

CITY OF NANAIMO NANAIMO TRANSPORTATION MASTER PLAN

DISCUSSION PAPER #1
EXISTING CONDITIONS

APRIL 2013



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Plans, Policies & Strategies

City of Nanaimo Strategic Plan 2012 to 2015
 City of Nanaimo Community Sustainability Action Plan 2012
 City of Nanaimo Community Energy & Emissions Study 2011
 City of Nanaimo Newcastle + Brechin Neighbourhood Plan 2011
 City of Nanaimo South End Neighbourhood Plan 2010
 City of Nanaimo Parking Management Study 2009
 City of Nanaimo Rocky Point, Hammond Bay, Stephenson Point Neighbourhood Plan 2008
 City of Nanaimo Trail Implementation Plan 2007
 City of Nanaimo Departure Bay Neighbourhood Plan 2006
 City of Nanaimo Parks, Recreation, and Culture Master Plan 2005
 City of Nanaimo Development Parking Regulation Bylaw 2005
 City of Nanaimo Downtown Plan 2002
 City of Nanaimo Chase River Neighbourhood Plan 1999
 City of Nanaimo Subdivision Control Bylaw No. 3260
 City of Nanaimo Zoning Bylaw No. 4500
 Oceanview Master Plan 2009
 PlanNanaimo City of Nanaimo Official Community Plan 2008
 Regional District of Nanaimo, Regional Growth Strategy 2011
 Regional District of Nanaimo, Nanaimo Regional Transit Business Plan 2008
 Sandstone Master Plan 2009
 Vancouver Island University Integrated Transportation Demand Management (TDM) Strategy 2011
 Vancouver Island University Nanaimo Campus Master Plan 2009

Data

City of Nanaimo 2012 Household Travel Survey
 City of Nanaimo 2012 Household Travel Survey, On Board Ferry Survey
 City of Nanaimo 2012 Household Travel Survey, On-Board Bus Survey
 City of Nanaimo 2012 Traffic Screenline Survey
 City of Nanaimo 2012 Pre Plan Consultation Results
 City of Nanaimo Data: Collisions, Intersection Counts and Controls, Transportation Model
 Statistics Canada 2006 Census, 2011 Census
 Urban Futures 2013, Historical Review of Trends in Population, Housing, and Employment

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1.0 Introduction

The City of Nanaimo is a vibrant and growing community on the east coast of Vancouver Island. With a population of approximately 87,000 residents, Nanaimo is the second largest city on Vancouver Island and has grown into a significant population and employment centre serving a broader regional population of nearly 150,000 residents in the Regional District of Nanaimo (RDN). Incorporated in 1874, Nanaimo is one of the oldest municipalities in British Columbia with its historic development shaped by industries such as coal mining and forestry, as well as the key transportation links afforded by the waterfront and the E&N Railway. Today, the City's residential neighbourhoods, commercial areas, and town centre continue to be shaped by the shoreline, topography, and major transportation corridors, including the Island Highway, Highway 19 (Parkway), and the Trans-Canada Highway. As a transportation hub, Nanaimo has access to significant air and water-based connections, including the Nanaimo Airport, the Port of Nanaimo, three BC Ferry terminals, local passenger ferries and seaplanes that move people and goods between Nanaimo, Vancouver Island and the BC Mainland.



The City is approximately 20km long, by 2 km wide, and that has resulted in network and connectivity challenges. The major transportation corridors support the local and regional economies, moving people and goods, and facilitating connections to and from the City, which is an important centre for north and central Vancouver Island. However, these corridors also act as barriers for residents, and support land use patterns that encourage reliance on the automobile. Because of Nanaimo's large area and linear growth patterns, the City is also spread out with relatively low residential densities in many neighbourhoods which make transit, walking and cycling less attractive and convenient transportation options. In addition, as aging demographics, rising energy costs, and the need to support healthy lifestyles are growing community concerns. Transportation is routinely identified as one of the most important issues facing residents in Nanaimo, and these concerns may continue as growth and development places increased pressure on the transportation system in coming years.

The current mode share in the City demonstrates opportunities for shifting travel behaviours, as over 86% of trips to work in Nanaimo are currently made by automobile. However, the combined transit, walking and cycling mode shares (12%) are comparable with several other large cities in the Province. Mode share varies across the City with the downtown core achieving a walking, biking and transit mode share of 34%. Therefore, while the current mode share indicates a community reliance on the car, community interest in more mobility options, and recent policy and planning initiatives by the City of Nanaimo, highlight a larger need to move towards a sustainable transportation system.



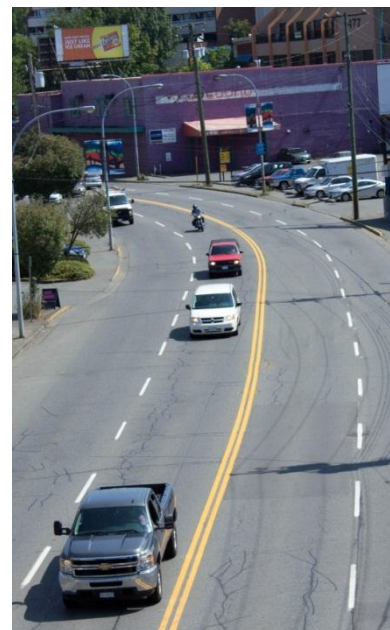
To help address the complex transportation issues facing the City and the surrounding region, the City is developing a comprehensive, long-range Transportation Master Plan to guide transportation decision-

making in the City over the next 25 years and beyond. This is the first Discussion Paper being prepared for the Transportation Master Plan. The purpose of this first Discussion Paper is to summarize existing transportation conditions in Nanaimo. This Discussion Paper begins with a review of policy initiatives at the local, regional, and provincial levels that influence the transportation system and provide guidance for the City as it develops the Transportation Master Plan. The following sections of the paper provide a comprehensive assessment of Nanaimo's pedestrian, bicycle, and transit, and road networks, identifying challenges and opportunities to be addressed through the development of the NTMP.

1.1 Role of the Nanaimo Transportation Master Plan

The Nanaimo Transportation Master Plan (NTMP) represents a significant opportunity for the City, as the NTMP can play a key role in achieving transportation-related goals, and providing a key link to the vision and goals identified in the City's Official Community Plan (OCP) and Strategic Plan 2012-2015. The NTMP will address a number of themes identified in these overarching community documents, which will integrate transportation and land use, promote alternative transportation choices to the single occupancy vehicle, and improve regional connectivity.

The role of the NTMP is to provide the City with guidance on the future of the road, transit, pedestrian, and cycling networks within the City. Due to Nanaimo's position as a service and transportation hub for the central and north Island and its proximity to major transportation corridors, the City's transportation network accommodates a significant amount of through traffic. In this regard, a key component of the NTMP will be balancing the local transport needs of residents with the demands of the regional/provincial transportation network while strengthening the City's external connections. This also includes important inter-modal connections to the Nanaimo Airport, the seaplane terminal, BC Ferries terminals, the E&N railway corridor and the Port of Nanaimo, among others. As the City and region grows, there is increasing pressure being placed on the local road infrastructure and the NTMP will need to balance the demand for automobiles with the needs of other modes.



1.2 Study Process

The Nanaimo Transportation Master Plan is being developed over a five phase process, as summarized below:

- **Phase 1: Project Initiation** involves collecting and reviewing relevant background information (Complete).
- **Phase 2: Inventory and Assessment** involves developing a detailed understanding of the City's existing transportation system, including the road network, transit system, pedestrian and cycling facilities. This involves defining the opportunities and challenges facing each mode and the overall transportation system in the future (Complete).

