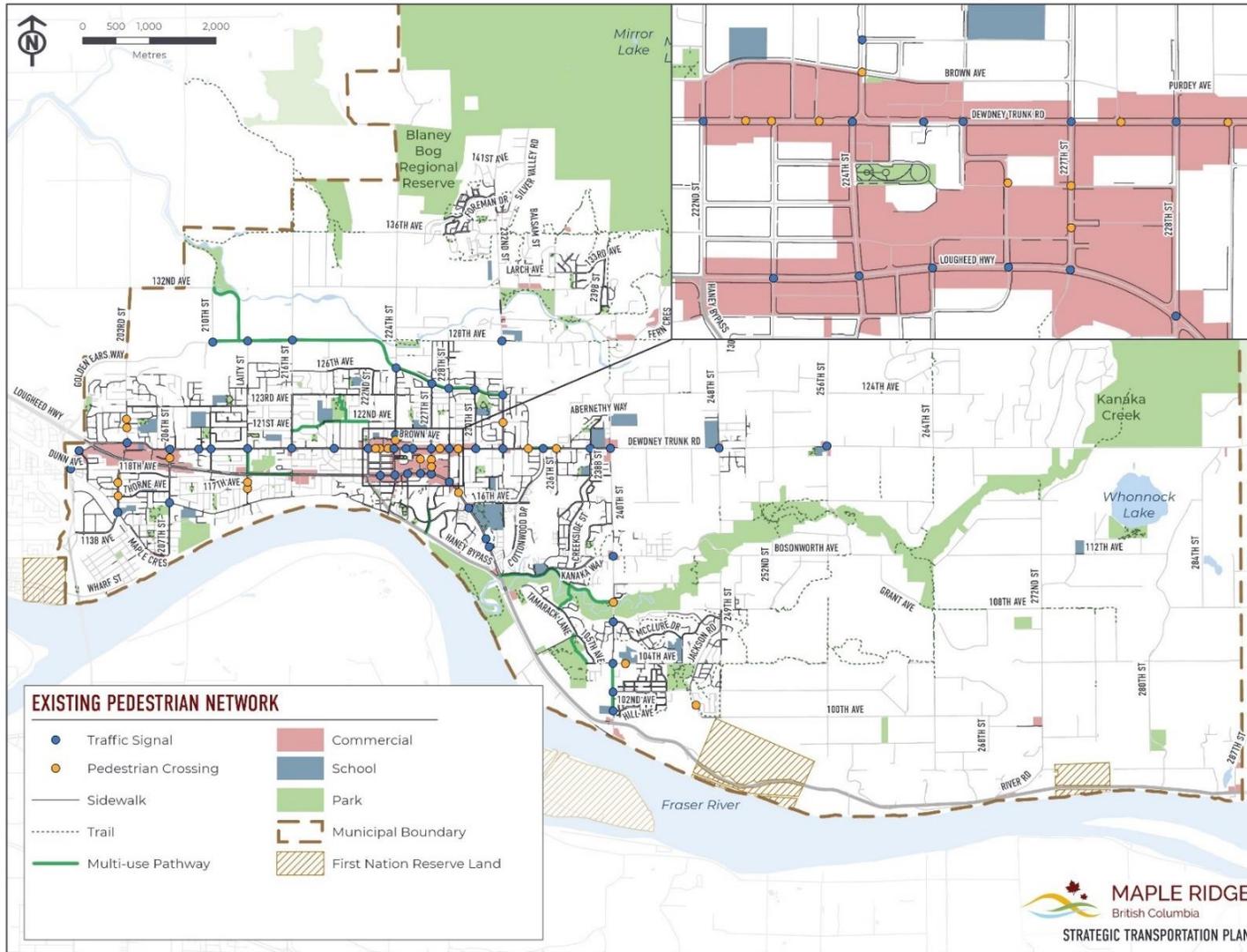
- Pedestrian and cycling connection across McKenney Creek
- Pedestrian connection from Cook Avenue neighbourhood south to Lougheed Highway
- Pedestrian connection at Howison Avenue to Lougheed Highway.
- Pedestrian connection from Bruce Avenue and Patterson Avenue to Lougheed Highway
- North-south trail along McKenney Creek 10. North-south trail along Katzie Slough

4.2 EXISTING INFRASTRUCTURE

The pedestrian network includes infrastructure elements used by pedestrians, such as sidewalks and crossings (at intersections and elsewhere) trails, and multi-use pathways. Sidewalks are typically located parallel to a roadway and form the backbone of a well-connected walking network. Based on current design standards, sidewalks are typically concrete and at least 1.5 m wide, except in areas where higher pedestrian activity is expected. There are some exceptional circumstances where a clear width of 1.2m has been permitted. As development standards have changed over the years, neighbourhoods built during different decades have different standards for sidewalk location and presence.

Figure 4-1 illustrates the existing pedestrian infrastructure within Maple Ridge.

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN
 STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS



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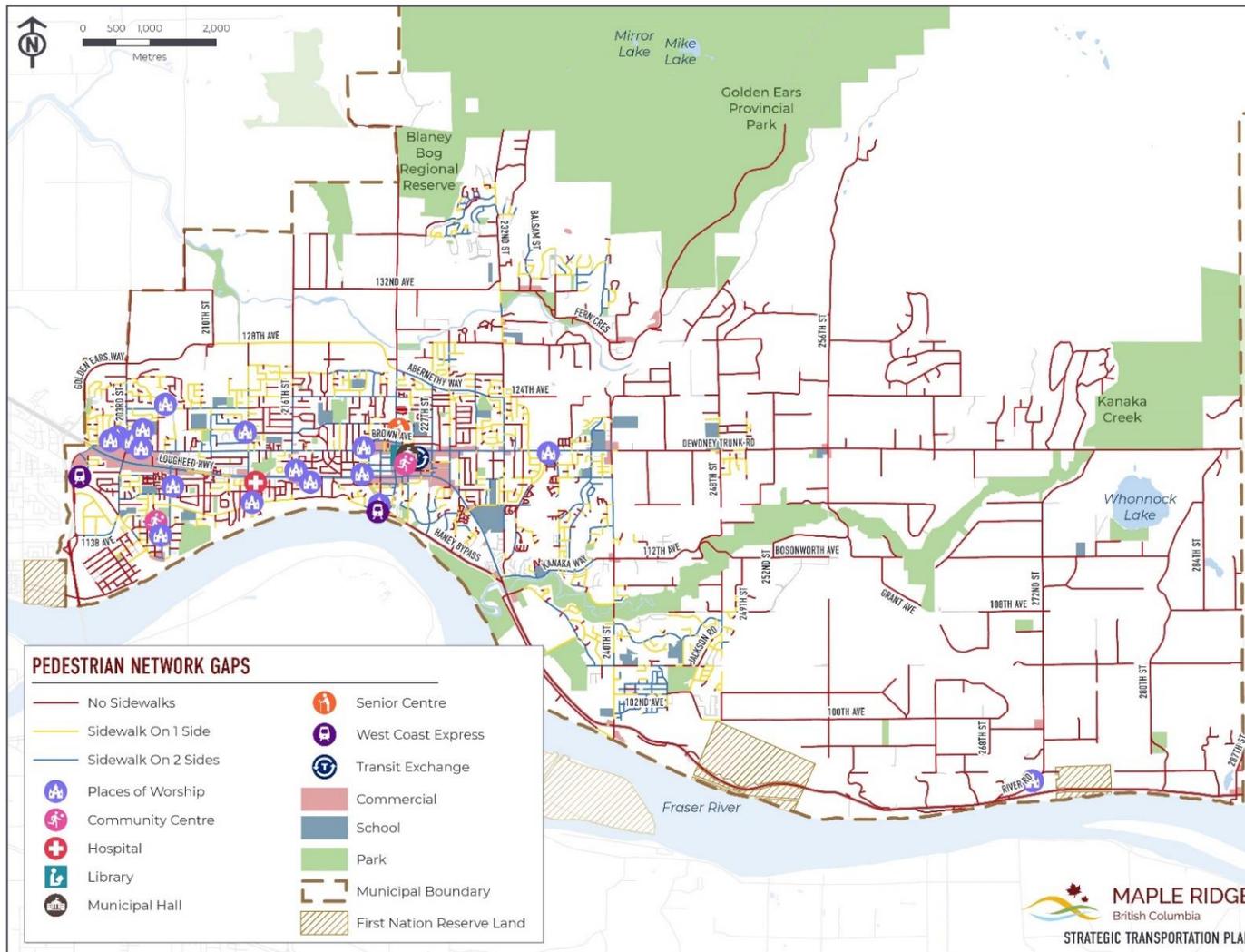
Figure 4-1: Pedestrian Network

4.3 ASSESSMENT

The overall assessment of walking infrastructure found that approximately 35% of roadways in Maple Ridge have pedestrian facilities (sidewalks or multi-use pathways) on one or both sides of the street. Collector and major collector streets have the greatest percentage of streets with pedestrian facilities on one or both sides (63%), while most local streets and rural roads do not have any sidewalks. Traffic signals and pedestrian crossings within Maple Ridge are concentrated in the Town Centre and along major corridors, including Dewdney Trunk Road, Lougheed Highway, 203rd Street, 128th Street/Abernethy Way, and 240th Street. Most crossings have curb-ramps though tactile surface indicators are not present at all intersections. Through the STP survey, respondents identified that building more sidewalks, trails, and pathways and improving lighting would encourage them to walk more, indicating that the gaps in walking infrastructure and lack of lighting are preventing people from choosing walking as a mode of transportation.

As noted previously, safe and comfortable pedestrian connections are particularly important around community destinations and transit stops and stations. The Town Centre and other community destinations, such as schools, parks, and community centres are all expected to generate higher levels of pedestrian activity, especially if connected and accessible pedestrian infrastructure is in place. City-wide pedestrian network gaps are illustrated in **Figure 4-2**.

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN
 STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS



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Figure 4-2: Sidewalk Coverage

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN

STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

The Town Centre is a particularly important pedestrian area – it contains a number of community destinations, is the terminus of the R3 RapidBus, includes the Port Haney West Coast Express Station, and has a high density of seniors and low-income households. While most streets with commercial land uses in the Town Centre have sidewalks both sides of the street, the surrounding residential area has a number of local and collector roads that have one or no sidewalks.

Sidewalk coverage within the walkshed of transit is important for comfort and accessibility. There are gaps in the sidewalk network along the R3 RapidBus corridor along Lougheed Highway, as well as gaps in the arterial, collector, and local networks within the walkshed of the RapidBus and West Coast Express stations. This area also includes the Ridge Meadows Hospital. Accessible walking connectivity between the hospital and the surrounding neighbourhood is mixed; however, there are sidewalks consistently between the Laity R3 RapidBus station and the Ridge Meadows Hospital. There are also gaps around schools and community destinations in this area.

Neighbourhoods with historic and rural characteristics lack sidewalks. These neighbourhoods were built before standards were updated to include sidewalk requirements. Many have rural cross-sections without curb and gutter and some face additional drainage issues. Because of the network density and proximity to community destinations, including schools, parks, and community centres, as well as access to frequent transit service, improving sidewalks in these neighbourhoods can make walking a desirable mode choice for short trips.

Sidewalks in Port Hammond are largely limited to one side of the road on the roads that intersect with Maple Crescent and provide access to the neighbourhood. Around 216th Street, recent work has been done to provide pedestrian infrastructure to Maple Ridge Secondary School; however, much of the rest of the neighbourhood has sidewalk gaps, particularly west of 216th Street and north of 124th Avenue.

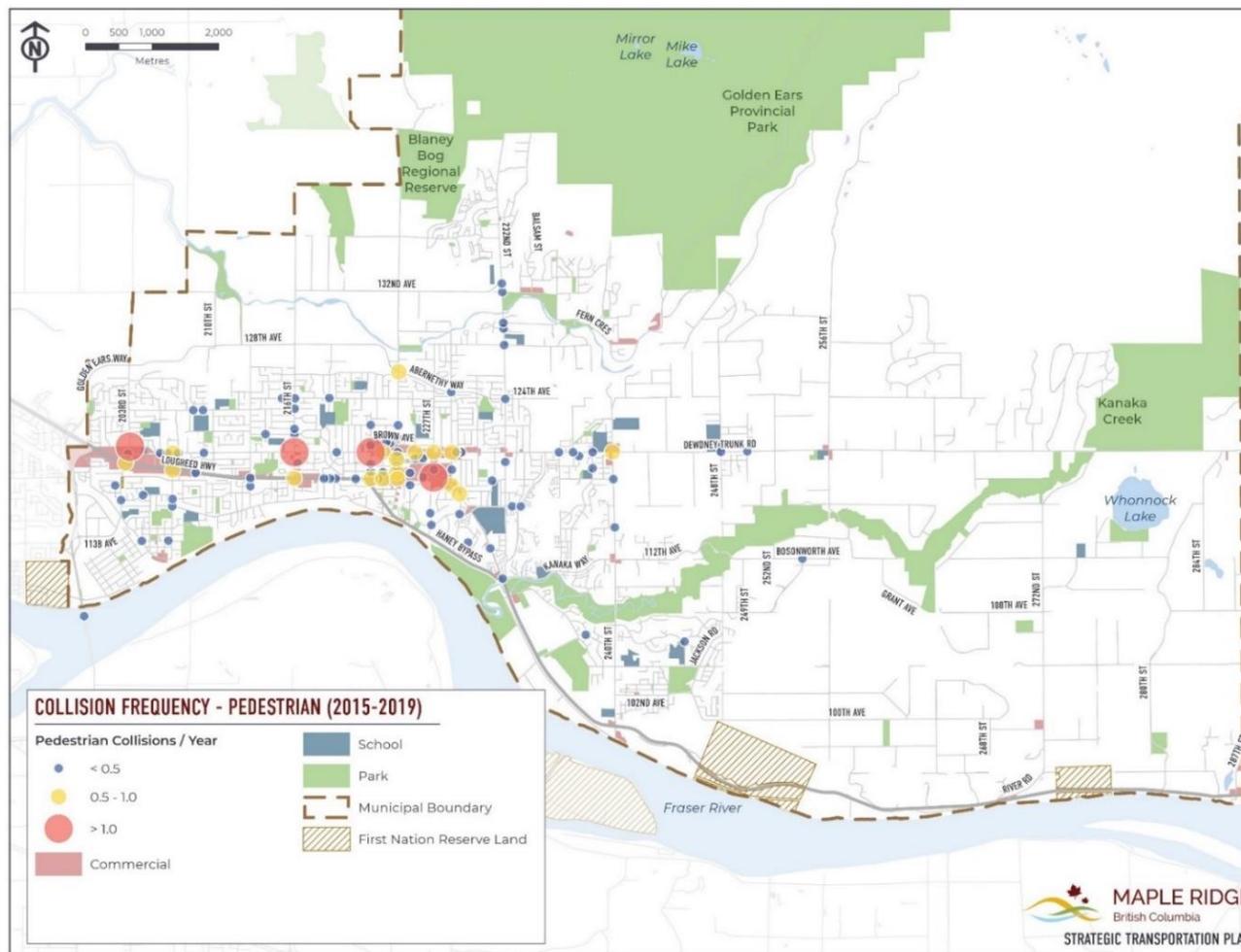
Some MRN and arterial corridors in rural and emerging neighbourhoods have limited sidewalk infrastructure. As the population has grown in the surrounding area, traffic volumes have also grown on these corridors. Some of these roadways have unpaved gravel trails adjacent to the roadway or paved shoulders that provide some space for pedestrians. Growing traffic volumes can make walking on the shoulder uncomfortable and impact safety. 232nd Street, Fern Crescent, and 132nd Avenue have no sidewalks and have experienced growing traffic volumes. Dewdney Trunk Road connects the Garabaldi School and the surrounding neighbourhood to other destinations and does not have sidewalks east of 240th Street and there are also gaps along 240th Street, which is an arterial or MRN road and has been historically identified as a connection to the extension of Abernethy Way and on to Silver Valley.

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN

STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

Figure 4-3 illustrates the frequency of collisions at locations where there was a pedestrian involved in a vehicle collision between 2015 and 2019. Pedestrian collisions are relatively infrequent, however collisions involving pedestrians are more likely to result in injury or death than those involving only vehicles. The red dots identify locations where there was at least one pedestrian collision per year over five years.

Locations with higher traffic and pedestrian volumes are more likely to have more pedestrian collisions. The highest frequency of pedestrian collisions occurs in the Town Centre, along Lougheed Highway, and in commercial areas. There are also clusters of pedestrian collisions around schools and locations with limited sidewalks and pedestrian infrastructure.



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Figure 4-3: Pedestrian Collision Frequency

Source: 2015-19 ICBC Collision Data

4.4 ISSUES & OPPORTUNITIES

Issues and opportunities concerning walkability and walking experience in Maple Ridge identified through the technical work and consultation with stakeholders and the public include:

- **Some common destinations, including transit stops, parks, schools, community facilities, and commercial areas have sidewalk gaps and / or sidewalks on only one side of the roadway.** These sidewalk gaps create barriers to walking, even when the land use context supports it. Network gaps create barriers for those who cannot or choose not to drive, reduce the safety of walking, and limit access to transit. These issues can be especially critical for vulnerable populations, including low-income families, youth, and seniors. The majority of respondents to the STP survey (53%) indicated that the lack of sidewalks or pathways was the biggest challenge to walking in Maple Ridge.
- **Filling in pedestrian network gaps in established neighbourhoods can be challenging.** Higher quality pedestrian infrastructure in newer neighbourhoods are delivered by developers. However, providing sidewalks and amenities in established neighbourhoods can be more challenging. Completing the sidewalk network through infill development is likely to result in a disconnected, piecemeal network. On local and collector roads, the City should work to strategically implement new sidewalks in areas of higher pedestrian demand, including along streets that provide access to frequent and rapid transit, schools, seniors centres, community centres, parks, hospitals and other neighbourhood destinations.
- **There is an opportunity to align with regional priorities to improve walking in and around regionally significant destinations.** The Area Transport Plan recommends improving pedestrian connectivity, safe crossing, lighting, and accessibility near the R3 RapidBus, along FTN corridors, near the West Coast Express Stations, in the Town Centre, along the MRN, and approaching the Golden Ears Bridge. Some of these areas align with existing issues identified in this section and there is an opportunity to collaborate with other agencies to address existing gaps.
- **Limited crossing opportunities on some busy roadways can create safety concerns and additional barriers to walking.** Providing crossing locations where sidewalks and multi-use trails cross major roadways can help to support a connected pedestrian network.

- **Sidewalk and pedestrian infrastructure design standards do not meet current provincial best practices and may not result in the type of infrastructure that best supports walking in Maple Ridge.** Some types of roadway are permitted to be constructed without any pedestrian infrastructure and others require sidewalk on only one side. This results in some emerging communities that have incomplete pedestrian networks. There is an opportunity to revisit design standards and requirements to ensure that they are contributing to the City meet it's vision and goals. Standards to consider may include sidewalk or pathway location, width, the presence of a buffer between the motor vehicle lane and the sidewalk, and features that make the pedestrian network accessible (curb ramps, tactile indicators, etc.).
- **Poor street lighting has been identified as an area of concern for residents and may negatively impact pedestrian comfort and safety.** Personal safety and intersection safety were noted by STP survey respondents as being walking issues and 37% of respondents indicated that they would walk more if sidewalks and pathways were well lit. Fear of crime and a desire for better lighting were identified in a number of the written comments and at locations throughout the City as being challenges for walking.
- **There is an opportunity to deliver more trails and pathways that meet both recreational and transportation needs.** STP survey respondents (42%) indicated that building more trails and pathways would make them more likely to walk. The City has access to high quality natural resources and recreation areas and existing area plans prioritize providing trails and greenways in key locations.
- **Installation of new sidewalks require a curb and storm drainage for many older established areas in the city, which can be costly and have environmental impacts.** Existing drainage ditches make sidewalk construction difficult in some areas. Costs associated with these types of new sidewalk installations in established areas can be significant due to the corresponding infrastructure required to manage the changes in drainage. This type of work also requires environmental assessments and potential mitigation measures. The City is planning to improve drainage infrastructure on the Fraser River escarpment over time, creating an opportunities to improve sidewalk coverage in parallel with other work.

Figure 4-4 summarizes the walking issues and challenges identified by respondents through the STP survey.

WHAT ARE THE MAIN ISSUES AND CHALLENGES FOR WALKING IN MAPLE RIDGE?

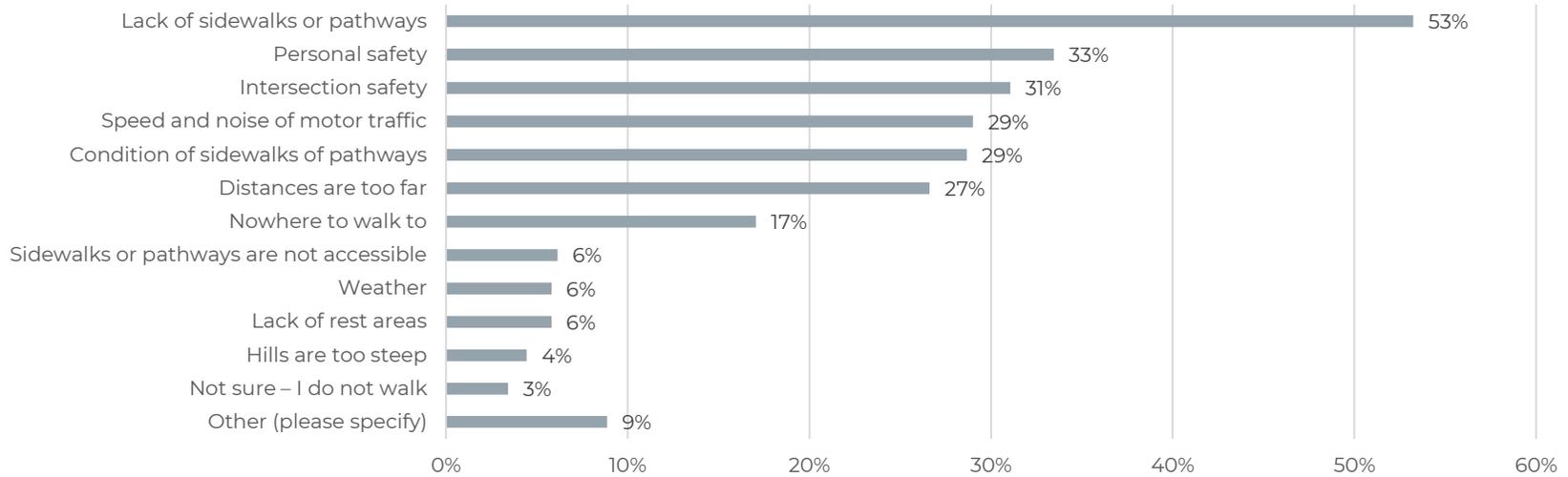


Figure 4-4: Walking Issues and Challenges

5.0 CYCLING

Cycling can be an attractive transportation option, as it is convenient, relatively low cost, and for shorter trips can be a practical alternative to vehicle travel. Cycling has several benefits to individuals, the community, and the environment. Cycling is enjoyable, efficient, affordable, healthy, sociable, and a sustainable form of transportation. There is a high potential for growth in cycling for transportation and recreation in Maple Ridge, due to the City's natural beauty and access to outdoor amenities and regional parks. Cycling accounts for less than 1% of all trips by residents of Maple Ridge and has been relatively stable over time. While some survey respondents indicated that they had no interest in cycling (30%), others reported they would be more likely to cycle if there was a complete, connected cycling network that was properly maintained year-round. The STP will seek to identify where and how to focus improvements to cycling infrastructure and policy. This section of the existing and future conditions report outlines how existing policy is expected to shape the future of cycling in Maple Ridge, identify existing infrastructure, and assess issues and gaps.

5.1 POLICY CONTEXT

The policy documents reviewed earlier include policies and guidance for the delivery of walking infrastructure in Maple Ridge. This guidance is highlighted below:

- **Maple Ridge's OCP** Principle 45 states that "Citizens value a pedestrian friendly environment that includes a trail network for horses, walking and cycling for recreation and access to amenities, employment, and services". Its objectives support an integrated, multi-modal transportation system that includes cycling.
- **Maple Ridge-Pitt Meadows ATP** notes that there are gaps and inconsistencies in the area's cycling network and supporting facilities. The ATP identified limited north-south connections between Haney Place, Port Haney and 124 Avenue, and an opportunity to address gaps in the Major Bike Network along Lougheed Highway, as connections between Downtown Maple Ridge and Downtown Pitt Meadows need strengthening. There is the opportunity for high quality cycling support facilities at West Coast Express stations and in urban centres, such as bike parking at Haney Place Transit Exchange.

- **TransLink’s Regional Cycling Strategy** identifies a Major Bike Network (MBN) that connects major destinations and urban centres across the region. This MBN will facilitate longer-distance commuting and recreational trips, as well as reinforce the importance of high-volume local routes. Since the development of the Regional Cycling Strategy the proposed MBN network map was reviewed and an Interim MBN network map was developed (**Figure 5-1**). TransLink is currently reviewing the MBN again and an updated version of the MBN will be presented in Transport 2050. This version is still being finalized but includes the Regional Greenway Network and route desire lines along:
 - o Lougheed Highway
 - o Golden Ears Way/128 Avenue
 - o 224 Street, and
 - o 232 Street.

TransLink has recommended the following actions:

1. Develop the bikeway network such that network density is higher in urban centres and areas of high cycling potential; moderate in areas of moderate cycling potential; and lower in areas of lower cycling potential.
2. Coordinate with regional partners to define and implement a Major Bikeway Network (MBN) generally consistent with **Figure 5-1**. The MBN will:
 - a) parallel the rapid transit network and provide high-quality connections to transit stations, urban centres and regional transportation gateways;
 - b) consist primarily of All Ages and Abilities bikeways;
 - c) be distinctly marked and identified through consistent design elements and a coordinated wayfinding system; and
 - d) integrate with Metro Vancouver’s Regional Recreational Greenway Network and existing inter-regional trails and bikeways.

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN
 STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

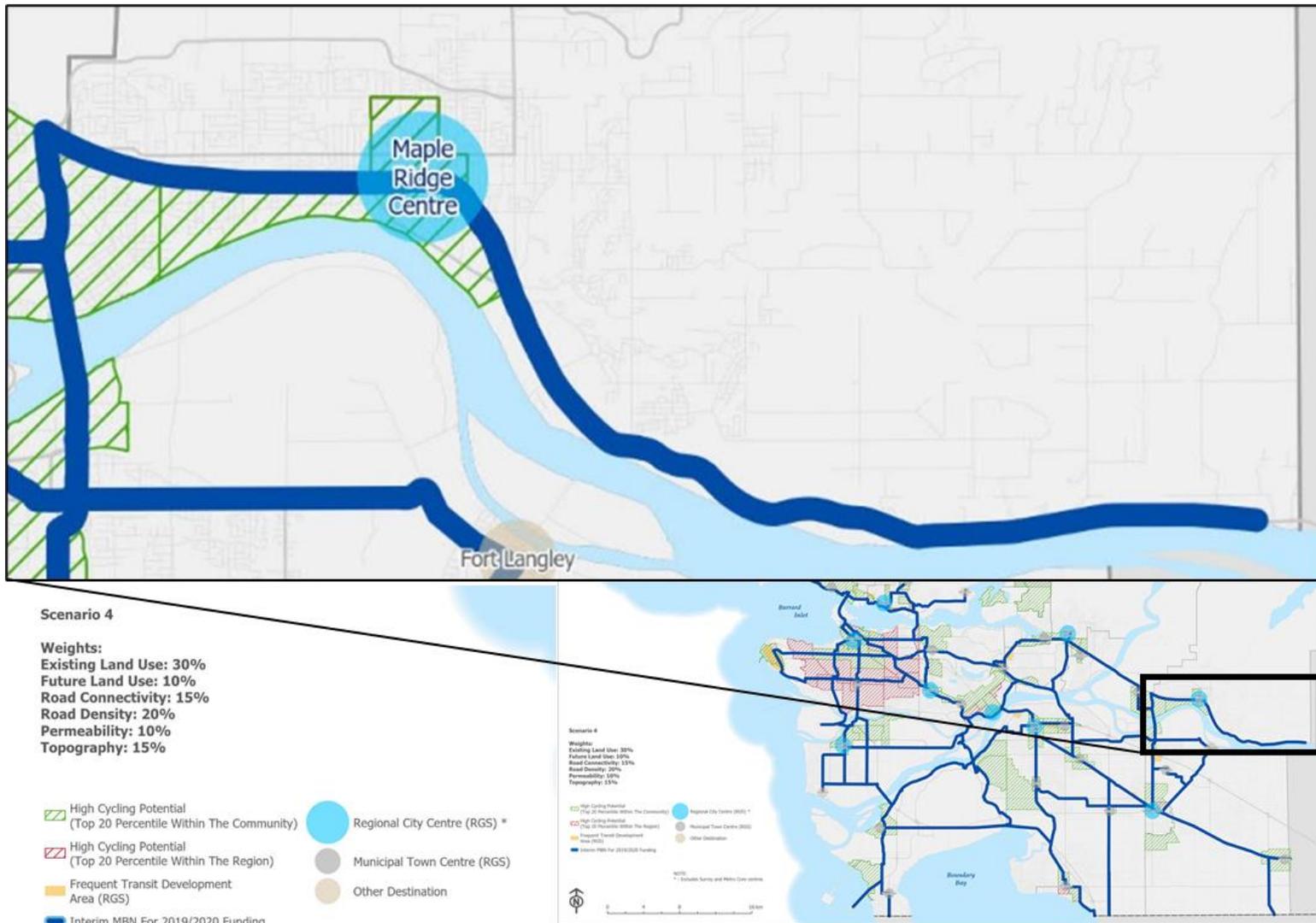


Figure 5-1: Interim Major Bikeway Network

Source: 2018 TransLink

- **Neighbourhood plans** each have specific guidelines for cycling infrastructure, as explored below:
 - **Town Centre Area Plan** identifies several new pedestrian and cycling projects that support the Green Corridor Network and the Waterfront Network, such as the Civic Area Ring Route, proposed Greenway Trails, and a Boardwalk along the water. These routes may have dedicated bicycle lanes, where feasible, or shared arrow markings in street travel lanes. Street signage will also be used to identify bicycle routes and directional signage to help cyclists locate a bicycle route.
 - **Lougheed Transit Corridor Plan** seeks to enhance mobility choice, building complete communities that make walking and cycling more viable. New roads and pathways will create smaller blocks to reduce walking and cycling distances, as well as greenways that support cycling as transportation and recreation.

To achieve enhanced mobility choice and to create re-imagined green spaces that connect people, and nature, the plan calls for a new West Ridge Greenway between Dewdney Trunk Road and Lougheed connecting the Town Centre to the western City boundary. The greenway will support pedestrian and cycling movement continuously from 202 Street to 224 Street, and will support vehicular traffic between 203 and 207 Street, between 210 and Laity Street, and east of 216 Street.

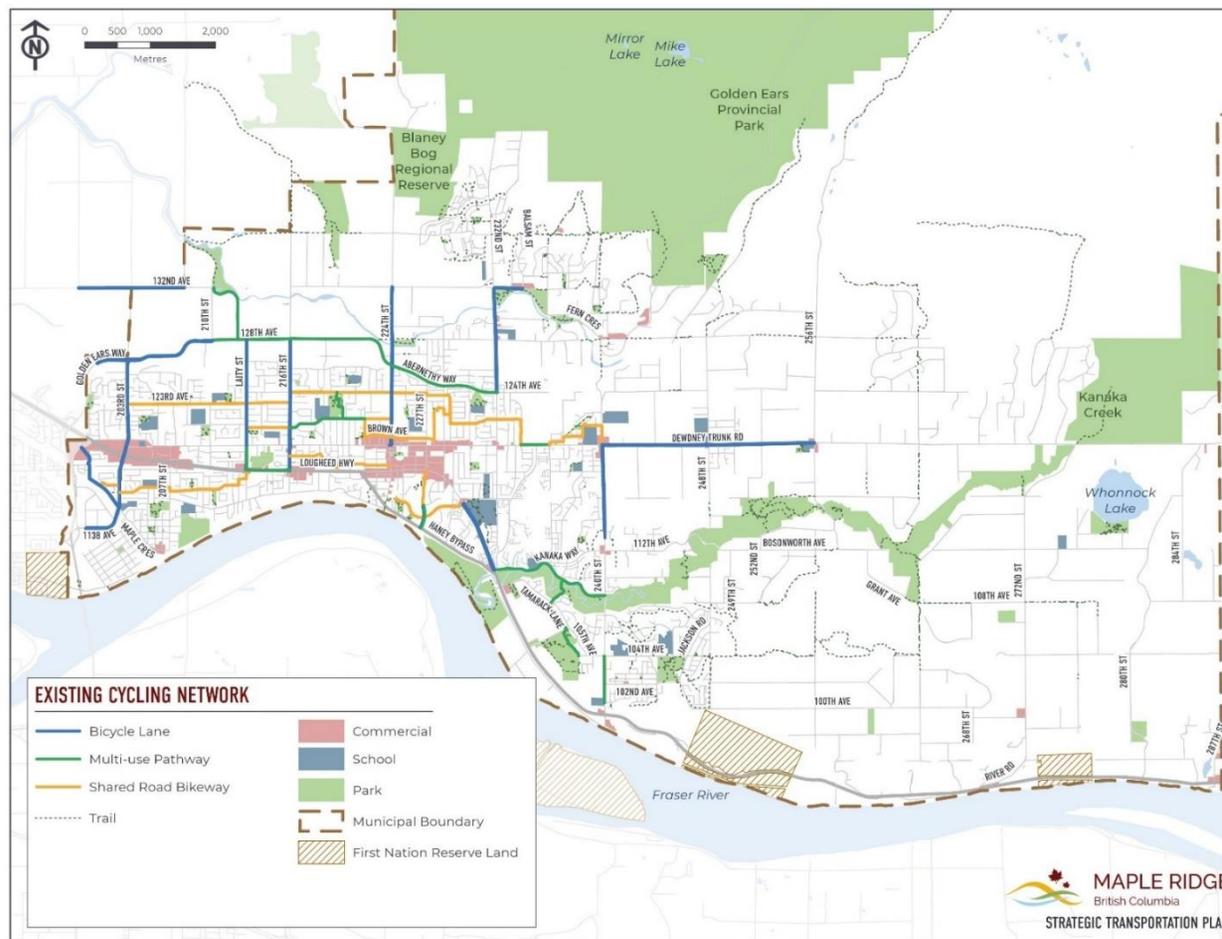
The plan notes several new cycling connections and supporting facilities:

- Pedestrian and cycling connection across McKenney Creek
- Planning for bike infrastructure such as: storage lockers, lock up facilities, tool stations at key nodes and greenways, parks.
- Encouraging end of trip facilities at businesses or mixed-use buildings.
- Require short-term and long-term bike parking spaces in new mixed-use developments

5.2 EXISTING INFRASTRUCTURE

Bicycles can travel on-street mixed with vehicles, on lanes specifically designed for cycling, or on pathways shared with pedestrians. Bicycle lanes can be painted or protected from traffic by parking lanes or a physical barrier. Different types of cycling facilities are more comfortable for a range of riders and each has different costs, impacts, risks, and benefits.

Figure 5-2 illustrates the existing bicycle network in Maple Ridge. Bicycle routes in the City are predominantly made up of three types of facilities, including on-street bicycle lanes (~44 km), shared road bikeways (~19 km), and multi-use pathways (~14 km). There are also recreational trails within parks and throughout the community that can be considered part of the bicycle network.



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Figure 5-2: Existing Cycling Network

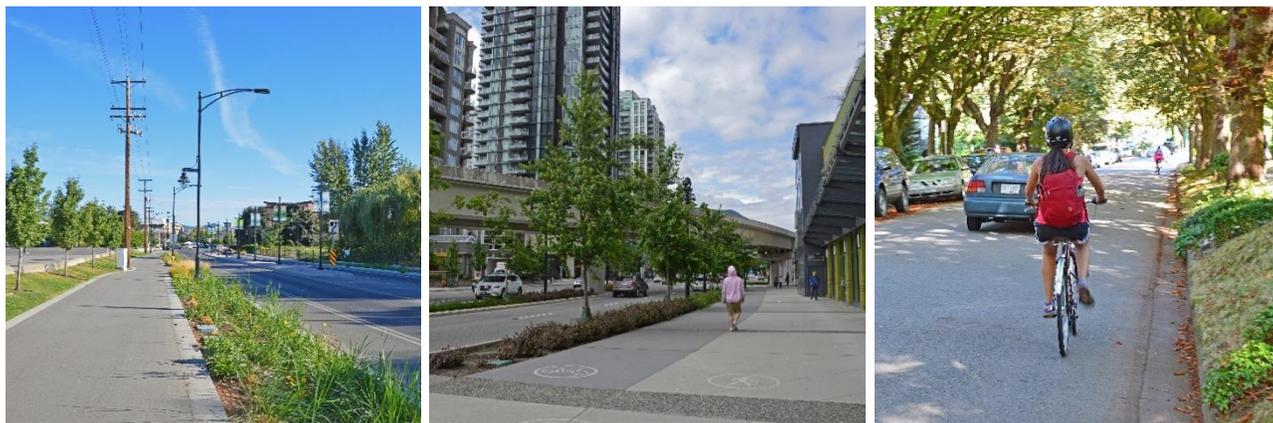
5.3 ASSESSMENT

The City’s bicycle network does not connect directly to most people’s homes and has a mix of connectivity to important community destinations. Routes are discontinuous and include a mix of infrastructure types. On-street routes include both low volume roads that are typically comfortable for cyclists of all ages and abilities to higher volume roadways that are only comfortable for confident cyclists. Many important cycling destinations, including commercial land uses, schools, West Coast Express Stations, and rapid and frequent transit stops are not directly connected to Multiuse Pathways (MUPs) and separated cycling facilities, making them difficult to access for some cyclists. The most consistent east-west route through the City is located north of the most populated areas and away from destinations and residential density.

Cycling comfort level is a way of classifying cycling routes to summarize the combination of factors that make a bicycle facility safe and comfortable for people of all ages and abilities. It was used by HUB and TransLink to assess the Metro Vancouver cycling network as documented in the report *Benchmarking the State of Cycling in Metro Vancouver (2019)*. The system includes the following classifications

Comfortable for **most** people includes facilities that are fully protected from traffic or are on-street on low volume, low speed roadways (i.e. 30 km/h or less and less than 2,000 vehicles per day).

These facilities tend to be designed to accommodate cyclists of all ages and abilities and are commonly referred to as **AAA cycling facilities**.



CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN
STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

Comfortable for **some** people includes shared road bikeways and painted bike lanes on roads with higher speed limits or traffic. (i.e. up to 50 km/h and 3,000 vehicles per day).



Comfortable for **few** people includes facilities that are painted or where bicycles ride on the road shoulder and speeds and traffic volumes are higher (i.e. 50 km/hr or greater and more than 4,000 vehicles per day).



CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN
STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

Comfortable for **very few** people are largely shared roadways with high posted speeds and even higher traffic volumes (i.e. greater than 50 km/h and 6,000 or more vehicles per day).



Most of the on-street bicycle network within the City is not considered comfortable for people of all ages and abilities because of lack of separation from traffic and / or traffic speed and volumes for shared routes and bicycle lanes that are not protected from traffic. The majority of the routes that are comfortable for most (128th Avenue / Abernethy Way, Mountain View Crescent / 122nd Avenue) are MUPs. While MUPs provide separate from traffic, they introduce new challenges, including conflicts between pedestrians and cyclists and potential conflicts at intersections. Other locations that are comfortable for most include protected bicycle lanes on 203rd Street.

Much of the existing bicycle network is shared on-street or painted bicycle lanes on roadways with high speeds and volumes, making it comfortable for few or very few cyclists to travel through Maple Ridge by bicycle. The majority of comfortable cycling routes are discontinuous and do not connect to important destinations.

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN
 STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

Locations where a cyclist has been involved in a collision with a vehicle between 2015 and 2019 are identified in **Figure 5-3**. Locations with one or more collisions per year are identified with a large red circle. Like collisions involving pedestrians, collisions involving cyclists are more likely to result in injury or fatality than collisions involving only vehicles. Locations with higher numbers of cyclists, higher vehicle volumes, and a low level of high quality, protected cycling facilities are more likely to see collisions between vehicles and cyclists. The highest frequency of cycling collisions were located along Dewdney Trunk Road, Lougheed Highway, 232 Street, and within the Town Centre (). Roadways in the City's with MUPs and protected bicycle lanes have experienced relatively low levels of collisions compared to other types of roadways.

The availability of appropriate, secure bicycle parking is an importance component of making cycling accessible and convenient. The City's Zoning Bylaw 7600-2019 required bicycle parking in new buildings in the Town Centre. There are opportunities to provide more long-term and short-term bicycle parking through policy regulations or programming to provide short-term parking within the public right-of-way.

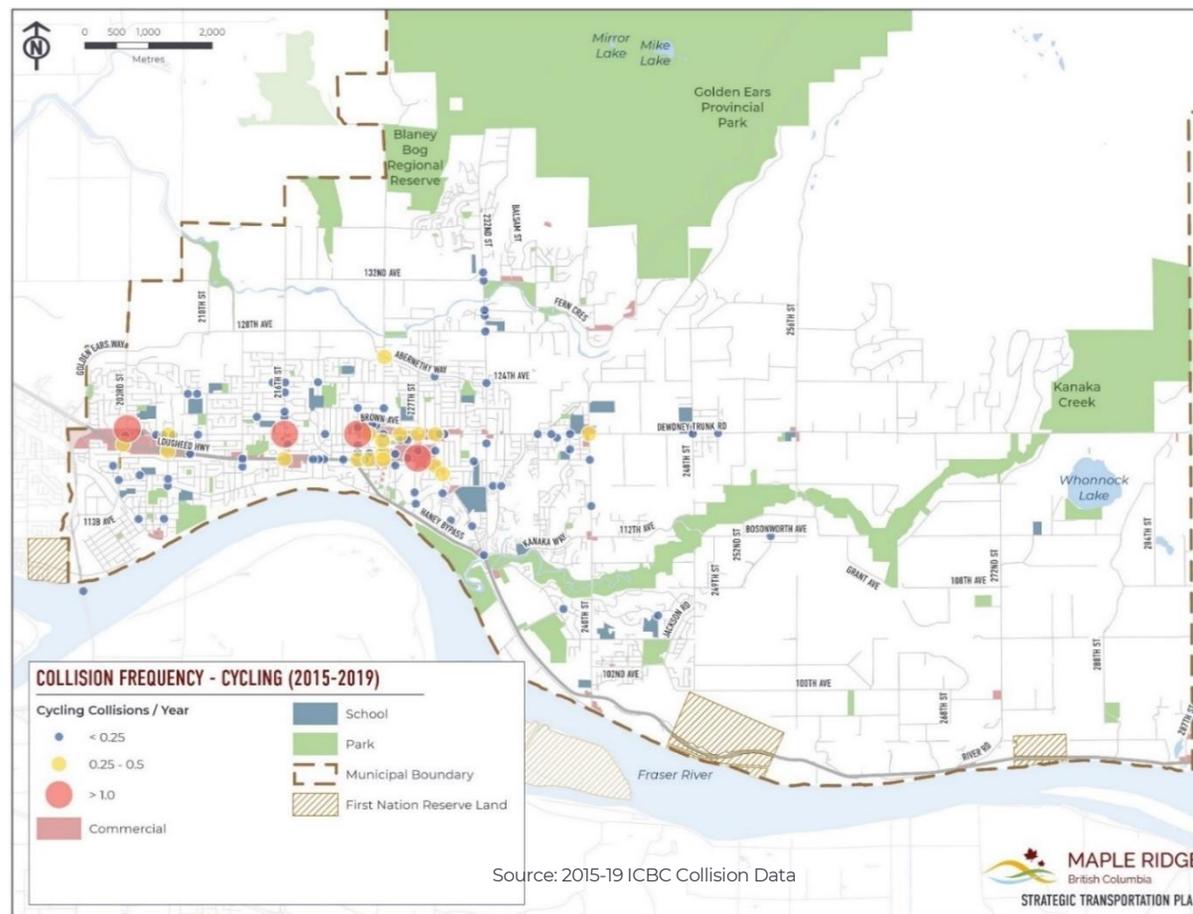


Figure 5-3: Cyclist Collision Frequency

5.4 ISSUES & OPPORTUNITIES

Issues and opportunities concerning the cycling experience in Maple Ridge identified through the technical work and consultation with stakeholders and the public include:

- **Gaps in the cycling network can make connecting to destinations by bicycle challenging.** Many of the existing routes in the City are discontinuous and change facility types along the length of the corridor. There is a lack of connected routes to key destinations within Maple Ridge, including the Town Centre, schools, and parks. Approximately, 33% of survey respondents said that they do not bike, so they are unsure of the main issues and challenges for cycling in Maple Ridge. Popular answers were gaps in the bike network and bike routes do not feel safe.
- **Residents support new cycling facilities that is separate from traffic and the City has been investing in these types of facilities; however there is more to be done to create a complete and connected network of cycling facilities.** More than half of survey respondents prefer separated cycling facilities in both new neighbourhoods and as improvements in existing neighbourhoods. Survey respondents prefer physically protected bicycle lanes (30% in existing neighbourhoods, 29% in future neighbourhoods) followed by multi-use pathways (23% in existing neighbourhoods and 28% in new neighbourhoods). Facilities like protected bicycle lanes, multi-use pathways, and local street bikeways can provide direct routes to key destinations and are the types of facilities that interested and concerned cyclists typically feel the most comfortable using. Building more AAA facilities will help to grow the number of trips made by bicycle and the City's cycling mode share. Survey respondents also noted that expanding the cycling network and building more trails and pathways would encourage them to cycle more in Maple Ridge. **There are opportunities to enhance and build the Major Bikeway Network and the Regional Greenway Network.** This will include enhancing connections to transit and other regional destinations. Approximately 42% of survey respondents indicated that the expansion of trails and pathways would encourage them to cycle more often. Enhancing on- and off-street connections to the regional greenway network can make cycling for transportation and recreation more accessible and comfortable for more people. Building the MBN through cost sharing programs with TransLink will allow the city to implement connected and continuous AAA cycling facilities that support Maple Ridge residents and the region. There are also opportunities to utilize Federal and Provincial grant funding programs, initiated in response to COVID-19, the climate emergency, and a national focus on promoting active transportation for all community members.
- **Ongoing development throughout the community can be planned and designed in a way to support active transportation.** There are opportunities to ensure that new developments, subdivisions, and growth within the Town Centre supports cycling and active transportation. Implementing new cycling facilities (including bicycle routes and parking) as part

of new developments and ensuring destinations are within cycling distance to residents can help create a community with the elements that support cycling.

- **New forms of mobility are becoming more popular and making cycling and micromobility transportation options more accessible.** Electric bicycles (e-bikes) are becoming more prevalent as bicycle infrastructure improves and the cost of e-bikes decreases. Additionally, electric kick scooters (e-scooters), and other small, one-person electric vehicles, as well as the wide-scale proliferation of shared mobility systems such as bike share and e-scooter share are becoming more common in communities throughout North America and around the world. These options provide more transportation options for people of all ages and abilities, however, important questions are now being raised around where to park these vehicles, which facilities these modes are most appropriate, and how the speed differential of some of these vehicles may impact the safety and comfort of shared-use facilities.

Figure 5-4 summarizes the walking issues and challenges identified by respondents through the STP survey.