- **Phase 3: Exploring Future Directions** is intended to chart the course for the future directions of the transportation system in Nanaimo, establishing future network plans for the roads, transit, pedestrians and cyclists. This will include developing measurable and tangible goals and objectives to guide the NTMP.
- **Phase 4: Transportation Possibilities** is designed to explore the possibilities for each mode of transportation individually, before developing an integrated plan that reflects aspirations and directions for each mode.
- **Phase 5: Preparation of Long Term Plan and Implementation Plan** involves the preparation of a long-term plan that recognizes preferred directions based on feedback from stakeholders. Key themes are developed to ensure the plan is accessible and motivating for all stakeholders and provides guidance to advance key initiatives.

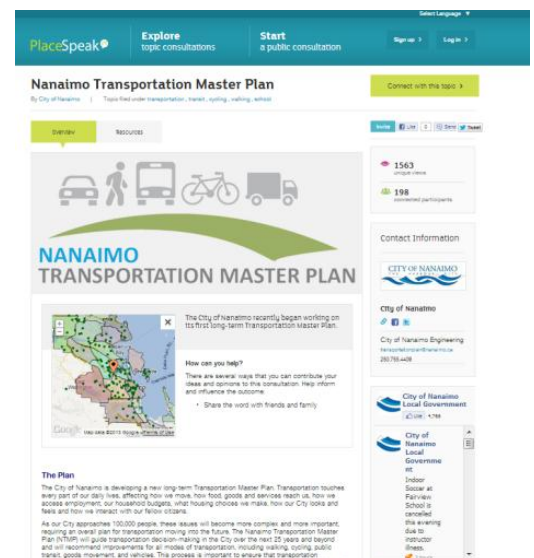
1.3 Communications and Consultation

The Nanaimo Transportation Master Plan is being developed based on extensive input from the public and key stakeholders, using a range of communications and consultation approaches. Prior to embarking on the development of the NTMP, the City initiated a pre-plan consultation process in June 2012 in order to spread awareness of the upcoming NTMP process, to gain early public feedback, and to connect with stakeholders and groups for future consultation. The Pre-Plan Consultation consisted of two open houses, a project website, and on-line survey. Altogether, the open houses had almost 40 attendees, and over 80 people provided input through the on-line survey. Some of the key transportation themes that emerged through resident input and feedback included:

- **Roads:** Improved traffic flow, intersection safety, accommodation of all road users, less neighbourhood short-cutting;
- **Transit:** More frequent and direct service, enhanced connectivity with BC Ferries, need for a central exchange downtown;
- **Pedestrians and cyclists:** Better infrastructure and connectivity for active modes, walkable neighbourhoods, safety education and encouragement for children;
- **Land use:** Less sprawl, denser hubs, integrated land use and transportation planning; and
- **Environment:** Greenhouse gas emission reductions, public health, and rising fuel costs.

Following the Pre-Plan Consultation and the initiation of the NTMP process, the City conducted an extensive consultation process to identify transportation issues and opportunities. This Phase One Consultation included:

- **Project Website.** The City has established a dedicated project webpage on the City's website, and is also using an interactive



project website using PlaceSpeak. Both the City and PlaceSpeak webpages provides project information, raise awareness about the project and events, gather input and comments (via an on-line survey), and report back on feedback results. The websites will be used for the duration of the project.

- **Social media** is a key part of the communications approach, and is primarily used for event announcements via Facebook and Twitter.
- **The Transportation Advisory Committee (TAC)** is the steering committee for the Transportation Master Plan process, with their input and feedback supporting the development and implementation of the NTMP. Feedback from the TAC has been integrated from early on in Phase 1 and Phase 2, through presentations and facilitated discussions on the NTMP process, priorities, and transportation issues and opportunities. Consultations with the TAC will continue throughout the NTMP process.

- **Open houses** are used to reach a broader audience and to gain public feedback on transportation issues and opportunities. The first NTMP open house was held on October 30th, 2012 at Wellington Secondary School with relatively low attendance (less than 20 attendees). The second open house was held on November 10th, 2012 at Port Place Mall, with 150 people viewing the panel boards and about one-third providing feedback to staff. Subsequent open houses are to be held as the NTMP develops, in order to present findings and continually gather input.



- **Stakeholder Workshops.** Workshops are part of the process to build awareness and energy for the NTMP and to help develop a vision for the transportation system. The first facilitated workshop was held on November 8th, 2012 at Beban Park Recreation Centre, with a wide variety of stakeholder groups across Nanaimo. The workshop gathered feedback from stakeholders on the current transportation system, issues and opportunities, and the vision, goals and objectives for the future of transportation in Nanaimo.



- **Surveys** are available to gather detailed resident feedback. A pre-plan consultation survey was available in June 2012 and gathered 80 responses. The Phase 1 Issues and Opportunities survey, focussed on transportation issues and NTMP guiding principles, was available through PlaceSpeak in October 2012, and 153 surveys were complete. 88% of survey respondents were Nanaimo residents, with all neighbourhoods represented, though a higher proportion of respondents were from neighbourhoods in central Nanaimo.
- **Council.** City Council is ultimately responsible for adopting the Transportation Master Plan, and supporting the recommended implementation activities. As such, council presentations are to be made

throughout the course of the study, with the first occurring on October 15, 2012, to update City Council on start of the project, the progress and timeline of the TMP, and provide direction for subsequent tasks.

1.4 Report Structure

This report is structured to provide a comprehensive overview of Nanaimo's local context and transportation context within the early chapters, with subsequent chapters (chapters 5-8) providing a mode-specific discussion on the walking, cycling, transit, and road networks within Nanaimo. Chapters 9-11 provide an overview of parking, neighbourhood streets, and external connections which are also key components of Nanaimo's transportation system. The discussion around each of the topic areas in Chapters 5-11 are framed to describe the policy context, recent projects, as well as the perceived key issues and opportunities that were gathered through various public consultation activities. The majority of the information presented in these chapters is the result of a technical and analytical existing conditions assessment.

2.0 Community Profile

This section describes the planning context for the NTMP. This includes a summary of the key characteristics of the community, as they relate to transportation, as well as the local and external policy context for the NTMP.

2.1 Community Context

The City of Nanaimo is a large and growing municipality, with the current resident population of 87,000 residents expected to increase to approximately 125,000 residents by 2041. The City is located on the east coast of Vancouver Island, positioned as an employment and population centre serving a broader regional population base of approximately 150,000 people today, which is projected to increase to 235,000 people by 2041.

Overall, the City of Nanaimo has a unique transportation context, with historic, local, and regional activities influencing the shape of the community's modern transport network. On a larger scale, there are three major determinants of the Nanaimo's transportation system today:

- **Historic Development Patterns:** Nanaimo was established in the late 19th century, based around the coal mining and lumber industries. Nanaimo's initial transportation and settlement patterns grew around its industrial shoreline and supply lines, radiating out from the downtown, and creating many linear north-south transportation linkages. The original town plan was centred on the City's harbour and resulted in the fan shaped grid pattern of downtown, following the bowl-like topography of the land. This radial plan still defines Downtown Nanaimo today, with a characteristic street layout based on the grid that is still very much in use. The development of the E&N Railway line, connecting Victoria, Nanaimo and Comox-Courtney, provided was a key north-south goods movement corridor on east Vancouver Island. The alignment of the railway corridor has shaped development in Nanaimo and its presence continues to influence transportation and land use activities throughout the community.
- **Post-War Development Patterns:** Nanaimo is geographically is relatively narrow, with a distinct north-south orientation along the Island Hwy and E&N Railway. As such, Nanaimo's development has taken shape in a linear pattern, resulting in relatively low residential densities in many neighbourhoods that favor car travel. Starting in the 1950s Nanaimo's commercial, retail, and employment centres began extending north-south along the Island Highway Corridor, with other major centres distributed throughout such as Nanaimo Regional General Hospital, Vancouver Island University, and the BC Ferry terminals. Downtown commercial services, retail shops, restaurants, and cultural attractions all contribute to making Downtown Nanaimo the core of the City, however, suburban development and commercial developments outside of have created other important centres creating wider distances between where people live, work, recreate, and shop. These development patterns influence the proximity of neighbourhoods to employment and services and transportation patterns.
- **Regional and Provincial Transportation Corridors:** The municipality is bisected by major provincial highway corridors, carrying provincial, regional and local traffic. As such, considerable volumes of people and goods flow through Nanaimo every day, destined for the central and north Island, or the BC Mainland (via the ferry or airport). As a regional transportation hub, Nanaimo must continue to

accommodate and support these regional transport corridors, but also a balance needs to be struck between local and regional transportation demands, ensuring efficient traffic movements while continuing to emphasize sustainable modes.