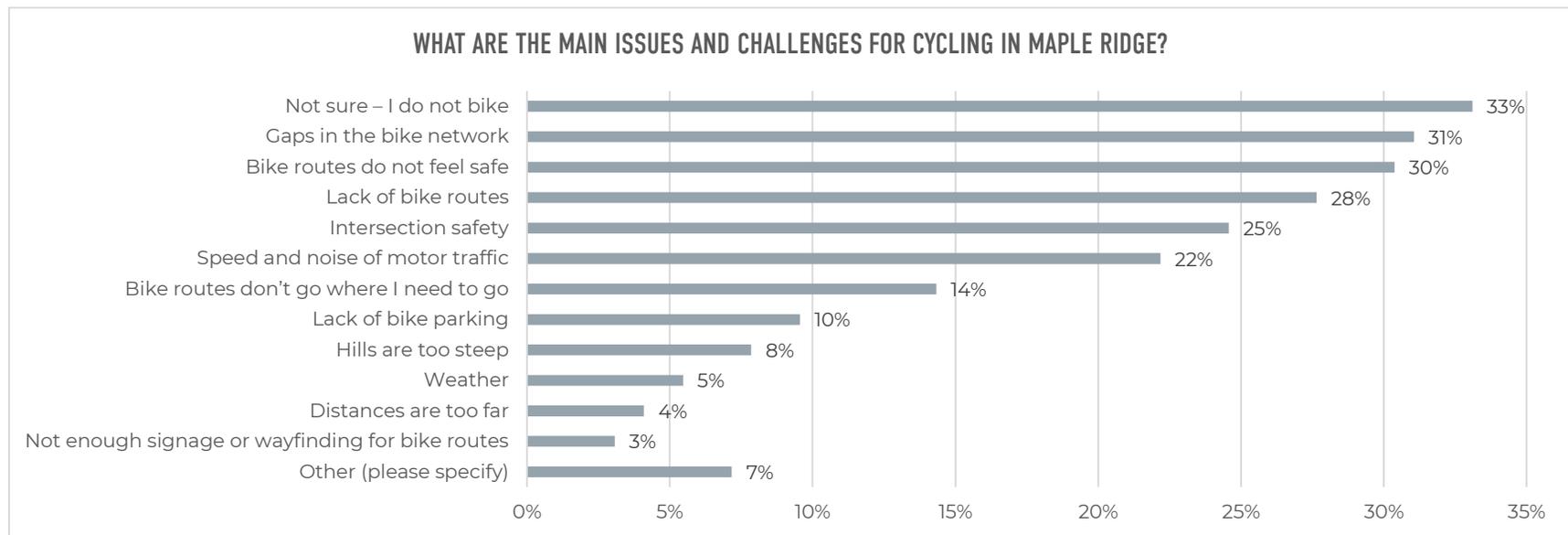


Figure 5-4: Cycling Issues and Challenges

6.0 TRANSIT

Transit service is central to providing a safe, convenient, low emission transportation network that serves the community's needs across all demographics. Transit is an essential service – it has a central and important role in moving residents and workers that cannot or choose not to drive. This was especially apparent during the COVID-19 pandemic when governments invested in maintaining transit service to transport essential workers. Beyond this, it is also a key component of enabling our transportation network to move more people quickly and efficiently with fewer emissions. Frequent, convenient, and comfortable transit can be a viable and desirable alternative to driving across many trip purposes and distances.

Transit accounts for almost 3% of all trips by residents of Maple Ridge. Survey respondents indicated that making transit routes faster and more direct, making transit more frequent, and increasing service on weekends and evenings would encourage more transit trips. The STP will seek to identify policies and infrastructure investments that are within the City's control and will make transit faster, more reliable, and more accessible. This section of the existing and future conditions report outlines how existing policy is expected to shape the future of transit in Maple Ridge, identify existing service and infrastructure, and assess issues and gaps.

6.1 POLICY CONTEXT

The policy documents reviewed earlier include policies and guidance for the delivery of walking infrastructure in Maple Ridge. This guidance is highlighted below:

- **Maple Ridge-Pitt Meadows Area Transport Plan (ATP)** notes a variety of issues and opportunities for transit in the area. Transit is not well-used for local trips within Maple Ridge and Pitt Meadows Transit is also not well-used for commuting to other cities for work. Both of these are likely because transit is not competitive with driving for most trips – driving is frequently faster and more convenient than transit. Historically, the most direct and reliable transit available for Maple Ridge residents is the West Coast Express, which provides peak direction commuting service (i.e. westbound in the morning and eastbound in the afternoon) from two stations within Maple Ridge. More recently, the R3 RapidBus has been introduced and provides fast and frequent service between Maple Ridge and Coquitlam Central SkyTrain service. Transit in some areas has limited or no evening or weekend service and low frequency, circuitous routes, limited connectivity and connections to rapid transit, unreliable travel times, limited amenities, and excess demand on certain routes. In addition, most parking is free throughout the area.

The ATP recommended a number of improvements to transit service and amenities, including increased frequency and extended length of service for the 743, 744, 745, and 746, and Sunday service for the 748 and 749. The ATP also notes that additional transit priority measures on Lougheed Highway will support faster and more reliable transit. The plan also recommended routing changes to the 743, 744, 745, 746, and 748, corridor improvement to address speed and reliability issues, new connections to regional destinations, and improvements to amenities at stops and stations. It also recommends a mobility hub aligned with a future West Coast Express Station in the Albion Flats area.

A **mobility hub** is a location that brings together different modes of transportation and facilitates transfers between modes. Examples may include a rail station that also serves as a hub for bus service, park-and-ride, bicycle parking, and shared vehicle or micro-mobility services.

- **Transport 2050 (In development)** outlines two options for the future transportation network for Maple Ridge. Option A includes SkyTrain connections to run to Port Coquitlam, and Light Rail Transit (LRT) would run from Coquitlam Central Station to Maple Ridge and Langley City Centre via Lougheed Highway, Golden Ears Bridge and 200 Street. Option B includes Bus Rapid Transit (BRT) or LRT to Maple Ridge also along the Lougheed Highway.
- **The Lougheed Corridor Long-Term Transit Study (2019)** undertaken by TransLink with involvement from Maple Ridge, evaluates four transit alternatives to connect Coquitlam Central to Haney Place via Lougheed Highway. All of the options retain two general purpose travel lanes in each direction and utilize the locations of the existing RapidBus stops. The four options assessed were Optimized B-Line, Bus Rapid Transit (fully separated from mixed traffic), Light Rail Transit, and SkyTrain. The Bus Rapid Transit, Light Rail Transit, and SkyTrain options all improve speed, reliability, and capacity beyond the new B-Line service, but have different property and cost implications. Forecasts completed for this work indicate that bus-based options provide sufficient capacity along this corridor. Transit-supportive land use along the corridor is required to support these services attaining higher ridership.

- **Neighbourhood plans** each have specific guidelines for transit infrastructure, as explored below:
 - **Town Centre Area Plan** expects that with increased density the Town Centre will increase demand for public transit. The plan aims to improve public transit service so that a bus stop is within 400 m of any residential building, and creating a plan for light rail or similar rapid transit modes that connect the Town Centre to other areas in the City or across the region.
 - **Albion Flats Concept Plan (Endorsed)** calls for a future mobility hub, including a West Coast Express Station and park and ride.
- **Lougheed Transit Corridor Plan** aims to create mixed-use employment hubs at rapid transit stops. The plan extends from 200 Street to 221 Street and supports the creation of two mixed-use high-density transit-oriented development nodes where Lougheed Highway intersects with 203rd and Laity Streets (where the current RapidBus stops are located – a future stop may be located at 222 Street). These two transit nodes – West Side and Ridge Junction – where the rapid bus stops are located, are intended to be places for people to live, shop, work, and play. The 203 Street node will support taller buildings and a larger range of commercial uses, serving as the western gateway into Maple Ridge. The Laity Street node will support a smaller geographic growth area, with the focus on retail and professional services that serve existing destinations at this intersection and a range of housing options including seniors and adaptable housing units, as well as assisted living units. The plan seeks to grow transit ridership in order to build a case for future rapid transit investment. This includes exploring potential Transportation Demand Management initiatives and practices.

6.2 EXISTING INFRASTRUCTURE

In Metro Vancouver, transit is planned and delivered by TransLink. Transit services provided within Maple Ridge include the West Coast Express (operated by TransLink on the Canadian Pacific Rail ROW) RapidBus, conventional transit, and HandyDART (paratransit). Elsewhere in the Metro Vancouver region, TransLink also plans and delivers SkyTrain service. Although TransLink plans and delivers transit, municipalities have direct control over the roadway network that buses operate in and over transit supportive facilities, including bus stops and accessible walking and cycling connections to transit. The City has a role in ensuring the transit is able to operate effectively without operating delay due to congestion and that people of all ages and abilities can access transit.

Transit service in Maple Ridge includes multiple mobility hubs where users can access community destinations and / or transfer between transit services or routes. The central hub is Haney Place in the Maple Ridge Town Centre, where the R3 Rapid Bus meets multiple local transit services. The West Coast Express stations in Port Haney and Maple Meadows also serve as transit exchange points where local and regional focused services meet.

Local services are low to moderate frequency emerging and provide service across the City, connecting people and jobs to central hubs at destinations or where riders can transfers to regional services. Some routes connect rural and emerging areas to the Town Centre. These include routes 748 and 749, which serve east Maple Ridge and routes 733 and 741, and the 746 which serves Albion. Other local routes travel in established areas of central and eastern Maple Ridge, travelling between the Town Centre and the Maple Meadows. The 701 and 791 provide more frequent regional service connecting Maple Ridge to Coquitlam and New Westminister.

Conventional and RapidBus service are centered around a transit exchange in the Town Centre. The R3 RapidBus launched in 2020 and provides fast frequent service between Maple Ridge Town Centre and Coquitlam Town Centre. Service throughout the rest of western, central, and northern Maple Ridge varies from 15 minute to 45 minute frequency. Most of eastern Maple Ridge is served by buses with frequencies of 60 minutes or greater.

The West Coast Express provides fast, direct service between Mission and Downtown Vancouver. This service is only peak hours, peak direction and primarily serves commuters.

Cumulative frequency on corridors is an indicator of the ease of use of transit. Corridors that have one high frequency transit service or multiple lower frequency services reduce the overall travel time and reliability for users. As illustrated in **Figure 6-1**, transit service and frequency vary across Maple Ridge.

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN
 STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

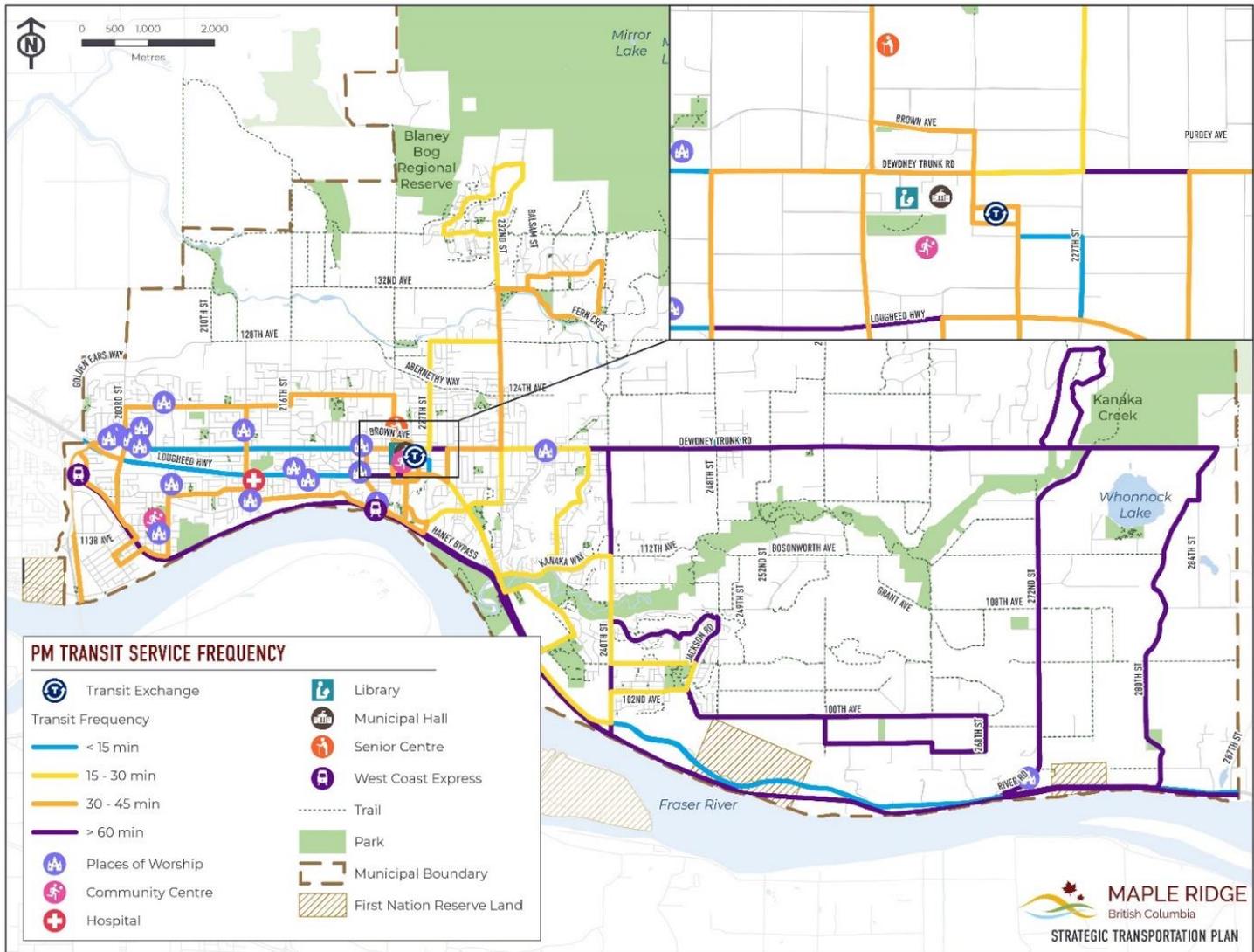


Figure 6-1: PM Peak Transit Service Frequency

Source: TransLink Transit Timetable

6.3 ASSESSMENT

The ability of the transit network to serve people’s daily travel needs is related to the proximity of transit to homes and destinations, and the frequency, directness, and reliability of service. Almost 83% of homes in Maple Ridge are within walking distance of a transit stop (800 m for rapid transit and west coast express and 400 m for conventional transit service). This includes both the frequent service provided by the R3 and along Dewdney Trunk Road and less frequent service throughout the rest of the network. Only 14% of homes are within 800 m service with frequency of 15 minutes or better. Approximately 5% of homes are within 800 m of a West Coast Express Station. The catchment area of the transit network is illustrated in **Figure 6-2**. Where high frequency transit service is provided and / or planned along key routes, increasing population and employment density can play an important role of increasing the number of people that can use transit for their daily needs.

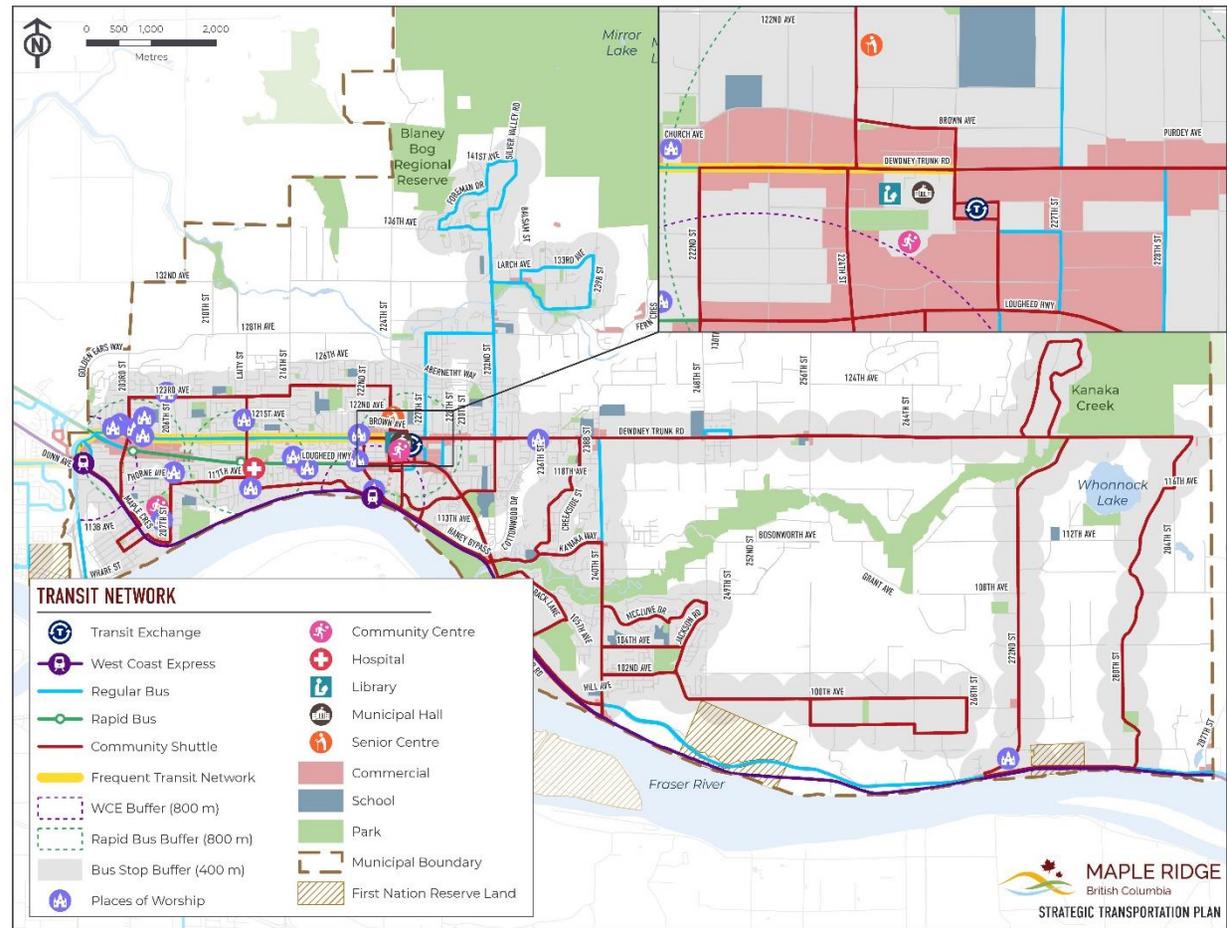


Figure 6-2: Transit Network

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN

STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

Through the Maple Ridge-Pitt Meadows Area Transport Plan, TransLink identified corridors where transit riders experience delay (based on person hours of delay). Key corridors are illustrated in **Figure 6-3** and include Dewdney Trunk Road, Hammond Road, and Lougheed Highway. The report called for expanded bus priority lanes and transit priority measures along the Lougheed corridor, in addition to transit priority measures along Dewdney Trunk Road. The Area Transport Plan also recommended increased service frequency, extended hours of operation, and Sunday service on routes 743 and 744 in addition to other service improvements to address unmet existing transit demand in the areas serviced by these routes. Other transit recommendations included a commitment to identify additional opportunities for expansion of West Coast Express service and a new station in the Albion area through an updated West Coast Express Strategy.

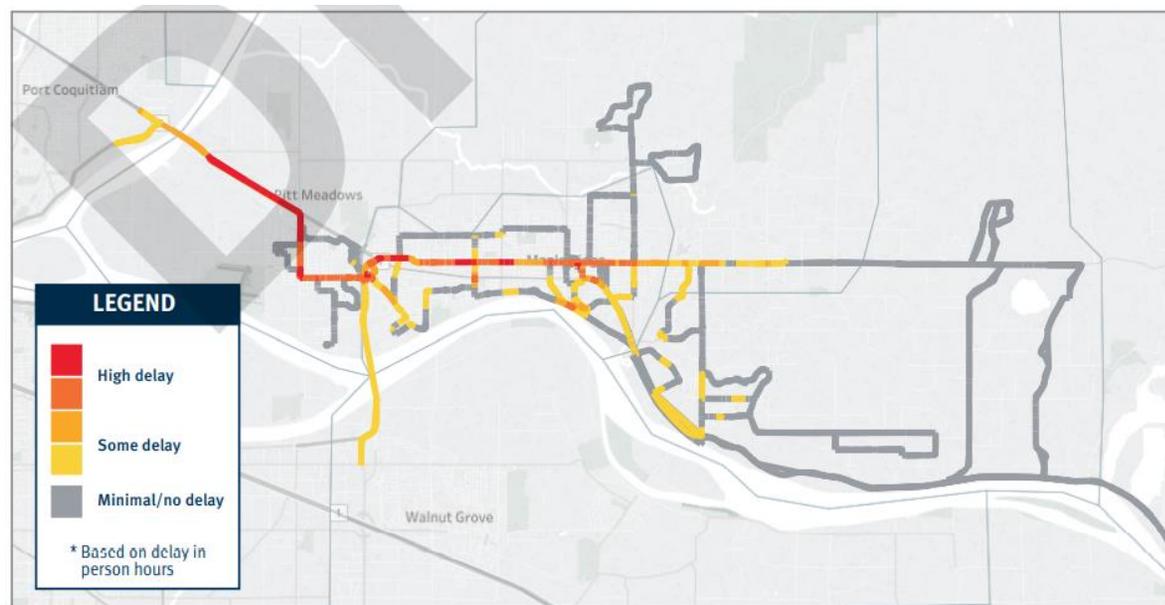


Figure 6-3: Existing Transit Speed and Reliability

Source: Maple Ridge-Pitt Meadows Area Transport Plan

Strong transit systems include transit-supportive infrastructure, including accessible transit stops, shelters, lighting, and other amenities within the municipal right-of-way. There are opportunities to ensure that walking / rolling infrastructure supports transit service and to increase the number of stops with key amenities. Much of eastern and northern Maple Ridge is not served by frequent or reliable transit. The availability of mobility hubs with access to comfortable, reliable transit by vehicles, bicycles, car- and ride- share services, micromobility, and other modes can facilitate transit for longer trips.

6.4 ISSUES & OPPORTUNITIES

Issues and opportunities for improving the feasibility and experience of taking public transit in Maple Ridge were identified throughout the stakeholder and public engagement process. These include:

- **Few residents live close to frequent, high speed transit with extended service hours, including weekends.** Although the majority of residents live within walking distance of a transit stop, a much smaller percentage live within walking distance of frequent, direct, reliable transit. There is an opportunity to both increase service levels and to increase density within existing rapid and frequent transit service areas in order to increase the percentage of people that have access to direct, reliable transit service. The R3 RapidBus has created an opportunity to continue to invest in transit priority, while the Lougheed Transit Corridor Concept Plan identifies opportunities for additional density and community building in near the Lougheed Corridor. More than 40% of STP survey respondents noted that they would take transit more if it was faster and more direct.
- **Increasing population and employment density within a compact transportation grid generates higher transit use than lower density development.** The highest levels of transit use within Maple Ridge are based within the Town Centre and historic neighbourhoods on the western boundary. These neighbourhoods feature compact, grid-based road networks that facilitate direct transit routes. They also typically have higher population and employment densities, meaning more people and destinations are located within walking distance of transit service.
- **Frequency and span of service of West Coast Express is limited and this service is difficult to expand.** The West Coast Express provides a limited number of trips in the peak direction, peak hours. The type of service is desirable for commuting but does not serve midday or weekend trips.
- **Congestion along major routes decrease the speed and reliability of bus service.** Dewdney Trunk Road, Lougheed Highway, and Hammond Road all experience traffic congestion that decreases the speed and reliability of transit, while also increasing the costs of providing transit. There is an opportunity to advance transit priority to improve transit service along these corridors.
- **Transit exchanges have gaps in amenities and there are limited places to park and ride transit.** The Area Transport Plan identified that transit exchanges lack amenities such as washrooms and some are physically constrained. It also identified opportunities to provide park and rides to facilitate more people using transit for a portion of their trips.
- **Some residents have little experience with transit in Maple Ridge or are hesitant to use transit to travel.** STP survey respondents indicated that they do not know what the main issues and challenges for transit in Maple Ridge are as they do not take transit (39% of respondents). Approximately 35% of STP survey respondents indicated that nothing would encourage them to take transit more.

Figure 6-4 summarizes the transit issues and challenges identified by respondents through the STP survey.

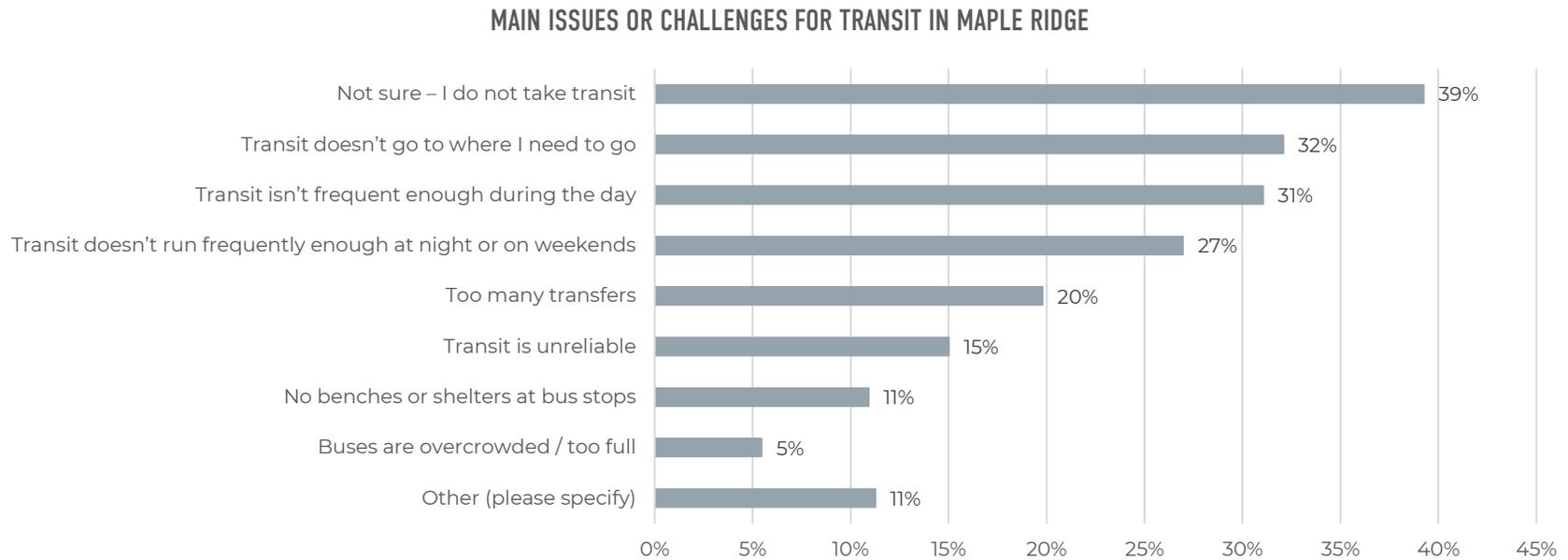


Figure 6-4: Transit Issues or Challenges

7.0 DRIVING / GOODS MOVEMENT

The road network is the basis for movement by all modes of transportation – road corridors and connections serve walking, cycling, transit, driving and goods movement. A connected, safe, and efficient roadway network is essential for a strong transportation network. Challenges experienced by drivers are also experienced in the movement of goods and services, as well as transit, resulting in broader economic and social impacts. Driving is also a convenient and connected mode of travel for many people, including people with challenges that make it difficult to choose non-auto modes.

Driving accounts for nearly 72% of daily trips by Maple Ridge residents and being a passenger in a private automobile is approximately 19%. As the number of residents and the share of trips by driving has increased over time, there is increasing pressure on the road network, particularly during peak periods. Survey respondents indicated that widening existing roads, improving intersections, and creating designated spaces from people walking and cycling that are separate from motor vehicles are the preferred actions to improve driving and carpooling. This section of the existing and future conditions report outlines how existing policy is expected to shape the future of private vehicle use and goods movement in Maple Ridge, illustrate existing infrastructure, and assess issues and gaps.

7.1 POLICY CONTEXT

The City of Maple Ridge has a road network that includes approximately 460 km of roads providing access to homes, business, services and properties. The City's street network is divided into a street network classification hierarchy (see **Figure 7-1**) that reflects the function and characteristics of each street. The street network classification represents the typical form and function for each type of street, although there may be some variations in the actual characteristics of various roadways. Currently the network of arterial, collector and local roads within the south-west areas of the city is dense and well established, while the northern and eastern areas are less established.

Provincial Highways, which are under MOTI's jurisdiction, are at the highest level of the street classification. Within Maple Ridge, Highway 7 (Lougheed Highway) runs through the City providing key connections in the east-west directions and connecting Maple Ridge with its neighbouring communities, such as the City of Pitt Meadows, the District of Mission and beyond. At the next level, the regional Major Road Network (MRN) connects the Provincial Highway system with the municipal road network. The MRN is owned by the municipality and operated, maintained, and rehabilitated jointly by the municipality and TransLink. There are several MRN corridors in Maple Ridge, including Golden Ears Way/128 Avenue/Abernethy Way, Dewdney Truck Road and Lougheed Highway between 222 Street and Kanaka Way.

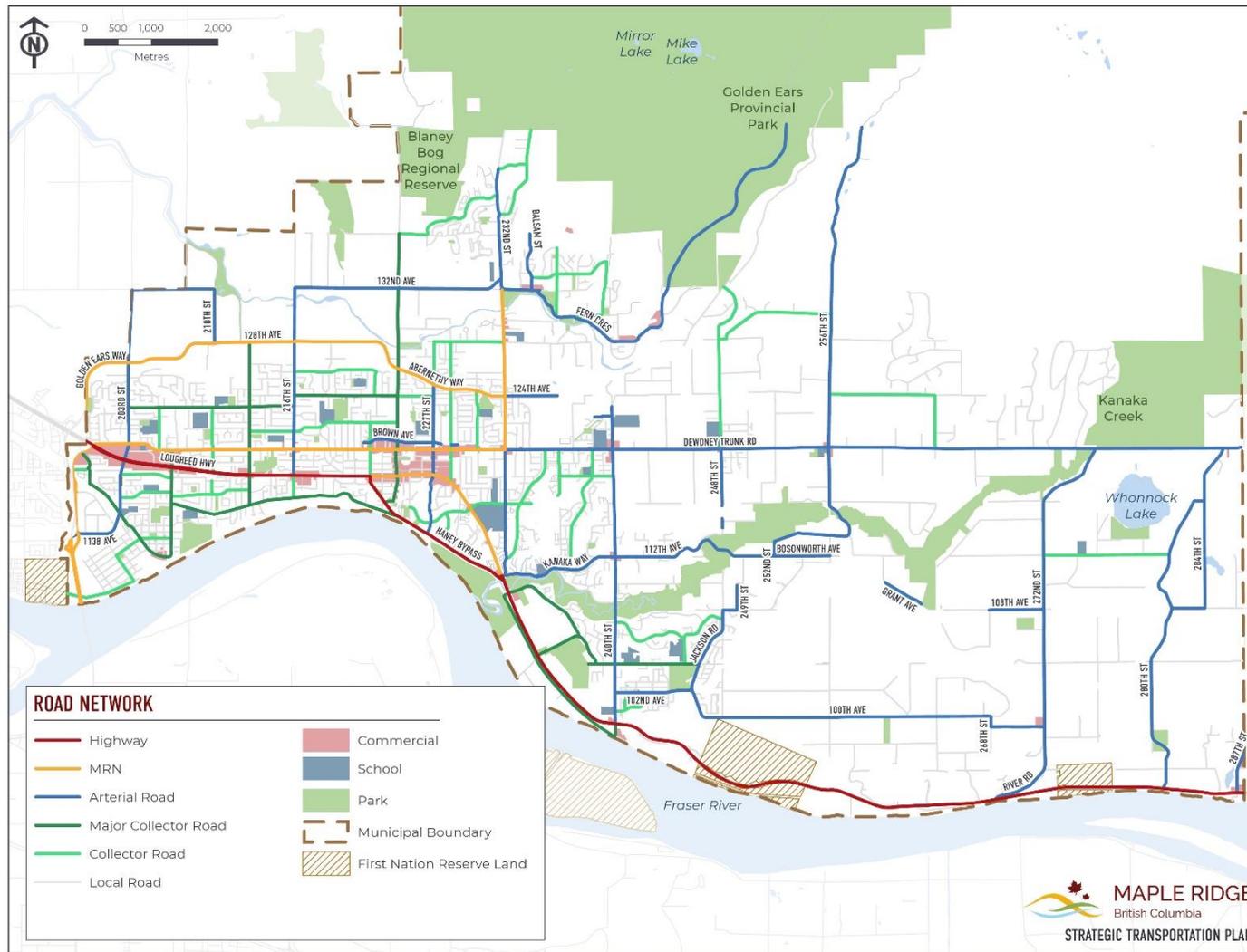
The City's **Subdivision Bylaw No. 4800-1993, Appendix D - Design Criteria Manual** defines road classifications for roadways under the City's jurisdiction as follows:

- An **arterial road** is a road with the primary function of carrying through traffic from one area to another with as little interference as possible from adjacent land uses. An arterial road may provide direct access to property as a secondary function when alternate access is not available.
- A **collector road** is a road with the primary function of distributing traffic between arterial, other collector and local roads within an area. Collector roads front civic, industrial, commercial or multifamily properties, provide on street parking and direct access to properties. The 2014 STP further refined the road classifications to include both a **major collector** classification for streets with higher traffic volumes and which play an important role in the City's road network, as well as a **minor collector** classification for collector roads with lower traffic volumes and a limited network contribution.
- A **local road** is a road with the primary function of providing direct access to properties. Local roads normally connect to other local roads or to collector roads.
- A **lane** (also called public lane or alley) is a roadway with the primary function of providing land access, typically at the rear of abutting properties. Lanes are not intended to carry through traffic. For properties fronting collector or arterial roads, rear lanes can eliminate the need for front driveways.

The **2021 ATP** noted that road network challenges have impact on public transit, driving conditions and goods movement, including:

- Lougheed Highway is a high traffic corridor with regular congestion.
 - Following the toll removal, peak traffic volumes have increased by 20-35% resulting in constrained mobility conditions at the Golden Ears Bridge connections.
 - Slower and unreliable travel conditions near the Golden Ears Bridge and Pitt River Bridge may negatively impact the reliability of driving times, goods movement and public transit.
- Road safety: between 2013-17, the three locations in this sub-region with the greatest numbers of collisions leading to casualties were:
 - Lougheed Highway at 203 Street (Ministry of Transportation & Infrastructure located in Maple Ridge)
 - Lougheed Highway at E Haney Bypass-Kanaka Way (Ministry of Transportation & Infrastructure located in Maple Ridge)
- Golden Ears Way requires additional study to confirm capacity constraints and define improvements. The ATP committed to funding required improvements through regional mechanisms.

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN
 STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS



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Figure 7-1: Road Network

7.2 EXISTING INFRASTRUCTURE

The road network within Maple Ridge that is under the City's jurisdiction, consists of approximately 100 km of arterial (including approximately 26 km of MRNs), 71 km of collector and 290 km of local roads. There are also approximately 43 km of highways (under the MOTI's jurisdiction) running through Maple Ridge.

In terms of traffic control devices, there are 48 traffic signals (including nine intersections on Highway 7 under the MOTI's jurisdiction) and 23 enhanced pedestrian crossings with overhead flashing signs (see **Figure 7-2**) within the City.

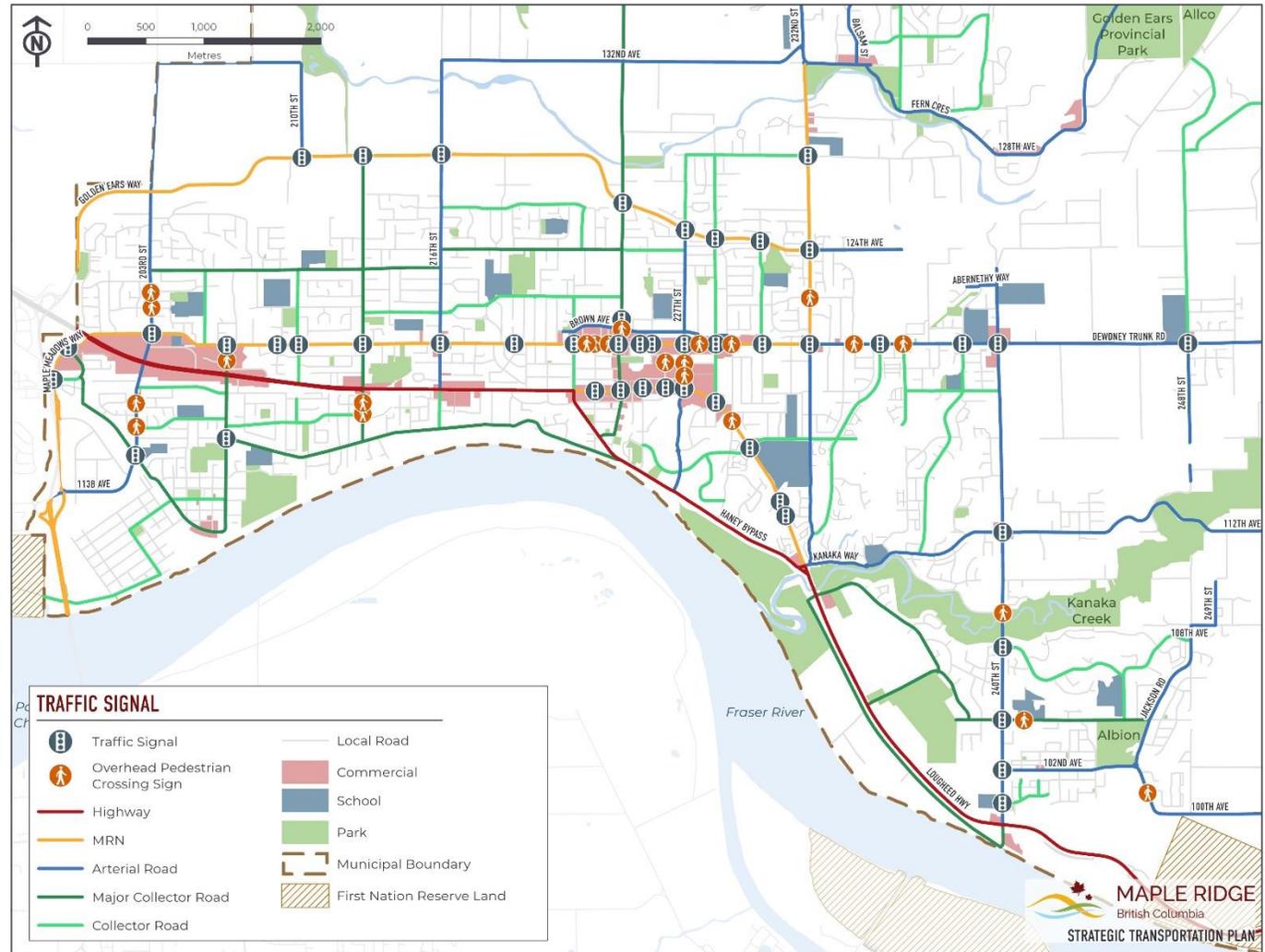


Figure 7-2: Traffic Signal

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN

STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

The default speed limits on the City's roads are 50km/hr. There are several locations (for example, streets adjacent to parks and schools) with lower posted speeds. In places such as River Road between Tamarack Lane and 240 Street and Dewdney Trunk Road east of 240 Street to the City boundary, the speed limits are higher than 50km/hr, given the function and characteristics of these roads. Highways and MRNs typically have a higher than 50km/hr of speed limit. Within Maple Ridge, most of the sections of Highway 7, Golden Ears Way and sections of 128 Avenue have a posted speed limit between 60 to 80km/hr. See **Figure 7-3** for details.

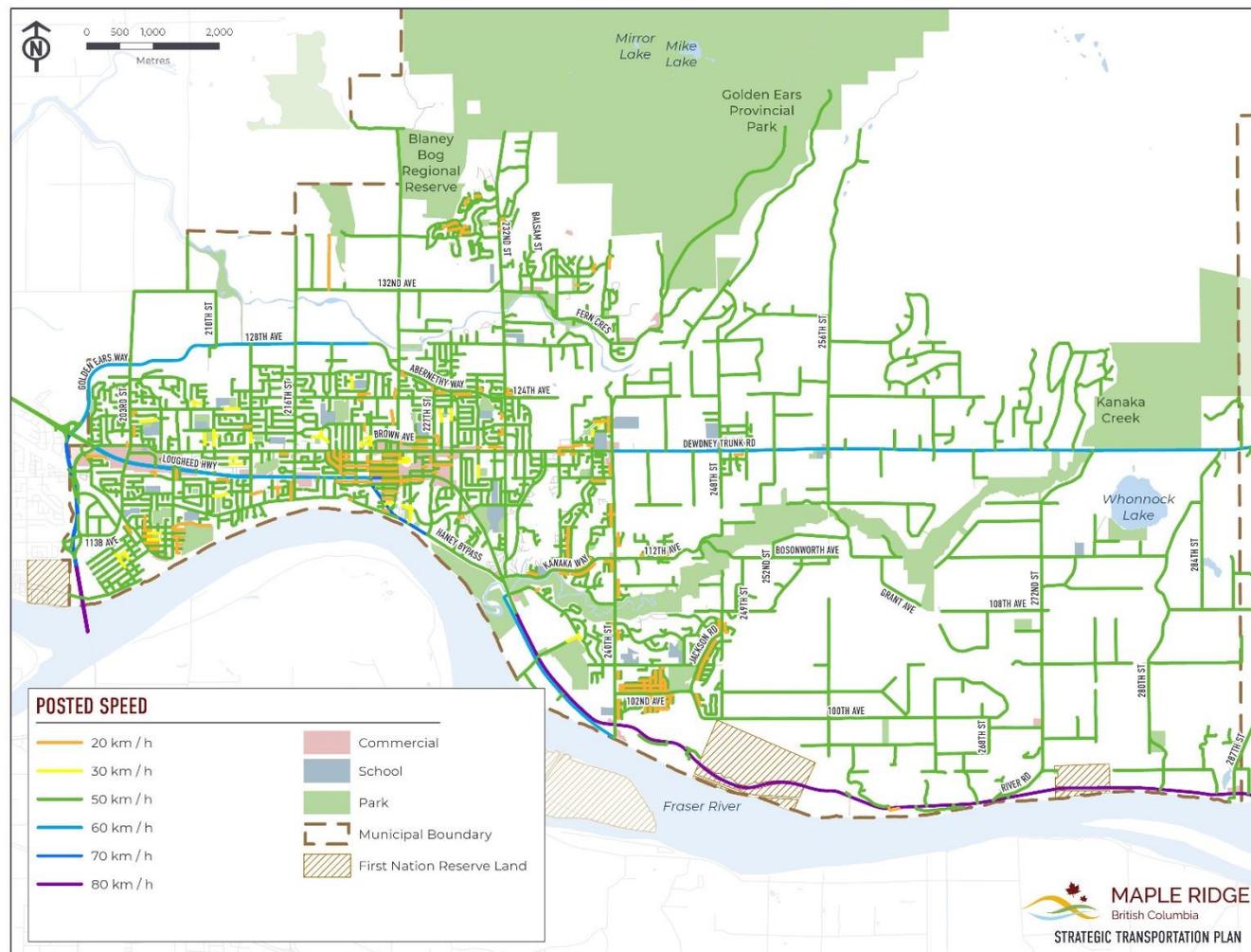


Figure 7-3: Posted Speed

Currently, the City of Maple Ridge does not have an official goods movement network, which means that trucks are not restricted by truck routes other than location specific restrictions such as weight and height restrictions.

Important goods movement destinations include industrial areas around 113B Avenue in the Southwest subarea, and south of Lougheed Highway in the Albion and Thornhill sub areas. Commercial vehicle access is also important for retail areas, including the Town Centre and around Lougheed Highway and Dewdney Trunk Road and heavy vehicle movements are important around the ALR.

7.3 ASSESSMENT

The driving assessment explores the transportation pressures that lead to congestion and safety challenges due to vehicle travel on the road network now and in the future. It begins with understanding where and how people travel by vehicle, then summarizes how the number of vehicles travelling is changing over time. The assessment then presents current travel speeds as a measure of network performance, as well as existing and future intersection delay, followed by a review of historic road safety challenges.

The volume of automobiles traveling in Maple Ridge has been increasing over time as both the overall number of daily trips by residents and the percentage of trips by auto as driver has increased. As discussed in Section 3, the number of trips per person per day has increased from 2.7 in 2008, to 2.9 in 2011 to 3.1 per day in 2017. At the same time, the TransLink Trip Diary results indicate that the mode shares for auto drivers have increased from 60% (2008) to 71.8% (2017) and overall from 85% to 90% (See **Figure 7-4**). Together, this has resulted in an increased number of vehicle trips by auto drivers (from 121,859 in 2008 to 196,571 in 2017) and overall from 173,447 in 2008 to 247,281 in 2017 (See **Figure 7-5**). As the trips per day by auto drivers increases, the additional volume has put increasing pressure on the road network.

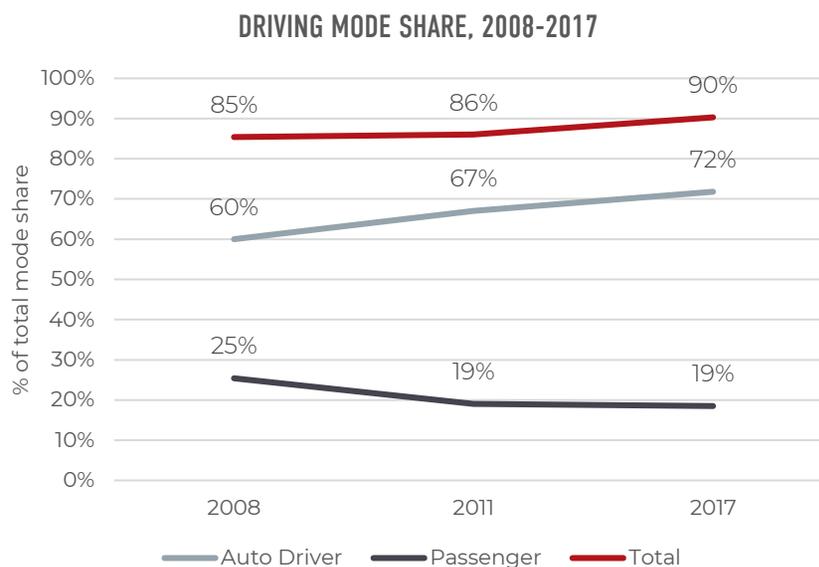


Figure 7-4: Driving Mode Share
Source: 2008, 2011 & 2017 TransLink Trip Diary

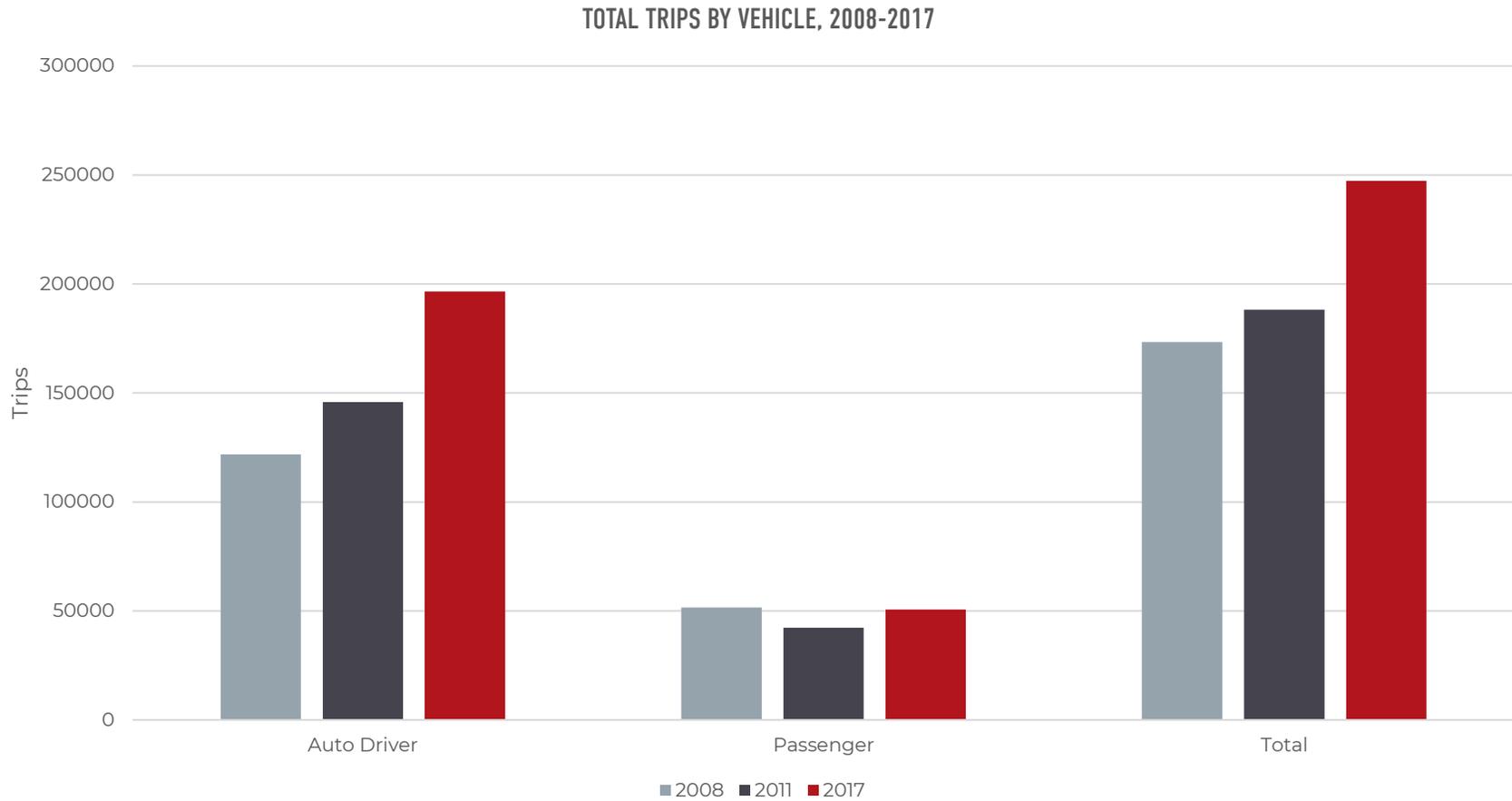


Figure 7-5: Trips by Vehicle

Source: 2008, 2011 & 2017 TransLink Trip Diary

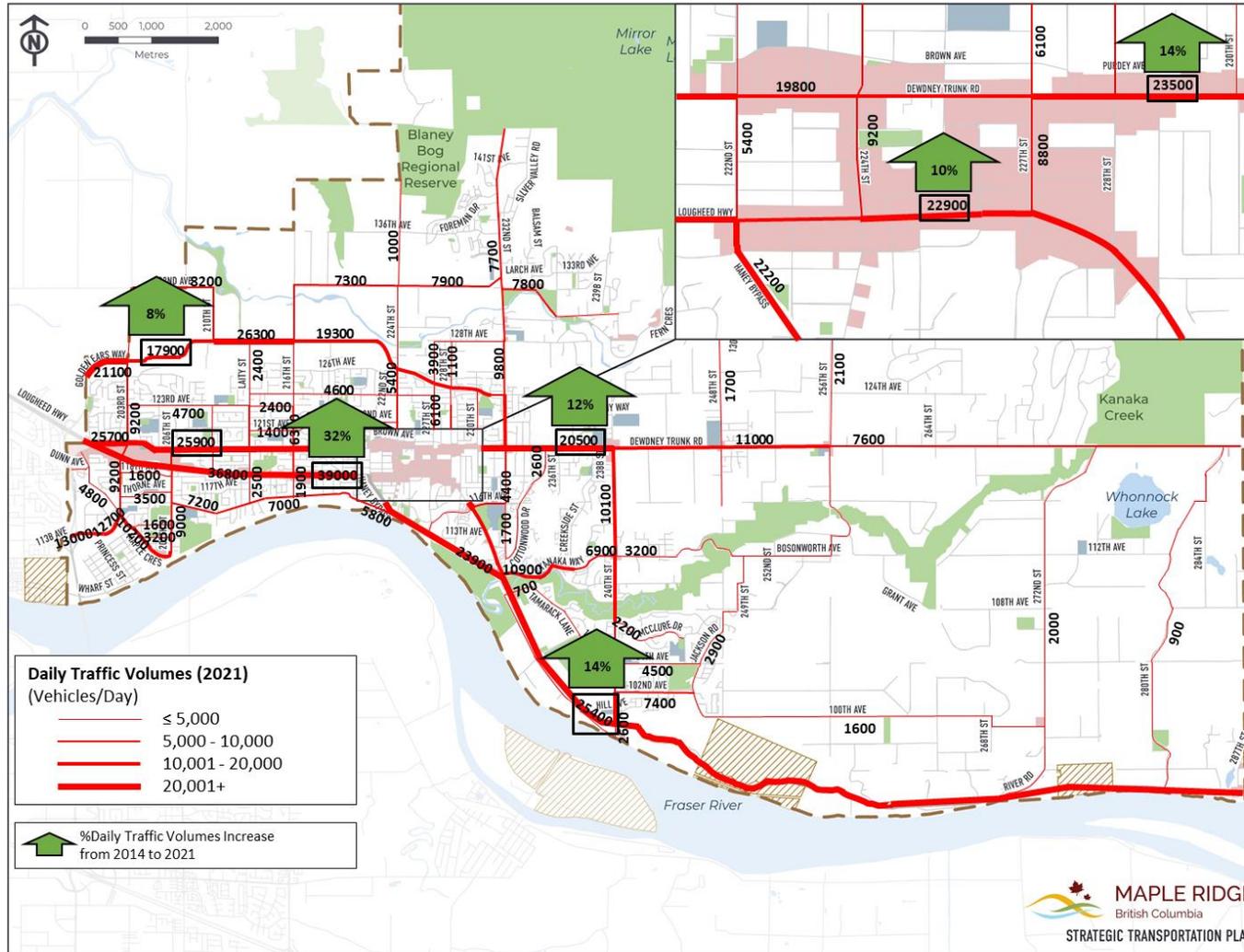
CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN

STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

The travel patterns of vehicle trips in Maple Ridge align with the overall travel patterns for all modes. This means that most vehicle trips originated in Maple Ridge stay within Maple Ridge. Outside of Maple Ridge, Pitt Meadows, Coquitlam/Port Coquitlam and Port Moody are the main destinations attracting Maple Ridge's vehicle trips. The vehicle trips traveling to these major destinations add traffic pressure to the City's network during peak periods, in particular, to the major east-west corridors including Highway 7, 128 Avenue, and Dewdney Trunk Road. The trips travelling through the western edge of Maple Ridge also adds pressure to the north-south connections such as 203 Street and 216 Street.