While these can be identified as some major overarching influences on the transportation system, there are also more specific factors which influence transportation choices and patterns in Nanaimo. The following sections describe in more detail the City of Nanaimo's demographics, land use, and transportation characteristics that influence the direction of the NTMP.

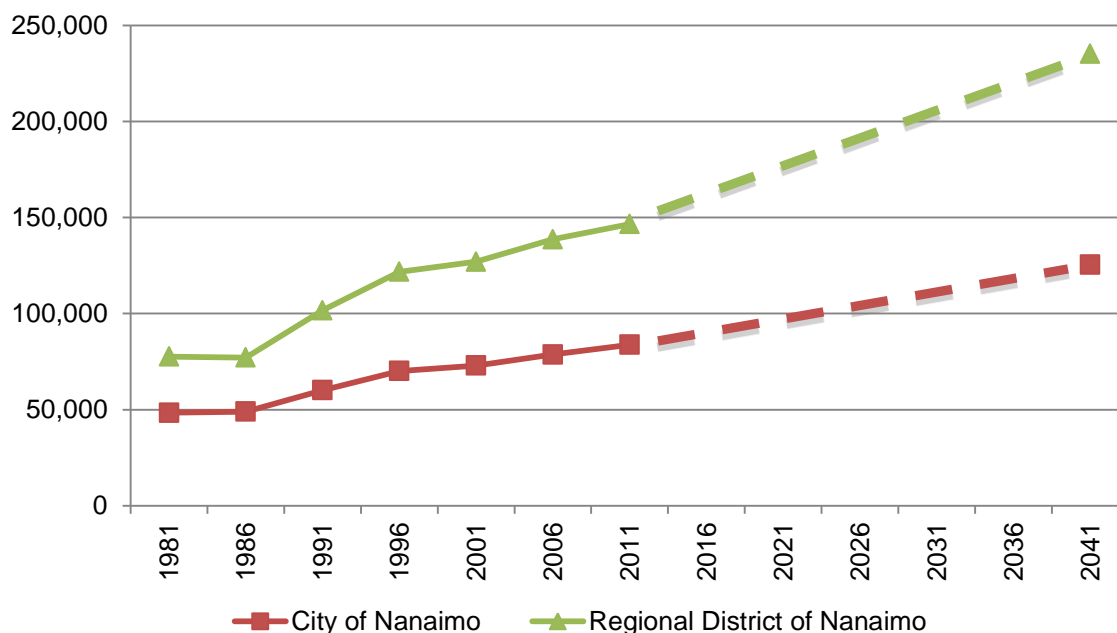
2.2 Demographic Context

Demographics play a significant role in influencing transportation choices and travel patterns. This section summarizes key demographic characteristics of Nanaimo residents.

- A growing community and region.** As shown in **Figure 2.1**, the City has grown steadily over the past several decades, from just over 48,000 residents in 1981 to 87,000 residents by 2011, an increase of 80% over the past twenty-five years. Growth in the City of Nanaimo is expected to continue over the next 30 years, with approximately 38,000 new residents expected by 2041 – a further increase of 44%. Growth is also expected throughout the broader region, with the RDN's population increasing from approximately 150,000 residents today to 235,000 residents in – an increase of 56%. Similar to the last 30 years, the City of Nanaimo is expected to grow at a slightly slower rate than the RDN. The City's projected annual rate of growth of 1.2%/year over the next thirty years will be similar to growth experienced over the last decade (2001 to 2011). This rate of growth translates to an average of 1,280 people being added to the City annually over the next 30 years.

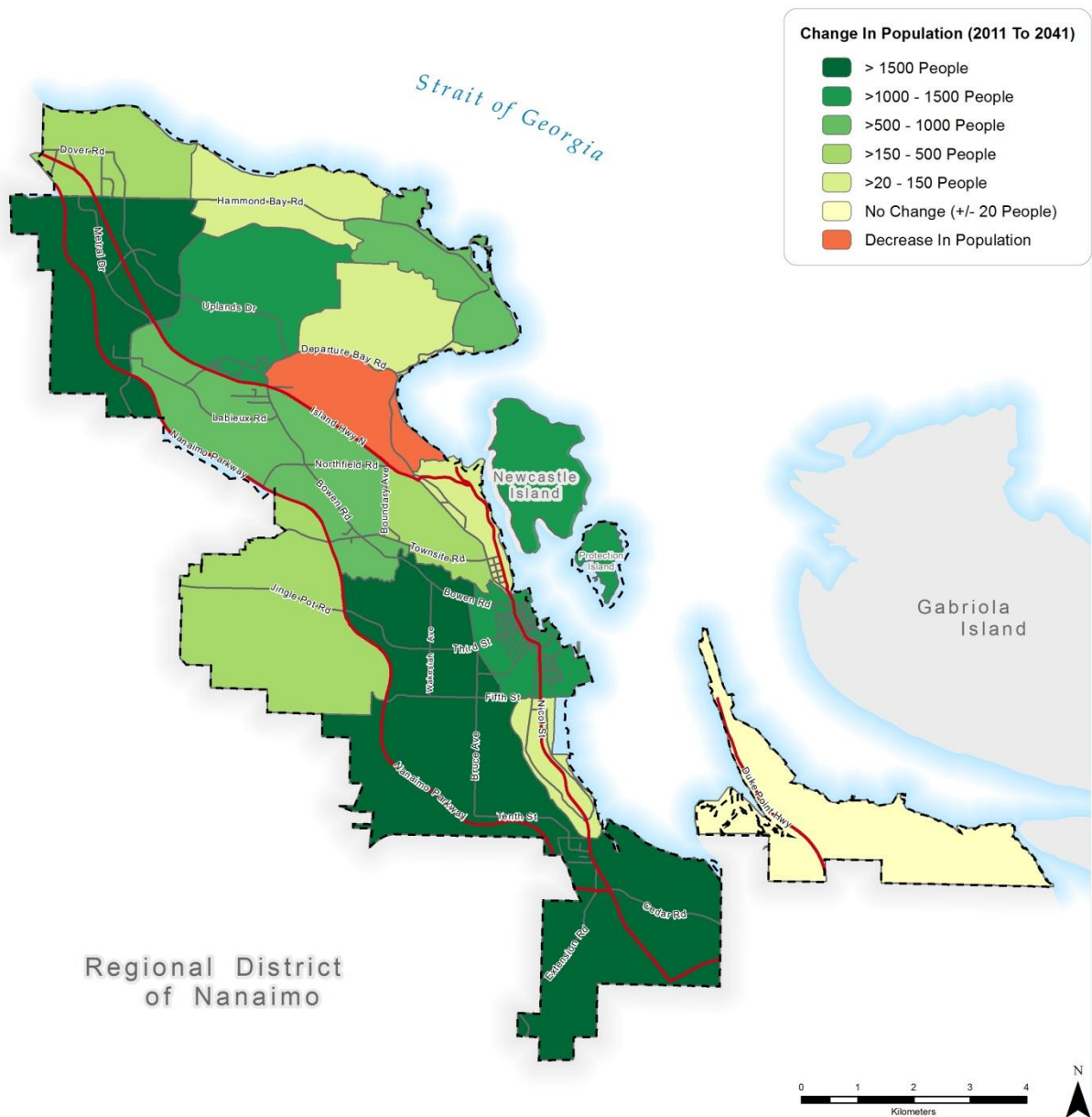
Figure 2.1: Historic and Projected Population Growth in the City of Nanaimo (1981 – 2041)

Source: BC Statistics, Urban Futures 2013



- Population growth** over the last 10 years generally followed development patterns and largely occurred in the north and south ends of the City. Between 2001 and 2011, 37% of the City's total population growth occurred in three neighbourhoods (Rutherford, Dover, and Long Lake) in the north-west corner of the City. On its own, the Rutherford/Pleasant Valley neighbourhood contained 11% of the City's population by 2011 and had grown by 34 percent over the last decade. Over the same period, strong growth was also observed in the south of the City with Harewood and Chase River neighbourhoods capturing 23% of the City's total population growth. Neighbourhoods with stable housing stock but declining household size, such as Townsite and Departure Bay saw small drops in population.