These pressures are illustrated in the 2021 average daily traffic volumes shown in **Figure 7-6**. The volumes shown in this figure are adjusted 2021 volumes – they are based on historic intersection and corridor traffic data adjusted to a 2021 base that is normalized to remove the impacts of COVID. As expected based on trip distribution, traffic volumes generally grow moving towards the south-western boundary of the City and highest on the east-west corridors. Compared to the 2014 STP's existing condition (2014), most of the major corridors have experienced growth in traffic volumes of between approximately 10% to 32% (i.e. approximately 1% to 3% per year). This is a reflection of the growing number of trips per person per day, mode shift towards driving, population and employment growth within Maple Ridge and neighbouring communities, and toll removals on the Golden Ears Bridge.

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Figure 7-6: Daily Traffic Volumes (2021)

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As part of the assessment, future traffic volume forecasts were developed using the Regional Demand Transportation Model (RTM). The 2035 and 2050 models were updated with new population projections provided by the City of Maple Ridge as well as the projections from the District of Mission from their ongoing Transportation Master Plan work. Population projection of 104,036 and 124,814 for Maple Ridge were used for the 2035 and 2050 horizons, respectively.

The 2035 and 2050 scenarios generated by the RTM represent a Business As Usual (BAU) scenario, which assumes no change in road network in Maple Ridge and a base level of increased transit services throughout the region planned by TransLink as part of the 10-year investment plan. Considerations around new mobility, such as autonomous vehicles, which could change travel patterns and driving behaviours, are not included in the BAU analysis and remain difficult to predict.

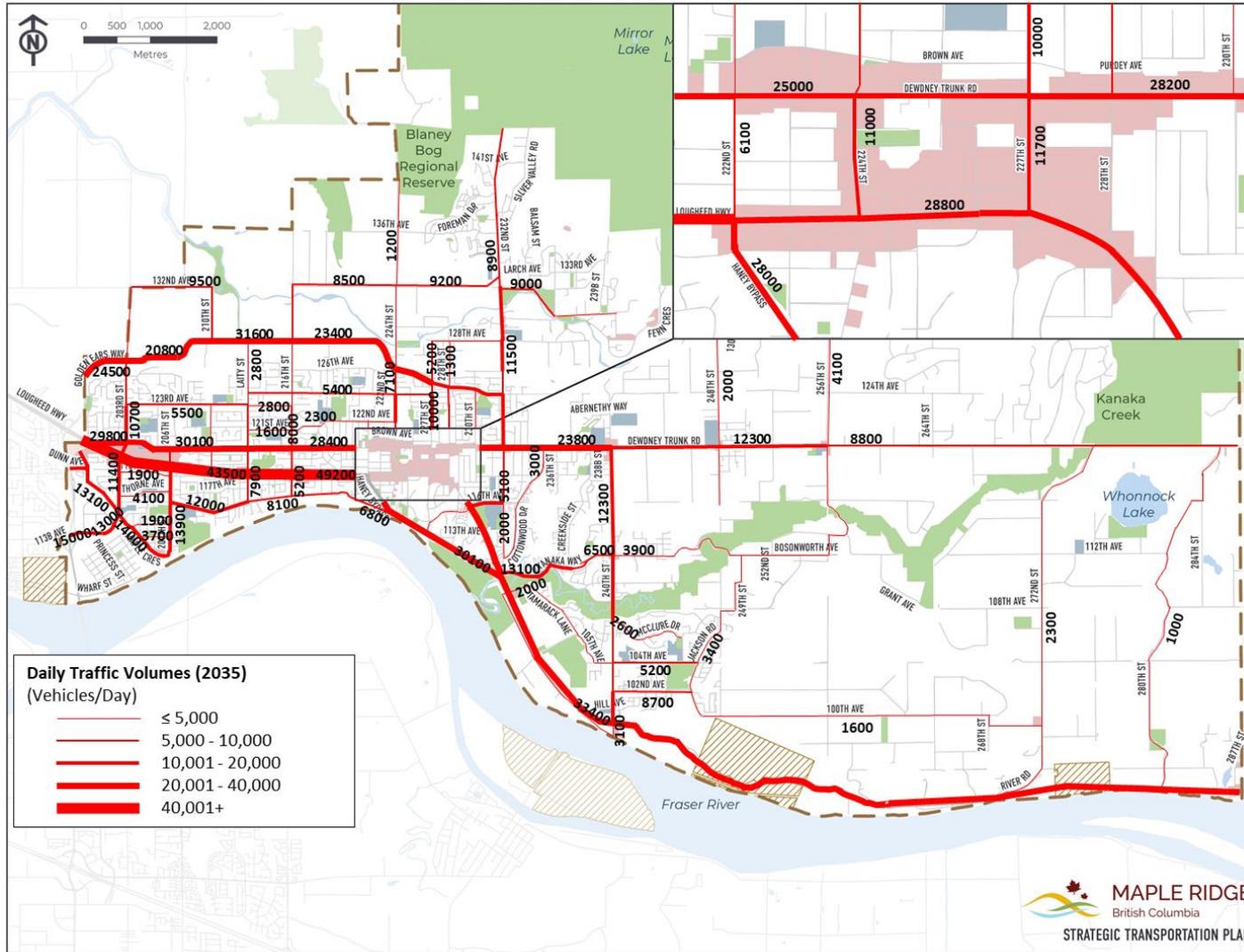
These forecasts will inform the STP – they reflect a relative future, used to inform the development and prioritization of strategies, policies, and investments. Both 2035 and 2050 forecasts were developed to inform future network options evaluation and implementation work.

The results of the RTM were used to develop detailed corridor and intersection traffic volumes. These volumes were generated by applying the relative growth from the RTM model to the normalized 2021 conditions to develop future forecast volumes. The growth rates used were generally in the range of 1.0% to 1.5% per year. A few movements (mostly highway through movements) are projected to grow at a 2.0% per year rate. The 2035 and 2050 daily traffic volumes are illustrated in **Figure 7-7**.

The **Regional Demand Transportation Model** (RTM v3.4), which is developed and released by TransLink, is a robust macroscopic transportation demand model for the Lower Mainland. The model considers multiple modes, including passenger vehicles, trucks, transit, pedestrians and cyclists. The model package includes four horizons (2011, 2017, 2035 and 2050). For this project, the 2017 model is used as the base and the 2035 and 2050 models are used as future horizons. In order to ensure that the 2017 model is reliable for developing volume projections, the 2017 model's network was reviewed and ensured that it reflects today's condition.

When comparing the 2017 model volumes against the 2021 traffic volumes, it was identified that the model volumes are generally lower throughout. As the difference is generally consistent and can be addressed by applying an adjustment factor, it is concluded that the model is sufficient for developing a future growth rate which is typically expressed as a percentage growth rate per year.

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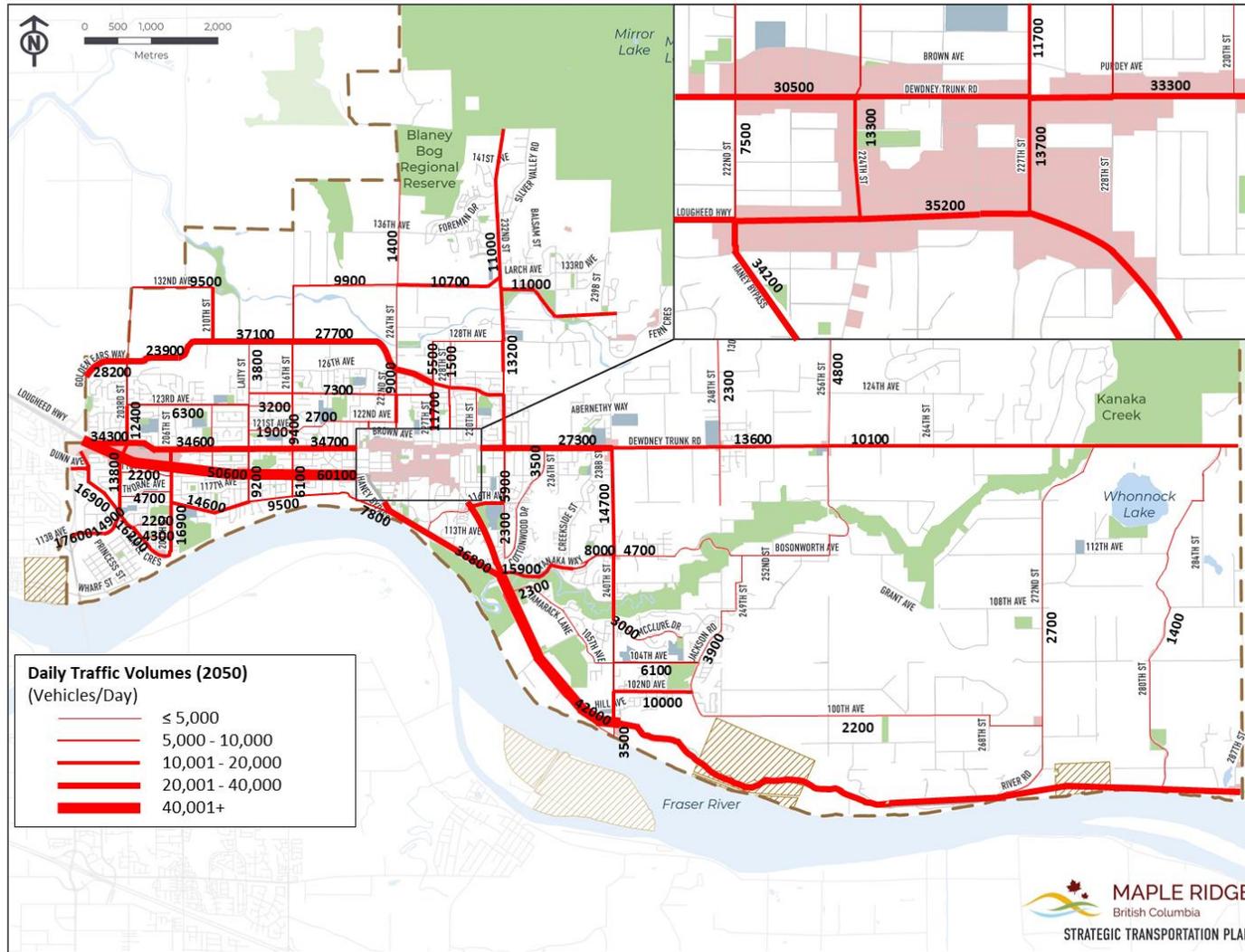


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Figure 7-7: 2035 Daily Traffic Volumes

The 2035 daily traffic volume scenario shows continued growth in east / west travel, with traffic volumes along Lougheed Highway experiencing the highest levels of growth. This is consistent with continued population growth in northern and eastern neighbourhoods and destinations to the west and south of the City.

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 STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS



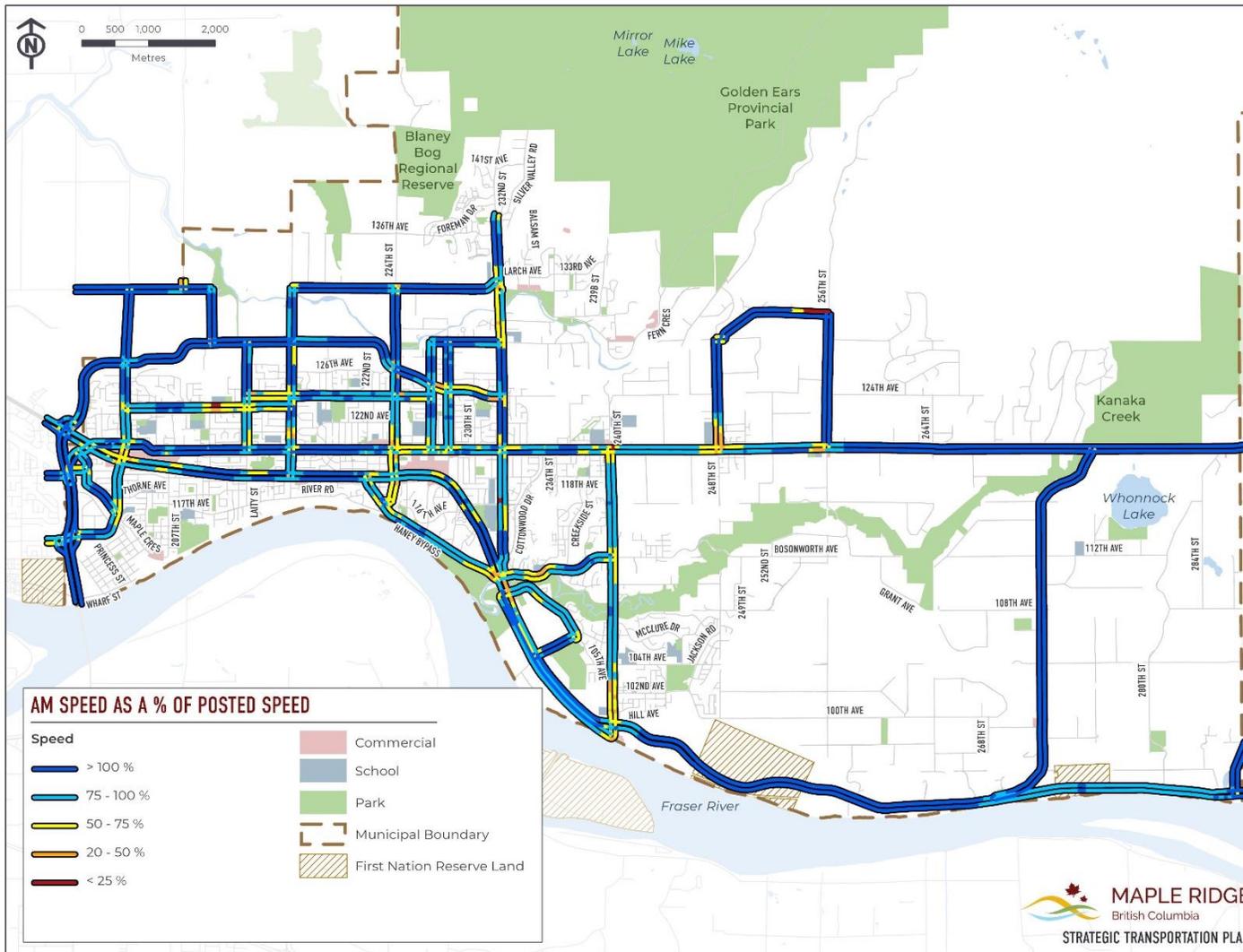
Like the 2035 scenario, the 2050 scenario shows high daily travel volumes along north-south corridors, with growing north-south volumes in eastern and northern Maple Ridge. Traffic volumes along Lougheed Highway are expected to exceed 60,000 vehicles per day in some segments and average daily traffic volumes along Abernethy Way and Dewdney Trunk road exceed 30,000.

Figure 7-8: 2050 Daily Traffic Volumes

Corridor travel speeds are often used to indicate mobility patterns. For example, median speed indicates the average operating speed over time, acting as a quick indication of the relationship between traffic demand and the road network capacity. **Figure 7-9** and **Figure 7-10** illustrate the median travel speeds compared to the posted speed limits using percentages. The speed data indicates that the travel speeds are generally within 75% of the posted speed limits along corridors.

The travel speeds near intersections, especially major intersections, are typically lower (within 50% of the posted speed limits), which is expected due to stopping at intersections. The travel speeds are generally slower (near or less than 50% of the posted speed limits) around major intersections in the Downtown area and also the Highway 7 / Dewdney Trunk Road / Golden Ears Way area. This is generally as expected as the travel speeds are usually lower than the posted speed limit during peak hours when the traffic demand is close or at the network's capacity.

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN
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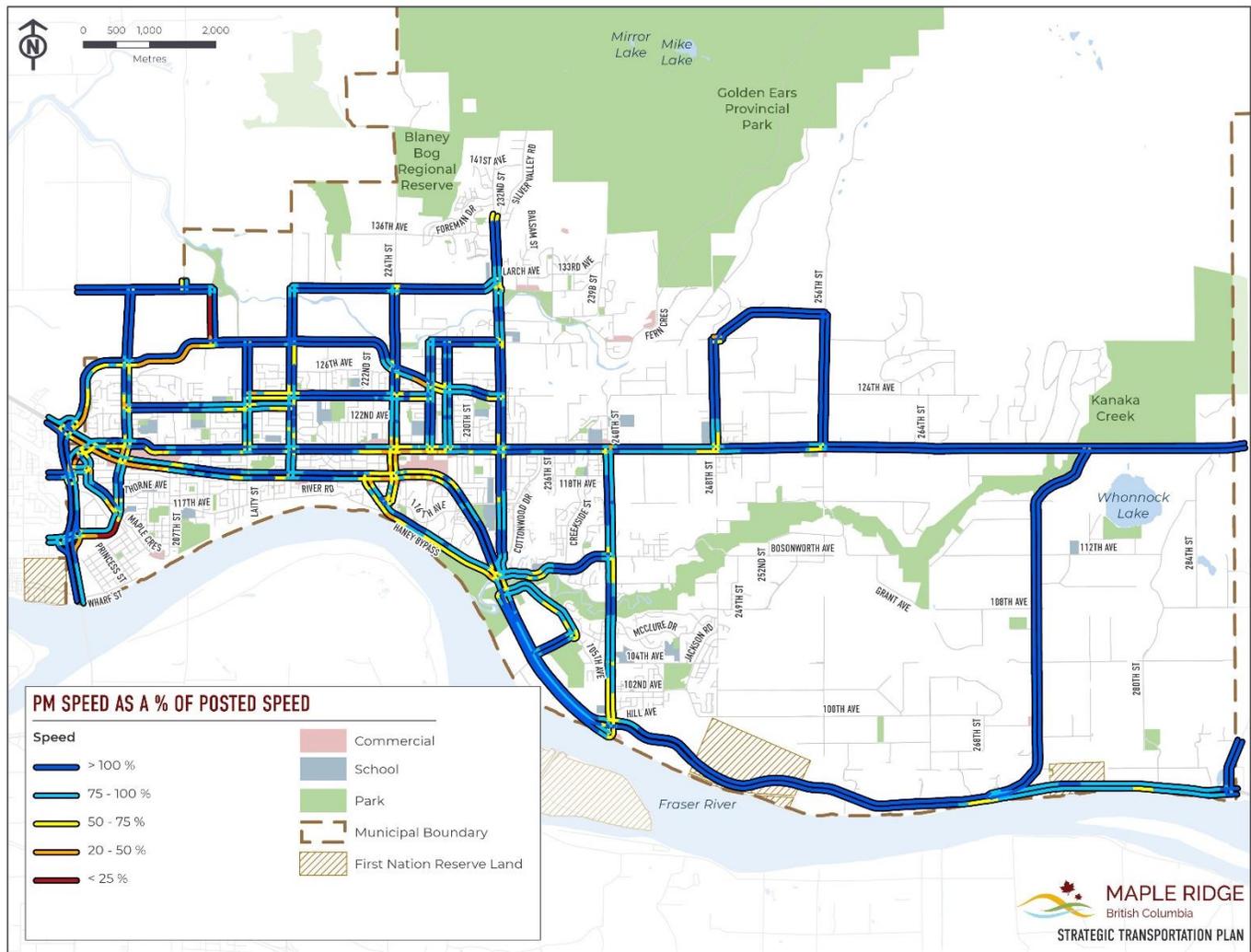
For the AM peak (6:00am to 9:00am), average travel speeds around the western gateway, including 203rd Avenue, 113b Avenue, Lougheed Highway, and Dewdney Trunk road are slower than posted speeds, which reflects morning queuing and congestion in this area. 224th Street, Lougheed Highway, and the Haney Bypass around the Town Centre also see lower travel speeds during this peak period, as do key intersections along Dewdney Trunk Road and 240th Street.

Figure 7-9: AM Median Speed as a % of Posted Speed

Source: 2019 TomTom Speed Data

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CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN
 STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS



For the PM peak (3:00pm to 6:00pm), average travel speeds during the are slower than the morning peak period. In particular, there are indications of long eastbound queues along Golden Ears Way from 210 Street, as well as along 113b Avenue.

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Figure 7-10: PM Median Speed as a % of Posted Speed
 Source: 2019 TomTom Speed Data

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN

STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

Synchro 11, a macroscopic traffic analysis modelling tool, was used to analyze the operational performance at all of the key intersections where traffic volumes are available. Synchro models were developed to calculate Level of Service (LOS) based on average delay per vehicle for each movement and at the overall intersection level. LOS is a transportation industry standard that indicates the average delays experienced by motorists and can be reported at an intersection level and a movement level. LOS is expressed using letter grades from “A” through “F” **Table 7-1** summarizes the intersection delay associated with each LOS letter grade. Many agencies consider LOS “D” or better as acceptable operating conditions; however, agencies are increasingly accepting LOS “E” or “F” for specific movements or intersections where there are significant positive trade-offs for other community goals or objectives..

Table 7-1: Level of Service (LOS) and Associated Vehicle Delay (sec/veh)

LOS	SIGNALIZED INTERSECTION(S)	UNSIGNALIZED INTERSECTION(S)
A (minimal delays)	≤10	≤10
B	10 – 20 sec	10 – 15 sec
C	20 – 35 sec	15 – 25 sec
D	35 – 55 sec	25 – 35 sec
E	55 – 80 sec	35 – 50 sec

The analysis volumes (2018) were provided by the City for the City’s intersections and were adjusted to the 2021 condition without the COVID-19 impact by applying a 1% per year growth factor. The growth factor of 1% is a typical factor to account for historical growth. Additionally, traffic information from the MOTI’s intersections and TransLink’s are made available through previous MOTI studies and manual data collection, respectively. The traffic volumes at these locations were also adjusted to the 2021 condition (without COVID) by applying a growth factor as needed.

Figure 7-11 summarizes the LOS under the existing conditions together with corridor travel speeds. More detailed information including traffic volumes and LOS by individual movement are provided in **Appendix B**.

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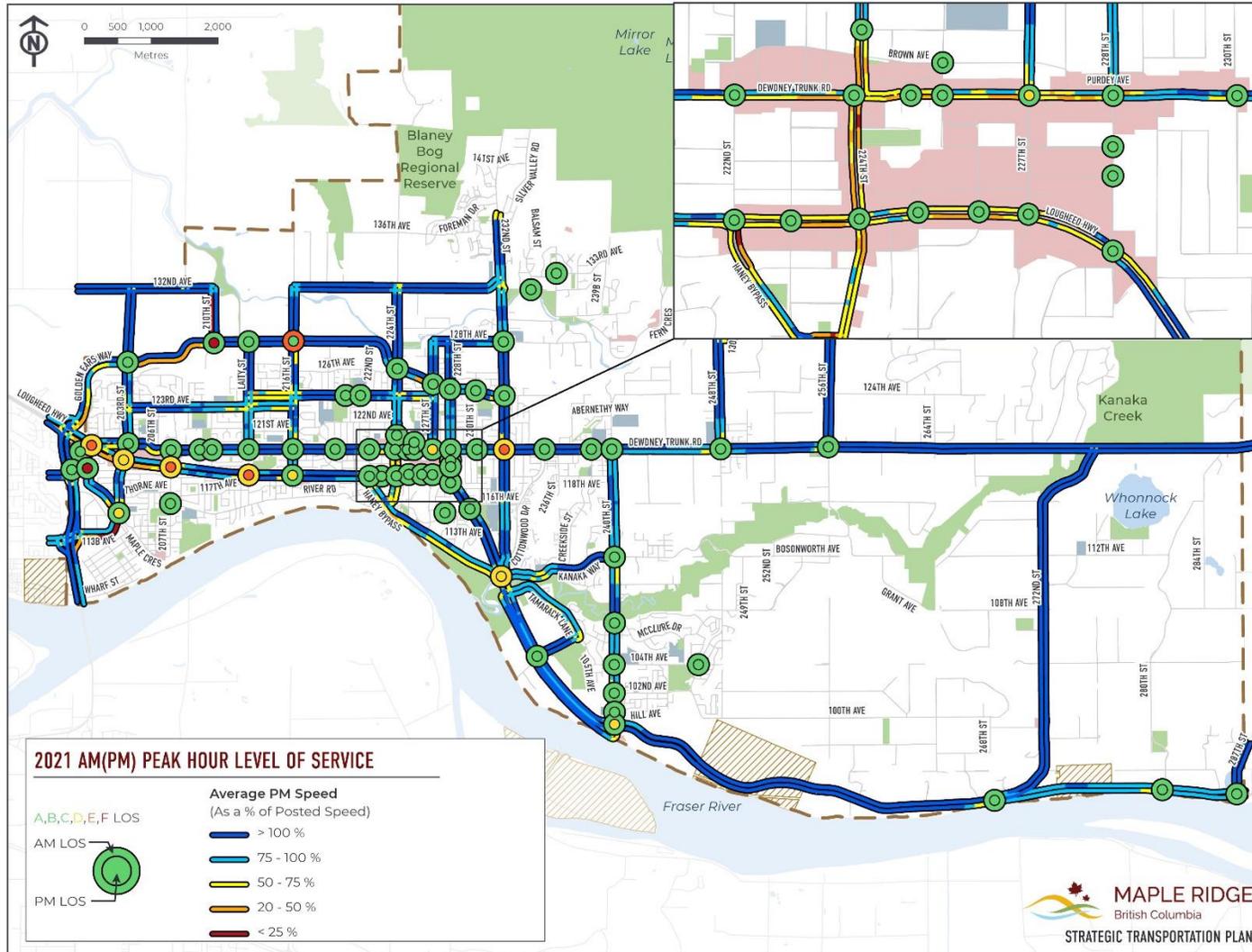
STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

Key observations regarding existing LOS include:

- Most of the intersections with capacity issues are on Highway 7 (at Dewdney Trunk Road, 203 Street, 207 Street, Laity Street and 232 Street) and MRN roadways (Golden Ears Way & 210 Street and 128 Avenue & 216 Street);
- While many intersections operate at LOS “C” or better at the overall intersection level, a number of individual movements operate at worse conditions (LOS “D” or worse), which also corresponds to the corridor travel speeds where slower speeds are observed;
- Motorists generally experience longer delays and queue lengths during the afternoon peak hour relative to other times of the day

As noted earlier, comparing the results of this study to the 2014 STP indicated that traffic volumes in Maple Ridge have increased in the past eight years. Comparing traffic performance at the intersection level, 2021 conditions do not represent a significant increase in delay from 2014 conditions. This can be attributed to a few key factors: network and intersection improvements that alleviated pressure, including improvements to 128th Avenue, some parts of the network being at capacity in 2014 and remaining at capacity in 2021, and some locations with excess capacity in 2014 accommodating additional growth in 2021.

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Figure 7-11 Existing AM (PM) Intersection Level of Service on PM Median Speed as a % of Posted Speed

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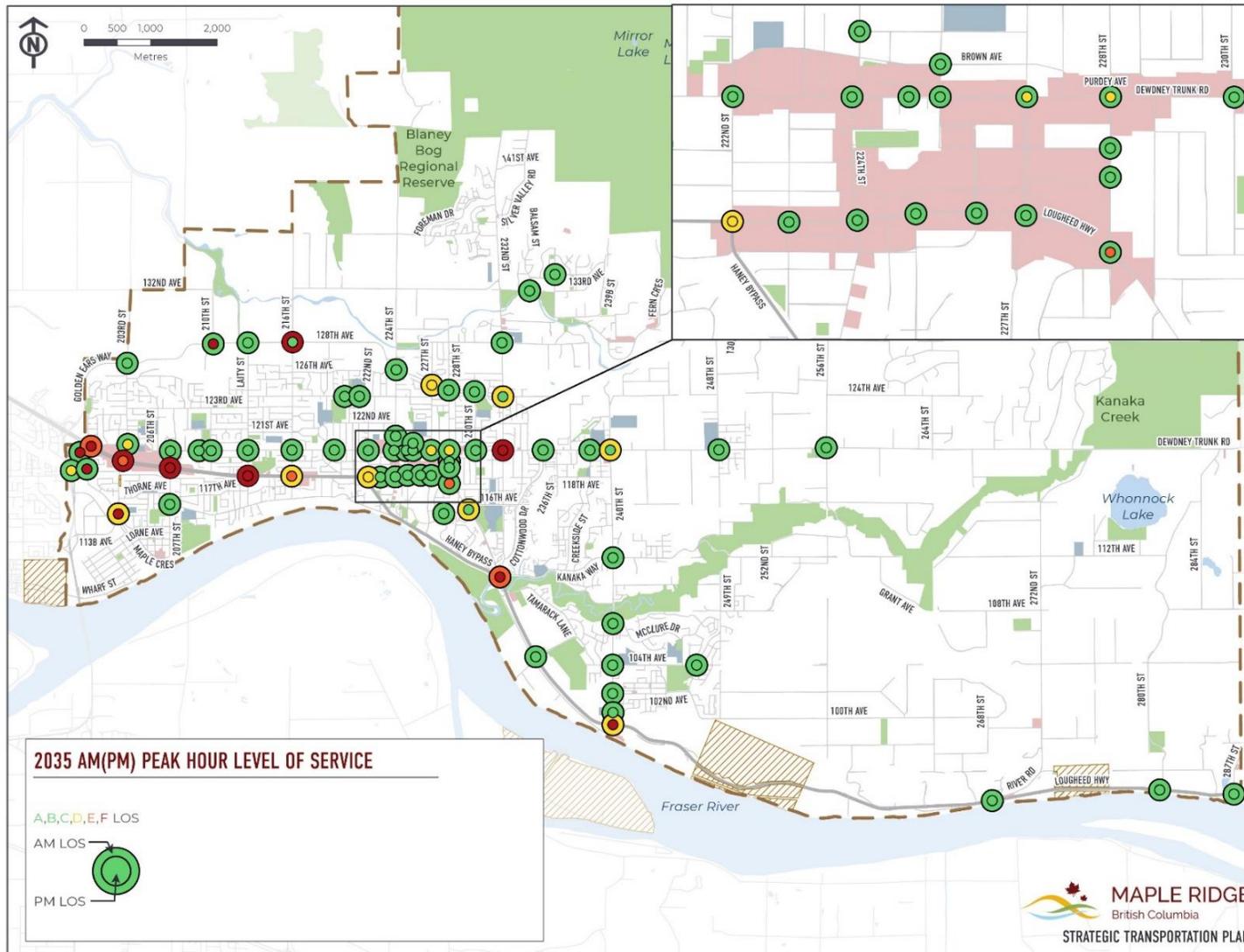
2035 and 2050 horizon year traffic forecasts were assessed using the Synchro intersection analysis tool. Highway 7 between 266 Street and 287 Street was assumed to be a four-lane highway for the purpose of this analysis in the 2035 and 2050 horizons, as MOTI's widening project is currently underway, and it is assumed that the project will be complete by then.

Synchro models were developed for the 2035 and 2050 horizons, and the overall intersection LOS are illustrated in **Figure 7-12** and **Figure 7-13**.

A review of the LOS results indicates that:

- All of the intersections are expected to experience more traffic congestion in the future with increased traffic demand;
- Under the 2035 horizon, a number of major intersections, particularly the intersections on Highway 7 (Golden Ears Way, 203 Street, 207 Street, Laity Street, 216 Street, Haney Bypass, and 240 Street) are expected to operate at LOS "E/F", indicating that these intersections will have insufficient capacity at the intersection level. Also a few intersections on the MRN (210 Street and 216 Street on 218 Avenue), a few intersections on Dewdney Trunk Road (232 Street) and Maple Crescent & 113b Avenue are expected to have capacity issues;
- Under the 2050 horizon, while the intersections described above will continue to experience more traffic pressures, a number of additional intersections also begin to see demand exceeds capacity, namely in the Downtown area, along 240 Street, Abernethy Way, Dewdney Trunk Road, and 206 Street; and
- While other intersections on the network have overall LOS of "D" or better, some of the individual movements at these intersection are expected to operate at LOS "E/F" These detailed results are provided in Appendix C.

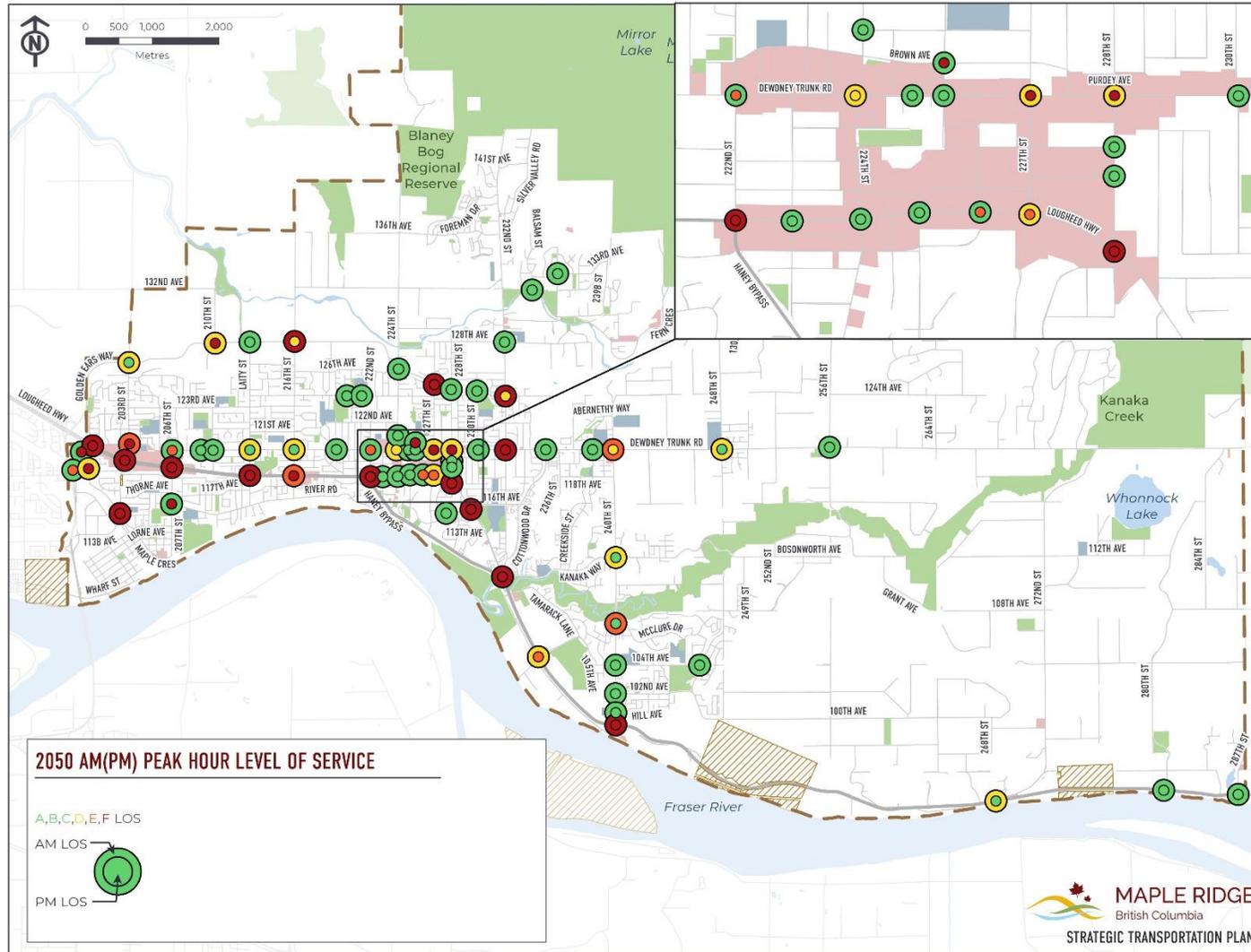
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Figure 7-12: 2035 AM (PM) Intersection Level of Service (LOS)

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Figure 7-13: 2050 AM (PM) Intersection Level of Service (LOS)

SAFETY ASSESSMENT

The safety assessment summarized here focuses on historic collisions involving vehicles and reported to ICBC between 2015 and 2019. It includes a summary of overall City-wide safety trends, as well as intersection-level collision frequency, rates, and severity. The assessment closes with an identification of major and minor intersections identified for further attention in the development of the STP.

ICBC collects and maintains statistics for all reported collisions in British Columbia. The collision data classifies reported collisions based on the type of collisions as resulting in property damage only (PDO) or casualty (injury or fatality). Data provided for five years between 2015 to 2019.

Over the five years, there have been an average of approximately 1,944 reported collisions per year in Maple Ridge, with approximately 57% of those collisions resulting in a casualty (i.e. an injury or fatality). As shown in **Figure 7-14**, while the number of collisions fluctuates by year, it appears trending down slightly since 2016.

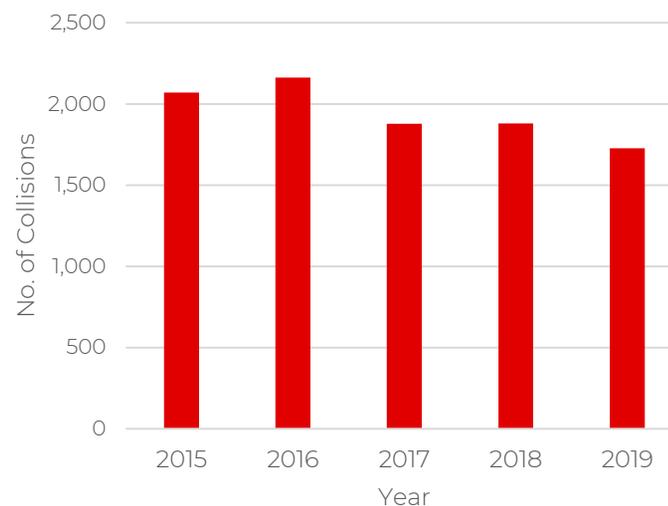


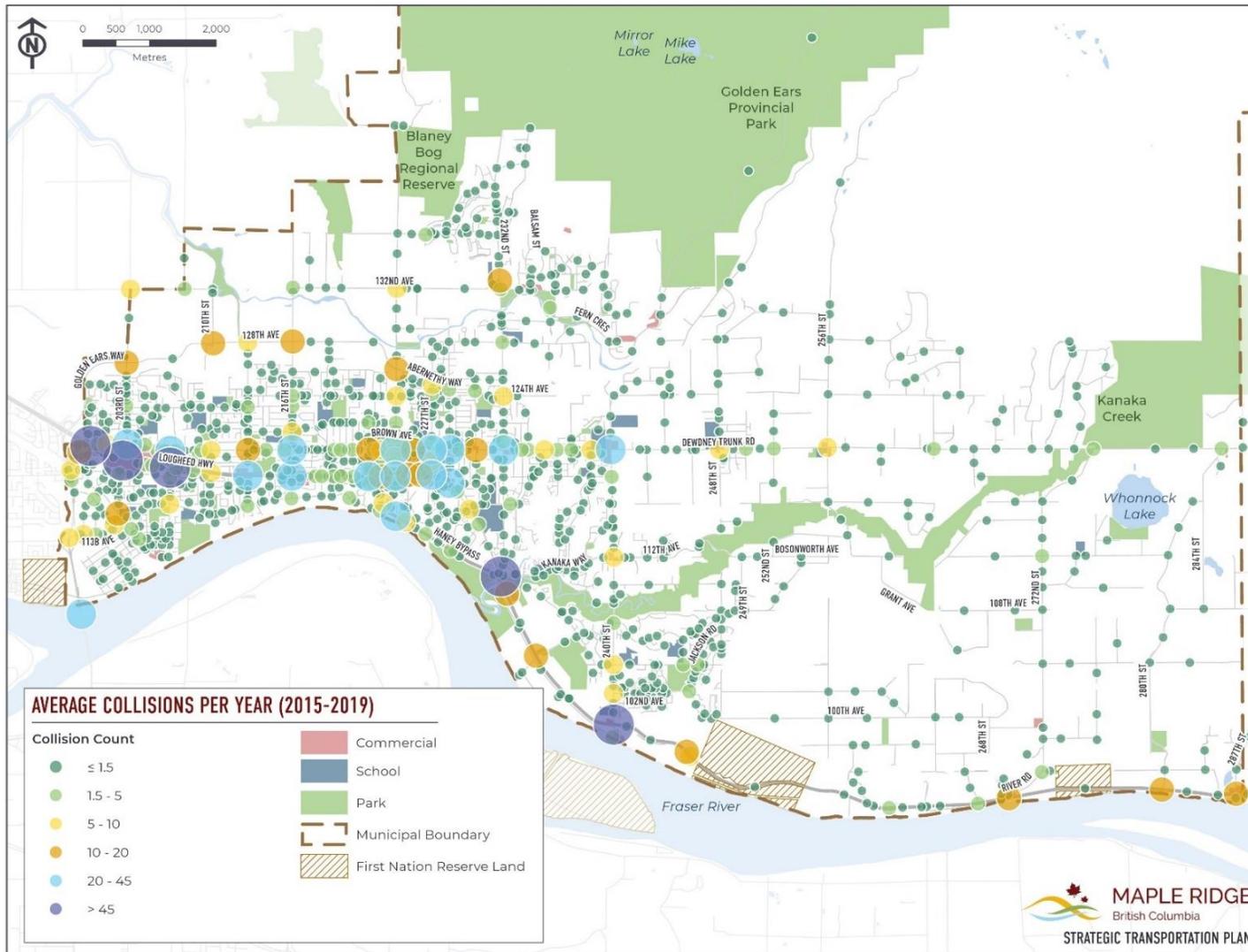
Figure 7-14: Number of Collisions in Maple Ridge (2015-2019)

Source: 2015-19 ICBC Collision Data

Figure 7-15 to **Figure 7-17** show collision frequency, collision rate and collision severity index ,respectively, by location:

- **Collision frequency** refers to the average number of collisions per year and is typically higher at major intersections with significant traffic volumes.
- **Collision rates** are derived from the number of collisions and traffic volumes (for example, the number of collisions per million vehicles entered). Collision rates for analysis are summarized and compared with critical collision rates, which are estimates of the number of collisions at a given intersection depending on its characteristics. It should be noted that traffic volumes used for collision rate calculations are from the RTM model, which does not have local streets or minor collectors.
- **Collision severity index (CSI)** is used as a measure of collision severity levels, which is defined as the weighted sum of fatality, injury, and PDO collisions. A CSI of greater than 5 suggests that more than half of the collisions that occurred are injuries or fatalities. Collisions with serious outcomes are more likely to involve vulnerable road users, travel at higher speeds, and certain types of collisions (e.g. angle and head-on collisions).

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 STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS



The frequency of collisions is indicated by the size and colour of the dot, with locations that have the most collisions per year symbolized by a large blue dot. Intersections with high traffic volumes can be expected to have the highest collision frequencies, which is consistent with the high frequency locations along Lougheed Highway and Dewdney Trunk Road.

Figure 7-15: Collision Frequency

Source: 2015-19 ICBC Collision Data

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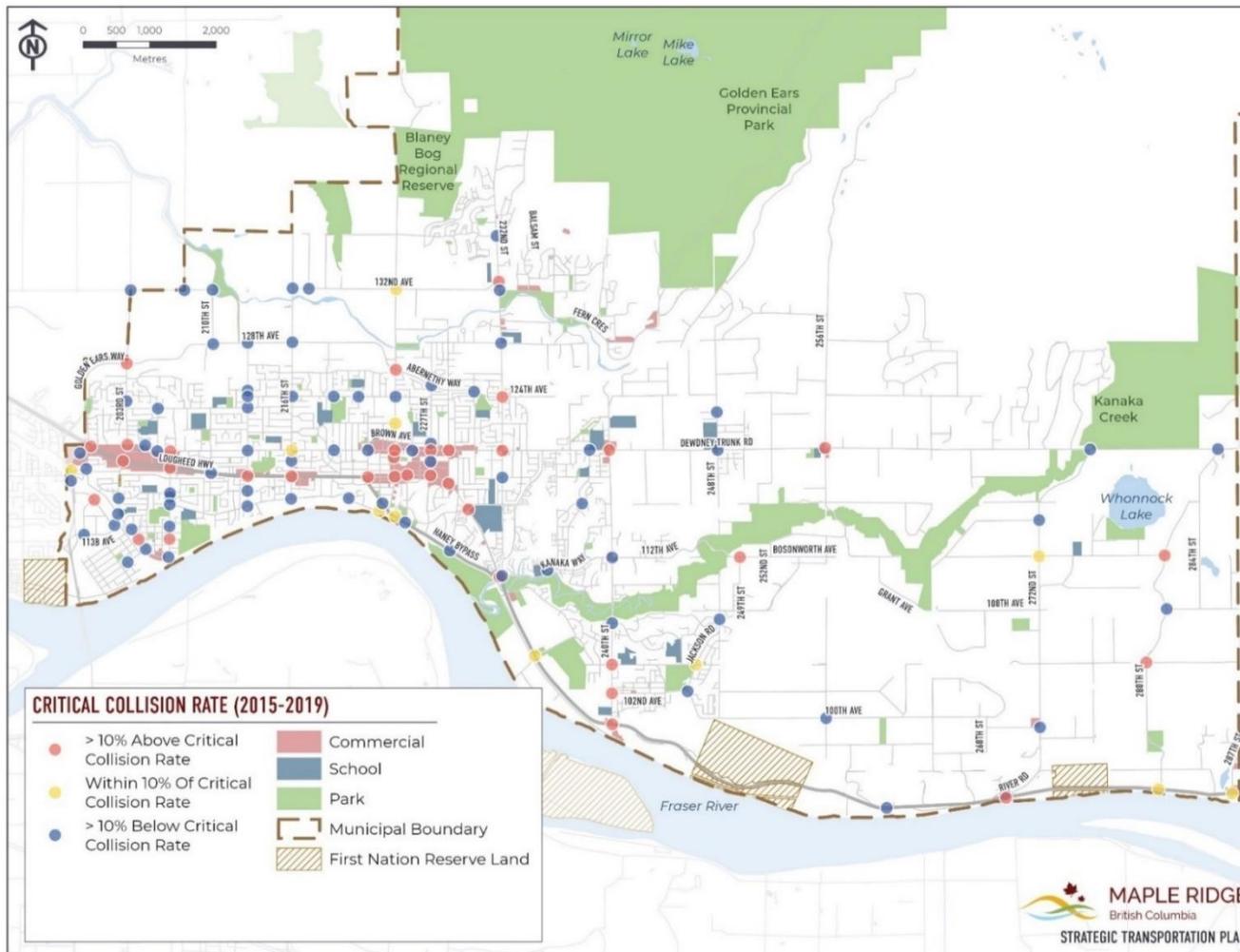
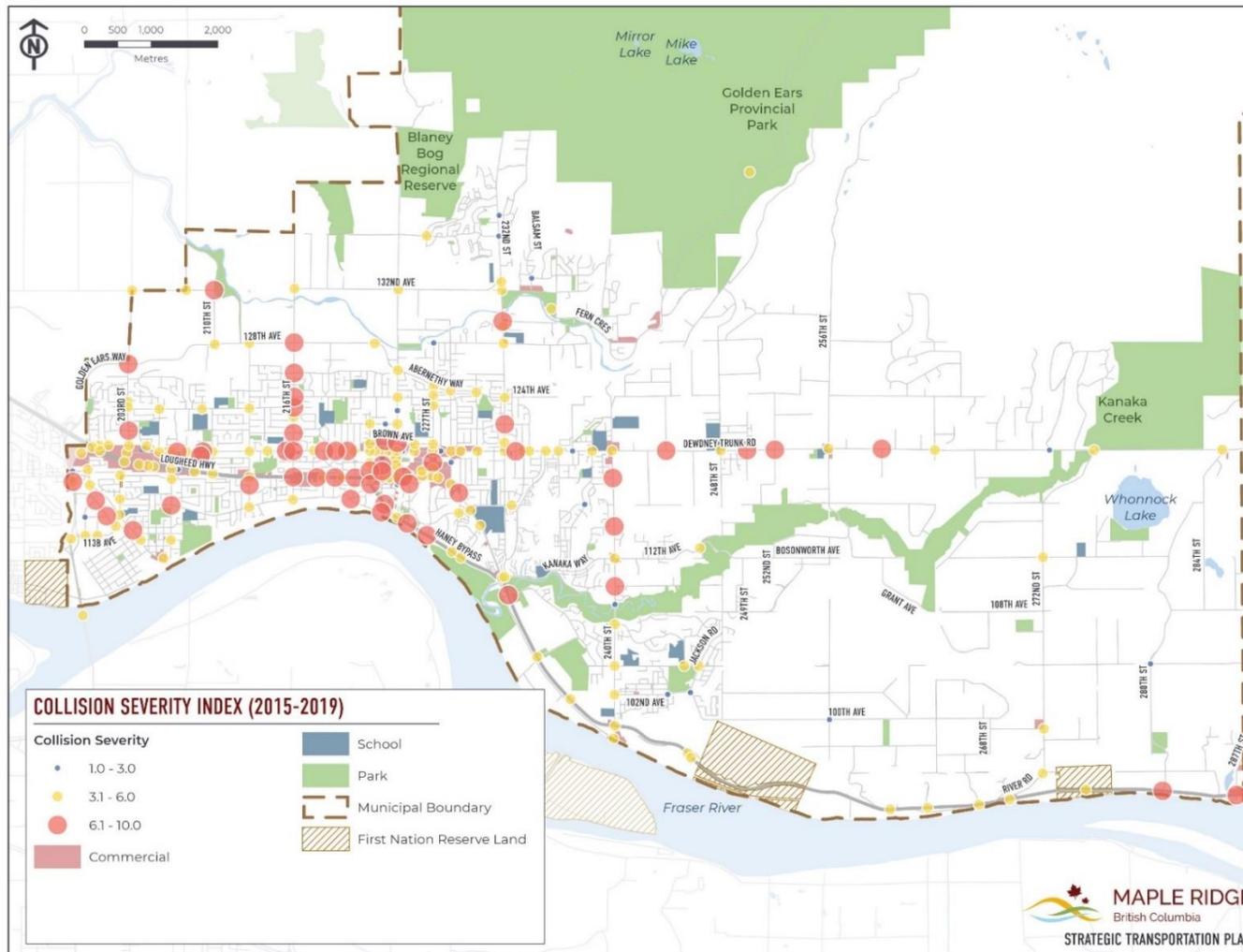


Figure 7-16: Collision Rates
 Source: 2015-19 ICBC Collision Data

Assessing the collision rate (i.e. number of collisions per million entering vehicles) compared to the critical collisions rate provides an indication of locations where the number of collisions is higher than what might be expected given prevailing conditions. Focusing on these locations can improve the effectiveness of safety improvement programs. Beyond challenges along Lougheed Highway and Dewdney Trunk Road, There are a number of intersections in more suburban and rural locations that have critical collision rates more than 10% higher than the critical rate.

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 STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS



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Figure 7-17: Collision Severity Index
 Source: 2015-19 ICBC Collision Data

The collision severity index illustrates the ratio of casualty (injury and fatality) collisions to property damage only collisions. The illustration shows only locations with at least one collision per year.

Locations identified in red have more than six casualty collisions in every 10 reported collisions. There are concentrations of collisions with high severity indices in the Town Centre, along the Haney Bypass and Lougheed Highway, along Dewdney Trunk Road, and along Steward Crescent and Hammond Road.

CITY OF MAPLE RIDGE STRATEGIC TRANSPORTATION PLAN

STP REPORT #1 – SUMMARY OF EXISTING CONDITIONS

Table 7-2 identifies 15 intersections with a collision rate that is 10% higher than the critical collision rate and a CSI that is greater than 5. Note that the intersection of Haney Bypass and Lougheed Highway is excluded from this list as an improvement project of this location is currently underway.

Table 7-2: Top 15 Major Intersections with High Collision Rates and CSIs

NO.	INTERSECTION
1	Dewdney Trunk Rd & Lougheed Hwy & Maple Meadows Way & West St
2	207 St & Lougheed Hwy
3	240 St & Lougheed Hwy
4	216 St & Lougheed Hwy
5	Laity St & Lougheed Hwy
6	232 St & Dewdney Trunk Rd
7	207 St & Dewdney Trunk Rd
8	228 St & Lougheed Hwy
9	203 St & Golden Ears Way
10	Kingston St & Stewart Cres
11	272 St & Lougheed Hwy
12	205 St & Lorne Ave & Maple Cres
13	116 Ave & Lougheed Hwy
14	102 Ave & 240 St
15	112 Ave & Lockwood St

Minor intersections that are not part of the collision rate analysis due to lack of traffic volumes were also reviewed as a location with a higher proportion of casualty collisions may also require attention for improvements. A review indicates that there are eight minor intersections that had a CIS rating that is greater than five and at least one collision per year. (See **Table 7-3**). The collision frequency of these intersections generally ranged between four to six collisions per year except for the intersection of Lougheed Highway & River Road / Tamarack Lane (13 collisions per year).

Table 7-3: Minor Intersections with High CSIs

NO	INTERSECTION
1	Burnett St & Lougheed Hwy
2	221 St & Lougheed Hwy
3	222 St & Selkirk Ave
4	121 Ave & 216 St
5	Dewdney Trunk Rd & Rosewood St
6	224 St & Brown Ave
7	223 St & Selkirk Ave
8	Lougheed Hwy & River Rd / Tamarack Lane

7.3 ISSUES & OPPORTUNITIES

Issues and opportunities for improving the road network and driving in Maple Ridge were identified throughout the stakeholder and public engagement process. These include:

- **Growing congestion and low reliability along the western gateway to the City from Golden Ears Bridge and Pitt Meadows.** Approximately 28% of trips originating in Maple Ridge are destined to municipalities to the south and west, travelling through the western gateway around Golden Ears Way and Lougheed Highway. Traffic volumes are growing over time due to the increased number of trips per person per day, growing mode share for driving, increases in population and employment, and removal of tolls on the Golden Ears Bridge. Vehicles travelling during the morning and afternoon peak hours experience slow travel speeds, low reliability, and intersection delays. STP survey respondents indicated that congestion during rush hour was a main issue for driving and carpooling in Maple Ridge. These issues can be expected to increase in intensity as population and employment increase, particularly in areas that are not well served by transit.
- **Locations with highest safety risk as indicated by critical collision rate and collisions severity are clustered around the Lougheed Corridor area, the Town Centre, as well as other locations.** Some of these locations serve vulnerable populations or are near walking and cycling destinations with limited infrastructure. Safety challenges, including higher severity and frequency collision locations along Lougheed Highway, Dewdney Trunk Road, 216th Street, 224th Street, and other locations. Respondents to the STP Survey identified some locations where high speeds create challenges, including along 232nd Street, River Road, Kanaka Way, and 132nd Avenue.
- **Residents of neighbouring municipalities travel through Maple Ridge and create additional congestion.** East-west traffic volumes through the City are expected to continue to grow as a result both growth in neighbouring municipalities, as well as growing single family residential neighbourhoods east of the Town Centre. There are a limited number of east-west corridors, which will see growing traffic volumes, which may result in further conflicts with pedestrians and cyclists in addition to growing delay to vehicles.

Figure 7-18 summarizes the walking issues and challenges identified by respondents through the STP survey.

MAIN ISSUES AND CHALLENGES FOR DRIVING OR CARPOOLING IN MAPLE RIDGE

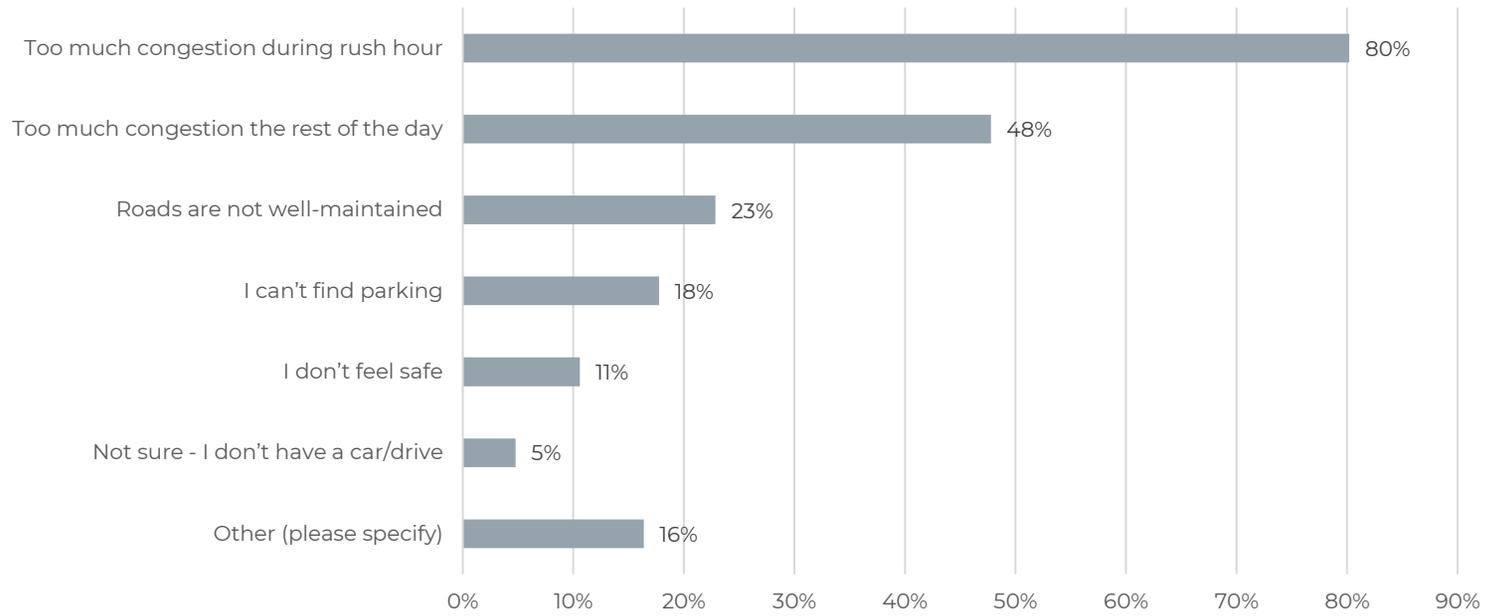


Figure 7-18: Driving and Carpooling Issues and Challenges

8.0 EMERGING MODES

Transportation is evolving as new technology emerges and creates new choices, opportunities and challenges. A number of rapidly evolving technologies and policies are currently being applied to transportation issues, including electrification, connectivity, and automation and road pricing.

Current applications of emerging modes in Maple Ridge are limited to ride-hailing and electric vehicle charging. There are currently no car share or micro mobility companies with operations in Maple Ridge. The current status of emerging modes in Maple Ridge is explored briefly below:

- Ridehailing companies – e.g. Uber and Lyft – operating across Lower Mainland municipalities including Maple Ridge since June 2020.
- Regional efforts looking at how to manage emerging trends in micromobility to ensure consistency for road users across Metro Vancouver are ongoing.
- Maple Ridge has several accessible Level 2 charging stations, generally at civic sites:
 - Memorial Peace Park, Maple Ridge City Hall, Beast Clock, Ridge Meadows Hospital, Maple Ridge Operations Centre, SPCA.
- Maple Ridge has two Level 2 charging stations in private sites:
 - West Coast Toyota and Fraser Regional Correctional Centre.

Because of rapid changes in technology and evolving transportation patterns, there is growing uncertainty around transportation trends and forecasts. Many jurisdictions now review transportation planning and decision-making more frequently than in the past to facilitate nimble decision making that is targeted to evolving conditions.

Some of the most common **emerging modes** include:

- Electric vehicles – private vehicles and goods movement vehicles that eliminate tailpipe emissions by using electricity instead of fossil fuels for operations.
- Micromobility – small one-person electric vehicles, such as e-bikes, e-scooters, or other devices. These extend the comfort and ease of travelling over longer distances and / or carrying heavier loads. Micromobility can be privately owned, or owned and operated as part of shared transportation systems. It can be used for personal travel or play a role in goods movement via cargo e-bikes.
- Shared transportation systems – these systems enable users to rent a car, bike, or micro-mobility vehicle on a short-term basis. They can be point-to-point (users can pick up the vehicle or device in one location and return in another) or return-to-base (users must pick up or drop off from the same locations).
- Ride-hailing – these systems connect passengers to drivers for hire using smart phone apps.
- Connected and autonomous vehicles – these types of vehicles are a range of self-driving or partially automated vehicles that are connected to infrastructure and each other. They are not yet widely available, but are expected to change the future of transportation over the next five to fifteen years.

9.0 SUMMARY & CONCLUSION

This Report provided an overview of the context and assessment of issues and gaps that will inform the development of the Strategic Transportation Plan. It reviewed the community context, travel patterns, and infrastructure and performance for each mode of transportation. Some of the key overarching findings include:

- **Growth creates opportunities to provide high quality transportation amenities and address network gaps.** Recent growth in population and employment combined with high driver mode share have increased the pressure on the transportation system. Roadways that had been designed for low or rural traffic are increasing serving development traffic and gaps in pedestrian and cycling infrastructure are increasingly important as traffic volumes grow. Congestion has also caused delays for transit, reducing the attractiveness of transit as a mode of transportation. At the same time, new development – both infill and greenfield – are an opportunity to provide safe, comfortable walking and cycling infrastructure, to facilitate transit priority, and to right-size roadways and parking to improve the transportation system for everyone.
- **As the Town Centre evolves, it is important to invest in a safe and comfortable transportation network that meets the needs of people of all ages and abilities.** The Town Centre is home to many of Maple Ridge’s seniors and low income households. This area was also identified as having some intersections with potential safety issues, as well as growing vehicle delay. The cycling network to and through the Town Centre is discontinuous and there are some remaining gaps in the walking network. There are opportunities to ensure that lighting, accessibility, and transit-supportive amenities in and around the Town Centre are high quality and support mode choice for everyone.
- **There is growing pressure on the western gateway of the City for all modes of transportation.** As the population of Maple Ridge continues to grow and more trips are made by driving, traffic congestion and queues have increase at the western boundary of the City. This has resulted in growing delay for transit riders along with delay for private vehicles and goods movement. As traffic volumes have increased, people walking and cycling have been exposed to more traffic. Connections and land uses have also evolved – and continue to evolve – on the western side of the City, including the elimination of tolls on the Golden Ears Bridge, growing density, the introduction of the R3 RapidBus, and potential changes to roadway connections in Pitt Meadows. Regionally, a safe and comfortable bicycle route suitable for people of all ages an abilities is required through this busy area, which is particularly important as trips by all modes continue to grow.
- **Current transportation trends are unlikely to result in the City meeting it’s emissions targets from transportation.** The number, distance, and share of driving trips has increased. To reduce transportation emissions, the number of vehicle kilometres travel must be reduced and a greater share of those trips must be made by electric vehicles. There is an

opportunity to increase electrification while also making walking, cycling, and transit trips more safe, comfortable, and efficient.

- **The City's large land mass in contrast to its population, along with drainage constraints, make it difficult to address all network gaps in a short time frame.** The City has a large transportation network because of its relatively large size. At the same time, the geography and drainage challenges make some types of infrastructure relatively expensive. Potential improvements must be prioritized and targeted where they are most likely to help the City meet its overarching goals and objectives. This may include focusing on areas and along corridors where transportation choice is most likely to result in mode shift, in higher density areas, and / or serving seniors, youth and other vulnerable populations.
- **Transportation technology and infrastructure is changing.** Ridehailing has been established in Maple Ridge since the last STP and future parking and loading strategies will consider the needs of ridehailing in addition to traditional modes. Emerging modes, such as micromobility and automated vehicles create opportunities, but also require careful policy consideration to address possible negative outcomes and conflicts with other modes.

The issues, gaps, and opportunities identified and summarized through this review of existing and future conditions will be used to develop the multi-modal networks, strategies, and projects that will help the City meet its goals and objectives.

APPENDIX A

PUBLIC CONSULTATION

Maple Ridge Strategic Transportation Plan

Community Survey Summary Report

INTRODUCTION

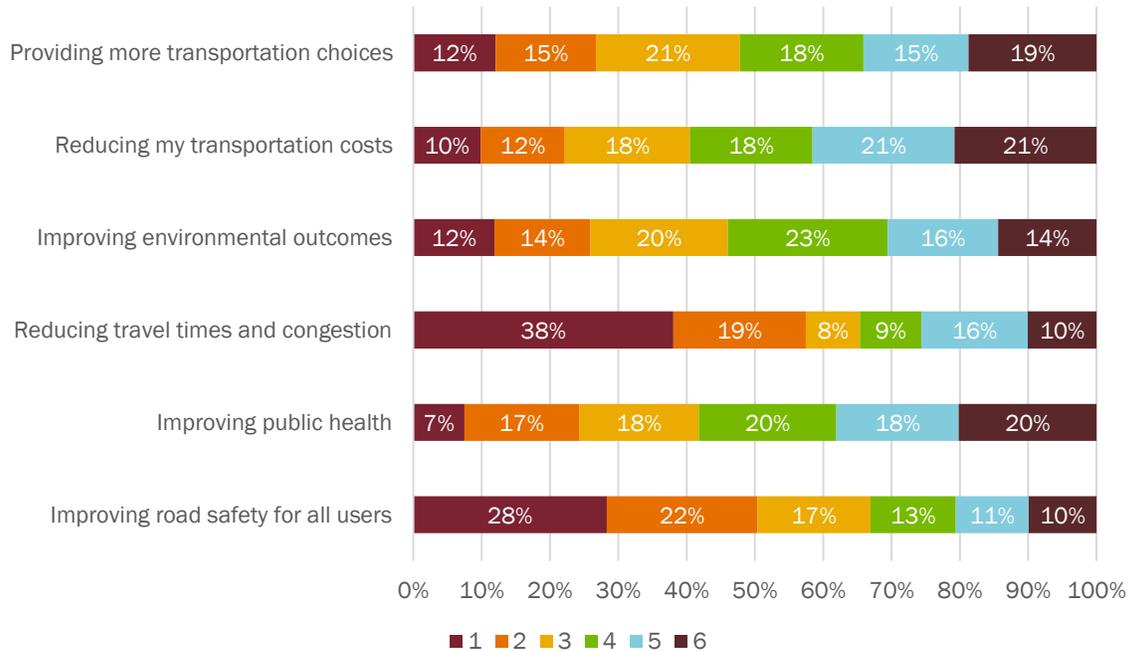
The City of Maple Ridge is updating its 2014 Strategic Transportation Plan to shape the future of transportation in Maple Ridge and respond to changing transportation needs and trends. As part of the Strategic Transportation Plan engagement process, an online ESRI StoryMap with an embedded SurveyMonkey survey and mapping tool was available through the City's website for all interested Maple Ridge residents to complete between May 17 and May 31, 2021. The survey was designed to identify current local transportation challenges and opportunities, and better understand the community's priorities for future transportation improvements.

The survey received 335 responses, which we have summarized below. The results of this survey will be used to inform the draft Strategic Transportation Plan.

IDENTIFYING PRIORITIES

As the Strategic Transportation Plan is developed, which of the following outcomes are most important to you?

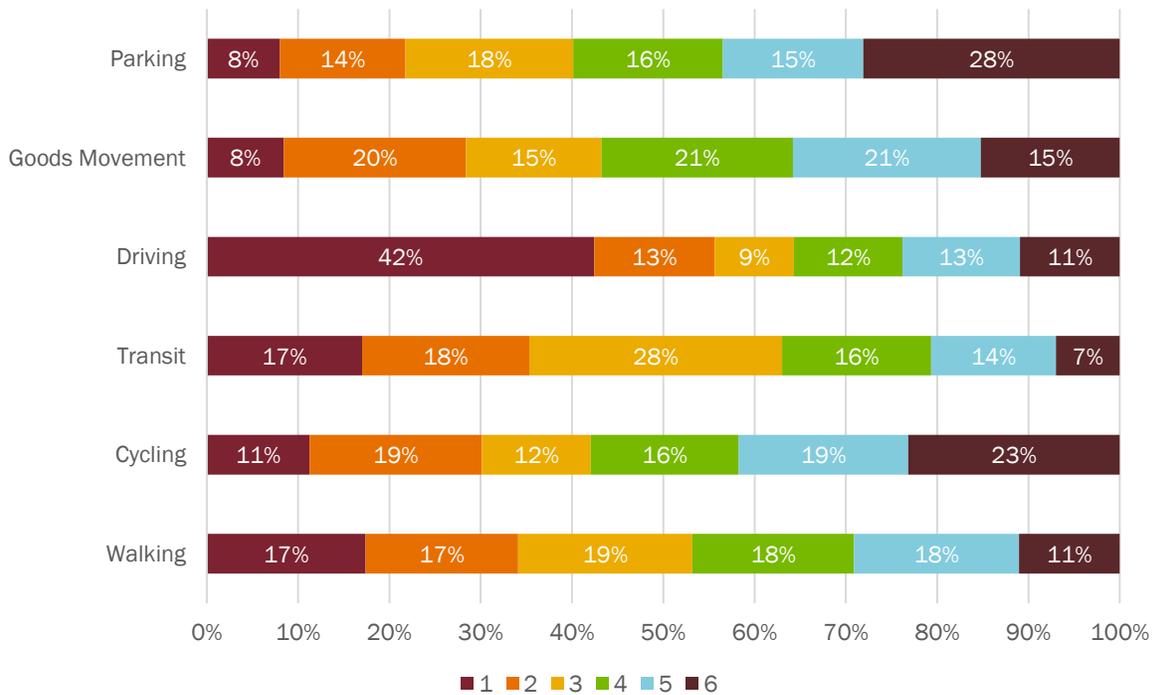
Survey respondents were asked to identify which outcomes were most important to them. A list of 6 outcomes were provided for participants to rank from 1 (most important) to 6 (least important). Reducing travel times and congestion was identified as the more important outcome among respondents with an average ranking of 2.75, followed by improving road safety for all users which received an average ranking of 2.85. Reducing transportation costs was identified as the lowest priority among respondents with an average ranking of 3.90.



329/335 answered this question.

What aspects of Maple Ridge’s transportation system should be considered the highest priority areas?

Respondents were then presented with a list of 6 topics and asked to rank their top priority areas for Maple Ridge’s transportation system from 1 (most important) to 6 (least important). Driving was identified as the top priority among respondents with an average ranking of 2.72, followed by transit receiving an average ranking of 3.12. Parking was the lowest priority among respondents with an average ranking of 4.02.



328/335 answered this question.

What are the top three transportation issues or challenges facing Maple Ridge today?

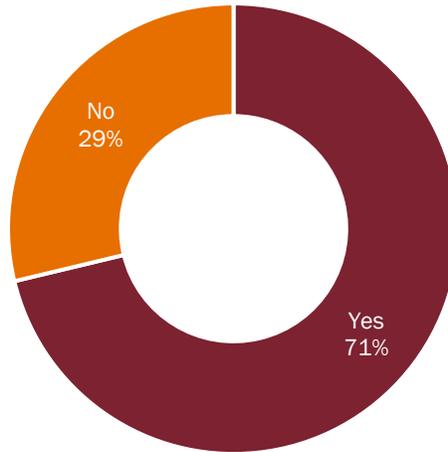
307 respondents answered this question with 846 comments. Each response was reviewed in detail and several key themes were identified, as shown below.

- Too much congestion and traffic issues – 269
- Lack of safety (traffic, crime) and vehicles travelling too fast – 134
- Public transit – 119
 - *Lack of infrastructure and services, want increase* – 118
 - *Not useful* – 1
- Lack of connections across Maple Ridge and to the region – 111
- Lack of sidewalks and pedestrian infrastructure – 59
- Too much development, growth and increased population – 51
- Cycling – 45
 - *Lack of infrastructure, want increase* – 37
 - *Not useful* – 8
- Lack of parking – 43
- Lack of alternatives to the car – 8
- Cost of transportation is too high – 7

TRAVEL PATTERNS

Are you employed or attend school?

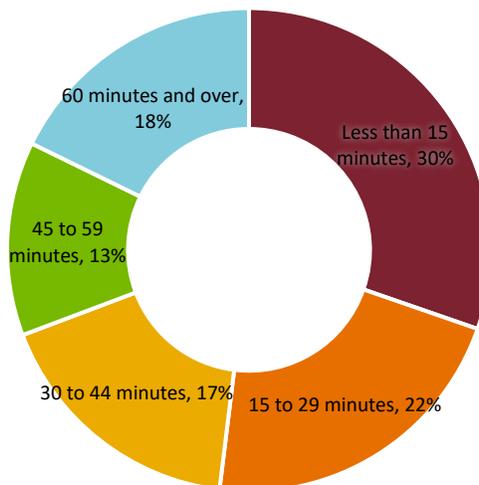
More than 70% of respondents are employed or attending school.



327/335 answered this question.

What is your average commute time?

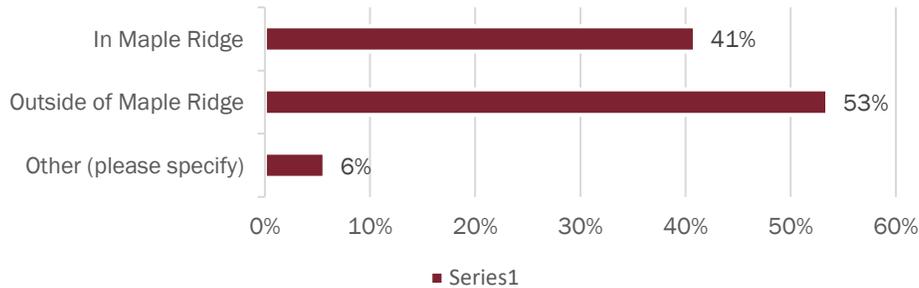
Nearly half of respondents (48%) commute 30 minutes or more to work or school, and 30% have a commute that is less than 15 minutes.



231/335 answered this question.

Where do you work or attend school?

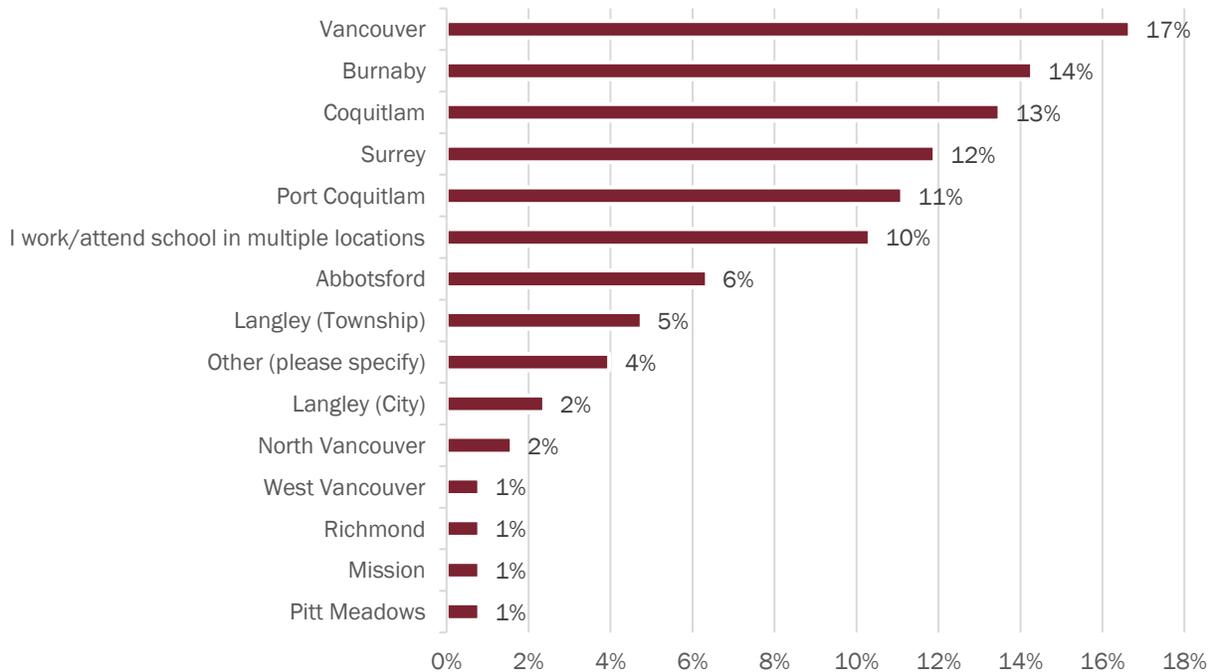
More than half of respondents (53%) indicated that they work or attend school outside of Maple Ridge.



230/335 answered this question.

Where do you work or attend school outside of Maple Ridge?

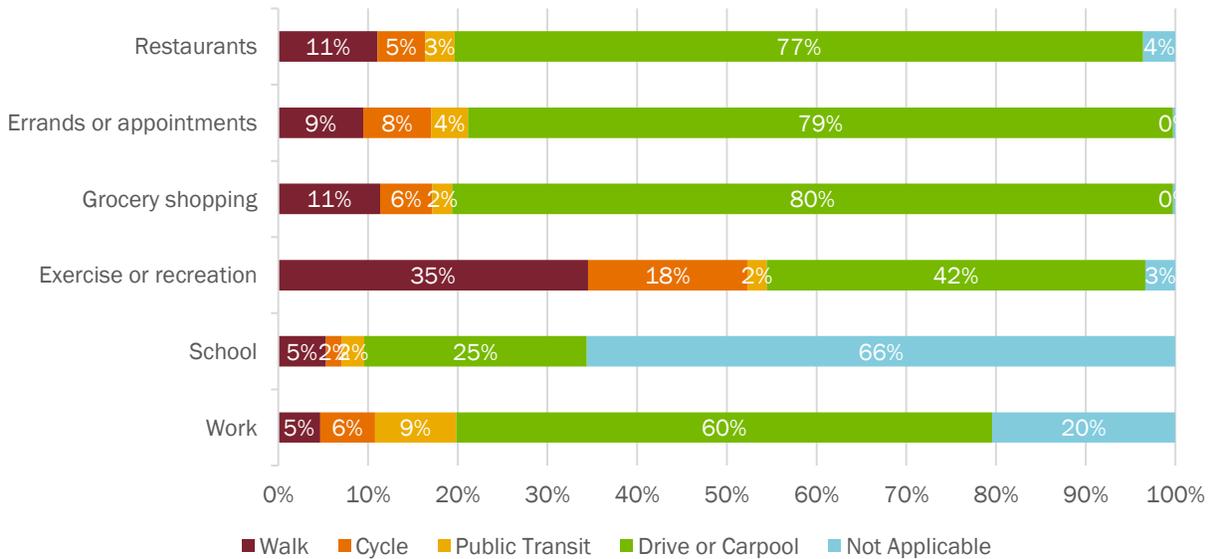
For those who work or attend school outside of Maple Ridge 17% live in Vancouver, 14% in Burnaby, and 13% in Coquitlam.



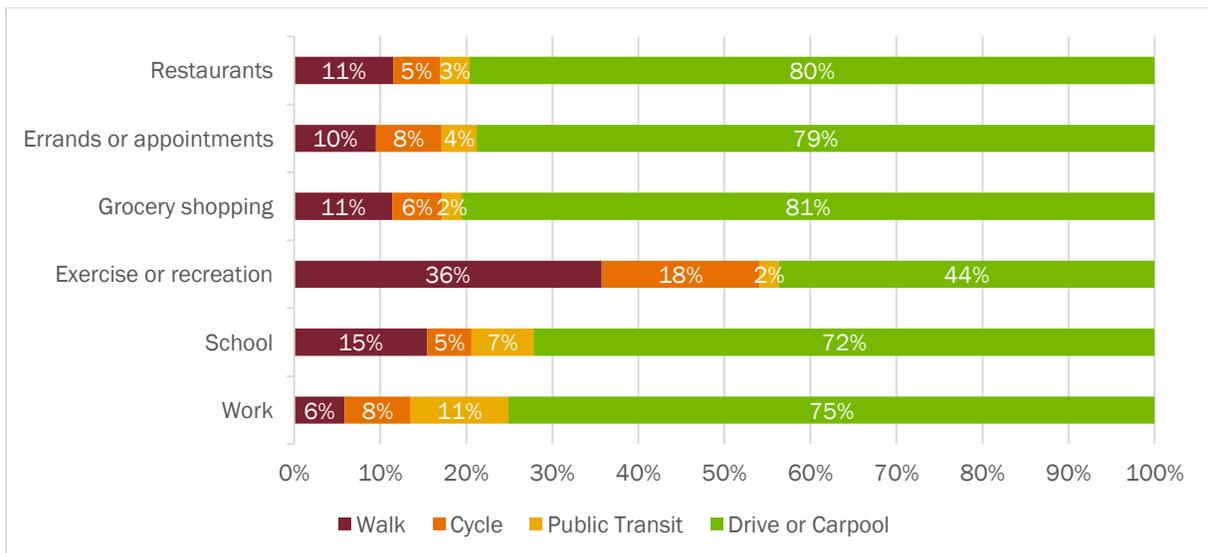
126/335 answered this question.

How do you typically travel to/from the following:

Survey respondents were asked how they typically travel to and from popular destinations. Driving or carpooling was the top mode of transportation for all destination options. Walking and cycling received similar response rates for all destination options, but were both significantly less popular than driving or carpooling.



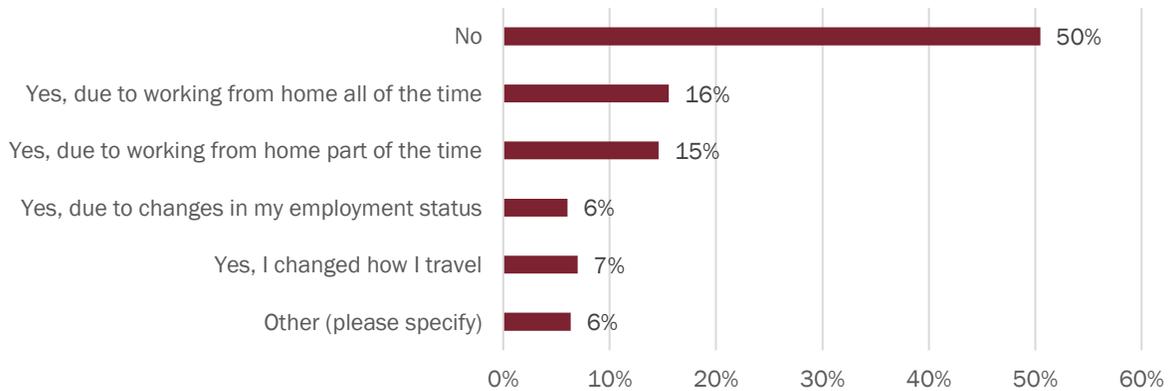
316/335 answered this question (summary including N/A response)



316/335 answered this question.(summary excluding N/A responses)

Has Covid-19 impacted your transportation habits and travel patterns?

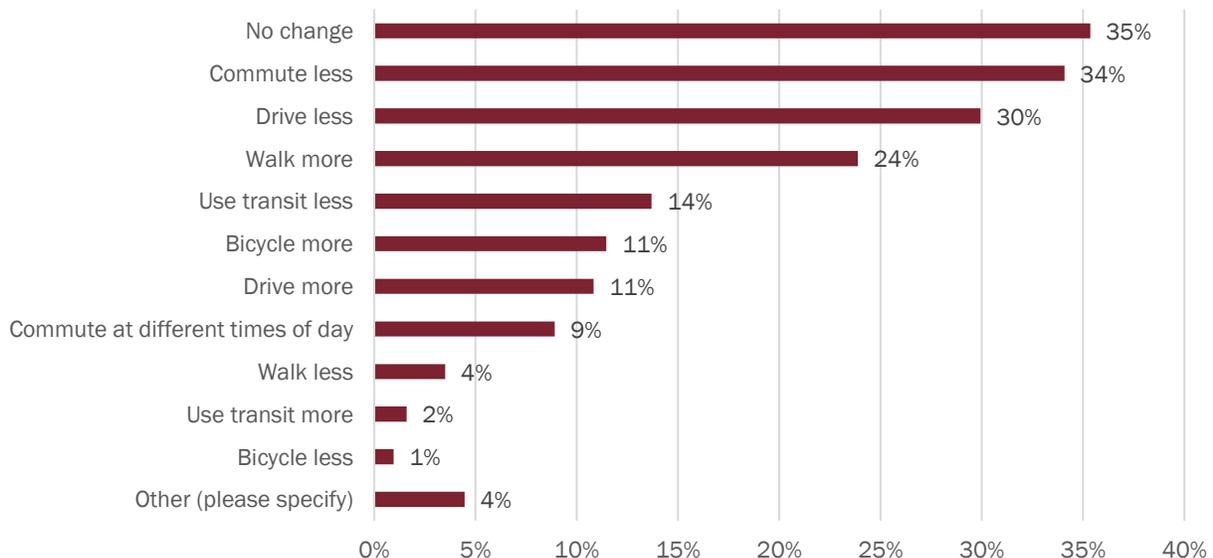
Half of survey respondents said that Covid-19 has not impacted their travel habits. Of those respondents whose travel patterns have changed, 30% attribute the change to working from home either full or part time. Those who selected other said that travel outside their home and community less often (x10), they no longer carpool (x2), or they have changed their travel habits to avoid busy or crowded spaces (x2).



315/335 answered this question.

How has Covid-19 impacted your transportation habits and travel patterns?

35% of survey respondents said that Covid-19 has had no impact on their travel habits or patterns. For those who have been impacted, 34% indicated that they are commuting less. Respondents also said that they are driving less (30%) and walking more (24%).



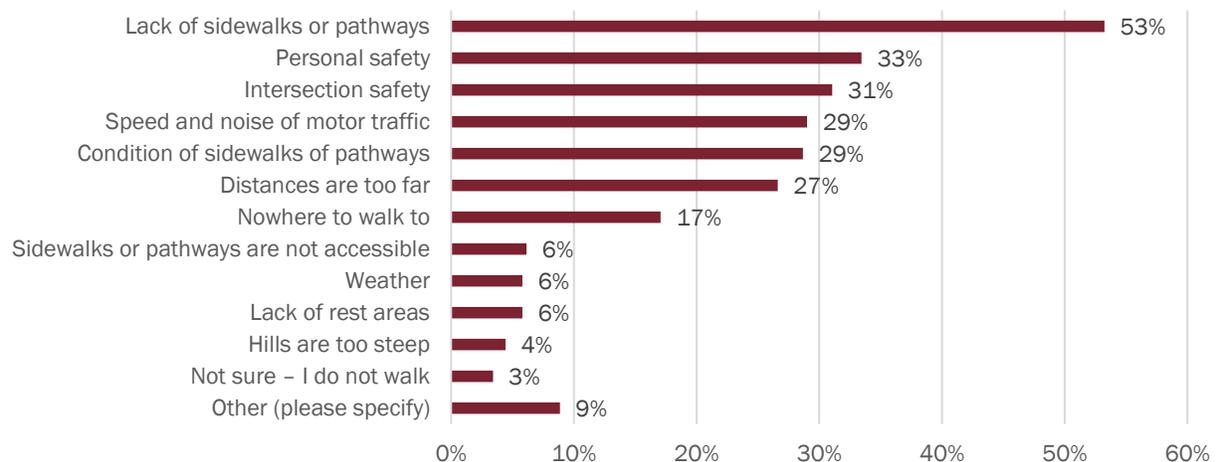
314/335 answered this question.

ISSUES AND OPPORTUNITIES

Walking

What are the main issues and challenges for walking in Maple Ridge?

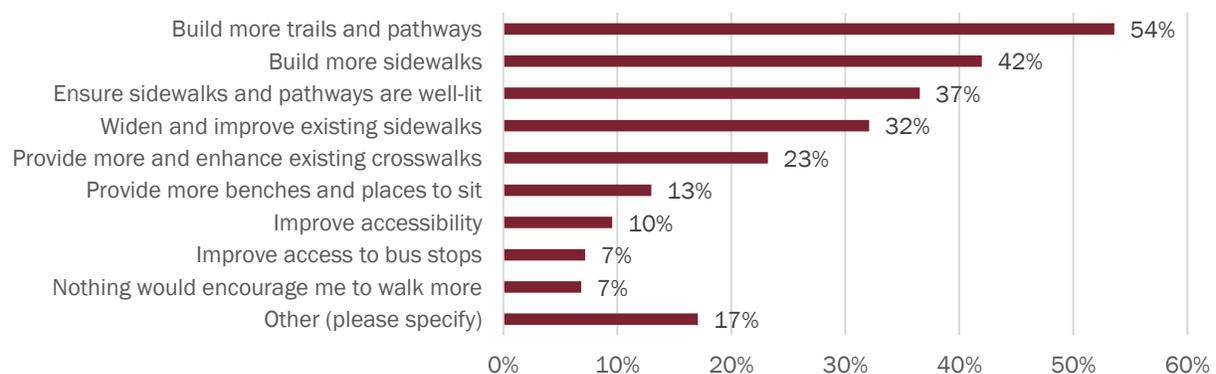
When asked to identify their top three issues or challenges for walking in Maple Ridge, 53% of respondents selected *lack of sidewalks or pathways*. This is followed by 33% of respondents who identified *personal safety* and 31% who selected *intersection safety*.



293/335 answered this question.

What could we do to encourage you to walk more in Maple Ridge?

When asked what the City could do to encourage more walking, *build more trails and pathways* (54%), *build more sidewalks* (42%), and *ensure sidewalks and pathways are well-lit* (37%) were the most popular responses among respondents. Other included concerns such as safety speeding and feeling unsafe in the community (24 responses) and land use and lack of density makes it challenging to walk (18 responses).

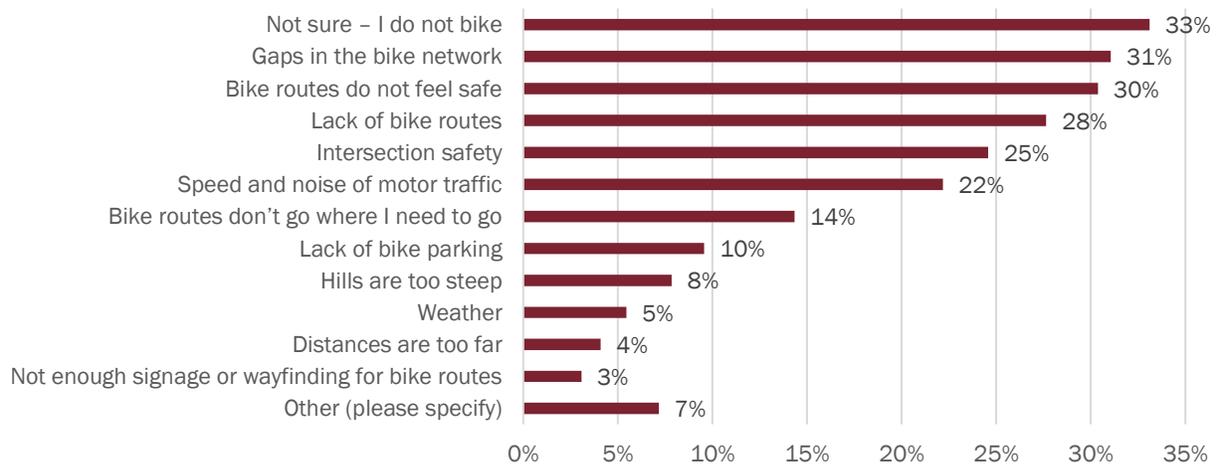


293/335 answered this question.

Cycling

What are the main issues and challenges for cycling in Maple Ridge?

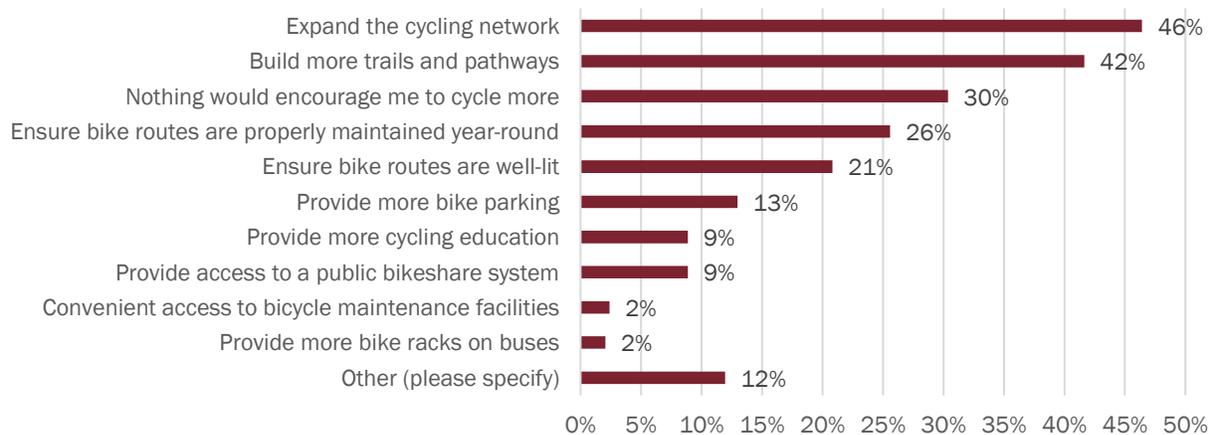
When asked to identify their top three issues or challenges for cycling in Maple Ridge, 33% of respondents said that they do not bike. Respondents that do bike identified *gaps in the bike network* (31%), *bike routes do not feel safe* (30%), and *lack of bike routes* (28%).