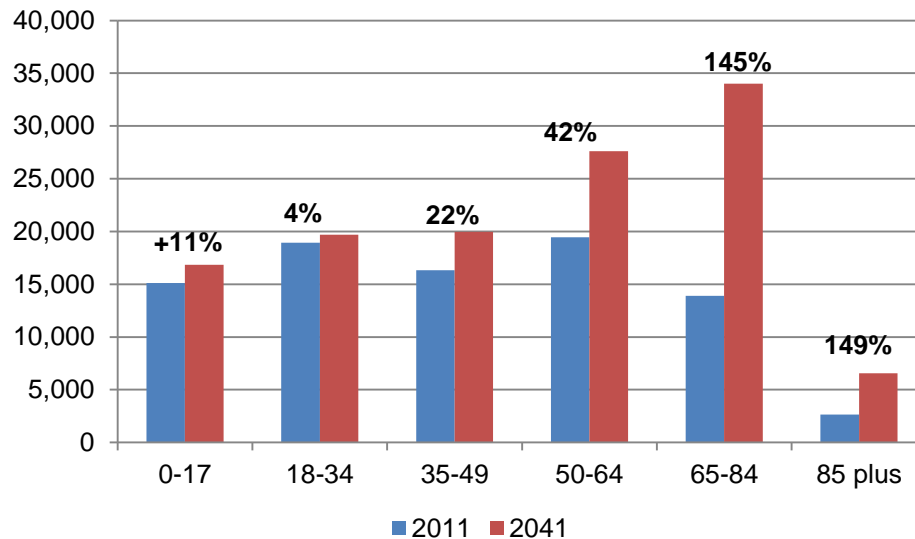
Figure 2.2: Expected Population Growth (2011 – 2041)



- **Population density.** While City's average population density was 953 persons per square kilometre in 2011 it varied significantly by neighbourhood (Note: Population density is calculated based on population the Urban Futures' report and the City land area as reported by the 2011 census). Typical residential densities in Downtown, the University and Hospital/Townsite neighbourhoods exceeded 2,000 persons per square kilometre while lower density or partially developed neighbourhoods such as Linley Valley, Hammond Bay, Cinnabar Valley and College Heights had densities of less than 1,000 persons per square kilometre. Some areas of the City remain undeveloped or have little or no residential population (i.e. Cable Bay, Sandstone, Duke Point) and serve to reduce the City's average density. With projected growth the City's average residential density will rise to 1,374 persons per square kilometre by 2041. Growth around Woodgrove, in Hammond Bay, Harewood, Downtown, VIU and Sandstone will continue to increase the City's overall density. BC Transit service guidelines suggest that a population density of 1,000 persons/km² is required to support basic conventional transit with higher densities supporting even better transit services. With growth over time, increased population densities in certain areas in Nanaimo will become increasingly transit supportive.
- **An Aging Population.** Nanaimo's growing population coincides with a changing age demographics, dominated by baby boomers and their children. In the past decade, the age group of 50 years and older grew by 40% (an additional 10,500 people). In comparison with the Regional District, Nanaimo's population is slightly younger, due to the City having an urban core, many employment opportunities, and a post-secondary university.

Today, approximately one fifth (20%) of the City's residents are aged 65 and over, with an additional 30% of Nanaimo residents in their pre-retirement years (45 – 64 years old). Certain neighbourhoods in Nanaimo have higher concentrations of seniors, such as in areas surrounding Woodgrove Mall and the Downtown. Seniors aged 65 and over are projected to be the fastest growing age group over the next thirty years in Nanaimo, as this age group is projected to more than double in size, growing by 145% (24,150 new people). By 2041 those aged 65 and over will represent nearly one third of Nanaimo residents and at the same time, the population of those aged 25-64 will only increase by only 28%. As the population ages, travel making behaviour will change considerably as older groups create new and varied transportation needs for the City. Seniors also require accessible, safe, and well-connected transit and active transportation infrastructure to move freely around their communities without a vehicle.

Figure 2.3: Current and Future Population by Age Group



- **Household sizes are declining.** Perhaps due to the aging baby boomer generation in the next 30 years, the average household size in Nanaimo is expected to decrease by 6% by 2041. This represents a decrease in the current average of 2.32 persons per household in Nanaimo, to 2.19 persons per household by 2041. However, the number of households will actually increase over this period, with a 54% rise in households, from the current 37,000 to 57,000 by 2041.
- **Population growth is accompanied by increased housing.** Over the last 10 years the City's stock of occupied dwellings has grown at a faster rate (17%) than its population (13%). This trend is expected to continue with housing is projected to grow by 54% by 2041; an increase of over 20,000 new units. While ground-oriented units will continue to represent the majority of housing stock in Nanaimo, it is projected that multi-family housing will continue to make up a larger and larger proportion of new housing stock. By 2041, apartments are expected to represent well over one-quarter (28%) of the City's housing stock, as compared to 23% today.
- **Increased job growth.** Employment in the City is projected to increase by 51% by 2041, with an additional 25,000 new jobs created in the City. The finance, insurance, and real estate sector will be the fastest growing sector, contributing nearly 6,500 new jobs over 30 years. Other sectors seeing strong growth include construction, education and health.

2.3 Land Use Context

- **Compact urban core.** Nanaimo is a relatively large municipality, with a total land area of 90km². Although the entire municipality has a relatively low population density, there are concentrations of population, particularly in and around the Downtown, VIU, NGRH, Country Club and Woodgrove Malls. Within Downtown, most residents are in close walking and cycling distance to services and amenities.

- **Development Patterns.** Natural barriers constrain Nanaimo to the east (Salish Sea) and west (Mount Benson). In general, higher residential and commercial densities are concentrated along major arterials and collectors. Outside of these areas, Nanaimo is primarily low density with little mixture of land uses.
- **Commercial Areas.** Employment is mainly distributed within commercial development and industrial areas along the Island Highway and Bowen Road corridors; other pockets of employment exist in institutional centres such as NGRH, VIU and the DFO Research Station.
- **Community Facilities.** Many of Nanaimo's important cultural and civic facilities are located in Downtown, including City Hall, the Library, Civic Arena, and the Museum. Recreational facilities are more distributed throughout Central Nanaimo.
- **Schools.** Within Nanaimo School District 68 has 22 elementary schools, 5 secondary schools, and six district-wide (alternative) schools. Nanaimo is also home to Vancouver Island University, which system wide supports a student population of approximately 18,000 students and 2,000 faculty and staff throughout its several campuses on Vancouver Island. VIU's Nanaimo Campus has a student population of approximately 8,700 full-time students (based on spring 2012 enrollment). As a major employment and academic centre, Vancouver Island University is a significant trip generator in the community.