293/335 answered this question.

What could we do to encourage you to cycle more in Maple Ridge?

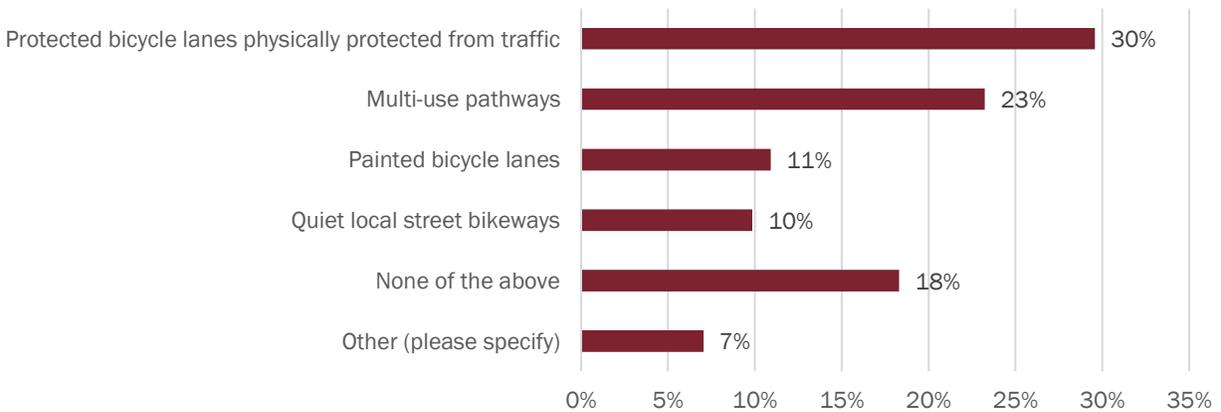
Survey respondents indicated that *expanding the cycling network* (46%) and *build more trails and pathways* (42%) were the top ways the City could encourage respondents to cycle. 30% of respondents selected that *nothing would encourage them to cycle more*. Other included separated bike lanes (13 responses) and increased safety through education (10 responses).



293/335 answered this question.

What type of cycling infrastructure would you like the City to build in existing neighbourhoods?

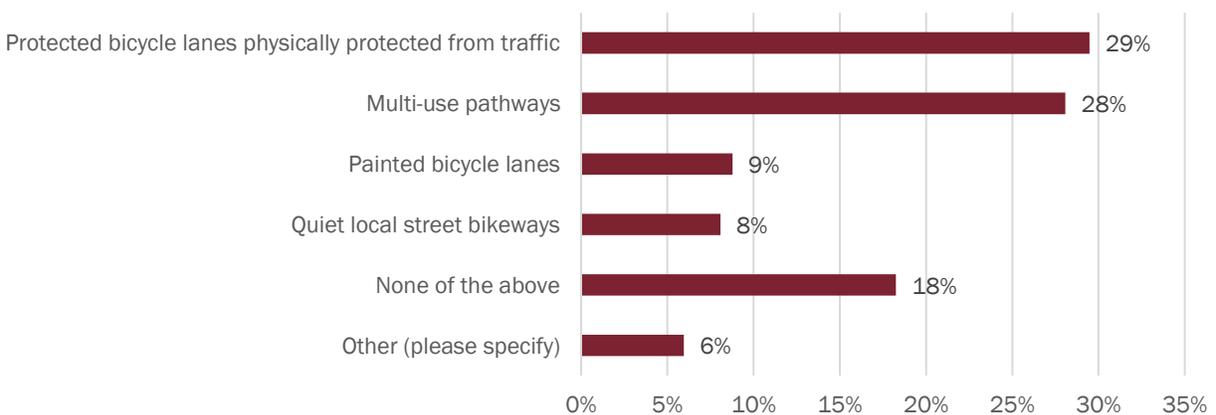
When asked what type of cycling infrastructure they would like the City to build in existing neighbourhoods, respondents indicated they would like to see *protected bicycle lanes physically protected from traffic* (30%), followed by *multi-use pathways* (23%).



284/335 answered this question.

What types of cycling infrastructure would you like the City to build in new/future neighbourhoods?

For new and future neighbourhoods, survey respondents also indicated they would like to see *protected bicycle lanes physically protected from traffic* (29%) and *multi-use pathways* (28%).

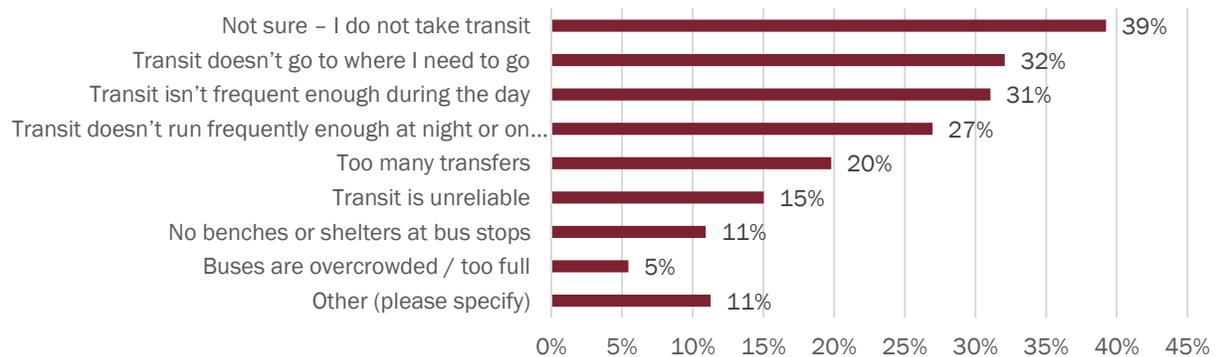


285/335 answered this question.

Transit

What are the main issues and challenges for transit in Maple Ridge?

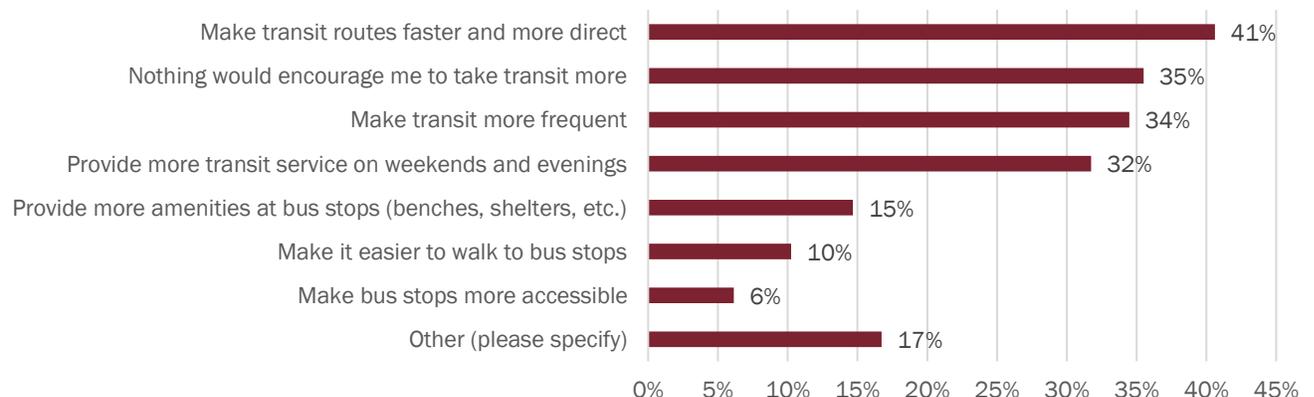
When asked to identify the main issues and challenges for transit in Maple Ridge, 39% of respondents said they do not take transit. For those who do take transit, they selected that *transit doesn't go to where I need to go* (32%), *transit isn't frequent enough during the day* (31%), and *transit doesn't run frequently enough at night or on weekends* (27%) as the top 3 issues and challenges. Other included transit is too time consuming due to congestion (13 responses) and lack of safety on transit (9 responses).



293/335 answered this question.

What could we do to encourage you to take transit more?

In order to encourage people to take transit more, *making transit faster and more direct* (41%), *making transit more frequent* (34%), and *providing more transit services on weekends and evenings* (32%) were the most popular responses among respondents. 35% of respondents indicated that *nothing would encourage them to take transit more*. Other included rapid transit infrastructure (15 responses) and increased safety (8 responses).

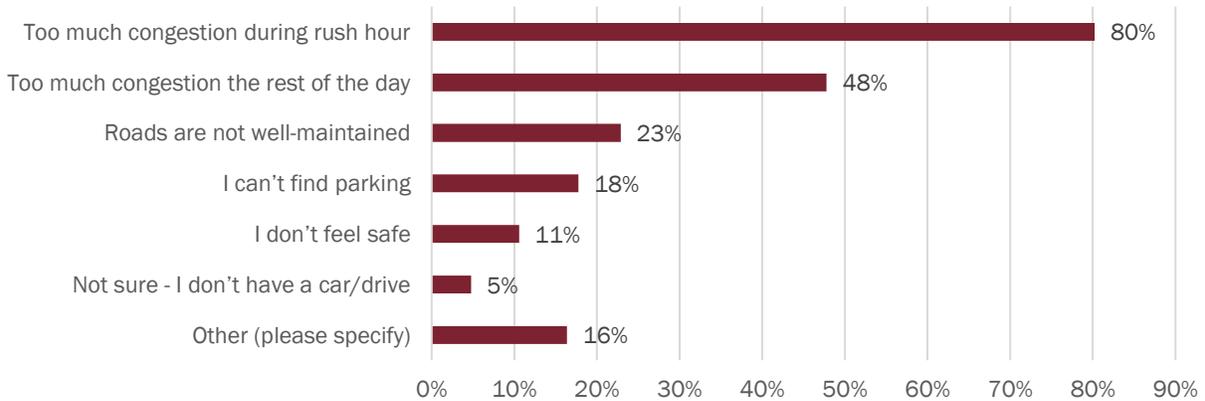


293/335 answered this question.

Driving

What are the main issues and challenges for driving or carpooling in Maple Ridge?

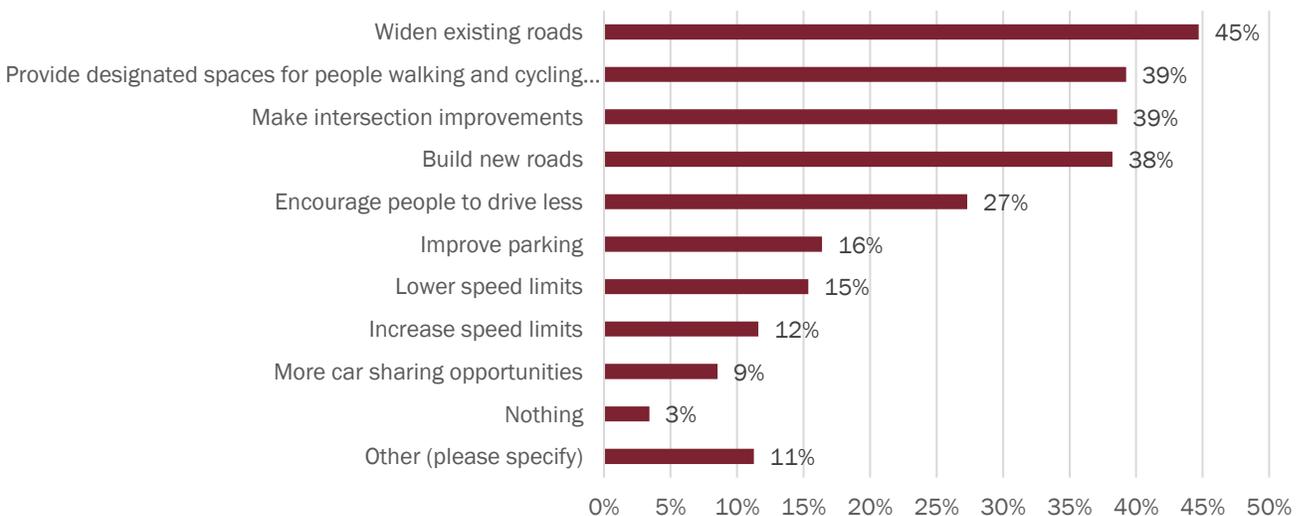
When asked to identify the main issues and challenges for driving or carpooling in Maple Ridge, 80% of those who responded selected *too much congestion during rush hour*, followed by *too much congestion the rest of the day* (48%).



293/335 answered this question.

What could we do to improve driving or carpooling?

When asked what the City could do to improve driving or carpooling, *widen existing roads* (45%), *provide designated spaces for people walking and cycling separated from motor vehicle lanes* (39%), and *make intersection improvements* (39%) were the most popular responses among respondents.

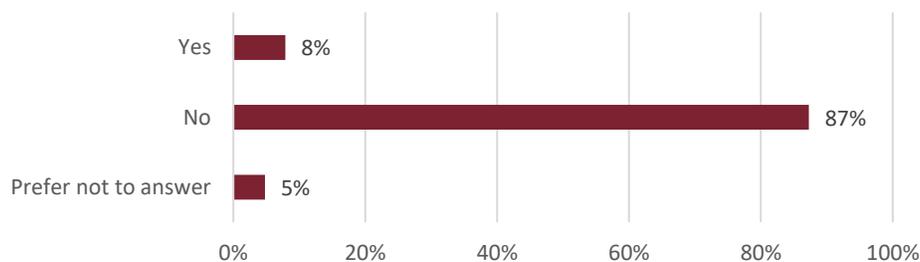


293/335 answered this question.

Barriers and Challenges

Have you faced any barriers or challenges related to transportation as a result of your race, national or ethnic origin, age, gender identity, sexual orientation, disability, family makeup, conviction for an offence or other factors?

87% of respondents have not faced barriers or challenges related to transportation; however, 8% of respondents indicated they have experienced barriers or challenges related to transportation as a result of their race, national or ethnic origin, age, gender identity, sexual orientation, disability, family make-up, conviction for an offence or other factors.



291/335 answered this question.

What are some examples of these transportation barriers or challenges?

20 respondents answered this question. Each response was reviewed in detail and several key themes were identified, as shown below.

Theme 1: Time and convenience (2 comments)

Respondents noted that transit is not an efficient way to move around Maple Ridge, and that getting around without a car would take too much time.

Theme 2: Accessibility (7 comments)

Respondents noted accessibility challenges, such as getting on and off buses, lack of public washrooms, sidewalks, and a lack of bus stop amenities prevent them from being able to use transit. Some noted that affordability is a challenge.

Chronic illness [makes it] hard to stand to wait for a bus but no benches.
- Survey Respondent

Theme 3: Safety (11 comments)

Respondents noted that they do not feel safe due to driver behaviour, lack of safe infrastructure or fear of interaction with homeless populations. Some comments noted that they do not feel safe as a woman cyclist or transit user.

MR is becoming increasingly uncomfortable to walk around as a woman.
- Survey Respondent

What could the City do to address these transportation barriers or challenges?

20 respondents answered this question. Each response was reviewed in detail and several key themes were identified, as shown below:

Theme 1: Security and enforcement (4 comments)

Respondents felt that increased enforcement or security, including additional lighting would help to make Maple Ridge roads safer.

Theme 2: Infrastructure (10 comments)

Respondents felt new infrastructure, including bike lanes, pedestrian infrastructure, accessibility improvements, transit and roads would improve transportation barriers. In particular, respondents stressed the need for safe infrastructure to easily navigate Maple Ridge, such as access to public transit, wider sidewalks and improvements to traffic flow. Some respondents felt that bikes should not be on major roads, and that all road users should be licensed to ensure accountability.

Make getting on and off public transit easier, and make sidewalks more accessible, wider and user friendly for the mobility impaired.

- Survey Respondent

Theme 3: Made-in Community Solutions (8 comments)

Respondents noted that they want transportation investments that are free from discrimination and benefit those with disabilities and addictions, and seniors. The community wants investments to create jobs in Maple Ridge, affordability and accountability.

People with disabilities and elderly should be treated with respect.

- Survey Respondent

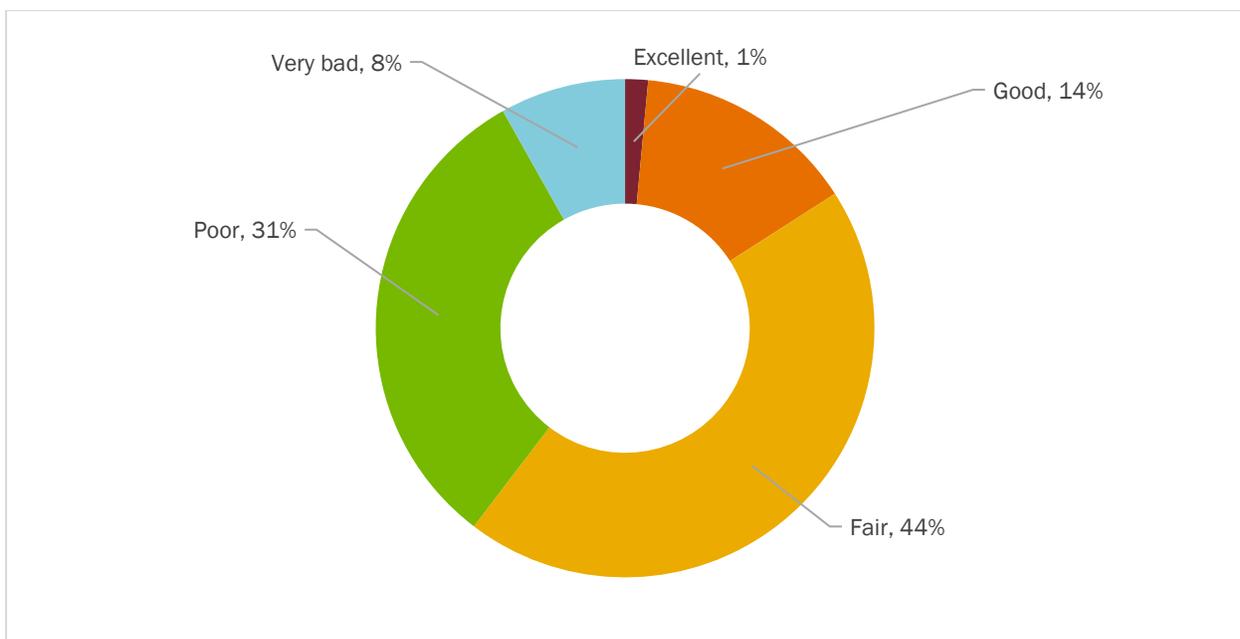
GOALS

GOAL 1: ACCESS & MOBILITY

Provide for safe, convenient, and accessible movement of people, goods and services throughout the city.

How do you feel the current transportation system is achieving this goal?

Nearly half of respondents (44%) feel *fair* about Goal 1. Only 15% of respondents feel *good* or *excellent* about Goal 1, while 39% feel *poor* or *very bad*.



Written Response

133 respondents answered this question. Each response was reviewed in detail and several key themes were identified, as shown below:

Theme 1: Congestion (52 comments)

Many responses noted dissatisfaction with the current levels of congestion in Maple Ridge, the increasing travel times across the city and to other parts of the region. Respondents felt that congestion was caused by a variety of reasons such as population growth and new development, trucks on the road network, lack of capacity on the road network, public transit, bike lanes, traffic signals, and traffic calming. Respondents felt that congestion causes drivers to take short cuts through neighbourhoods and makes it difficult to navigate the city.

Theme 2: Connectivity (16 comments)

Respondents noted that connectivity in Maple Ridge has been improved in some areas, but that the transportation network has connectivity challenges including road capacity.

Respondents noted that new developments and subdivisions are not connected with safe routes, transit routes or cycling routes. Connections to the region, such as Golden Ears Way, could be improved to improve time savings.

Theme 3: Safety (23 comments)

Respondents felt that travelling by foot, bike or transit can be dangerous due to a lack of safe infrastructure, high volumes of vehicle traffic, high speeds and dangerous drivers.

Respondents also feel unsafe walking, cycling or using public transit in certain areas from fear of negative interactions with those with addictions or experiencing homelessness.

Theme 4: Transportation Alternatives (21 comments)

Respondents noted that there are limited transportation options in Maple Ridge, especially for walking, cycling and public transit. Many comments expressed a desire for rapid transit options in the city such as SkyTrain. Comments noted that less of a focus should be placed on vehicles in order to increase the convenience and number of people walking, cycling and taking transit. Some respondents noted that they would not be in support of removing travel lanes to accommodate bicycles or public transit.

Theme 5: Livability (19 comments)

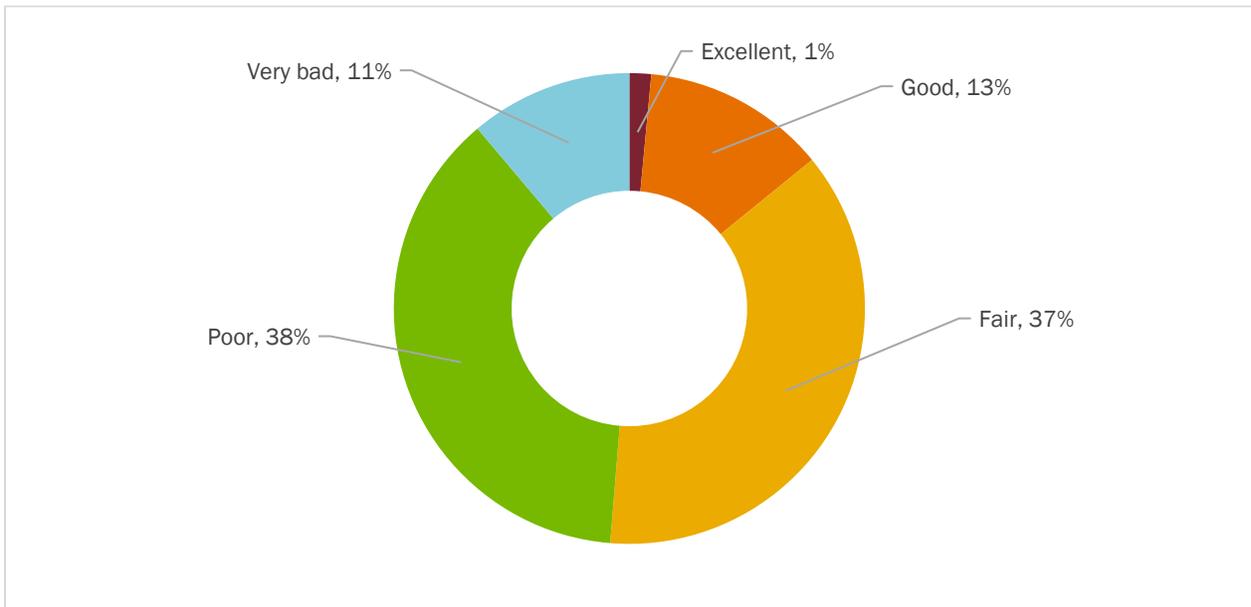
Respondents noted that Maple Ridge needs to place a stronger emphasis on making the city a livable, working city with jobs for its residents. Respondents felt that better planning to accommodate new homes and developments with supporting amenities and road systems would make the city function better, as well as better connections to and from communities, more patios and walking opportunities, and well-maintained public spaces.

GOAL #2: TRANSPORTATION CHOICE

Provide residents and visitors with attractive choices for moving around the city and connecting with other areas of Metro Vancouver.

How do you feel the current transportation system is achieving this goal?

When asked about Goal 2, almost half (49%) of respondents indicated they feel *poor* or *very bad* about how the current transportation system is achieving this goal. Less than 15% of respondents (14%) said they felt *good* or *excellent* about Goal 2.



Written Response

112 respondents answered this question. Each response was reviewed in detail and several key themes were identified, as shown below:

Theme 1: Time (16 comments)

Respondents noted that it takes too long to move around Maple Ridge whether that's by foot, bike, public transit or car. Comments suggested that the infrastructure, connectivity, and reliability of each of these modes causes time delays that make it hard to commute within, to and from Maple Ridge. Respondents noted that taking the bus is significantly more time consuming than the West Coast Express or driving.

Theme 2: Ease and Convenience (20 comments)

Respondents noted that getting around Maple Ridge is not easy without a car. Respondents felt that there are limited alternatives, and when there is access to pedestrian and bicycle infrastructure or public transit, it is not a convenient option. While some improvements such

as the Golden Ears Bridge have made some travel easier, it has also disconnected residents from places like Fort Langley. Some comments would like to see better connections to rapid transit such as SkyTrain or West Coast Express.

Theme 3: Quality of Service (33 comments)

Respondents felt that the transportation networks in Maple Ridge have low quality service and need a lot of improvement and more options. To improve public transit, respondents would like to see SkyTrain come to Maple Ridge to better connect to the rest of the region and improve reliability. Respondents are happy with RapidBus but noted that it also has reliability issues. Respondents would like the bike network to be more intuitive with more routes to choose from. In terms of the road network, comments noted that lanes need to be widened to better accommodate traffic, and better connections need to be made across the city. Respondents were happy with improvements to the Golden Ears Bridge and Pitt River Bridge.

Theme 4: Frequency of Public Transit (21 comments)

Respondents noted that public transit service is infrequent and makes it challenging to use. In particular, comments suggested that more West Coast Express service would greatly benefit Maple Ridge, and a SkyTrain extension would connect the city to the region. Respondents noted that even with improvements to transit service such as RapidBus, it is hard to connect to these routes with unreliable, slow and infrequent transit service.

Theme 5: Congestion (15 comments)

Respondents noted that congestion makes it challenging to move to, from and around Maple Ridge. Comments noted that there are bottlenecks in certain areas and especially on weekends, and respondents would like to see more routes that move east-west through Maple Ridge or turn segments like the Mary Hill Bypass into controlled access highways.

Theme 6: Safety (3 comments)

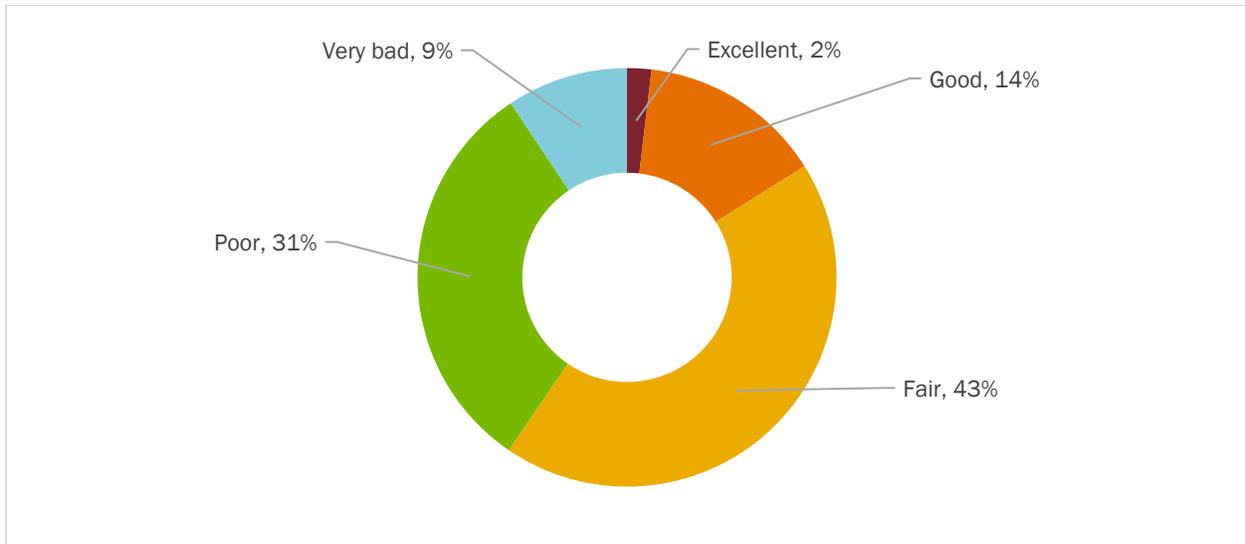
Respondents noted that they do not feel safe when downtown or taking transit. Because of this, respondents noted that they feel driving is the only safe and attractive transportation option.

GOAL #3: COMMUNITY & ENVIRONMENT

Provide transportation infrastructure and services that enhance quality of life in Maple Ridge and the quality of the natural environments in the city.

How do you feel the current transportation system is achieving this goal?

Nearly half of respondents (43%) feel *fair* about Goal 3, while 40% feel *poor* or *very bad*. 16% of respondents feel *good* or *excellent* about this goal.



Written Response

90 respondents answered this question. Each response was reviewed in detail and several key themes were identified, as shown below:

Theme 1: Recreation (15 comments)

Respondents noted that accessing recreational areas of Maple Ridge is challenging without a vehicle. Comments noted that because of this, routes to recreational areas are congested and parking is difficult to find. Respondents would like to see more pathways and green corridors, as well as bike and transit routes that connect residents to them.

Theme 2: High Demand for Road Network (33 comments)

Respondents noted that Maple Ridge suffers from high levels of congestion from an influx of new developments, increased density and population. Respondents felt that the road network cannot handle the high demand. Comments noted that this results in long commutes, road rage and a lower quality of life. Respondents would like to see improvements to the road network, such as along the Haney Bypass, to move more people faster.

Theme 3: Pollution (17 comments)

Respondents noted that the prevalence of cars and trucks makes for high levels of noise pollution and emissions, which harms the quality of life for Maple Ridge residents. Comments noted concern for the natural environment and would like to see the City more jobs in Maple Ridge so that there can be more quiet, people-friendly places.

Theme 5: Sustainable Transportation (19 comments)

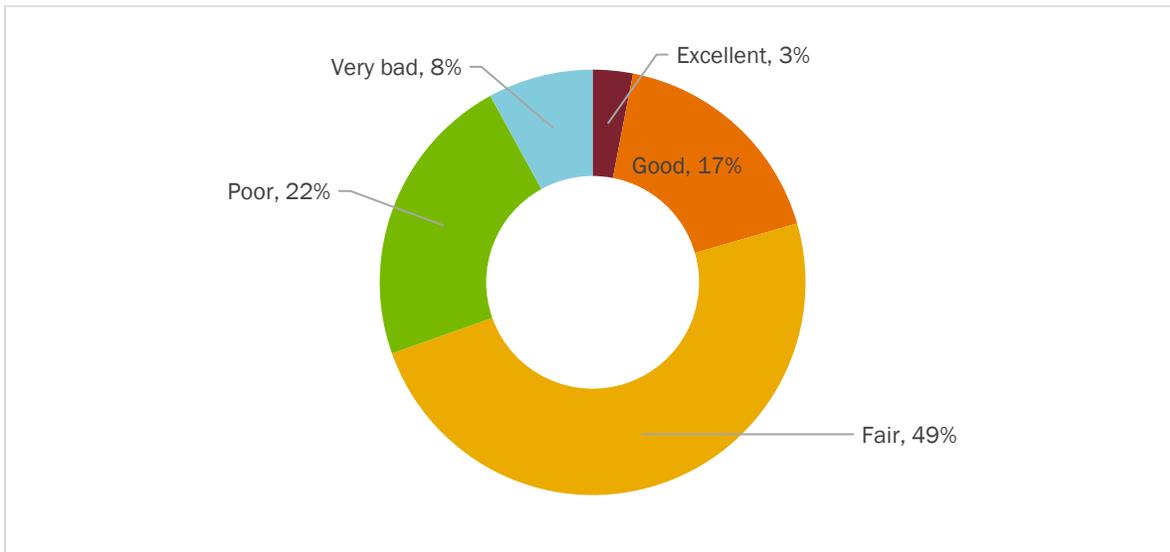
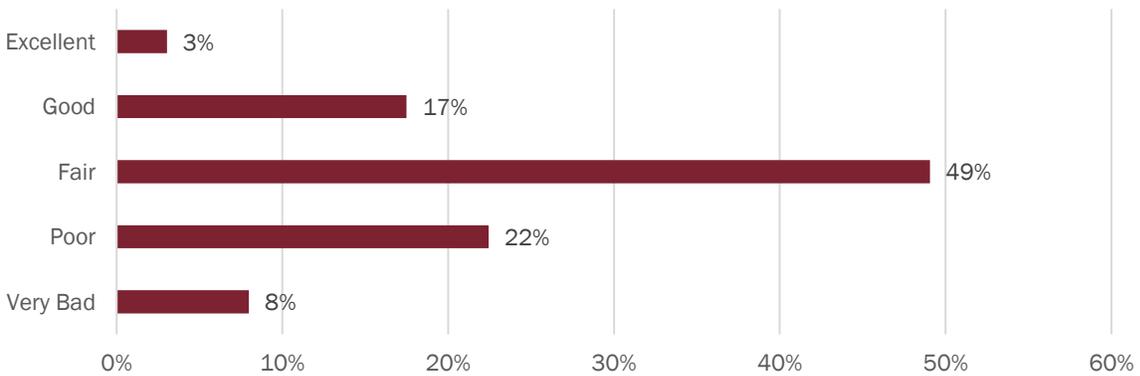
Respondents noted that there are not enough sustainable transportation options in Maple Ridge. Comments noted that respondents would like to walk to shops, amenities and parks but there are not enough in Maple Ridge, and not enough infrastructure to support their journey via foot, bike or transit. Respondents would like to see more connections between paths and trails, more bus stops and affordable transit service, neighbourhood centres and gathering places. Comments noted that sidewalks on both sides of the road should be the minimum to support sustainable transportation.

GOAL #4: AFFORDABLE TRANSPORTATION SYSTEM

Provide transportation infrastructure and services in a cost-effective and efficient manner that makes best use of existing facilities and projected resources.

How do you feel the current transportation system is achieving this goal?

Nearly half of respondents (50%) feel *fair* about Goal 4. 20% of respondents feel *good* or *excellent* about this goal, which is the highest levels of support among the four goals..



Written Response

68 respondents answered this question. Each response was reviewed in detail and several key themes were identified, as shown below:

Theme 1: Reliability (18 comments)

Respondents noted that while cars are the most expensive transportation choice, they are the only practical option in Maple Ridge. Comments noted that transit is not reliable which

could mean missed work or appointments, and it takes too long to get places with many stops and transfers. Respondents noted that congestion, various traffic calming projects and long project timelines have made the issue worse.

Theme 2: Livability (18 comments)

Respondents noted that the cost of transportation in Maple Ridge is compounded by limited job opportunities and having to travel for work, recreation, shopping and entertainment. Comments noted that they would like to see more cheap parking for transit, pedestrian infrastructure and frequent rail service in Maple Ridge. Respondents would like to be able to have all their needs met within the limits of Maple Ridge instead of having to rely on their car.

Theme 3: Equity (29 comments)

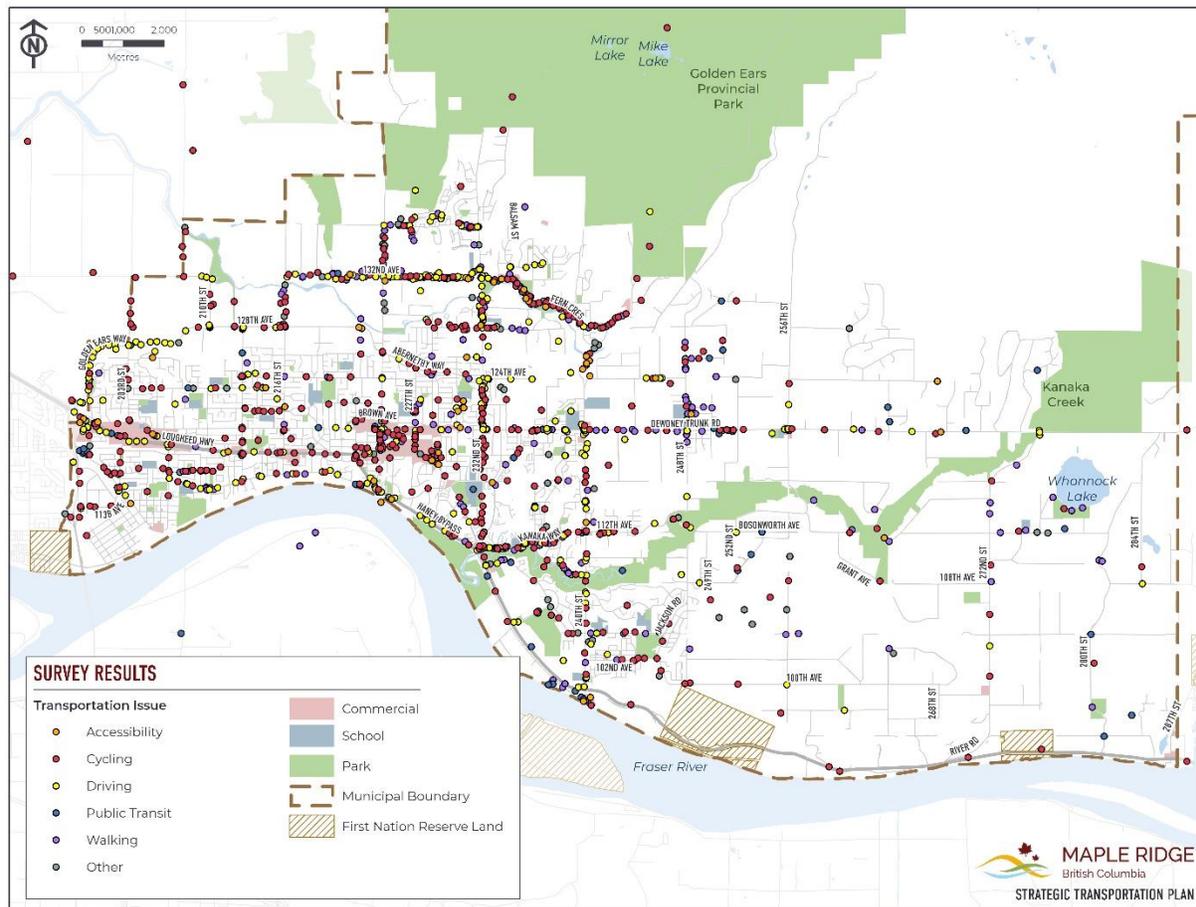
Respondents discussed paying for their fair share of the transportation network in Maple Ridge, with some noting that it is unfair to pay for a mode you do not use, while others see drivers as being subsidized by society. There was a mixed response over the transportation system being affordable or expensive.

- Work towards a transportation network that is low emission
 - Establish targets to reduce greenhouse gas emissions
 - Provide transportation infrastructure, services and options that enable people traveling within or through Maple Ridge to reduce their carbon emissions to help mitigate climate change
 - Electric vehicle charging stations
- Support a healthier, vibrant community by increasing the feasibility of active transportation in Maple Ridge with more infrastructure, local facilities and businesses, as well as places to walk and bike to.
 - Improve walkability
 - More bike lanes
 - More parks and green space, more destinations (patios)
- Create a safe community and transportation system for all road users, residents and visitors.
 - Pedestrian and cyclist infrastructure (greenways)
 - More safe infrastructure around schools
 - Family-friendly community (more enforcement for crime, speeding)
- Make Maple Ridge more affordable with more jobs, housing and public transit.
 - Free transit
 - Commercial and industrial business development plan
 - Reduce the need for a car

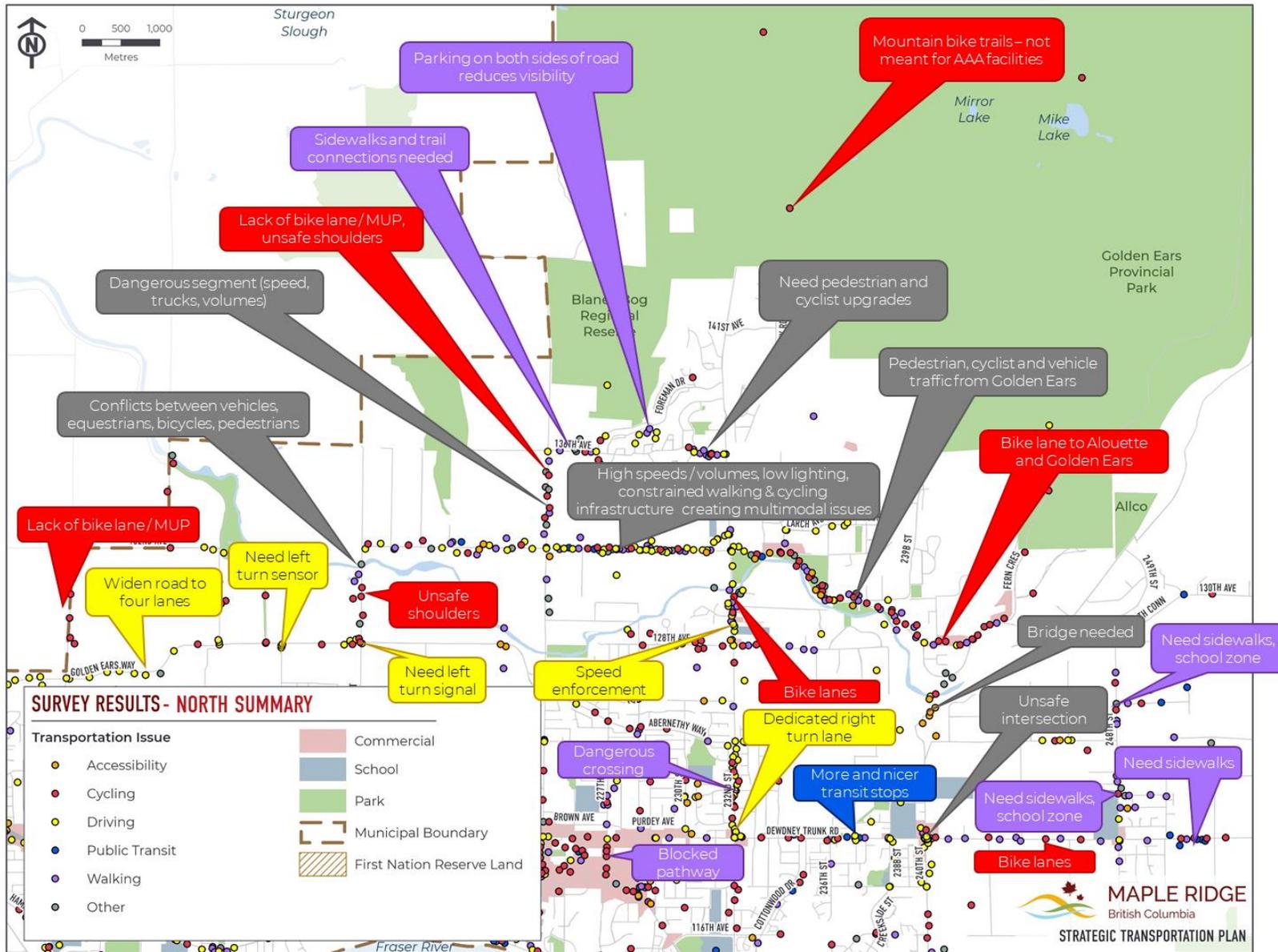
MAPPING EXERCISE

The ESRI StoryMap included an exercise that allowed respondents to place a point on the map to indicate a location with an issue or opportunity. The points were categorized and included space to provide detailed comments. Respondents identified 1,259 points that are shown on the map below. The responses included the following categories:

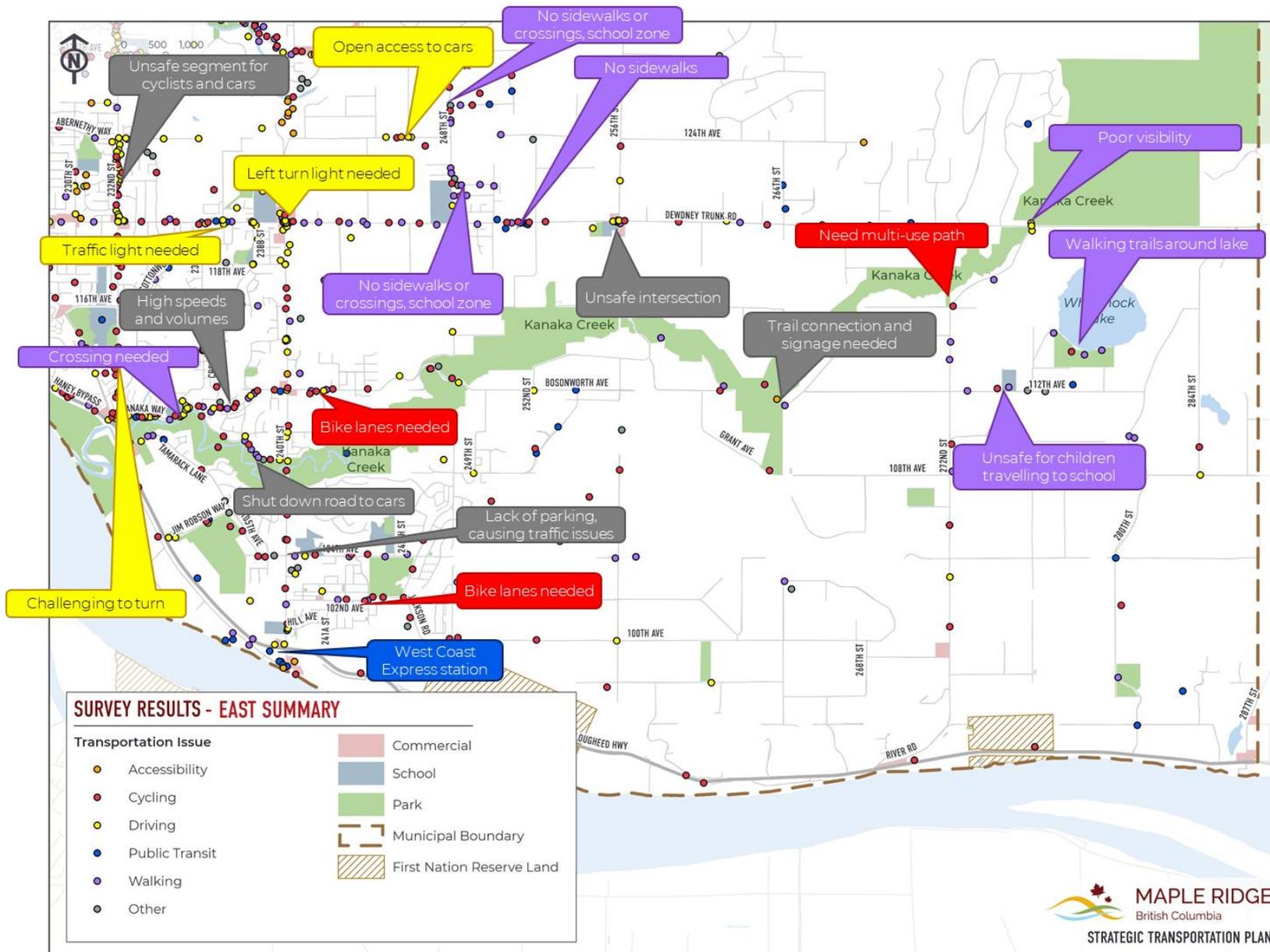
- Accessibility (48)
- Cycling (427)
- Driving (381)
- Public Transit (59)
- Walking (251)
- Other (93)



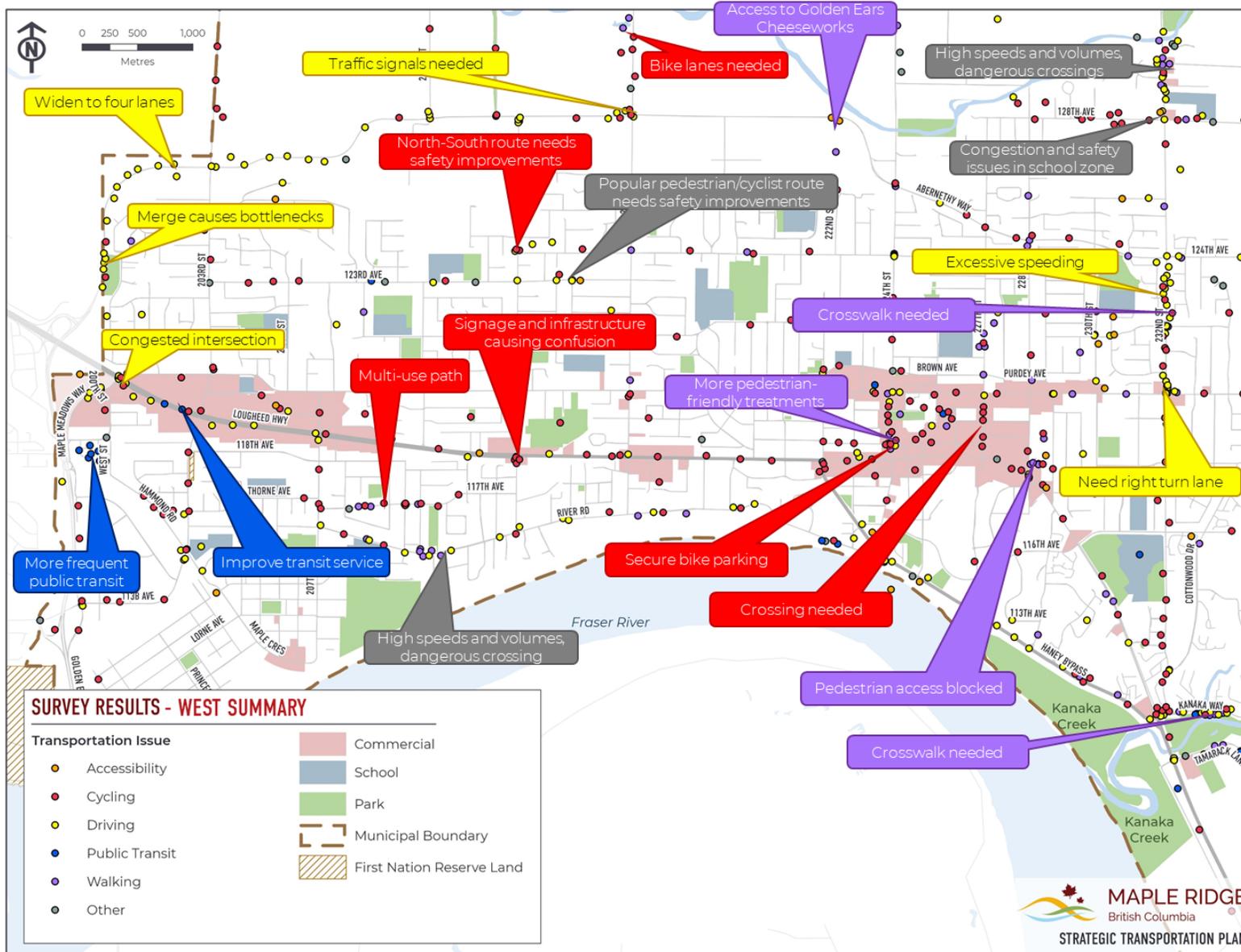
The maps on the following pages highlight the most common comments within clusters of points.