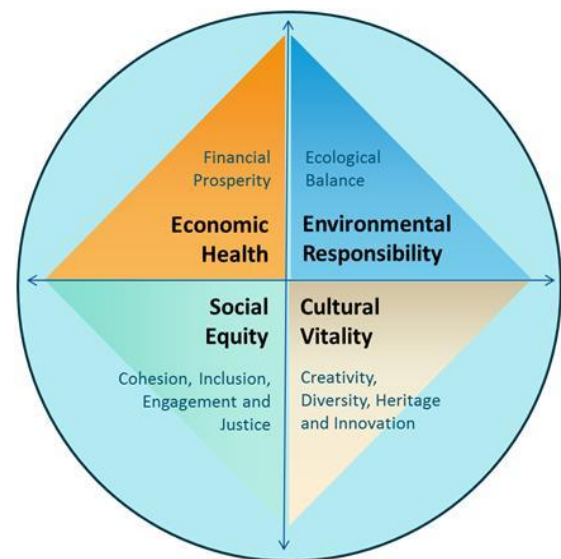
3.0 Policy Framework

Several relevant policy documents have been developed locally, regionally, and provincially that provide direction and guidance on issues of land use, growth management, development, transportation planning, and environmental sustainability. This section provides a description of relevant policies and initiatives at the municipal, regional, and provincial levels which can help influence and shape the direction of the Nanaimo Master Transportation Plan.

3.1 Municipal Initiatives & Directions

The City has undertaken several planning initiatives and strategies that provide direction on transportation and mobility in the municipal context. This section describes the municipal directions provided through key local policy documents.

- **Strategic Plan 2012-2015** was adopted in July 2012. The Strategic Plan clarifies the City's preferred future and identifies strategic priorities. It is used to inform decision-making and guide actions to respond to the needs and interests of the community. During the strategic planning process, Council reviewed and endorsed the following municipal commitment to the four pillars of sustainability and the goal of balancing social equity, environmental responsibility, economic health, and cultural vitality as Nanaimo is enhanced for the generations to follow. These 4 pillars or focus areas will guide ongoing municipal commitments and decisions for years to come.



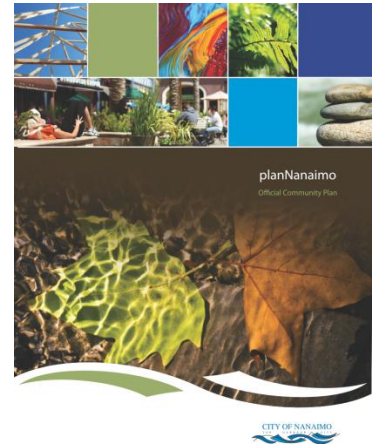
The Strategic Plan identifies a Vision that: ***“by 2025, the City of Nanaimo will proudly feature its harbour and inclusive quality lifestyle; excelling as both the business centre and transportation/service hub for Vancouver Island.”***

Six strategic priorities were identified as areas needing special attention over the next 3-5 years. These priorities were carefully chosen within the context of limited resources and ongoing economic challenges, recognizing the high costs anticipated to address water supply, asset management, and transportation/mobility requirements. The Strategic Plan defines these strategic priorities, defines desired outcomes for each and includes potential strategies and/or initiatives to achieve them. The Six Strategic Priorities include:

- Waterfront enhancement;
- Water;
- Transportation and mobility;
- Asset management;
- Community building partnerships; and
- Taking responsibility.

In terms of Transportation and Mobility, the Strategic Plan states that the City is committed to comprehensive transportation/mobility planning and management that furthers planNanaimo goals related to mobility options, reduced dependency on the car, and integration of land use and mobility planning. The City also accepts the visionary challenge of positioning Nanaimo as the transportation and service hub for Vancouver Island and is willing to work with partners to enhance external bus, rail, ferry, air connections to Vancouver, Victoria and the world. The plan also identifies a range of Outcomes Desired and Potential Strategies and/or Initiatives related to transportation and mobility.

- **Official Community Plan (OCP) – planNanaimo –** was adopted in 2008 and sets out the location, type, and density of all types of land use, from residential and commercial to industrial, utilities and parks. PlanNanaimo includes a Vision that ***“Nanaimo will be a community that respects people. It will have neighbourhoods as the building blocks of the city. Nanaimo will be safe and supportive for people of all ages and income levels. It will be an attractive place to live with the historic downtown core forming the “heart” of the city. Change in the city will be based on the foundation of community participation. Nanaimo will be a community that respects and preserves the environment and one that is pedestrian friendly. It will be a city of social and economic opportunity that has a diverse economy and a wide range of social, recreational, cultural and artistic amenities and services.”***

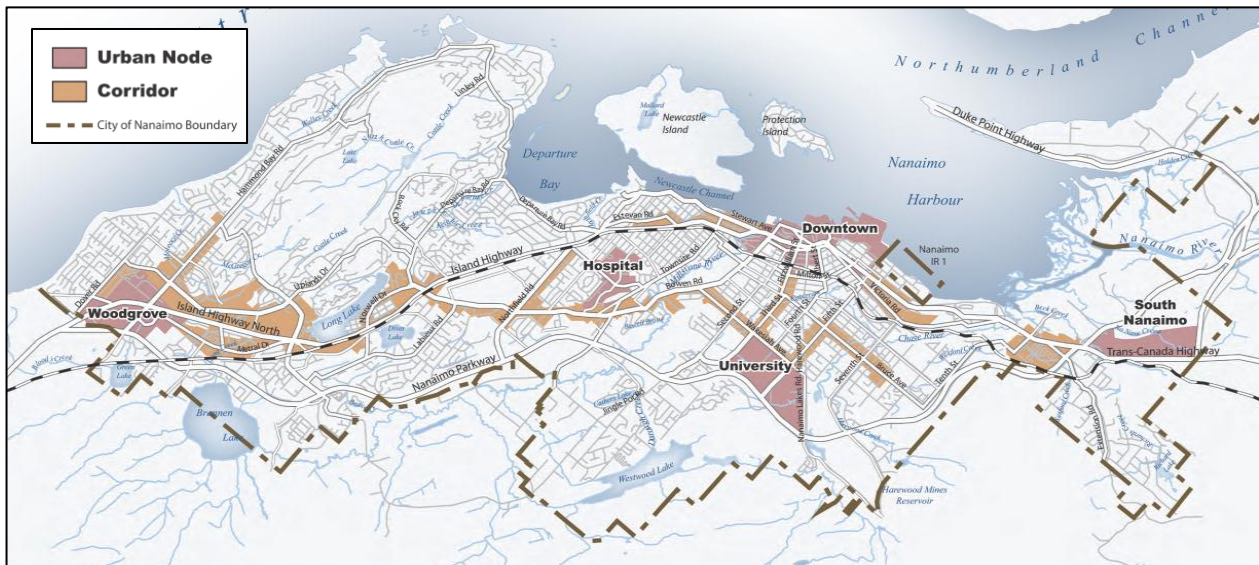


The OCP outlines issues, goals, policies, and priorities related to the following seven goals to manage growth and improve mobility and servicing through to the year 2020:

- Goal One: Manage Urban Growth
- Goal Two: Build a More Sustainable Community
- Goal Three: Encourage Social Enrichment
- Goal Four: Promote a Thriving Economy
- Goal Five: Protect and Enhance our Environment
- Goal Six: Improve Mobility and Servicing
- Goal Seven: Work Towards a Sustainable Nanaimo

Of particular relevance to the NTMP process is Goal Two as building a more sustainable community focuses on creating urban nodes and corridors that support higher densities and a wider range of amenities and services than found in the surrounding residential neighbourhoods. Urban nodes are defined areas of concentrated use in the city and have a distinct focus and character. Urban nodes combine a mixture of land uses and have higher densities, and are connected by corridors that have a primary focus on higher density development, particularly with commercial or public space at ground level with residential in the storeys above. Five urban nodes are identified throughout the City: Downtown, University, Woodgrove, Hospital, and South Nanaimo, as shown in **Figure 3.1**.

Figure 3.1: Urban Nodes and Corridors Concept



Goal Six focuses on creating greater accessibility and more opportunity for safe and convenient movement around the city by transit, cycle and on foot. This also includes maintaining an effective road network for moving goods and people by vehicle, and providing for transit and emergency services, while working to reduce reliance on the automobile over time.

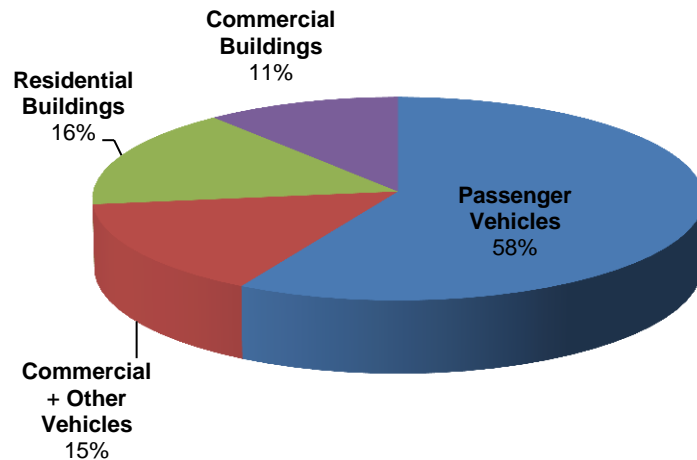
The OCP also includes targets to reduce greenhouse gas emissions by 33% below 2007 levels by the year 2020. The City’s recent 2012 Community Sustainability Action Plan contains recommendations on amending the greenhouse reduction targets within the OCP. These new amended targets are to reduce greenhouse gas emissions by 3% below 2007 levels by the year 2020, and by 39% of 2007 levels by the year 2050. The transportation sector will play a key role in achieving these greenhouse gas emission reduction targets.

Altogether, the transportation and mobility goals within the OCP support:

- More and safer pedestrian and cycling;
 - Improved transit service and mobility options;
 - Reductions in per capita vehicles trips, and increases in vehicle occupancy and the use of alternative modes.
- **Community Energy and Emissions Study** provided the technical framework for how to achieve the reductions in community greenhouse gas (GHG) emissions as stated by planNanaimo. Above and beyond the commitments in the OCP, the Study builds off the OCP GHG targets and provides a scenario for reducing GHGs by 2050. The Study identifies reduction opportunities in the sectors of land use, buildings, and transportation. Recognizing that nearly three-quarters of total greenhouse gas emissions in Nanaimo are from vehicles (see below in **Figure 3.2**), the Study contains transportation strategies focussed on making alternative and active modes viable in order to reduce emissions. Transportation strategies include sidewalk and streetscape improvements, connected bicycle pathways and routes, end-of-trip facilities, better transit stop facilities, and parking requirement reductions in downtown and urban nodes, as well as a suite of education and encouragement programming.

Figure 3.2: Greenhouse Gas Emissions by Sector

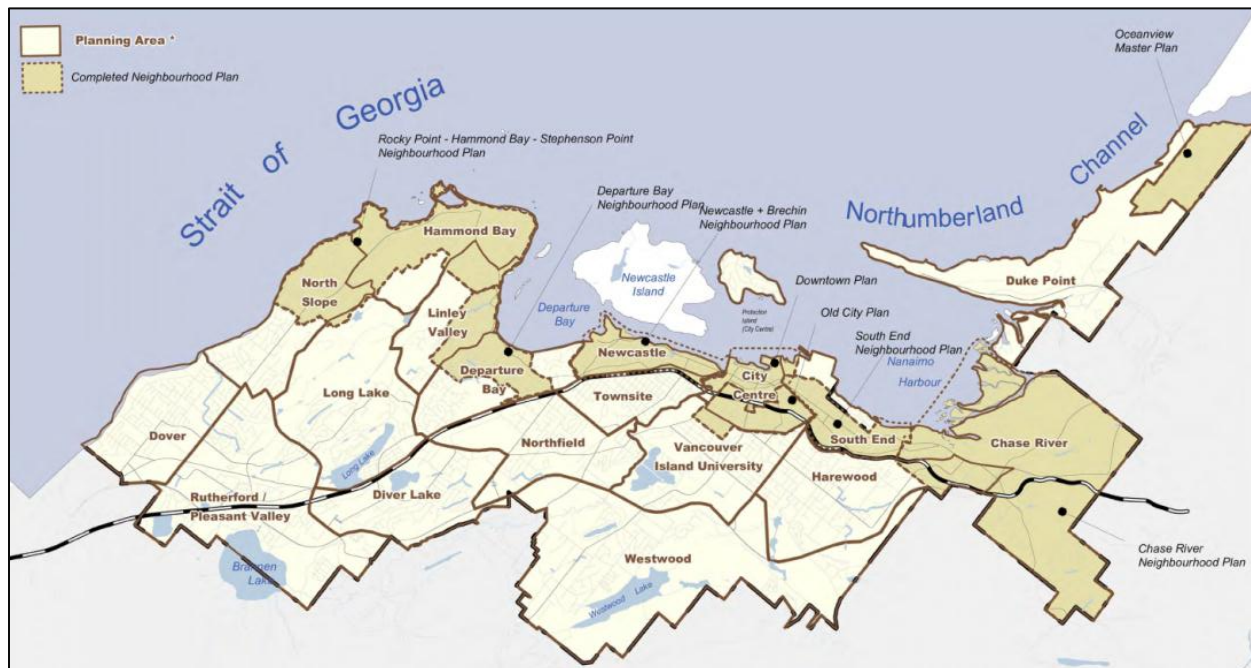
Source: BC Community Energy and Emissions Inventory



- **Community Sustainability Action Plan** was prepared to guide the actions of the community toward achieving the targets for greenhouse gas emissions reduction in Nanaimo. The Action Plan includes strategies and actions to implement the OCP Plus Scenario and focuses on densification, more sustainable choices of transportation, energy efficient buildings, local energy production, and reuse and reduction of solid waste. Respecting transportation, actions to achieve strategies for 1: Compact Complete Community and 2: Alternative & Active Transportation Strategy, relate directly to the NTMP.
- **Downtown Plan** was developed to provide a framework of policies and actions in order to stimulate Downtown revitalization. The Plan identifies downtown-specific transportation needs to ensure a thriving and successful Downtown, emphasizing the importance of a safe, balanced, efficient and strong pedestrian, cyclist, and transit links which can all facilitate the attractiveness of Downtown. In regards to transportation the Policies within the Downtown Plan seek a quality pedestrian environment, a bicycle-friendly Downtown, an emphasis on transit, efficient road network movements, and coordinated parking management.
- **Neighbourhood Plans** have also been developed in Nanaimo, in addition to the Downtown Plan, to guide growth and development in several neighbourhoods of Nanaimo. While the OCP speaks to overarching directions for the City, the neighbourhood plans have the role of addressing the specific needs and desires of the communities within Nanaimo. Neighbourhood plans have been developed in areas of Nanaimo including:
 - South End Neighbourhood Plan (2010)
 - Newcastle + Brechin Neighbourhood Plan(2010)
 - Departure Bay Neighbourhood Plan(2006)
 - Linley Valley Park Plan (2005)
 - Rocky Point, Hammond Bay and Stephenson Point Neighbourhood Plan (2000)
 - Old City Neighbourhood Plan(1992)

Neighbourhood plans primarily focus on land use strategies and accommodating growth in terms of housing, recreation needs, environment quality, and transportation and mobility. Nanaimo's neighbourhood plans typically focus on accommodating active transportation modes at the local level, such as providing pedestrian and cyclist amenities and routes, safe road crossings, open space and trail connectivity, and minimising through-traffic in residential neighbourhoods through traffic calming measures. Many of these also incorporate a focus on urban design and streetscape character that are walkable and bicycle-friendly. **Figure 3.3** illustrates the areas for which a neighbourhood plans have been completed.