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U:\Projects_VAN\1914\0078\01\Design\GIS\Projects\Pro_Projects\1279.0036.01_Rev8.aprx\SURVEY_RESULTS_8.5_11_RevA_View2 Last updated by maceto on June 10, 2021 at 2:02 PM

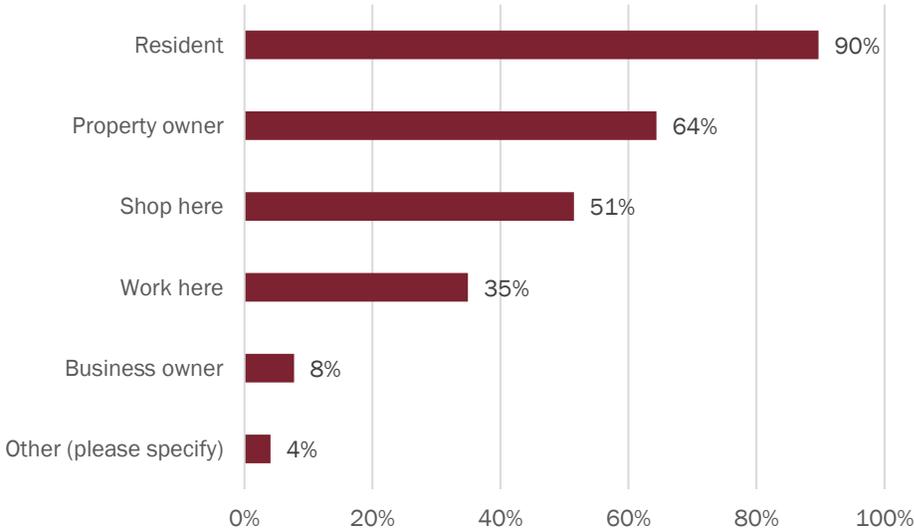


U:\Projects_VAN\1914\0078\01\D-Design\GIS\Projects\Pro_Projects\1279.0036.01_RevB.aprx\Survey_Results_8_5_11_RevA_View1 Last updated by maceto on June 10, 2021 at 1:54 PM

DEMOGRAPHICS

What is your connection to Maple Ridge?

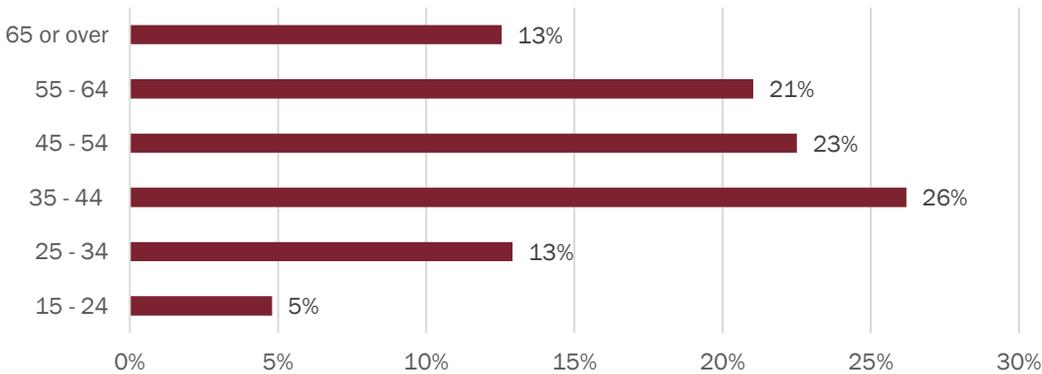
90% of survey respondents identify as residents of Maple Ridge, and 64% identify as being property owners.



272/335 answered this question.

How old are you?

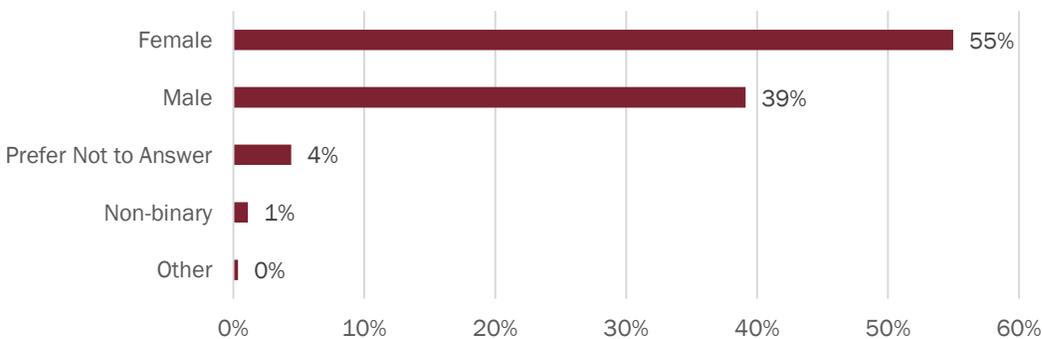
The majority of respondents (83%) are between the ages of 25-64, 13% are above the age of 65, and 5% were between the ages of 15 and 24. The survey results are not representative of Maple Ridge's population as residents between the ages of 35-44 make up only 13% of the population, nearly doubling their weight in this survey. Those between the ages of 45-54 and 55-64 are also overrepresented, while those between the ages of 15-24 are underrepresented.



271/335 answered this question.

What is your gender?

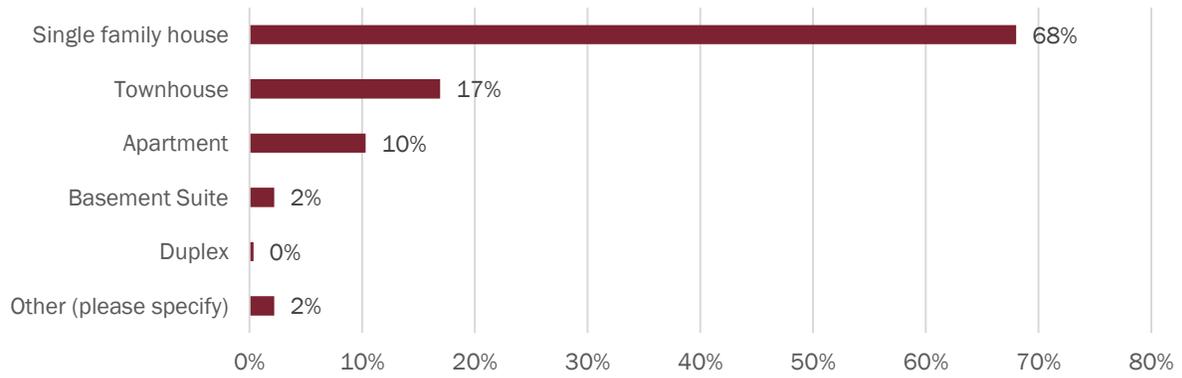
More than half of respondents identify as female (55%). Women are slightly overrepresented in this survey, as they represent 51% of Maple Ridge's population.



271/335 answered this question.

What type of household do you live in?

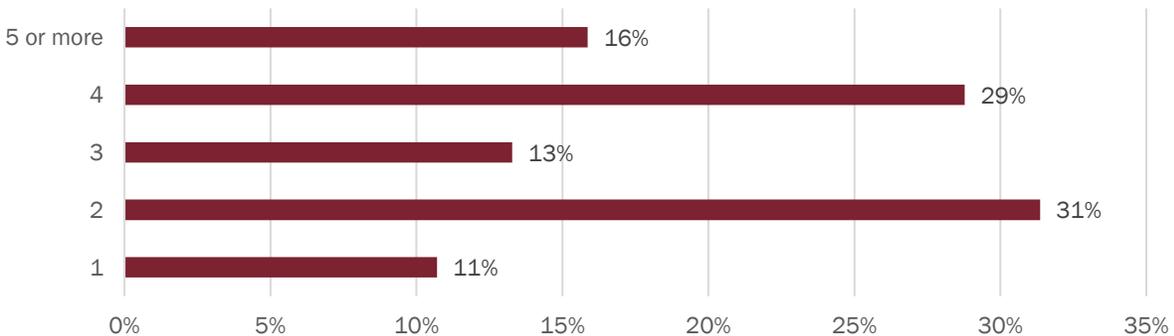
More than half of respondents live in a single family home (68%). This survey is overrepresented by people who live in single family homes as 56% of Maple Ridge residents live in a single family home.



272/335 answered this question.

Including yourself, how many people live in your household?

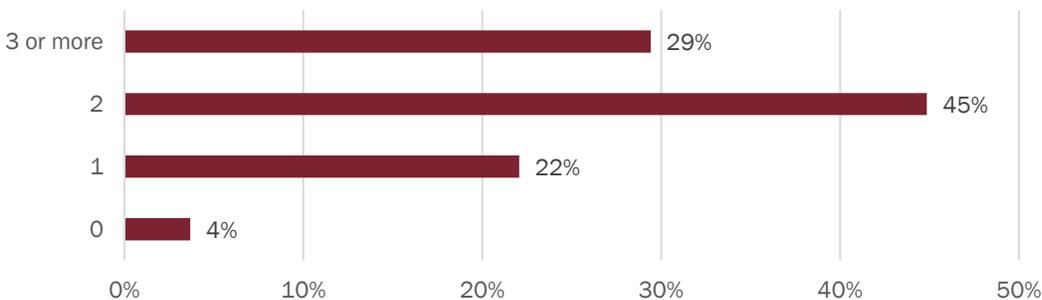
Majority of respondents live with two or more people, with only 11% of respondents living alone. This survey is overrepresented by households living with four people as those households make up 17% of the population and underrepresented by those living alone, as those households make up 22% of the population.



271/335 answered this question.

How many vehicles are registered to your household?

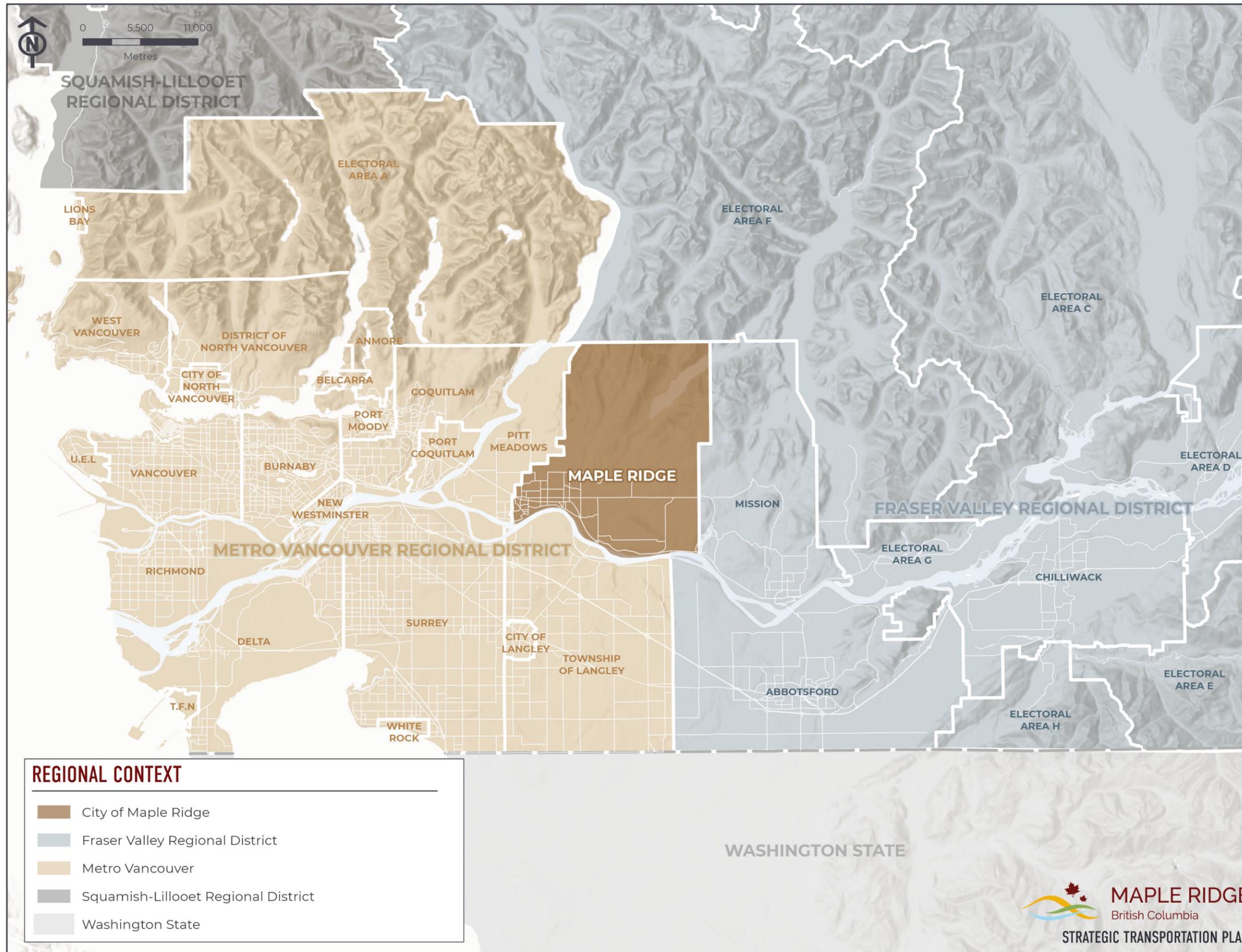
Nearly half of respondents (45%) indicated they have two vehicles registered to their household. Less than 5% of respondents do not have any vehicles registered to their household.

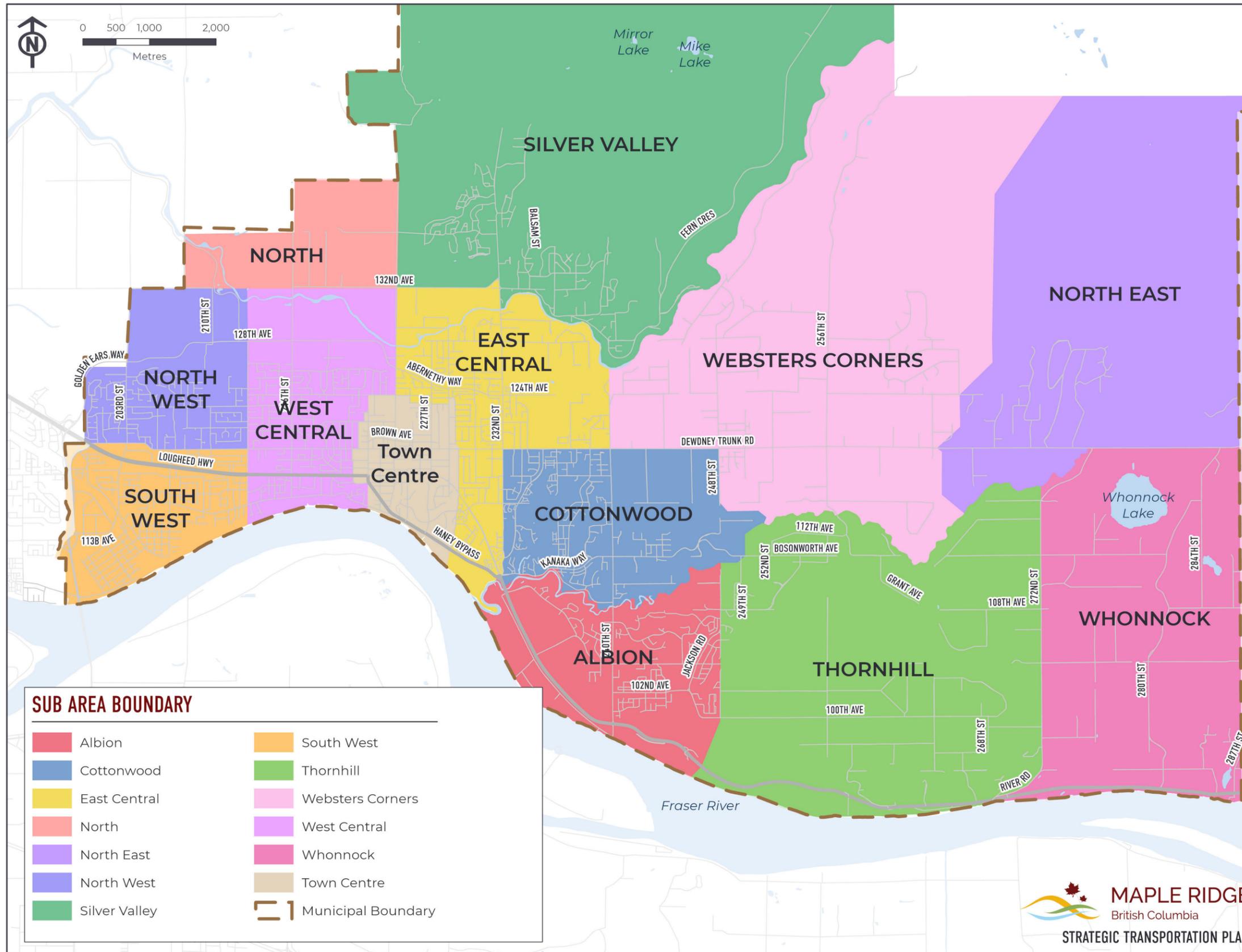


272/335 answered this question.

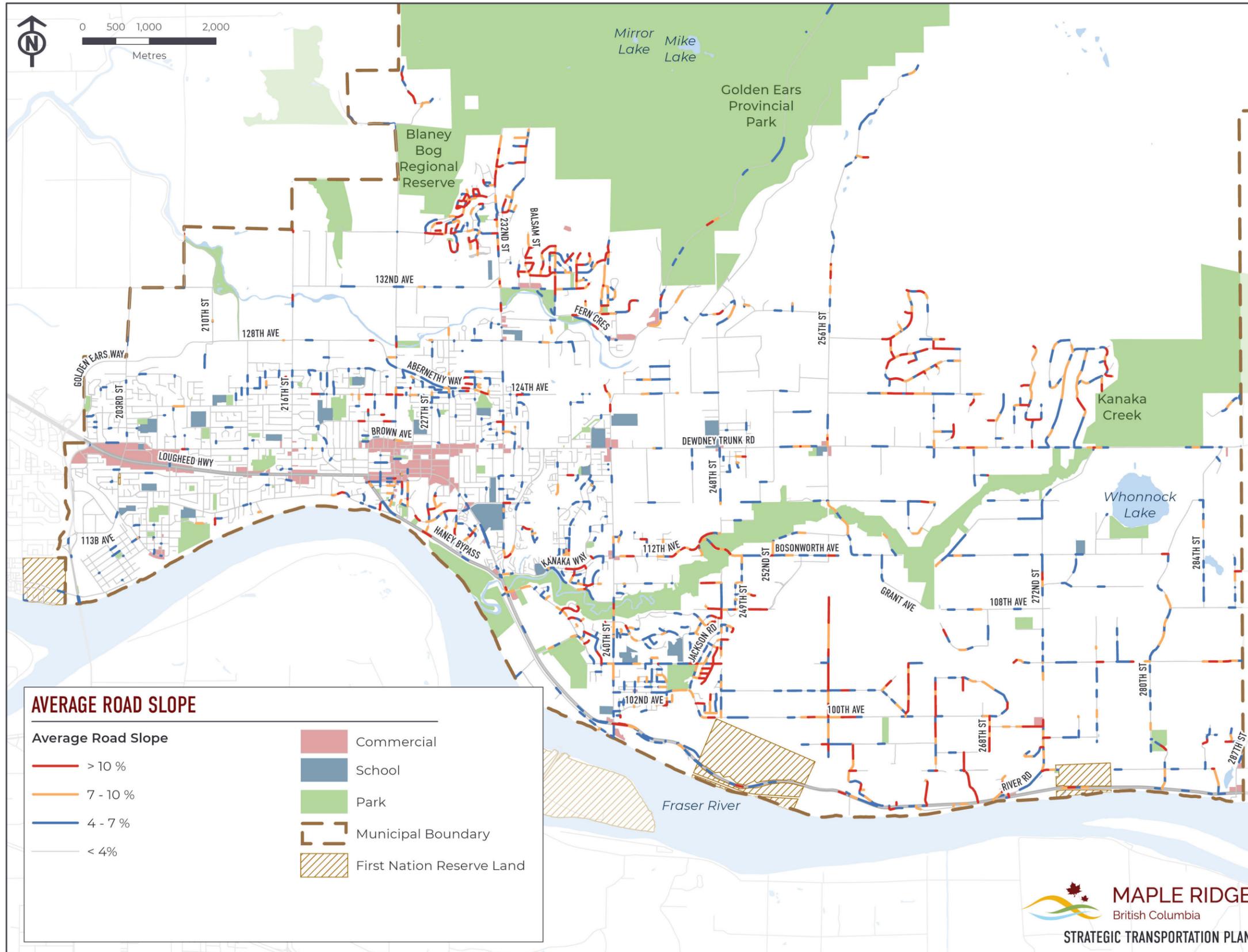
APPENDIX B

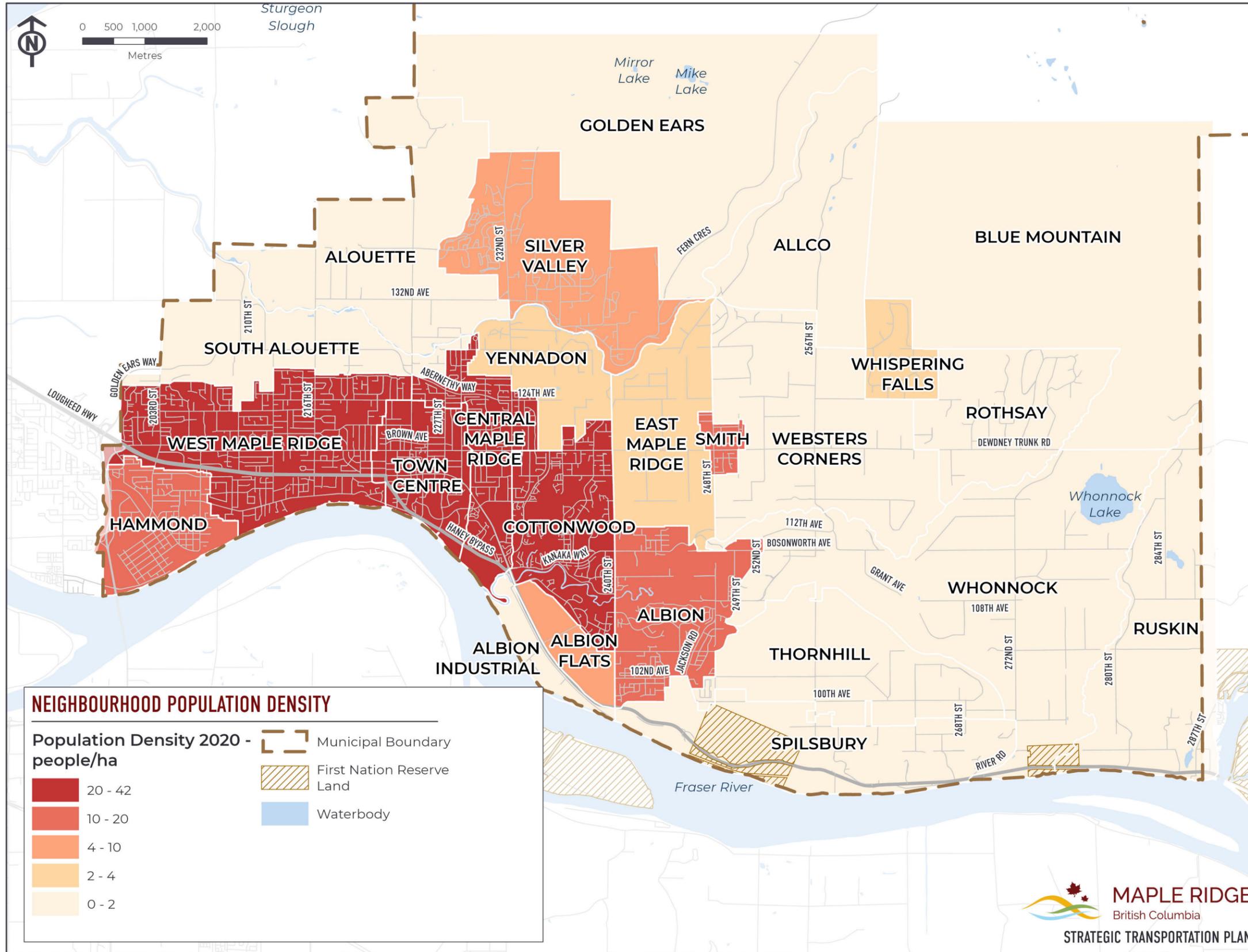
LARGE FORMAT MAPS

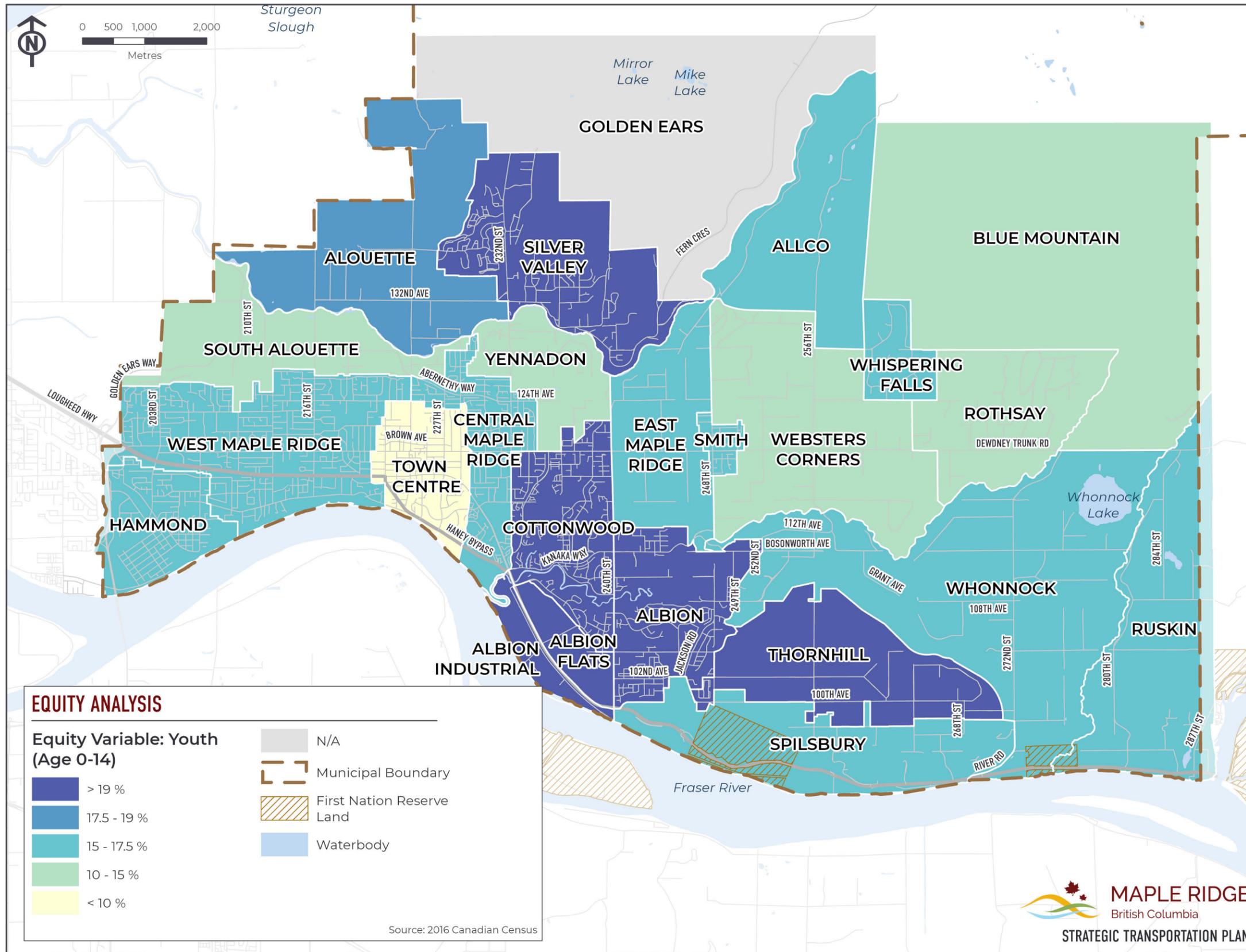


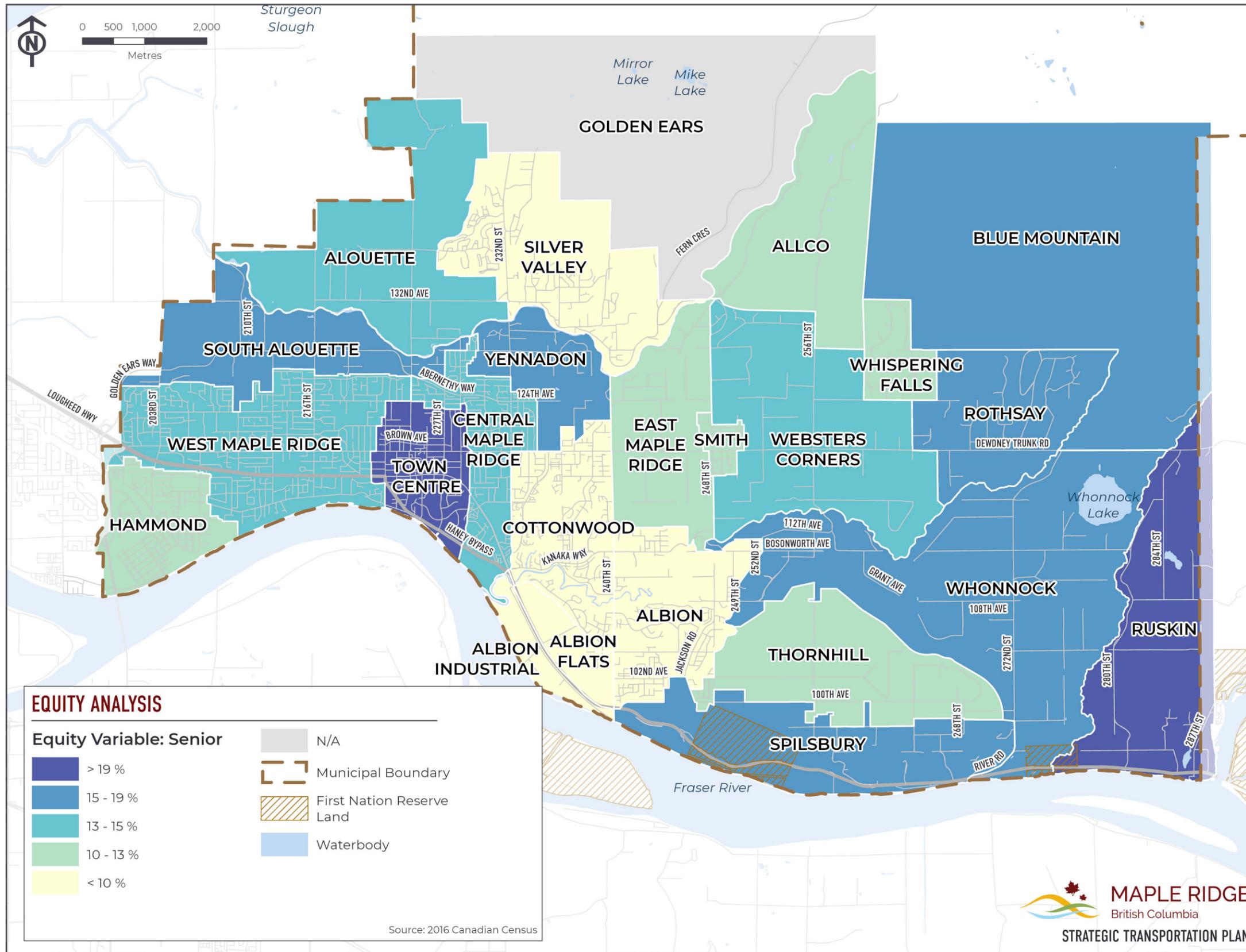


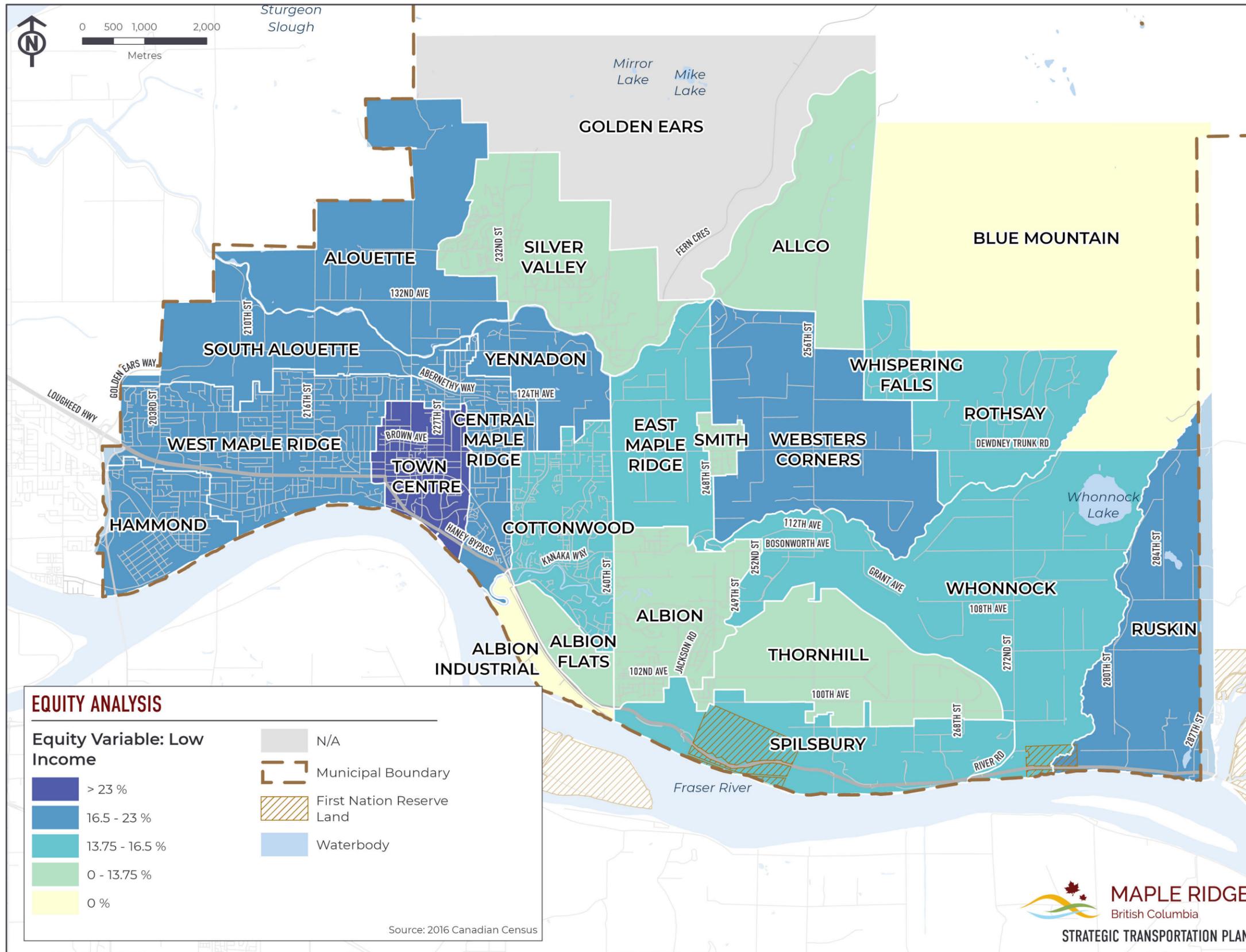


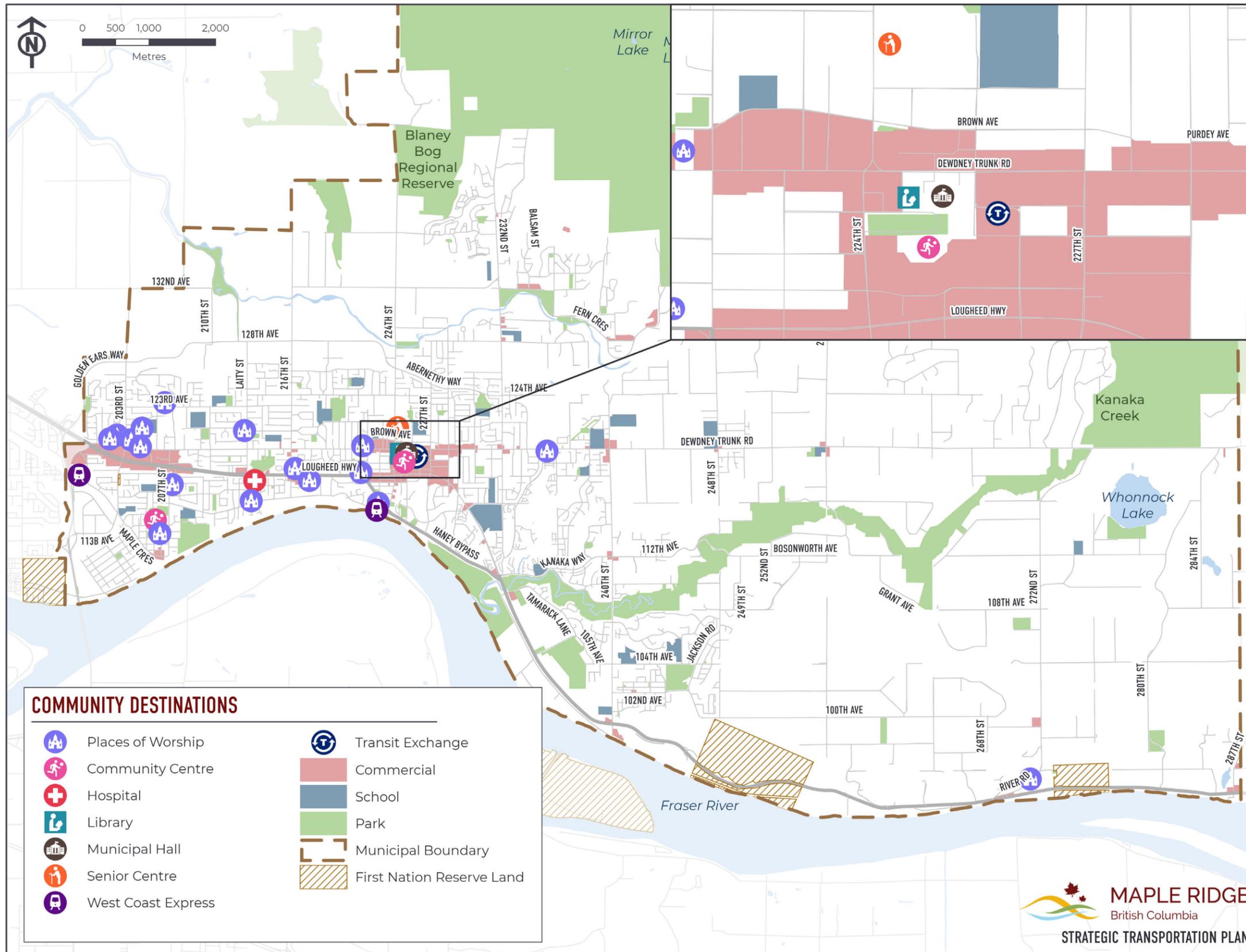


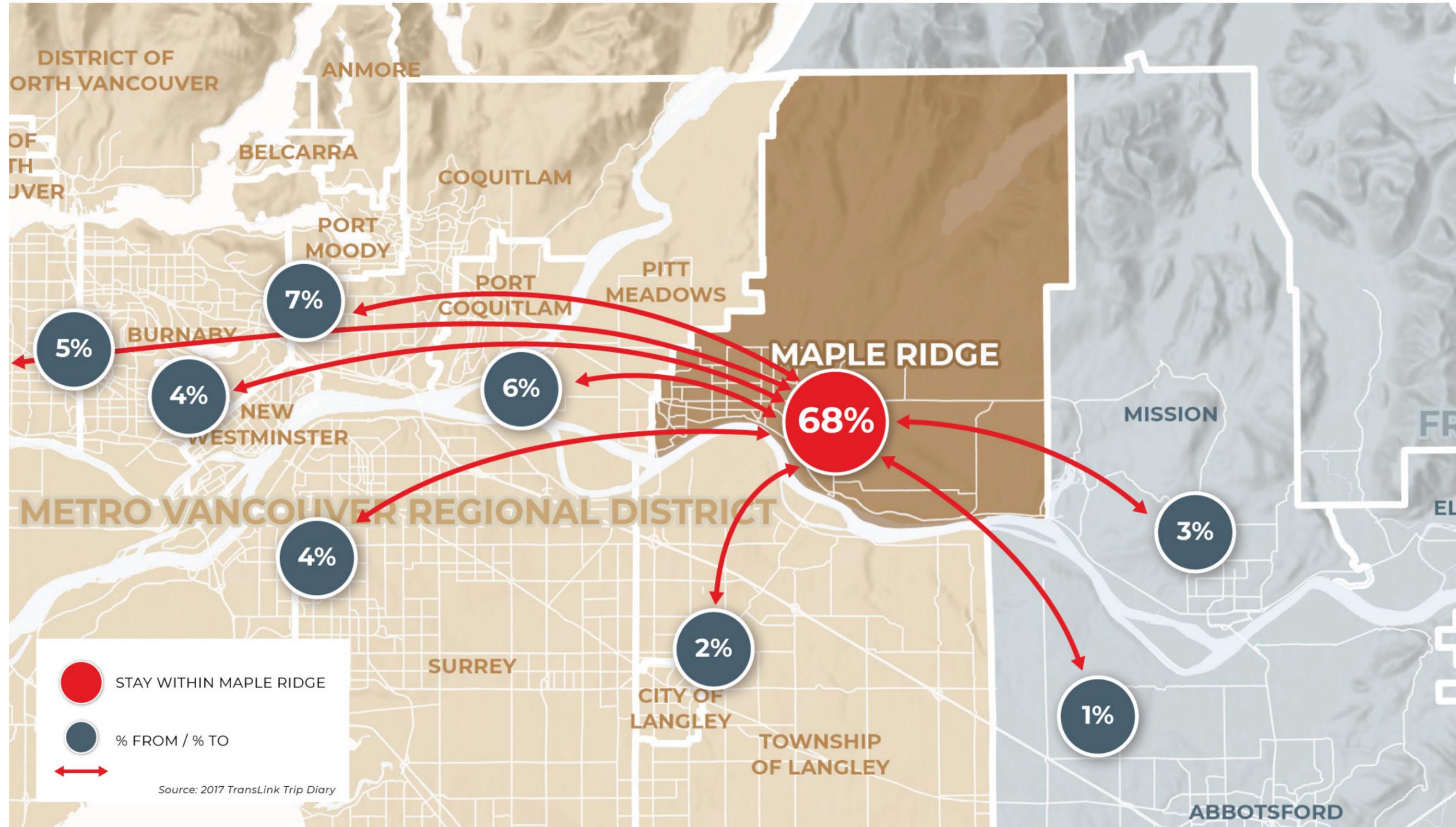


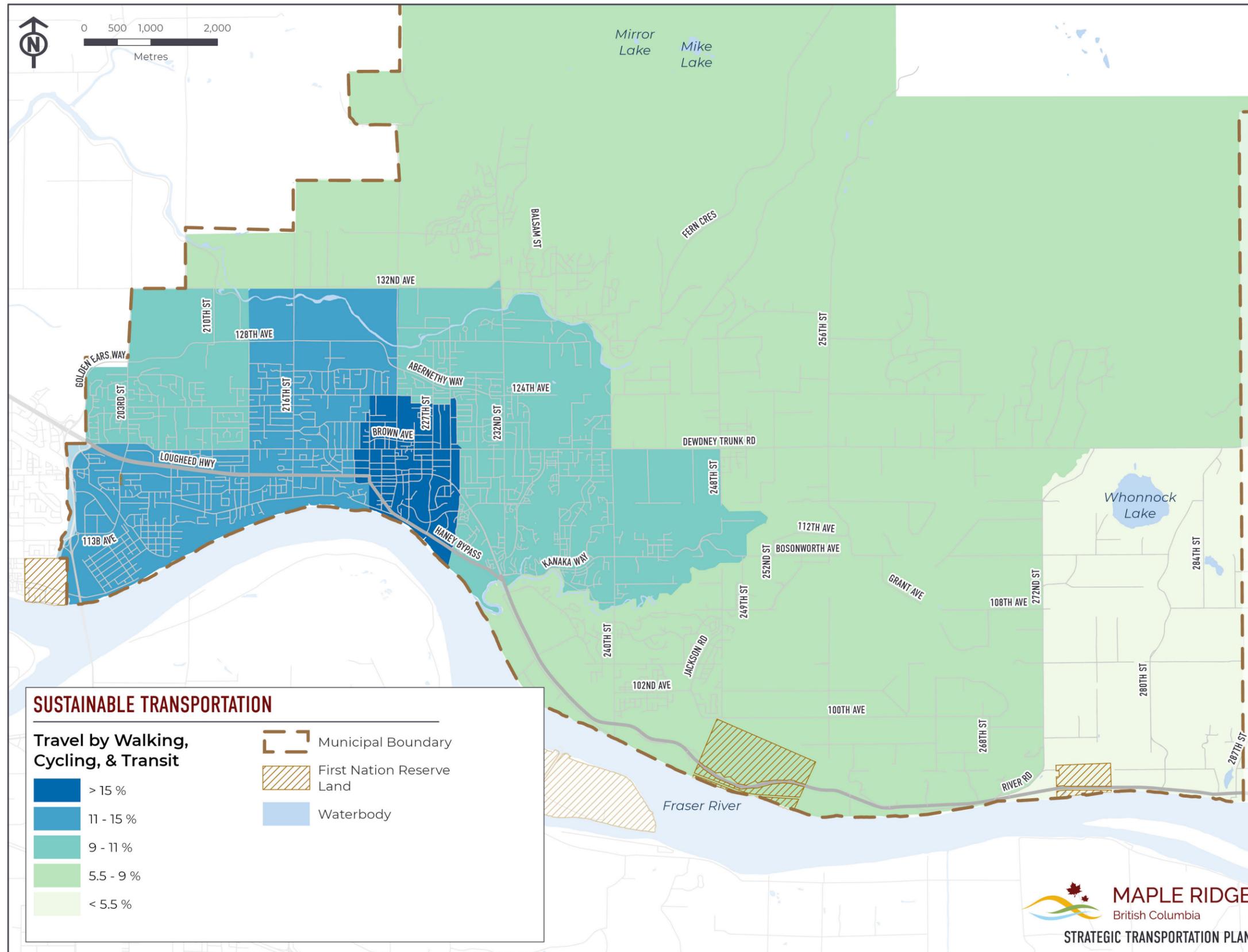


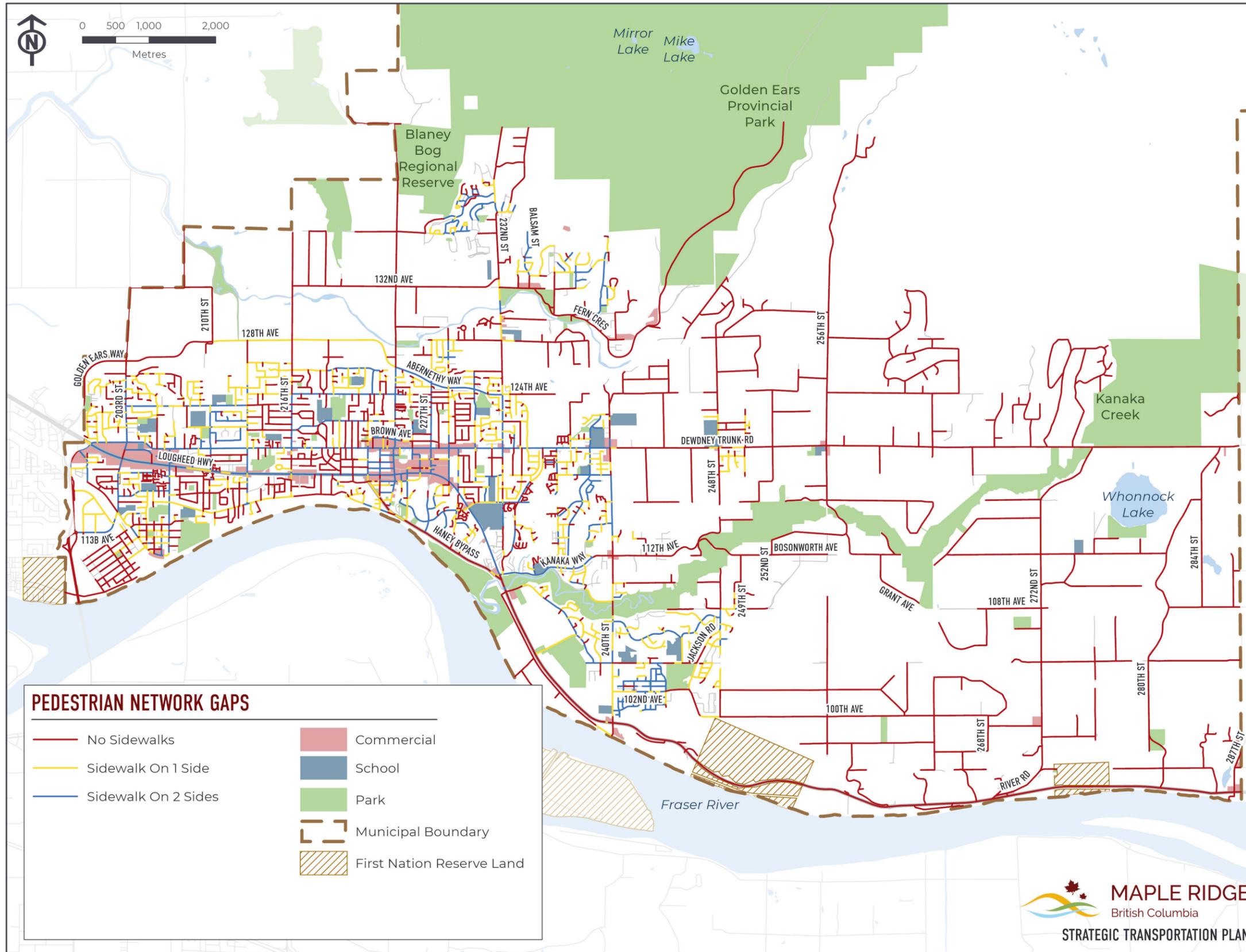


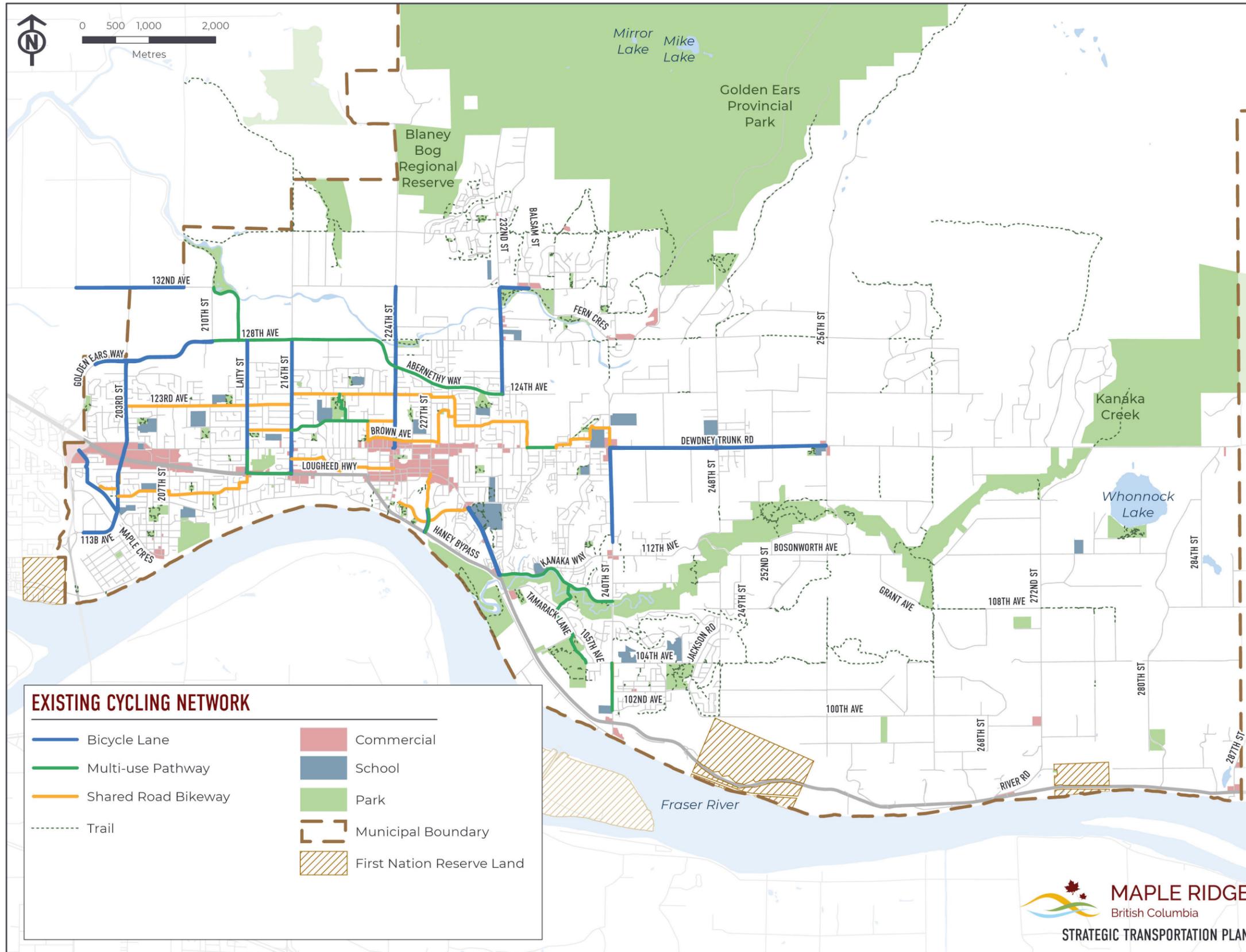


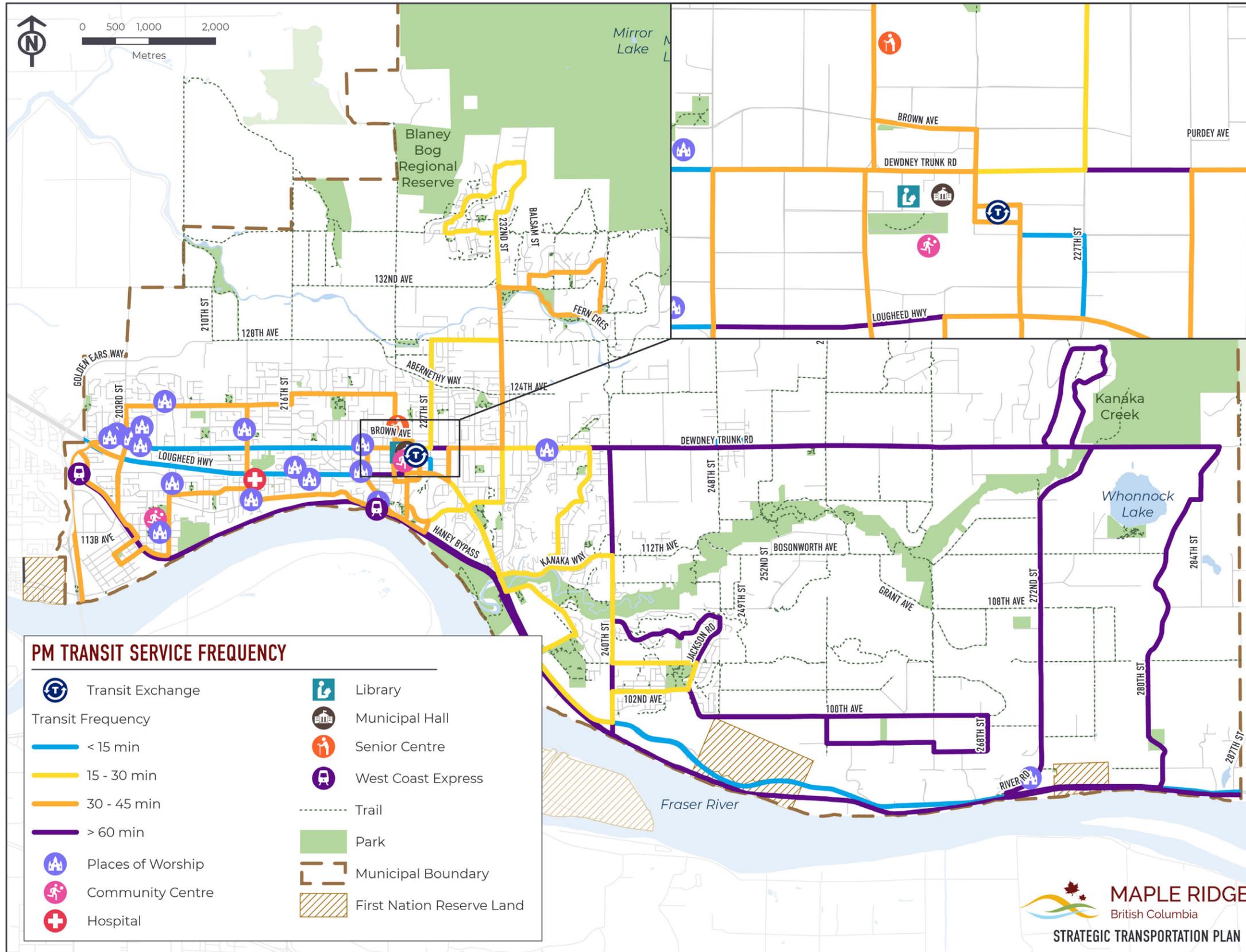


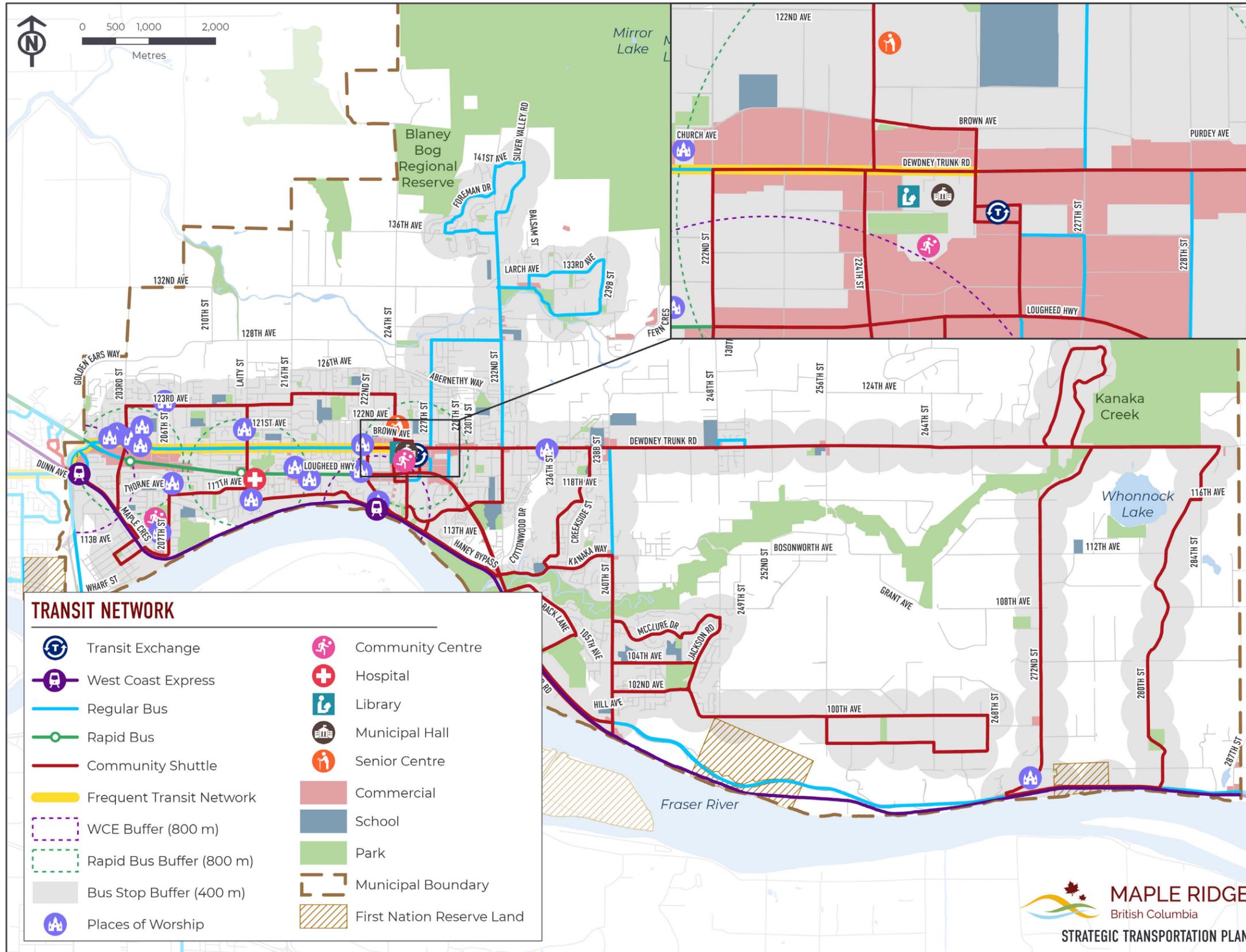


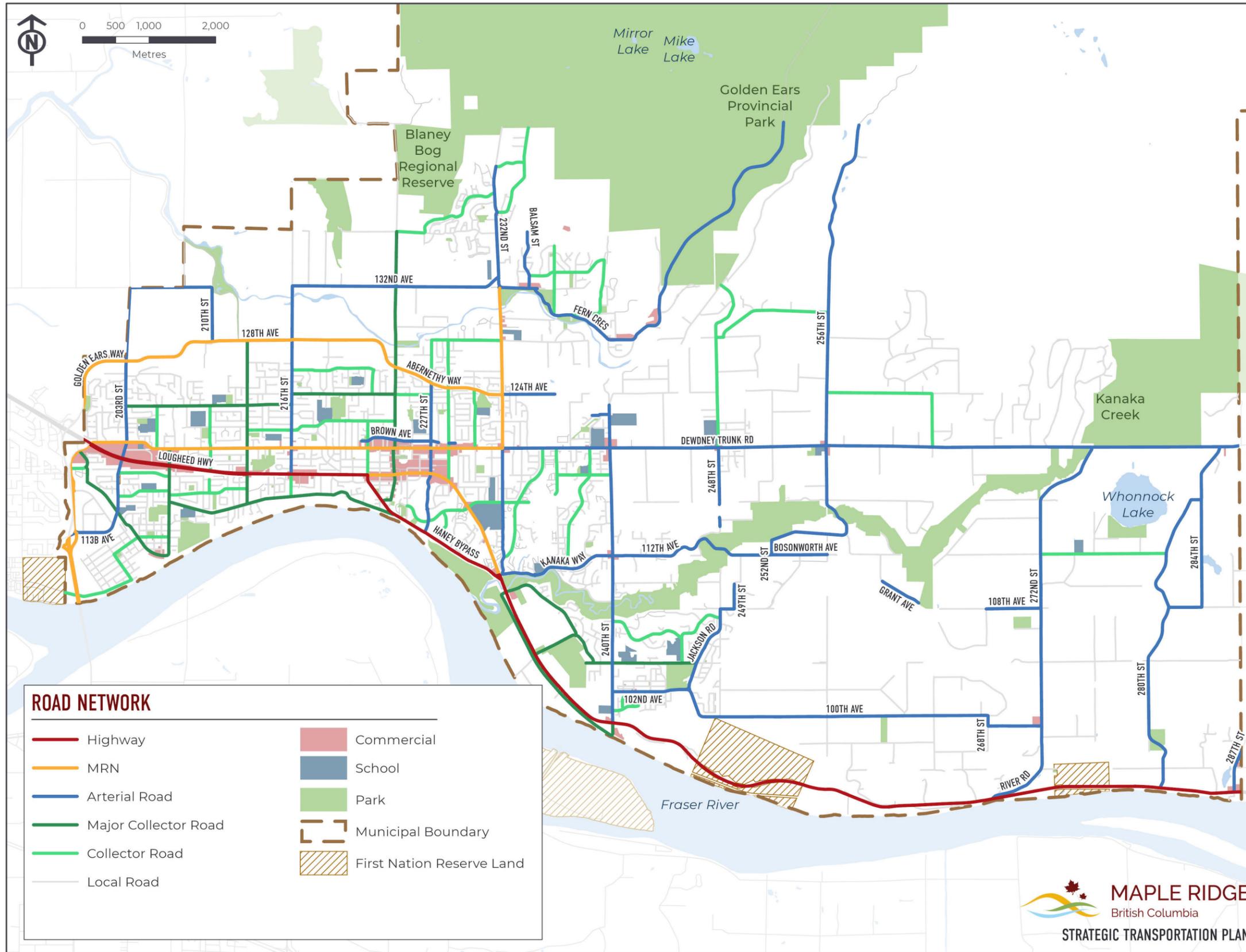


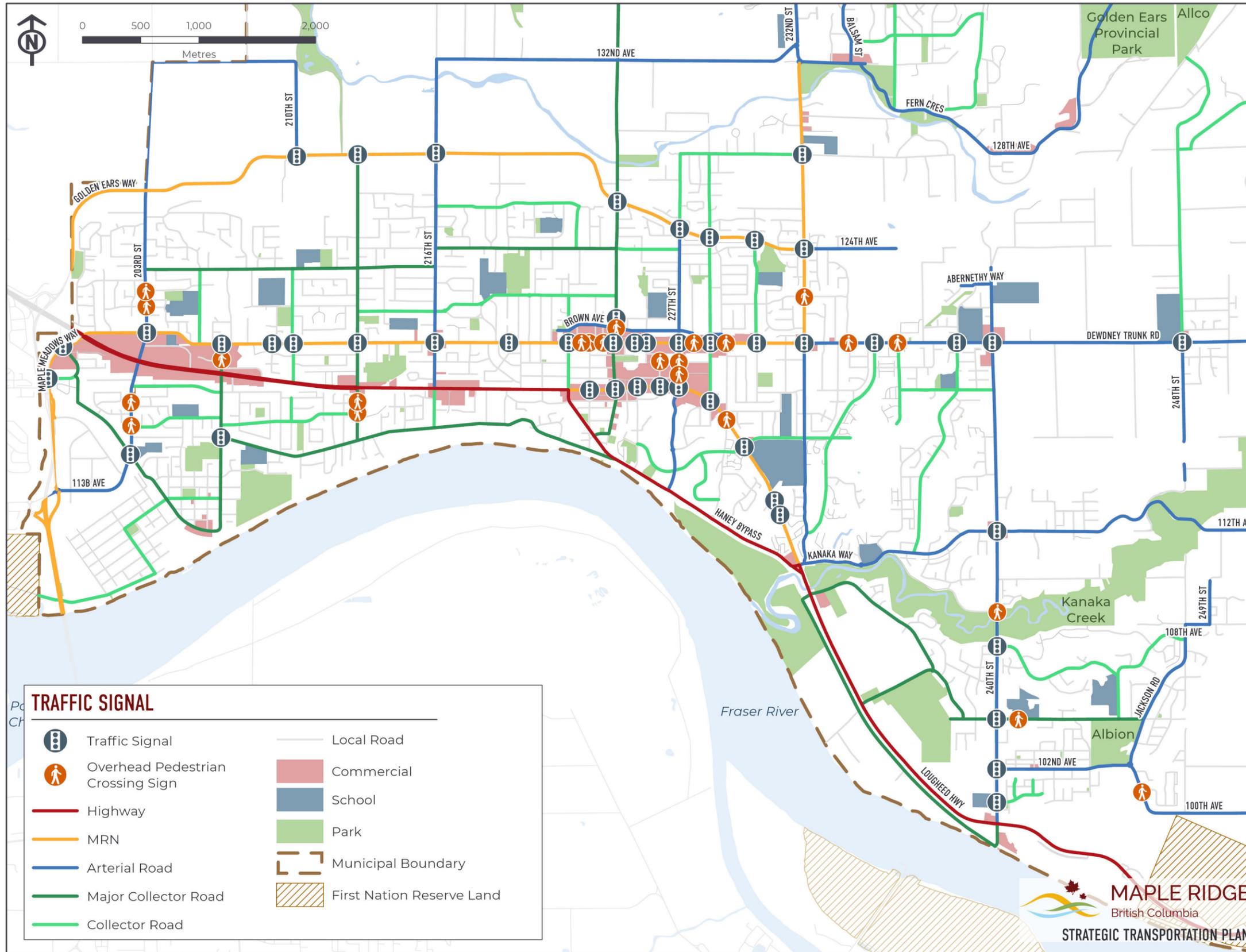


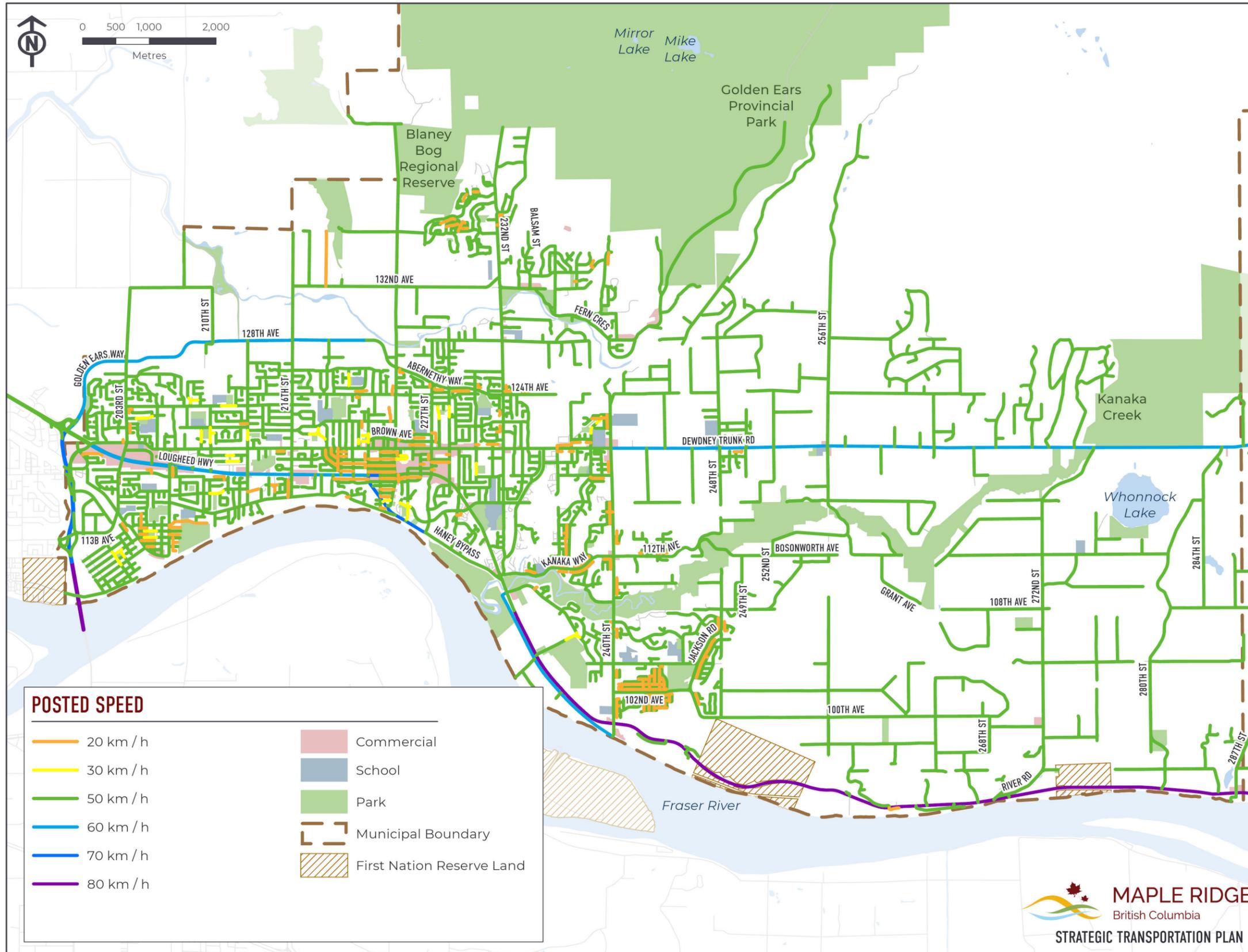


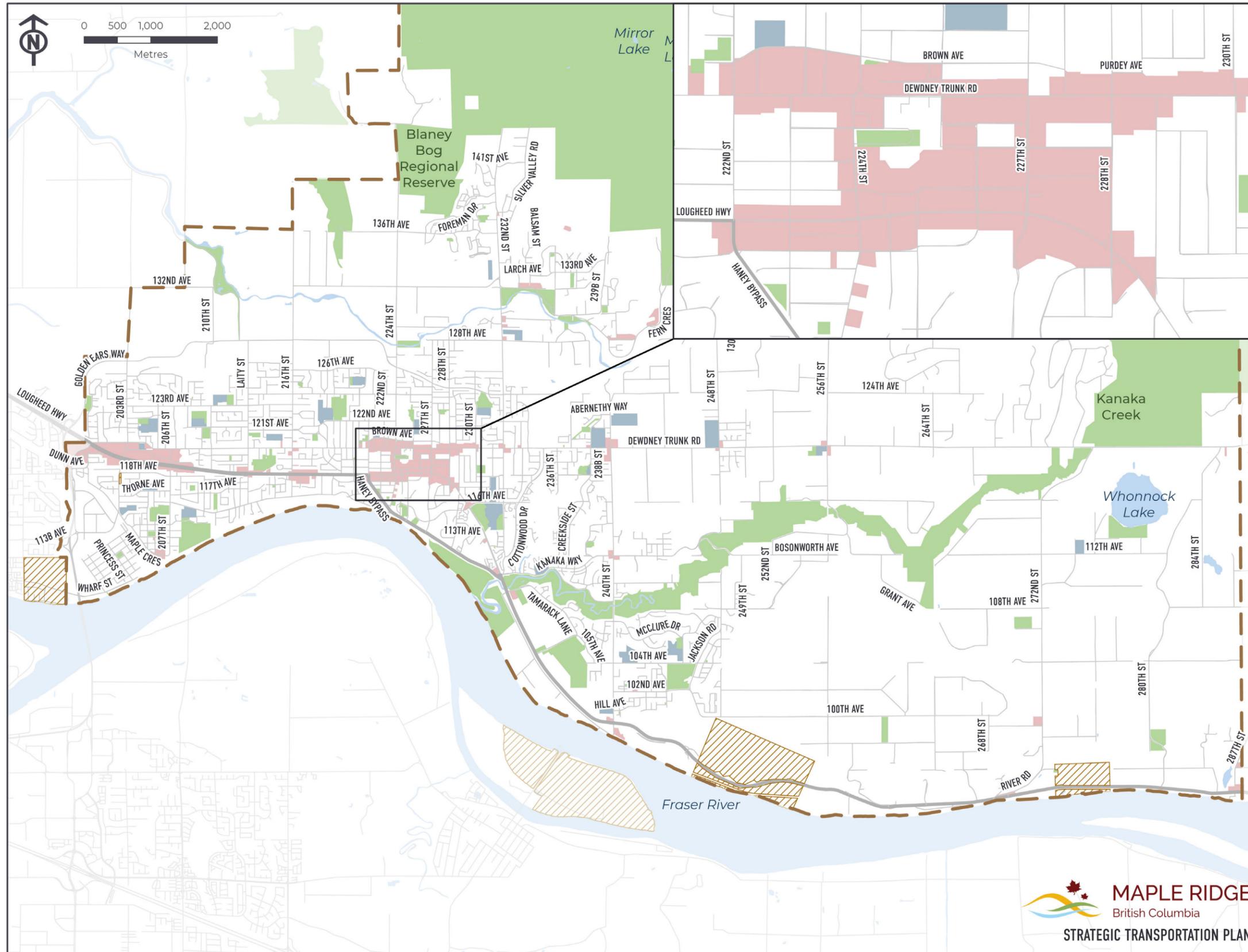


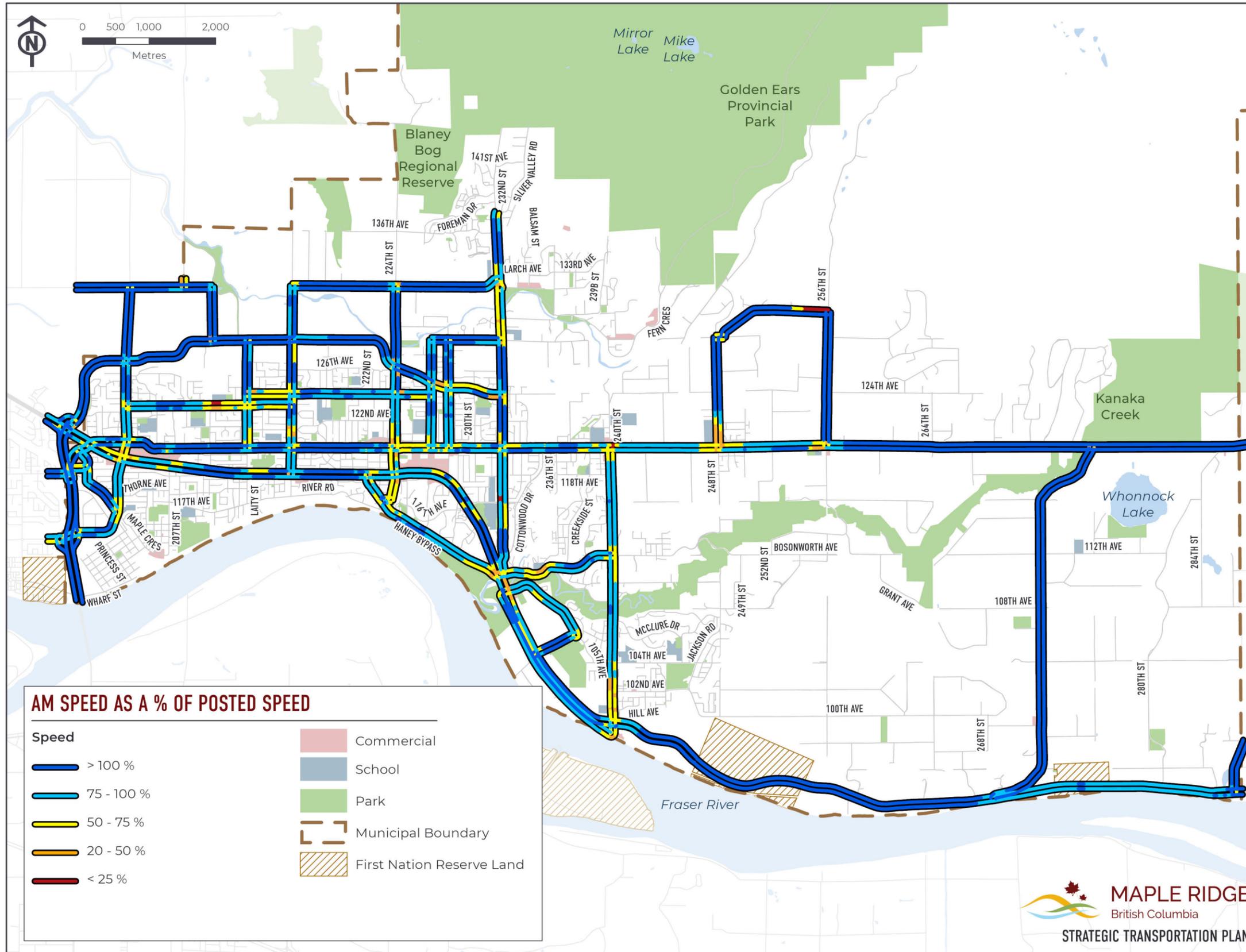


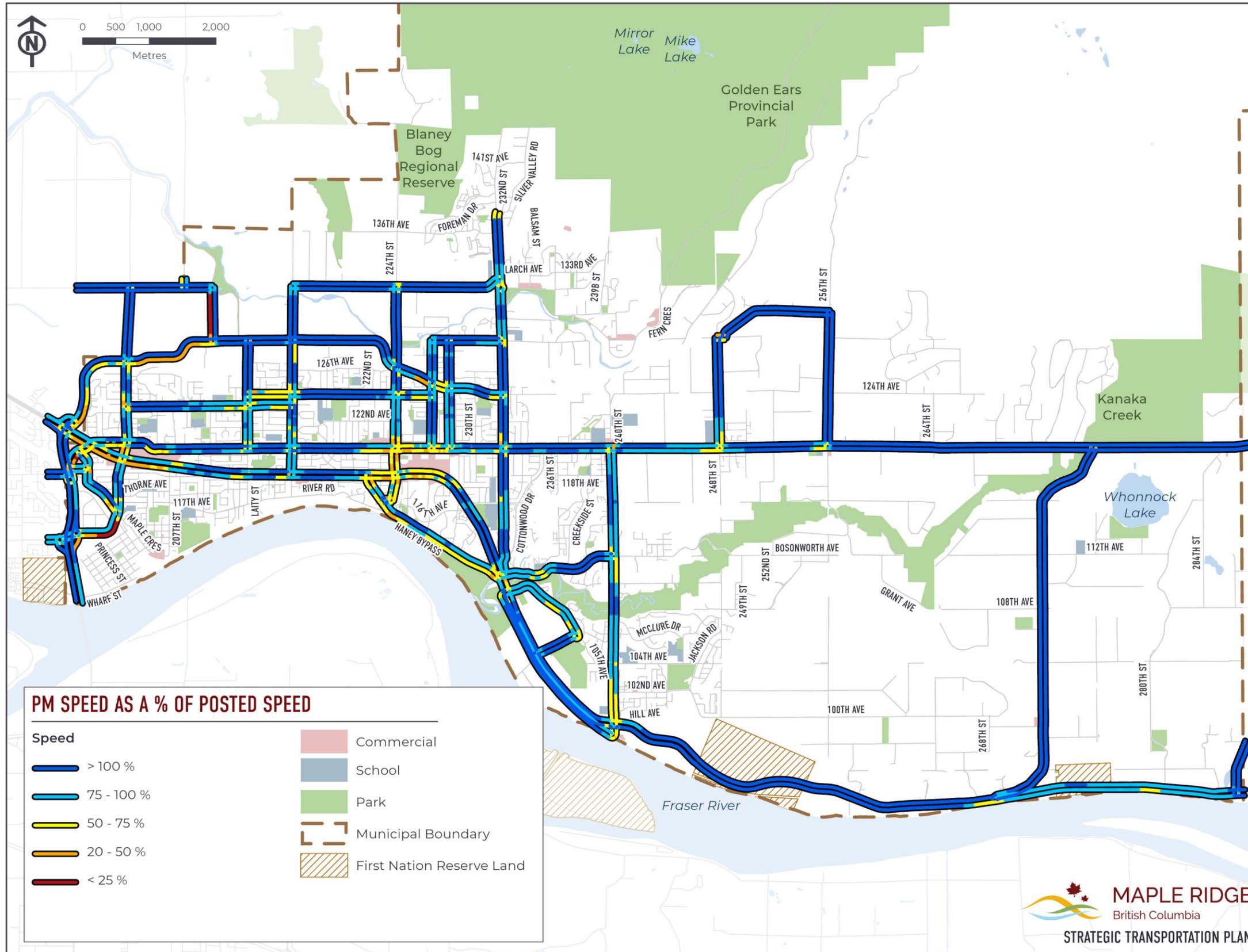


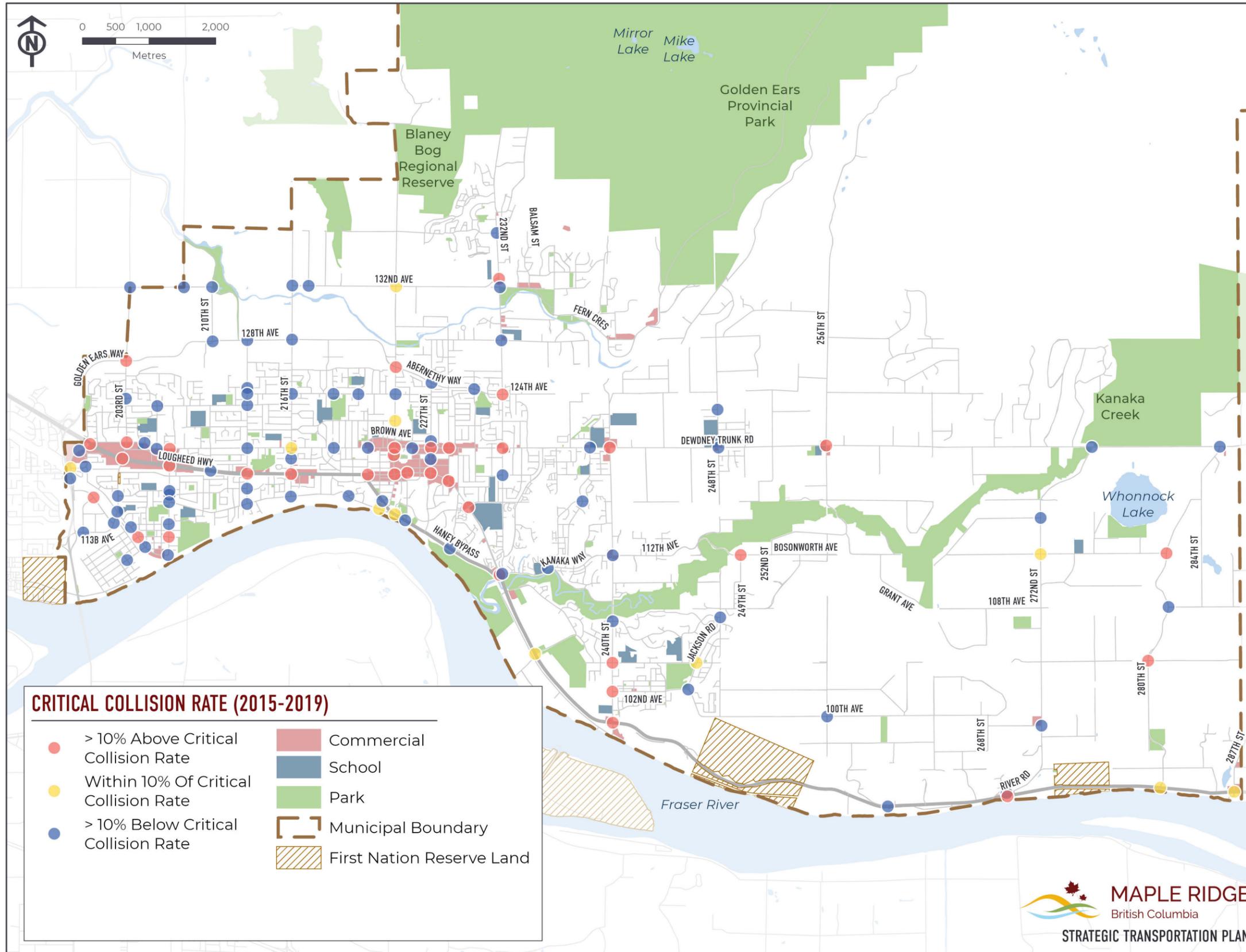


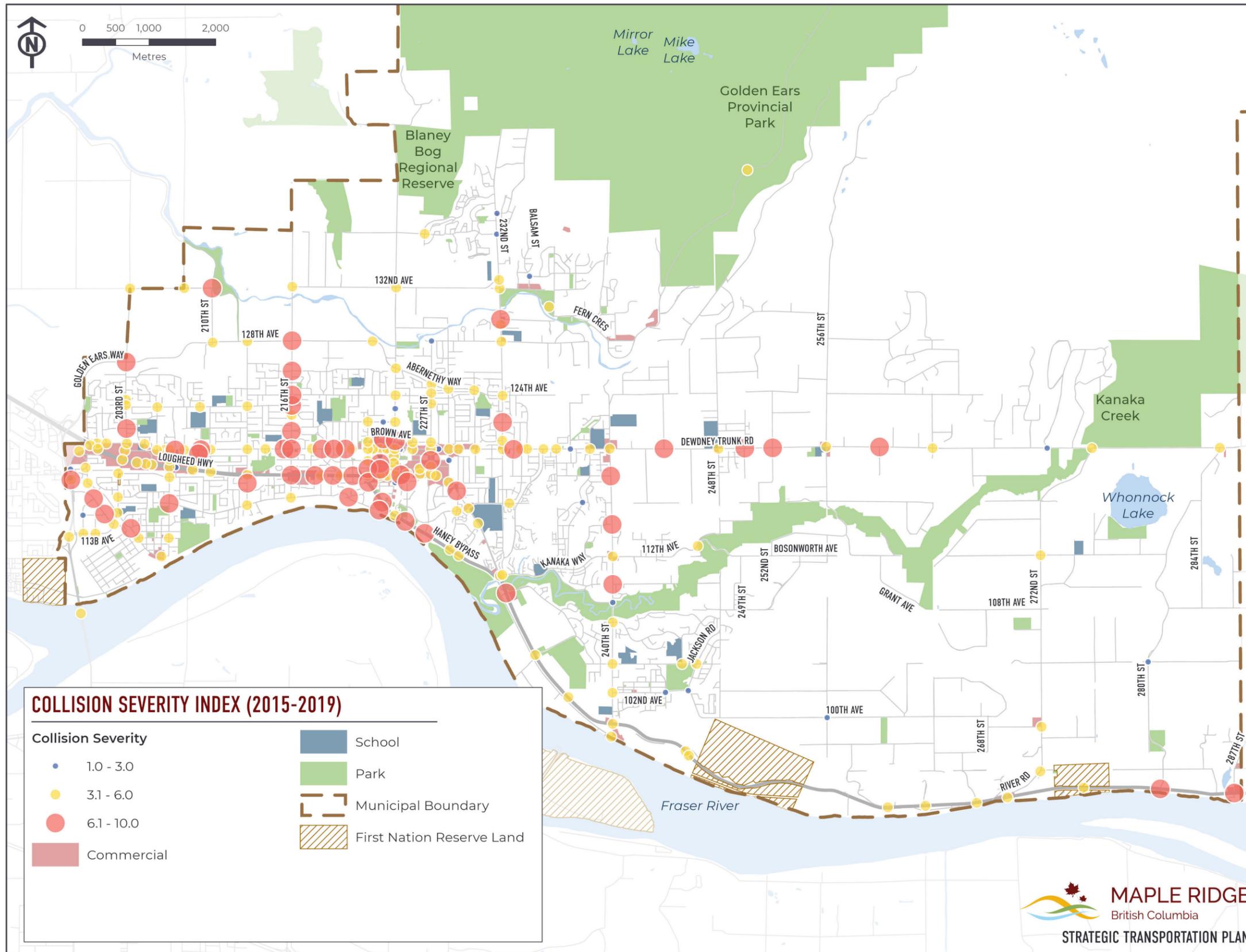


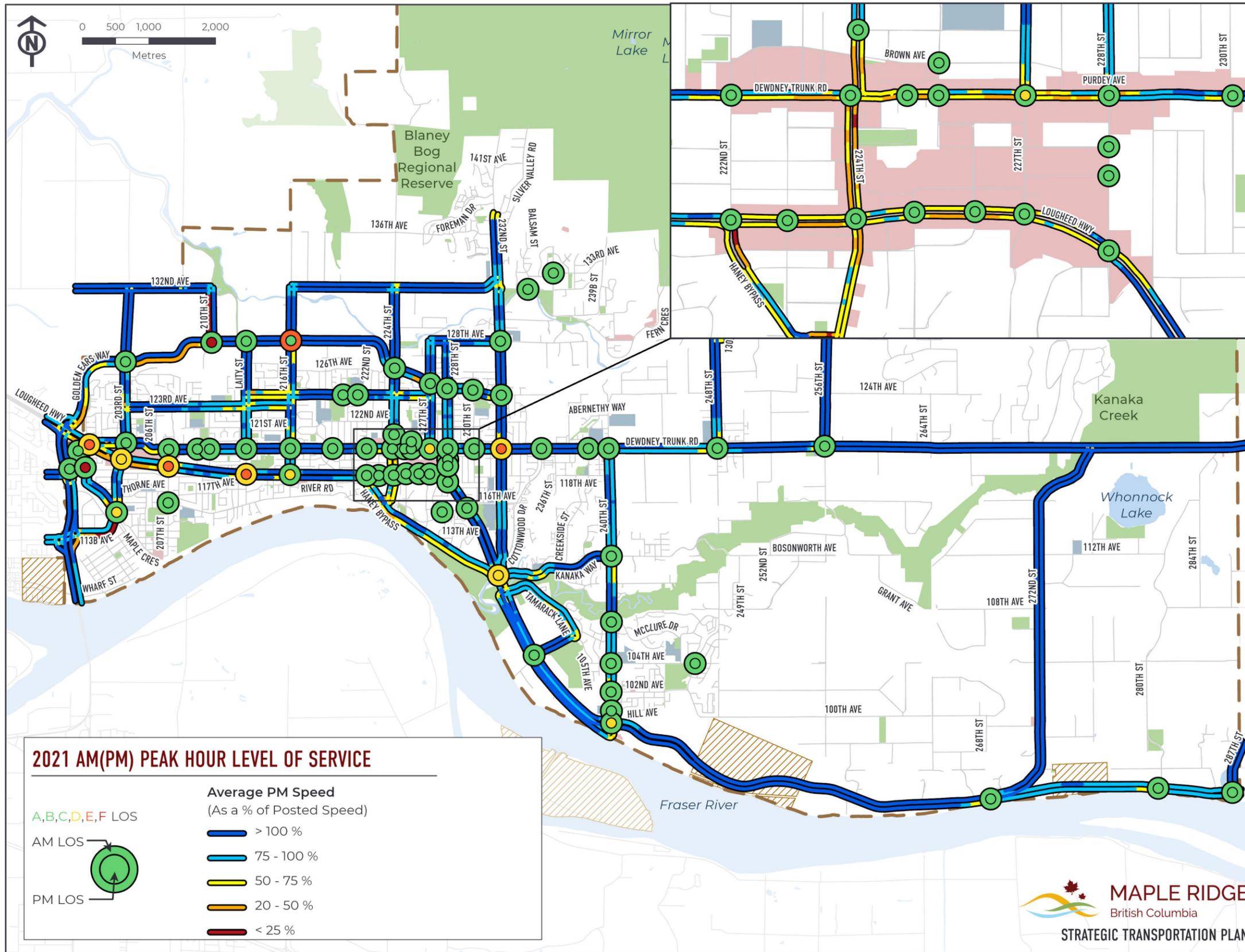


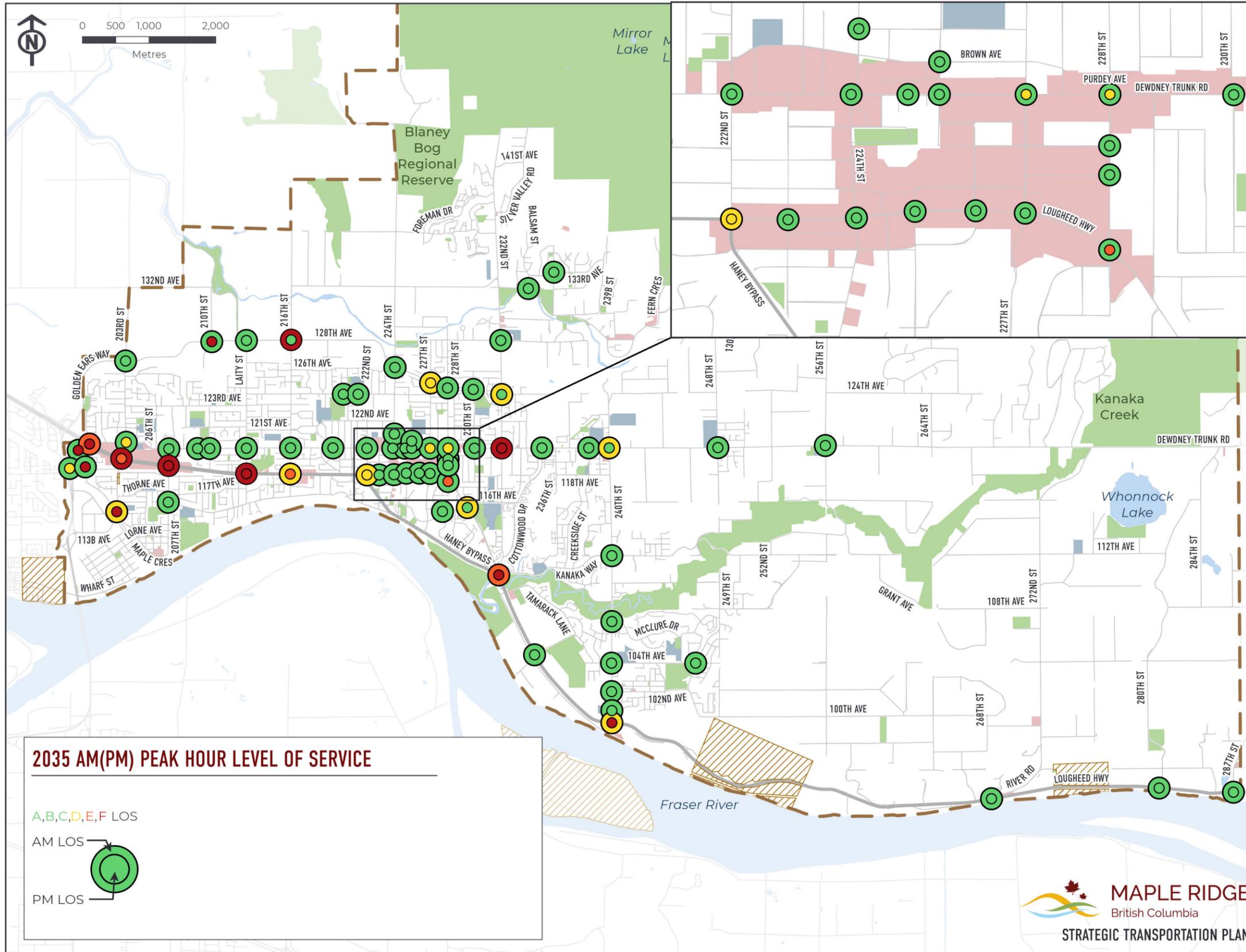


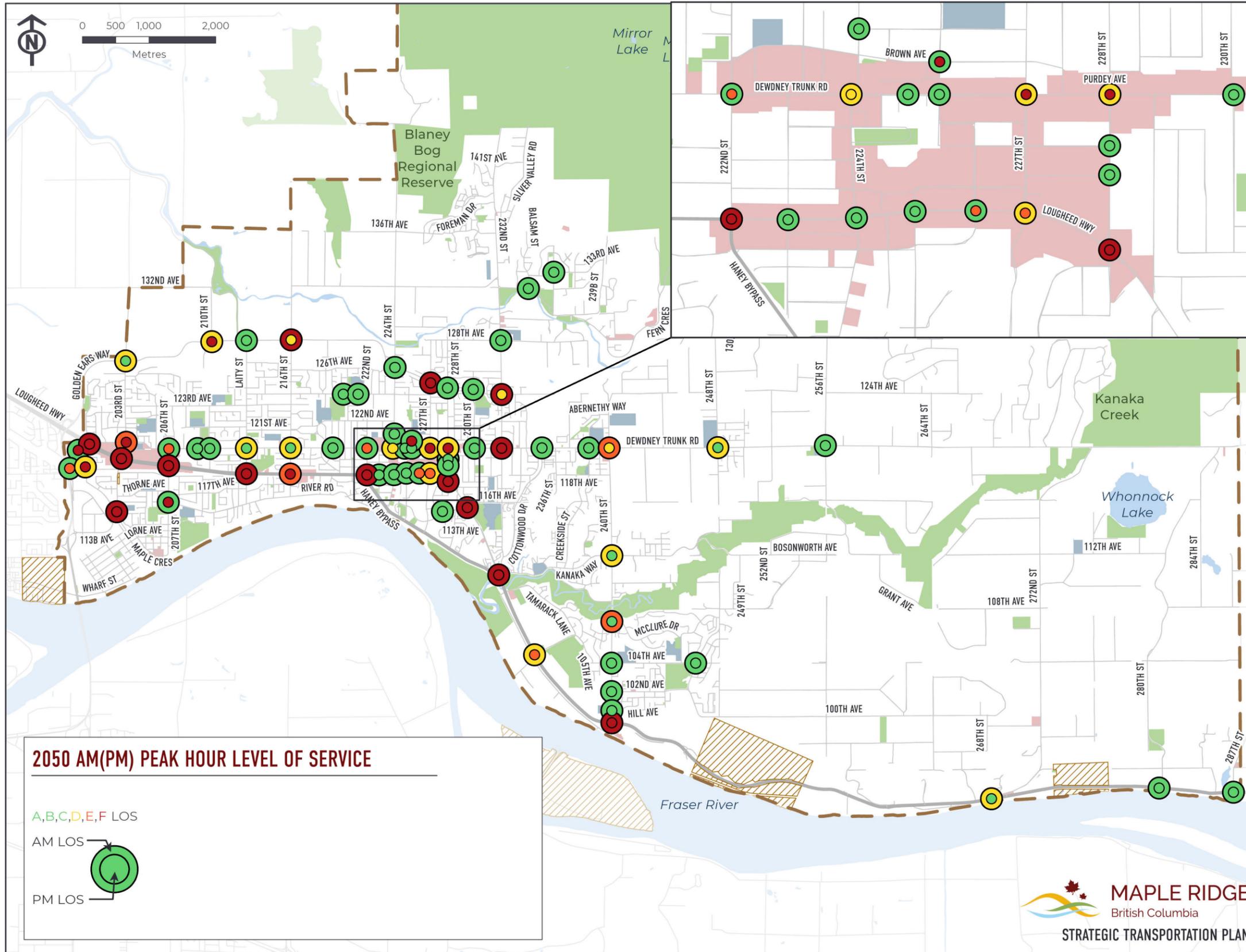


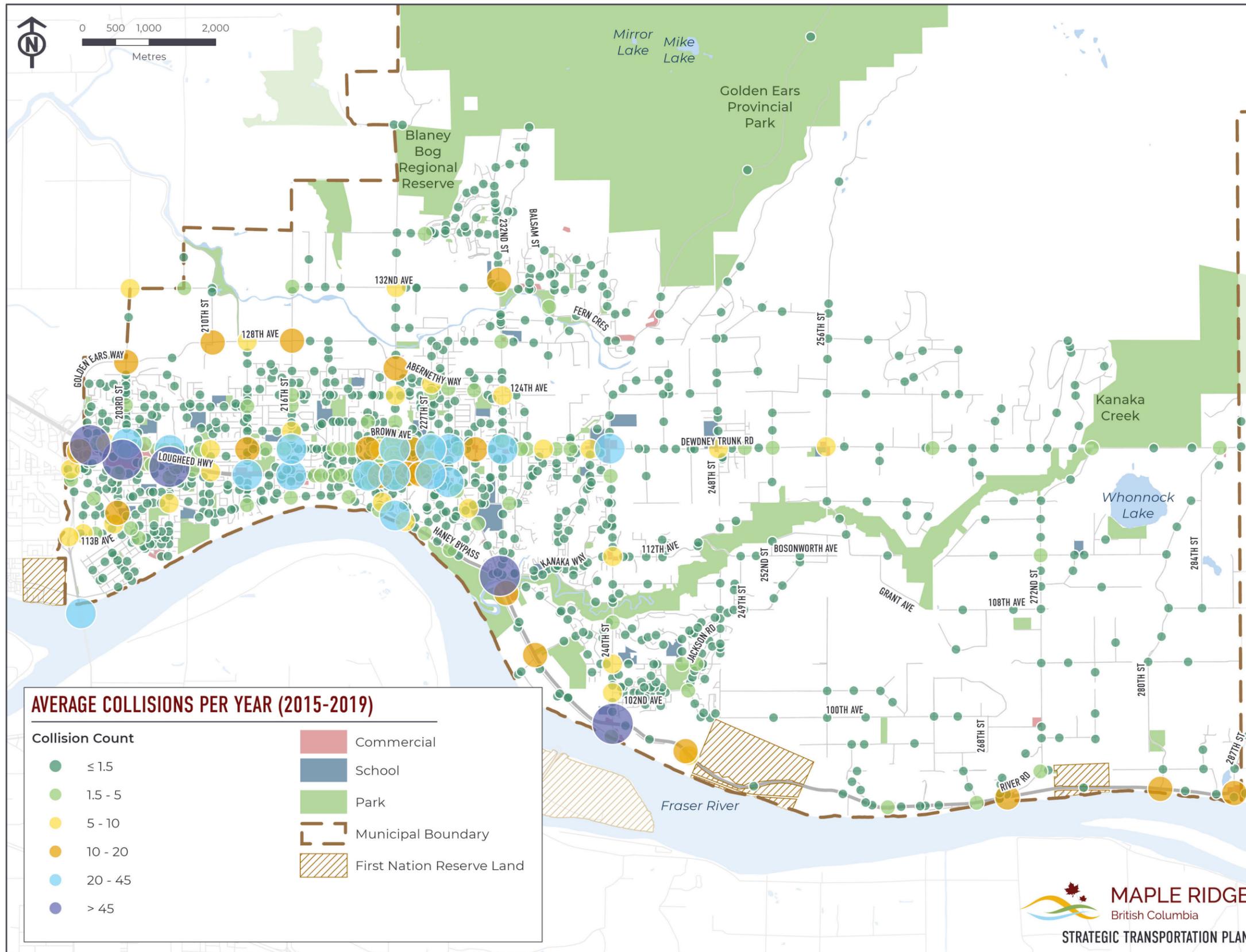






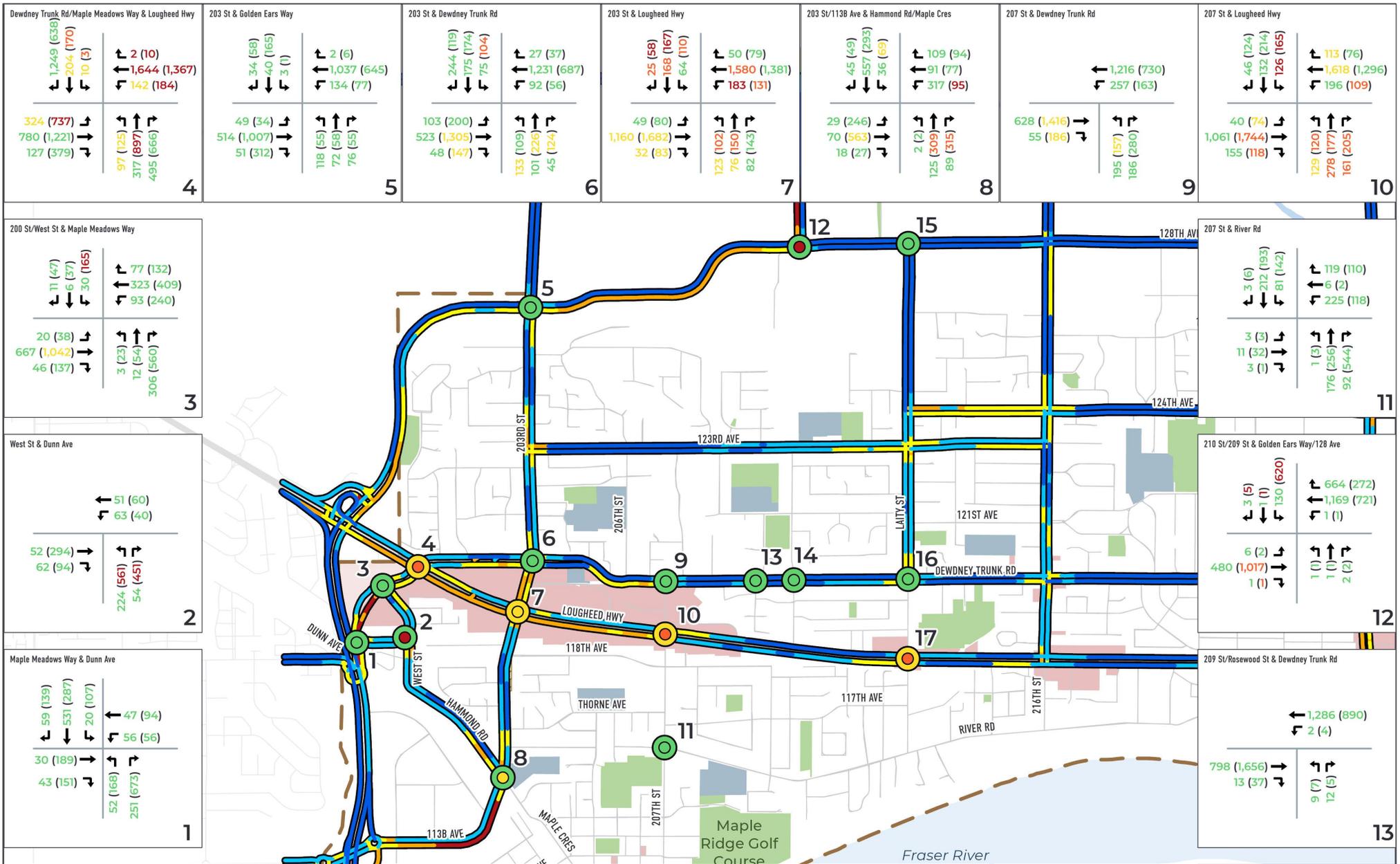


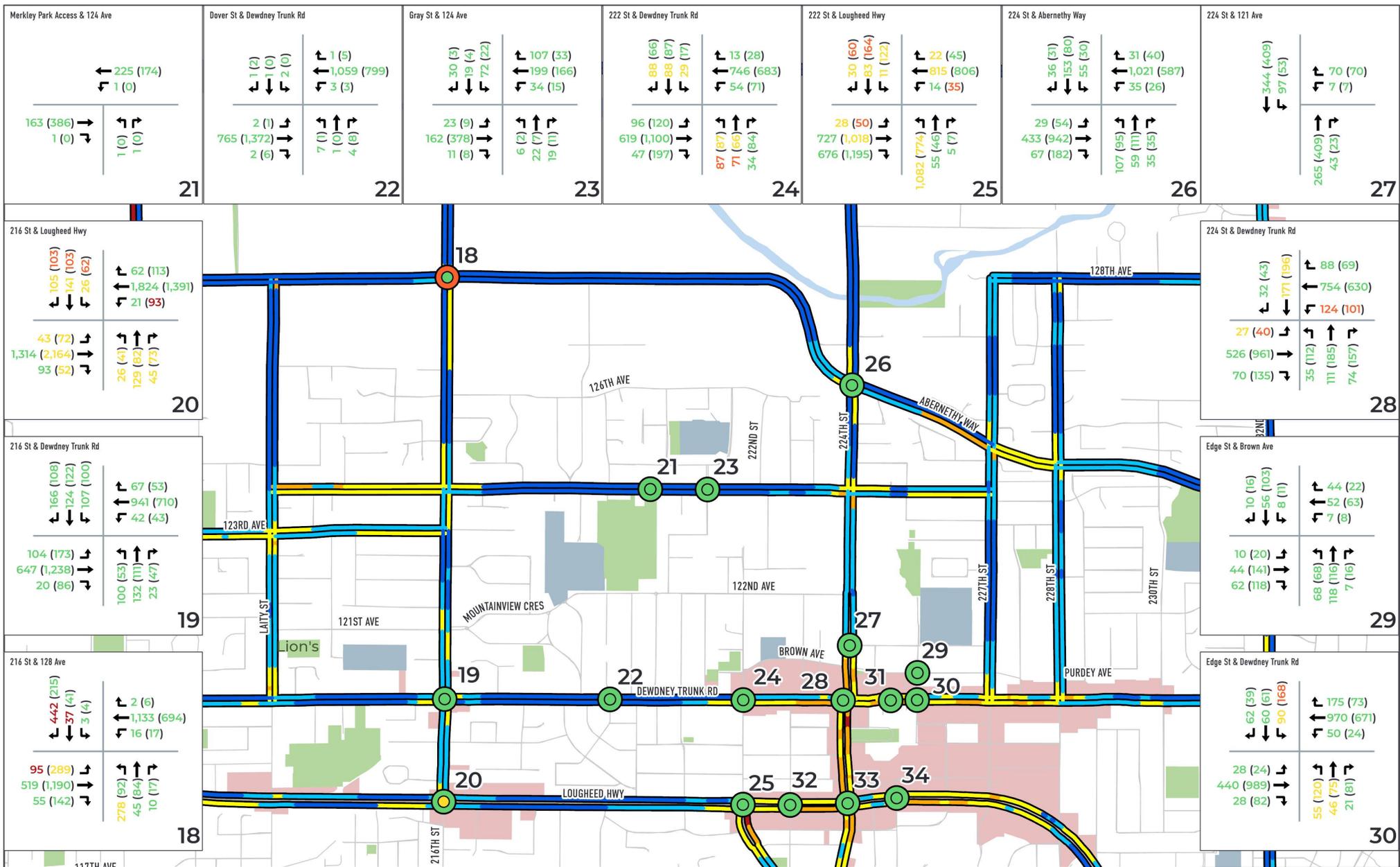




APPENDIX C

DETAILED INTERSECTION ANALYSIS





2021 AM(PM) PEAK HOUR TRAFFIC VOLUME

AM Volume (PM Volume)

A,B,C,D,E,F LOS

AM LOS

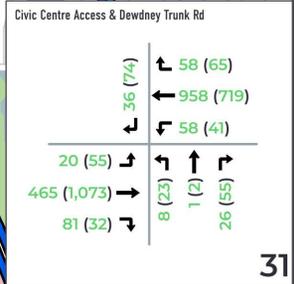
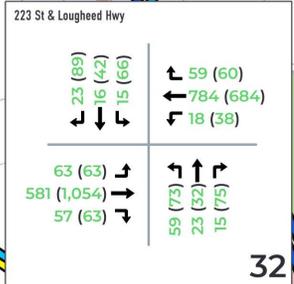
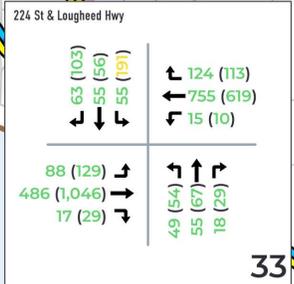
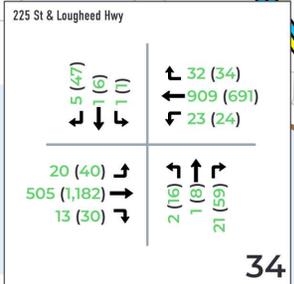
PM LOS

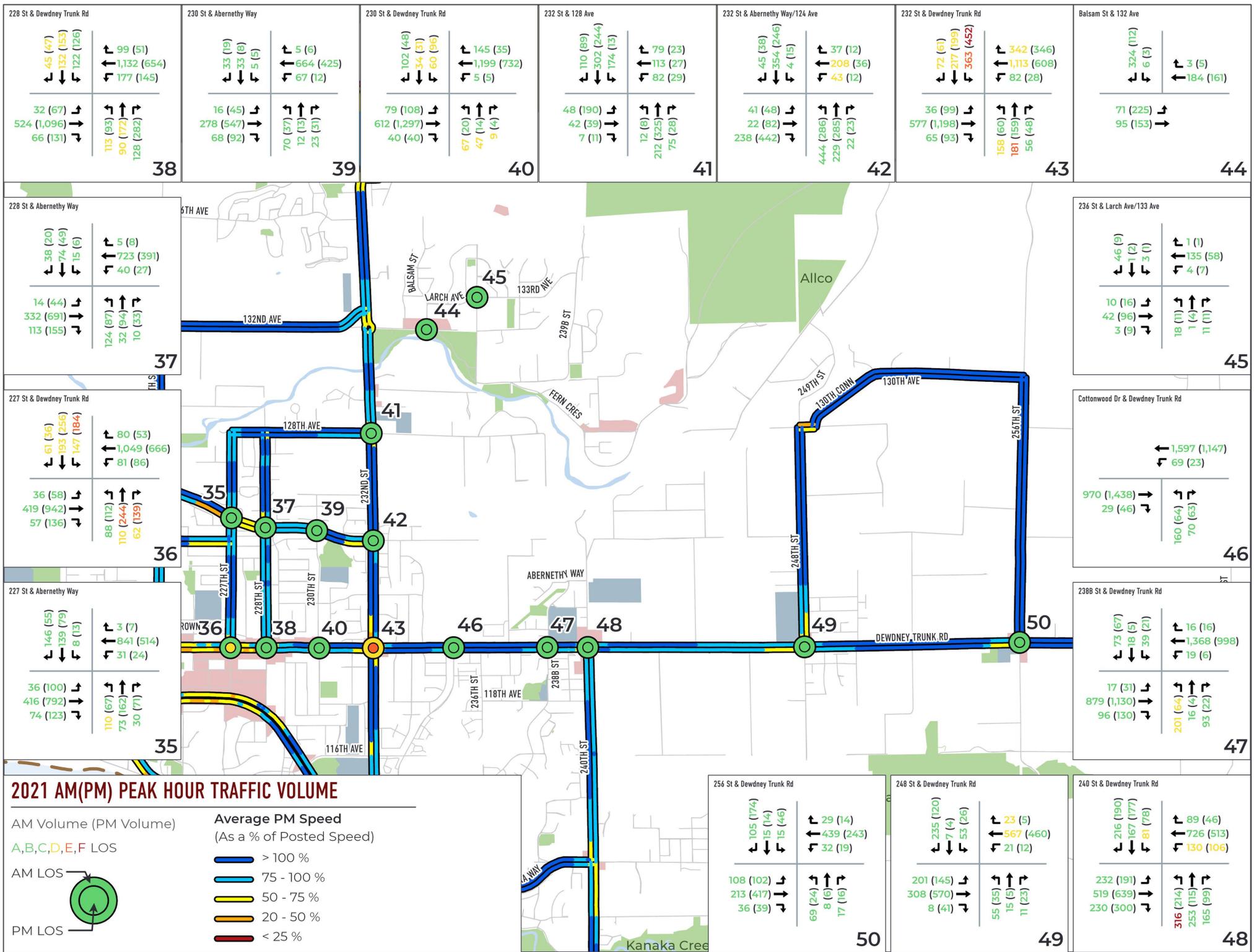


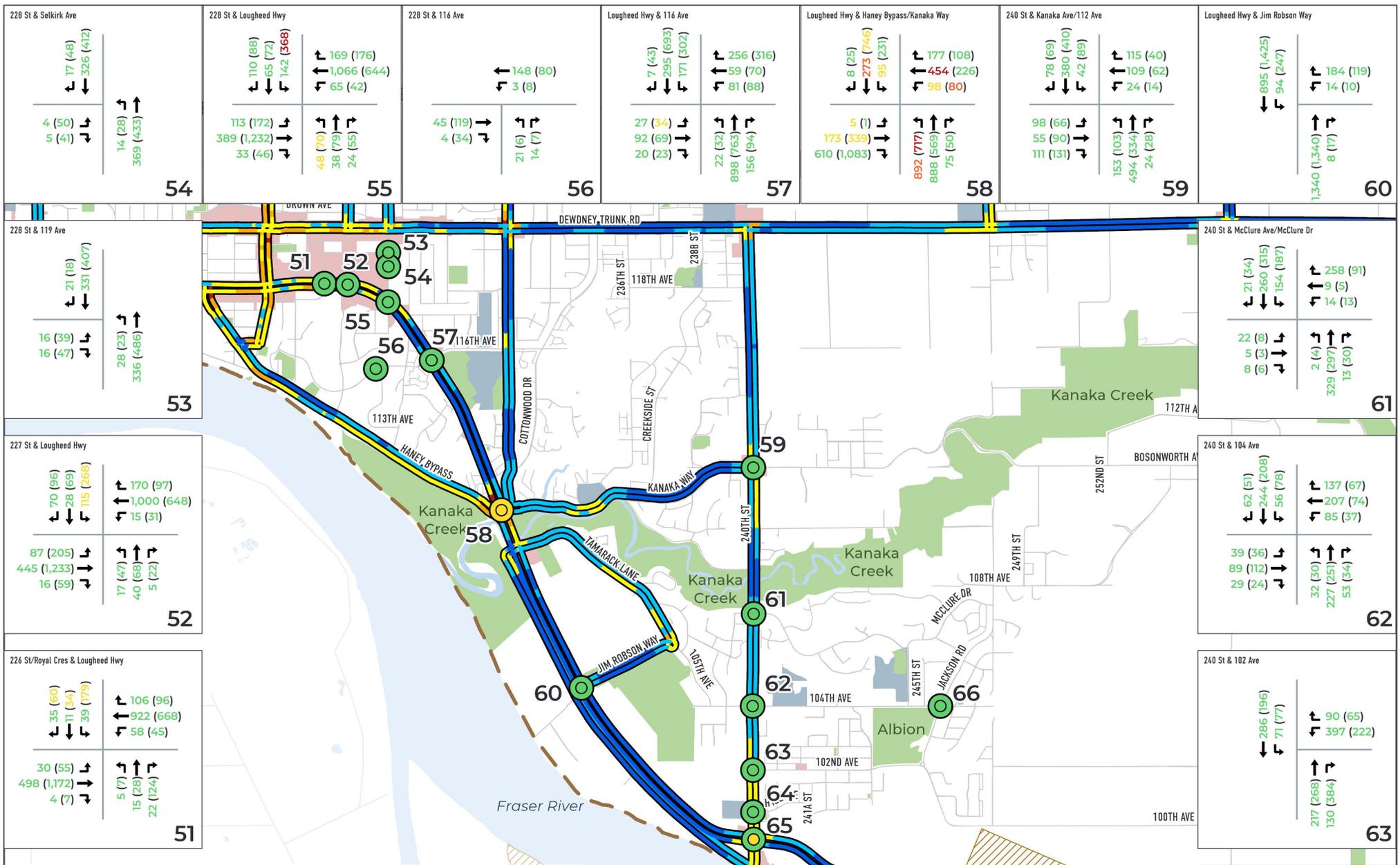
Average PM Speed

(As a % of Posted Speed)

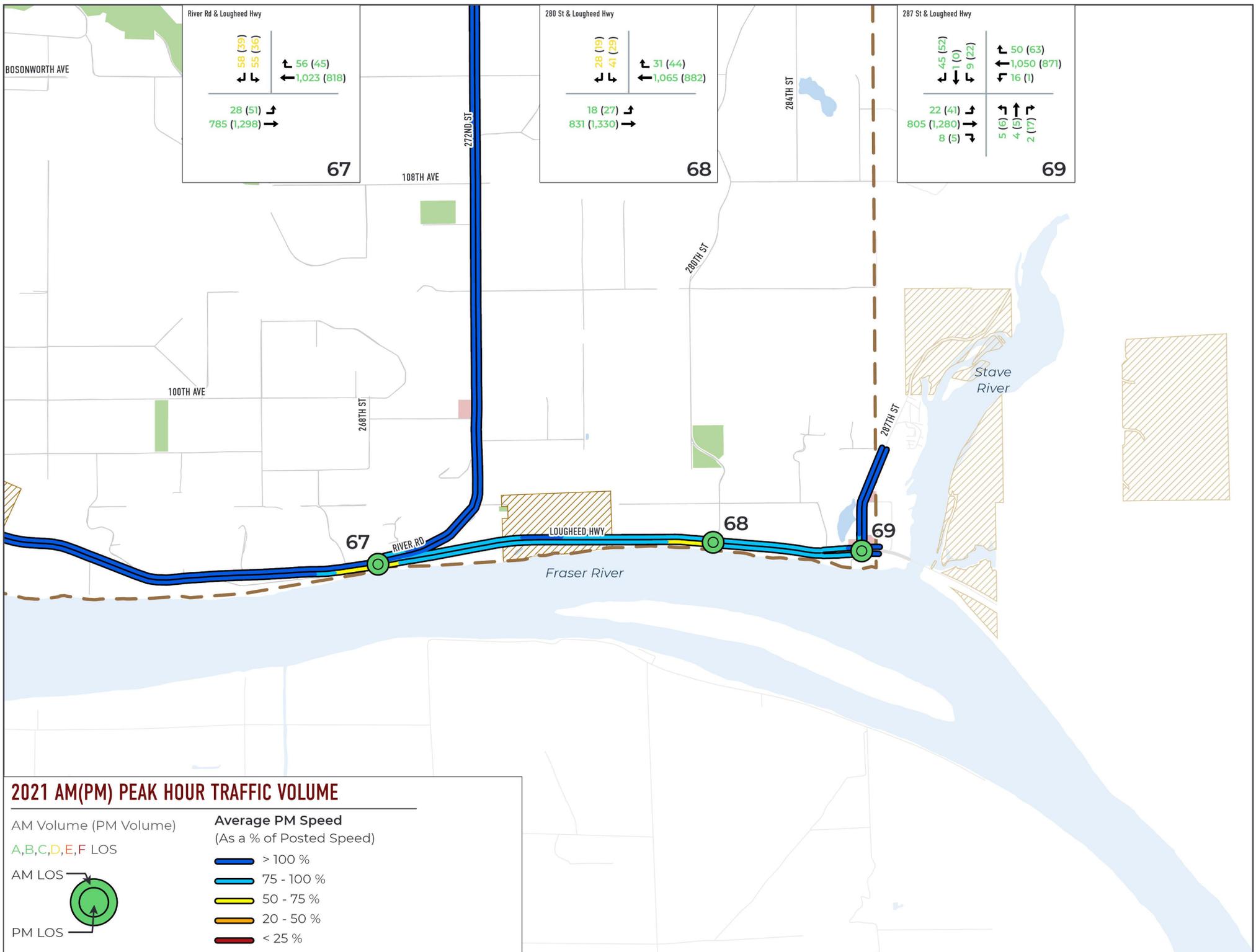
- █ > 100 %
- █ 75 - 100 %
- █ 50 - 75 %
- █ 20 - 50 %
- █ < 25 %

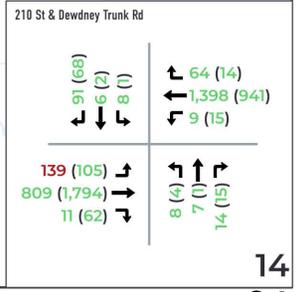
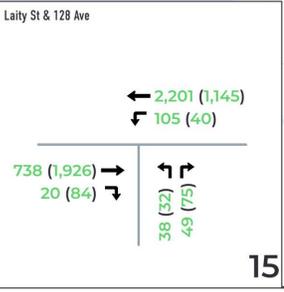
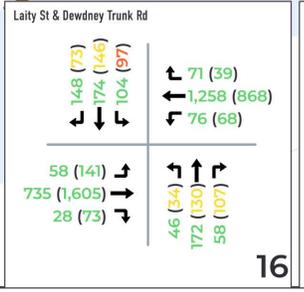
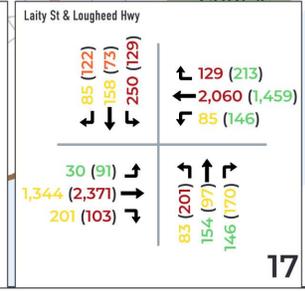
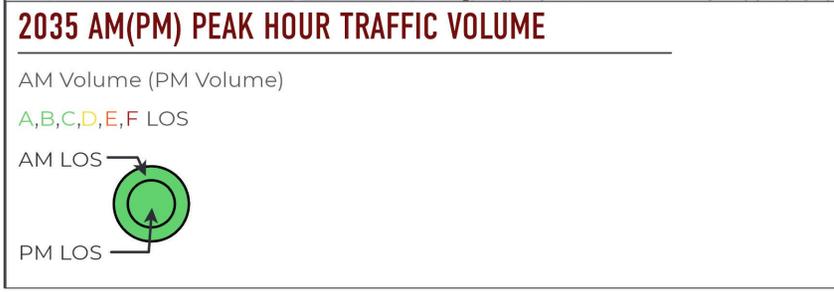
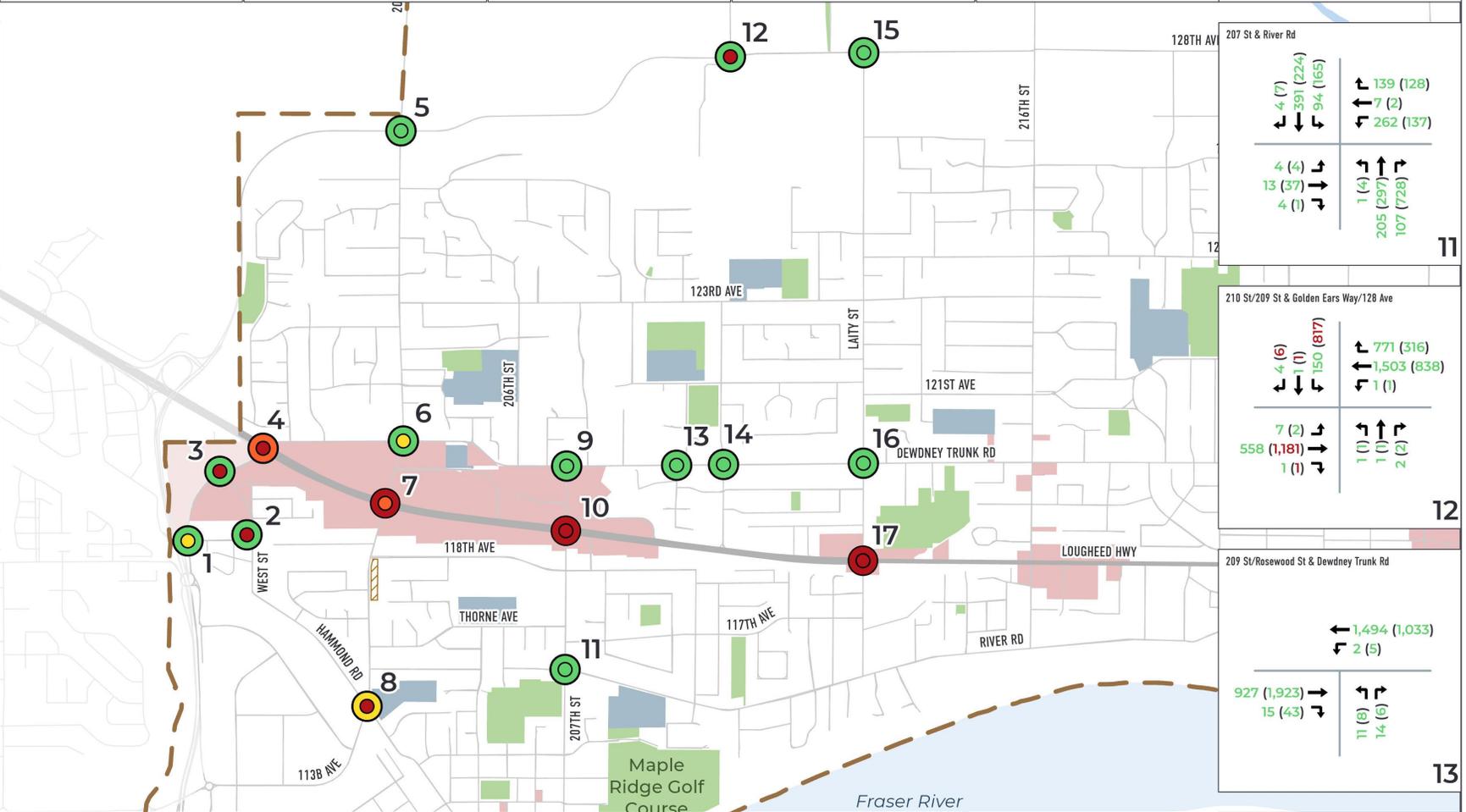
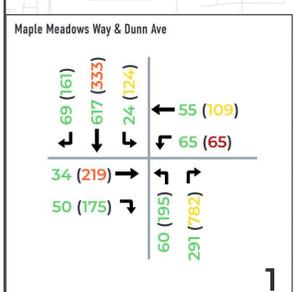
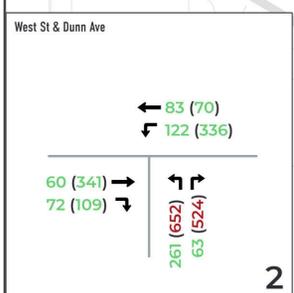
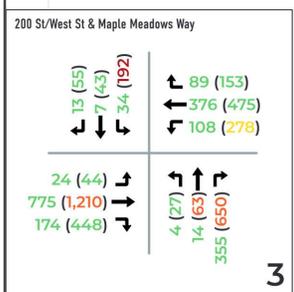
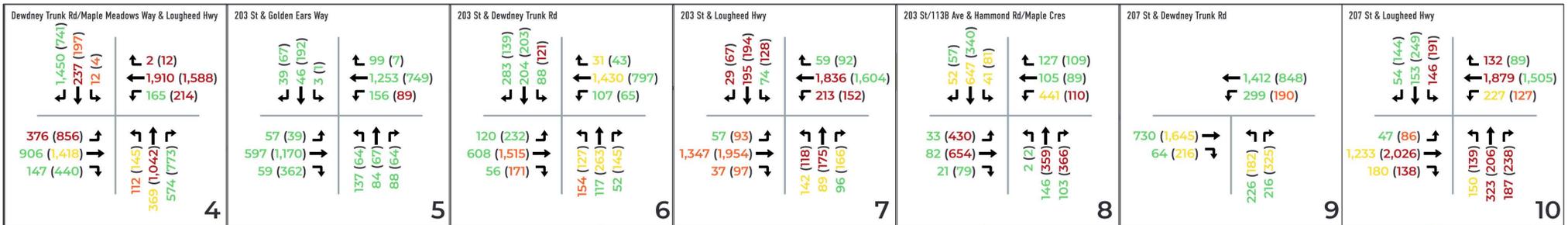


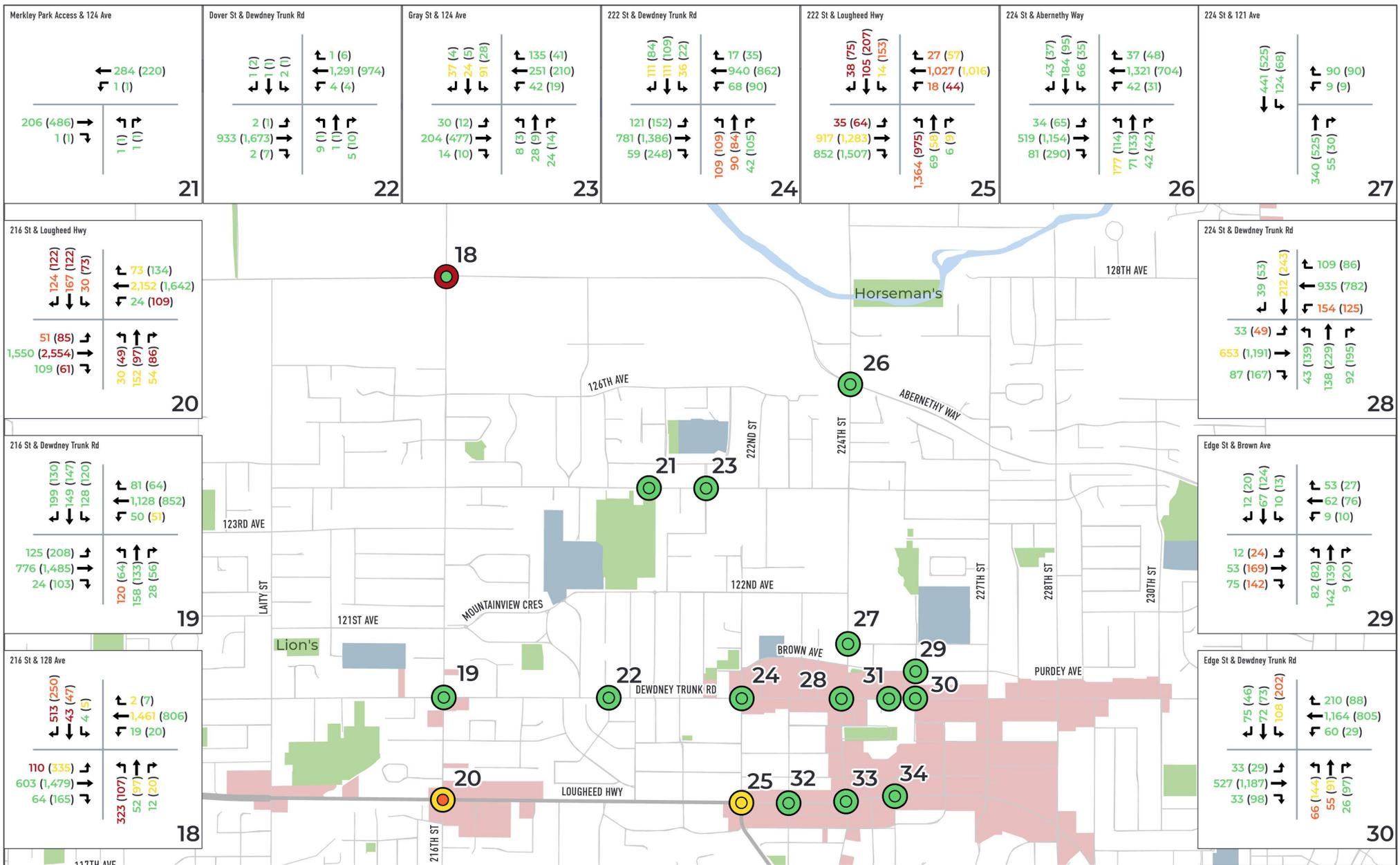




<p>228 St & Selkirk Ave</p> <table border="1"> <tr><td>17 (48)</td><td>326 (412)</td></tr> <tr><td>4 (50)</td><td>5 (41)</td></tr> <tr><td>14 (28)</td><td>369 (433)</td></tr> </table> <p>54</p>	17 (48)	326 (412)	4 (50)	5 (41)	14 (28)	369 (433)	<p>228 St & Loughheed Hwy</p> <table border="1"> <tr><td>110 (98)</td><td>142 (368)</td><td>169 (176)</td></tr> <tr><td>65 (72)</td><td>1,066 (644)</td><td>65 (42)</td></tr> <tr><td>113 (172)</td><td>389 (1,232)</td><td>33 (46)</td></tr> <tr><td>48 (70)</td><td>38 (79)</td><td>24 (55)</td></tr> </table> <p>55</p>	110 (98)	142 (368)	169 (176)	65 (72)	1,066 (644)	65 (42)	113 (172)	389 (1,232)	33 (46)	48 (70)	38 (79)	24 (55)	<p>228 St & 116 Ave</p> <table border="1"> <tr><td>148 (80)</td><td>3 (8)</td></tr> <tr><td>45 (119)</td><td>4 (34)</td></tr> <tr><td>21 (6)</td><td>14 (7)</td></tr> </table> <p>56</p>	148 (80)	3 (8)	45 (119)	4 (34)	21 (6)	14 (7)	<p>Loughheed Hwy & 116 Ave</p> <table border="1"> <tr><td>7 (43)</td><td>295 (693)</td><td>171 (302)</td></tr> <tr><td>27 (34)</td><td>92 (69)</td><td>20 (23)</td></tr> <tr><td>22 (32)</td><td>698 (763)</td><td>156 (94)</td></tr> <tr><td>256 (316)</td><td>59 (70)</td><td>81 (88)</td></tr> </table> <p>57</p>	7 (43)	295 (693)	171 (302)	27 (34)	92 (69)	20 (23)	22 (32)	698 (763)	156 (94)	256 (316)	59 (70)	81 (88)	<p>Loughheed Hwy & Haney Bypass/Kanaka Way</p> <table border="1"> <tr><td>8 (25)</td><td>275 (746)</td><td>95 (231)</td></tr> <tr><td>5 (1)</td><td>173 (339)</td><td>610 (1,083)</td></tr> <tr><td>177 (108)</td><td>454 (226)</td><td>98 (80)</td></tr> <tr><td>892 (717)</td><td>888 (569)</td><td>75 (50)</td></tr> </table> <p>58</p>	8 (25)	275 (746)	95 (231)	5 (1)	173 (339)	610 (1,083)	177 (108)	454 (226)	98 (80)	892 (717)	888 (569)	75 (50)	<p>240 St & Kanaka Ave/112 Ave</p> <table border="1"> <tr><td>78 (69)</td><td>380 (410)</td><td>42 (89)</td></tr> <tr><td>98 (66)</td><td>55 (90)</td><td>111 (131)</td></tr> <tr><td>115 (40)</td><td>109 (62)</td><td>24 (14)</td></tr> <tr><td>153 (103)</td><td>494 (534)</td><td>24 (28)</td></tr> </table> <p>59</p>	78 (69)	380 (410)	42 (89)	98 (66)	55 (90)	111 (131)	115 (40)	109 (62)	24 (14)	153 (103)	494 (534)	24 (28)	<p>Loughheed Hwy & Jim Robson Way</p> <table border="1"> <tr><td>895 (1,425)</td><td>94 (247)</td></tr> <tr><td>184 (119)</td><td>14 (10)</td></tr> <tr><td>1,340 (1,340)</td><td>8 (17)</td></tr> </table> <p>60</p>	895 (1,425)	94 (247)	184 (119)	14 (10)	1,340 (1,340)	8 (17)