Figure 3.3: Completed Neighbourhood Plans



*Note: Harewood Neighbourhood Plan is currently in progress

- Master Plans have also been completed in Nanaimo for comprehensive developments within the community. These include the 2009 studies of the **Sandstone Master Plan**, **Oceanview Master Plan**, and the **Vancouver Island University Master Plan**. Both the Sandstone and Oceanview areas are planned communities within privately owned tracts of land, located in south Nanaimo on the edge of the City. The Master Plans set out a framework for a comprehensive approach to the policy and planning framework for future development that will occur in the areas. The Master Plans address transportation and mobility through describing future pedestrian and bicycle networks, and supporting traffic impact studies to identify site access points, road hierarchy, and existing and future traffic volumes based on total build-out scenarios. The impact of these large developments on transportation system is significant, and will need to be incorporated into transportation planning considerations in Nanaimo.

Similarly, the Vancouver Island University Master Plan addresses the long-term plans for Vancouver Island University (VIU) campus land development, and illustrates the phased development focussing on the academic core and surrounding student and market housing villages. The network for pedestrian and cyclist movements are detailed to and through the campus, while vehicular access is


limited to perimeter roads and parking areas. Overall, the Plan emphasizes students and staff to access the campus through walking, cycling, and transit. A key component of the Master Plan is transportation demand management, in order to reduce vehicle travel to, from and parking on and adjacent to campus. To specifically address the unique issue of managing transportation and parking demand, VIU supplemented the Master Plan with a Transportation Demand Management Strategy, developed in 2011. The Strategy provides a series of actions for the VIU Nanaimo and campuses, including the enhancement of active transportation, a transit pass program, car sharing, and parking management as key approaches to facilitate sustainable transportation behaviour.

- **Nanaimo Household Travel Survey (2012).** The City conducted a travel/trip-diary survey to gather more detailed information on transportation movements in and around Nanaimo, and to support the development of Nanaimo the Transportation Master Plan. In particular, this survey collected information on the travel of over 1,500 Nanaimo households to help build a more comprehensive picture of daily trip characteristics in Nanaimo, including travel patterns and demand. This survey effort focussed on motorists, cyclists, pedestrians, transit, and ferry users including specific surveys of transit and ferry users as well as students through a survey of VIU students.

3.2 External Initiatives & Directions

There are also external plans and strategies developed by the Province, RDN, and other agencies that guide the directions of Nanaimo in developing the NTMP as described in the following sections:

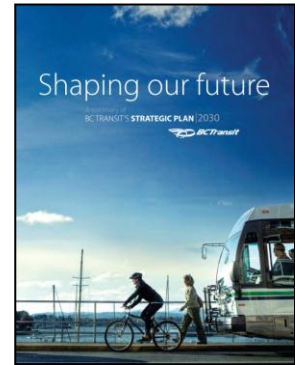
3.2.1 Provincial

- **The Provincial Transit Plan (2008)** is a strategy to increase transit ridership by increasing travel choices for people around the province, with new fleets, green technology, new rapid transit lines, and new innovative services such as rapid bus services. Investing in expanded transit services is one way of meeting the Province's climate action targets. The key objectives of the Plan are to increase transit ridership by over 400 million trips a year and to reduce GHG emissions by 4.7 million tonnes by 2020. It is sought that for regions of the Province outside of Metro Vancouver and the Capital Region, transit market share will be four per cent by 2020 and five per cent by 2030.
- 
- **The Climate Action Plan (2008)** sets targets for British Columbia to reduce its GHG emissions by 33% from 2007 levels by 2020 and by 50% by 2050. As on-road transportation is the largest contributor of community GHG emissions Nanaimo, the NTMP can play a key role in helping to achieve significant reductions in GHG emissions.
 - **The Climate Action Charter (2007)** was developed by the Province of British Columbia with the Union of BC Municipalities (UBCM). Today, almost all of the municipalities in the Province – including Nanaimo – have signed the Charter with a pledge to be carbon neutral by 2012. By signing the

Climate Action Charter, local governments commit to measuring and reporting on their community's GHG emissions profile and working to create compact, more energy efficient communities.

3.2.2 Regional

- **BC Transit 2030 Strategic Plan (2010)** establishes the organization's vision for shaping transit services now and into the future. To achieve greener travel and healthier communities, the transit service must respond to the key trends such as an aging population, continued growth and urbanization, volatile energy pricing, a less predictable economy, and changes in technology. The plan recognizes the need to build public support for transit funding, transit-supportive land use patterns, and integration of transit with other sustainable transportation modes. The Plan's priorities are to develop financial sustainability, shape livable communities, change the public perception of transit, deliver operational excellence and to strengthen partnerships.



- **Nanaimo Regional Transit Business Plan (2008)** is a comprehensive, long-range plan that provides a strategic vision for transit in the Nanaimo region. The plan was prepared by BC Transit in cooperation with the Regional District of Nanaimo. The plan links with other planning processes in the region and constituent municipalities, and it will act as a guide for transit service planning and delivery in the Nanaimo region over the following ten years.

The primary goal of the NRTBP is to encourage greater transit ridership in the Nanaimo region by providing transit and other sustainable transportation options that improve mobility for people who have few other transportation options and also offer an attractive alternative for automobile drivers. The objectives for the NRTBP can be grouped into three broad categories:

1. **Community Objectives** which describe how transit relates to key markets, existing and planned community development, and the overall transportation system;
2. **Passenger Service Objectives**, which describes how transit provides an attractive alternative to driving, with transit service that is frequent, direct and convenient, and by providing a safer and pleasant environment for the transit user; and
3. **Financial and Performance Objectives**, which are used to identify which improvements are affordable and an efficient use of available resources.

The plan includes 24,500 annual service hours of expanded conventional transit service in the short-range period (2009-2010) and a further 65,900 annual hours of expanded service in the medium range period (2011-2018). The projected addition of more than 90,000 annual service hours would result in nearly doubling the conventional transit service level in the Nanaimo region over the next decade, which falls in line with the Provincial Transit Plan which aims to double transit ridership by 2020. The plan also includes 14,400 annual hours of expanded custom transit service, \$75,000 annually in additional taxi supplement funding, and \$70,000 annually in additional taxi saver funding. Finally, the plan also identifies fleet and facility requirements to support the service plan as well as supporting strategies to encourage greater ridership and improve transit system performance.

- **Transit Future Plan – Nanaimo Regional District** is currently being developed for the Nanaimo region by BC Transit and RDN Transit, as an update to the 2008 RDN Transit Business Plan. A partnership between BC Transit and the Regional District of Nanaimo, the Transit Futures Plan

envisioned the transit network should look like 25 years in the future. The Plan examines the current transit network and identifies service improvements. This involves prioritization of infrastructure improvements and the required levels of investment needed to make the plan a reality. The Final Plan is expected to be complete in fall 2013. A draft regional transit mode split goal of 5%, consistent with the Provincial Transit Plan, is being considered. To achieve this goal transit use in the City and other built up areas of the RDN would likely have to be even greater than 5%.

- **Regional District of Nanaimo Regional Growth Strategy (2011).** The RDN Regional Growth Strategy (RGS) is a strategic plan for the RDN that defines a regional vision for sustainable growth and provides direction and guidance to manage growth and change in the RDN over the next thirty years.