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16 (39)	16 (47)																																																																							
28 (23)	336 (486)																																																																							
70 (96)	28 (69)	115 (268)																																																																						
87 (205)	445 (1,233)	16 (59)																																																																						
170 (97)	1,000 (648)	15 (31)																																																																						
17 (47)	40 (68)	5 (22)																																																																						
21 (34)	260 (315)	154 (187)																																																																						
22 (8)	5 (3)	8 (6)																																																																						
258 (91)	9 (5)	14 (13)																																																																						
2 (4)	329 (297)	13 (30)																																																																						
62 (51)	244 (208)	56 (78)																																																																						
39 (36)	89 (112)	29 (24)																																																																						
137 (67)	207 (74)	85 (37)																																																																						
32 (50)	227 (251)	53 (34)																																																																						
35 (60)	11 (34)	39 (179)																																																																						
30 (55)	498 (1,172)	4 (7)																																																																						
106 (96)	922 (668)	58 (45)																																																																						
5 (7)	15 (28)	22 (124)																																																																						
286 (196)	71 (77)																																																																							
90 (65)	397 (222)																																																																							
217 (268)	130 (384)																																																																							
<p>Jackson Rd & 104 Ave</p> <table border="1"> <tr><td>36 (38)</td><td>58 (39)</td><td>2 (2)</td></tr> <tr><td>11 (43)</td><td>18 (49)</td><td>37 (37)</td></tr> <tr><td>1 (2)</td><td>68 (23)</td><td>29 (5)</td></tr> <tr><td>97 (46)</td><td>30 (44)</td><td>15 (18)</td></tr> </table> <p>66</p>	36 (38)	58 (39)	2 (2)	11 (43)	18 (49)	37 (37)	1 (2)	68 (23)	29 (5)	97 (46)	30 (44)	15 (18)	<p>240 St & Loughheed Hwy</p> <table border="1"> <tr><td>100 (210)</td><td>34 (23)</td><td>210 (111)</td></tr> <tr><td>193 (12)</td><td>90 (121)</td><td>191 (205)</td></tr> <tr><td>11 (400)</td><td>1,055 (725)</td><td>61 (250)</td></tr> <tr><td>25 (88)</td><td>20 (20)</td><td>26 (70)</td></tr> </table> <p>65</p>	100 (210)	34 (23)	210 (111)	193 (12)	90 (121)	191 (205)	11 (400)	1,055 (725)	61 (250)	25 (88)	20 (20)	26 (70)	<p>240 St & Hill Ave</p> <table border="1"> <tr><td>54 (3)</td><td>624 (412)</td><td>27 (21)</td></tr> <tr><td>17 (2)</td><td>10 (1)</td><td>1 (2)</td></tr> <tr><td>20 (15)</td><td>17 (1)</td><td>78 (32)</td></tr> <tr><td>22 (5)</td><td>299 (674)</td><td>26 (70)</td></tr> </table> <p>64</p>	54 (3)	624 (412)	27 (21)	17 (2)	10 (1)	1 (2)	20 (15)	17 (1)	78 (32)	22 (5)	299 (674)	26 (70)																																		
36 (38)	58 (39)	2 (2)																																																																						
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22 (5)	299 (674)	26 (70)																																																																						







2035 AM(PM) PEAK HOUR TRAFFIC VOLUME

AM Volume (PM Volume)

A,B,C,D,E,F LOS

AM LOS

PM LOS