The vision of the RGS is to ***“be recognized for an outstanding quality of urban and rural life that is grounded in a strong commitment to protecting the natural environment and minimizing harm to life-sustaining ecological systems.”***

The vision also commits to achieving environmental protection, food security, urban development that is contained and distinct in form and character from rural development, complete and compact communities, mobility options that reduce automobile dependency, a strong and resilient economy, and efficient infrastructure and resource utilization.

The RGS aims to establish a more sustainable pattern of population growth and development in the region by encouraging and directing most new development in the region within designated Growth Containment Boundaries, thereby keeping urban settlement compact, protecting the integrity of rural and resource areas, protecting the environment, increasing servicing efficiency, and retaining mobility within the region. The RGS emphasizes the integrated land use and transportation policies, in order to support mobility options such as walking, cycling, and transit.

4.0 Travel Patterns

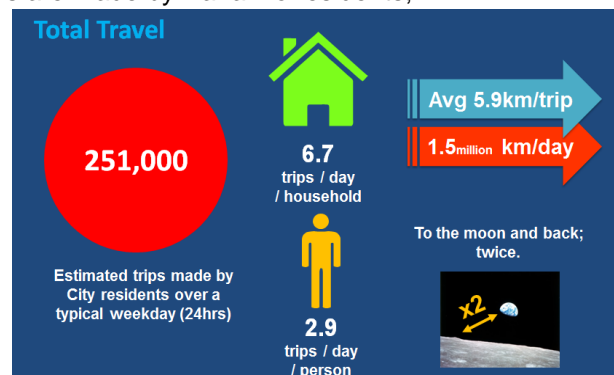
There are two sources of information on travel patterns in the City of Nanaimo, including the 2006 Statistics Canada Census and 2012 Household Travel Survey. While these two data sources report on different information together they help to provide a more complete picture of travel patterns and demand throughout the City. Census data reports on mode share for the commute to work trip based on a 20% sample, while the Household Travel Survey reports on all daily trips taken over a 24 hour period, for all trip purposes (not just the commute to work) based on a 3.5% sample. The household travel survey also asks a more comprehensive battery of questions on travel patterns and household character. The Household Travel Survey is the most recent source of travel pattern data, and was conducted in 2012 by the City of Nanaimo in cooperation with the Regional District of Nanaimo and District of Lantzville.

The following section provides a summary of the travel patterns identified in Nanaimo from both data sources at both the City and neighbourhood levels.

4.1 City-Wide Travel Patterns

The Household Travel Survey was able to identify high-level summary of travel patterns for Nanaimo as a whole. The Household Travel Survey sample captured approximately 3.5% of the Nanaimo area, representing 1,500 households and 3,700 residents. An overarching review of community travel patterns found the following statistics (for all modes of transportation):

- Each weekday, an average of over 250,000 total trips are made by Nanaimo residents;
- Each household makes an average of nearly 7 trips per day;
- Each person makes an average of just under 3.0 trips per day; and
- The average trip length is just under 6 kilometres, equivalent to 1.5 million kilometres traveled a day in Nanaimo.

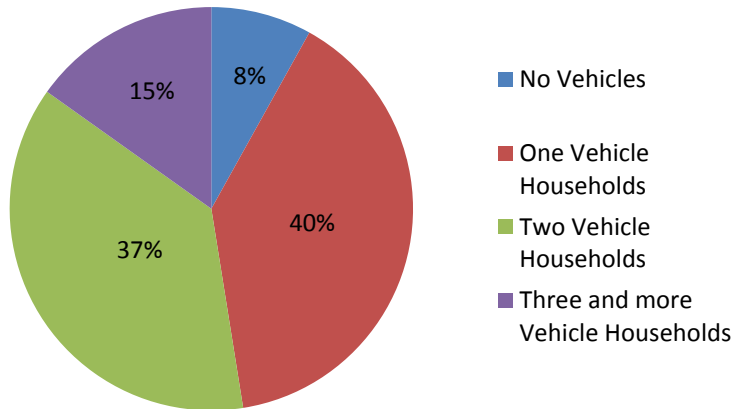


4.1.1 Vehicle Ownership

Whether or not a household has access to a vehicle provides information on the travel choices made by residents. The Household Travel Survey found there are 1.6 vehicles on average per household in Nanaimo. The relationship between household size and the number of vehicles is demonstrated in **Figure 4.1**.

Figure 4.1: Household Vehicle Availability

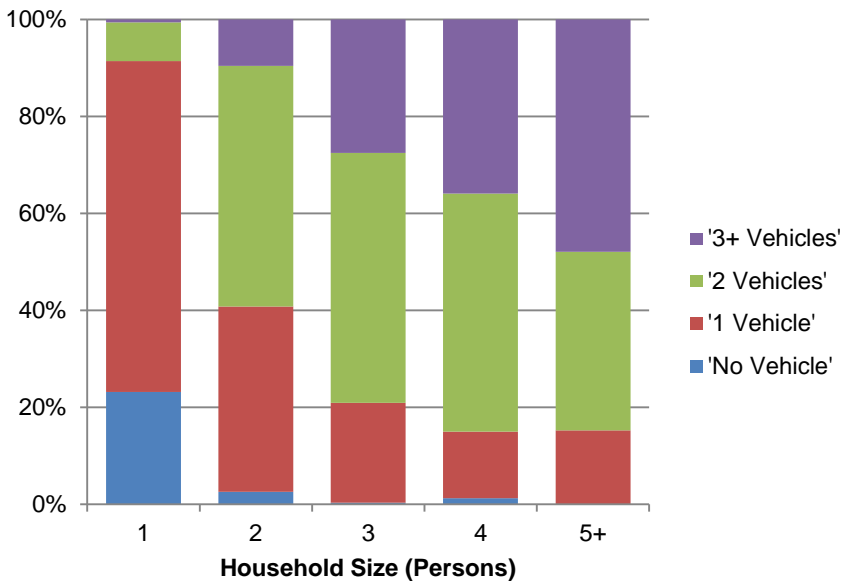
Source: Household Travel Survey



The survey also identified the average number of vehicles per household size, with results shown below in **Figure 4.2**. This information revealed that households with no vehicles are primarily one-person households. Two-person households almost all have access to at least one vehicle.

Figure 4.2: Number of Vehicles per Household by Household Size

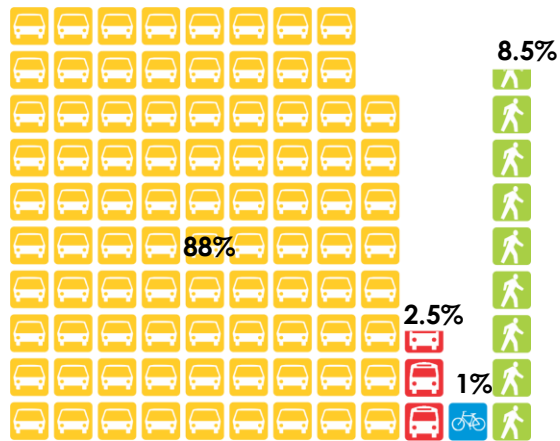
Source: Household Travel Survey



4.1.2 Mode Share

The Household Travel Survey found that travel patterns in the community are predominantly auto-oriented, as 88% of daily trips in Nanaimo are made by private vehicle (either as a driver or passenger). Walking accounted for 8.5% of daily trips, followed by transit (2.5%) and cycling (1%). Mode share for daily trips taken in Nanaimo are shown below in the **Figure 4.3**.

Figure 4.3: City of Nanaimo Mode Share
Source: Nanaimo Household Travel Survey



The community mode share results from the Household Travel Survey are similar to the mode share statistics from the 2006 Census, as shown below in **Table 4.1**.

Table 4.1: Census and Household Travel Survey, Mode Share Comparison

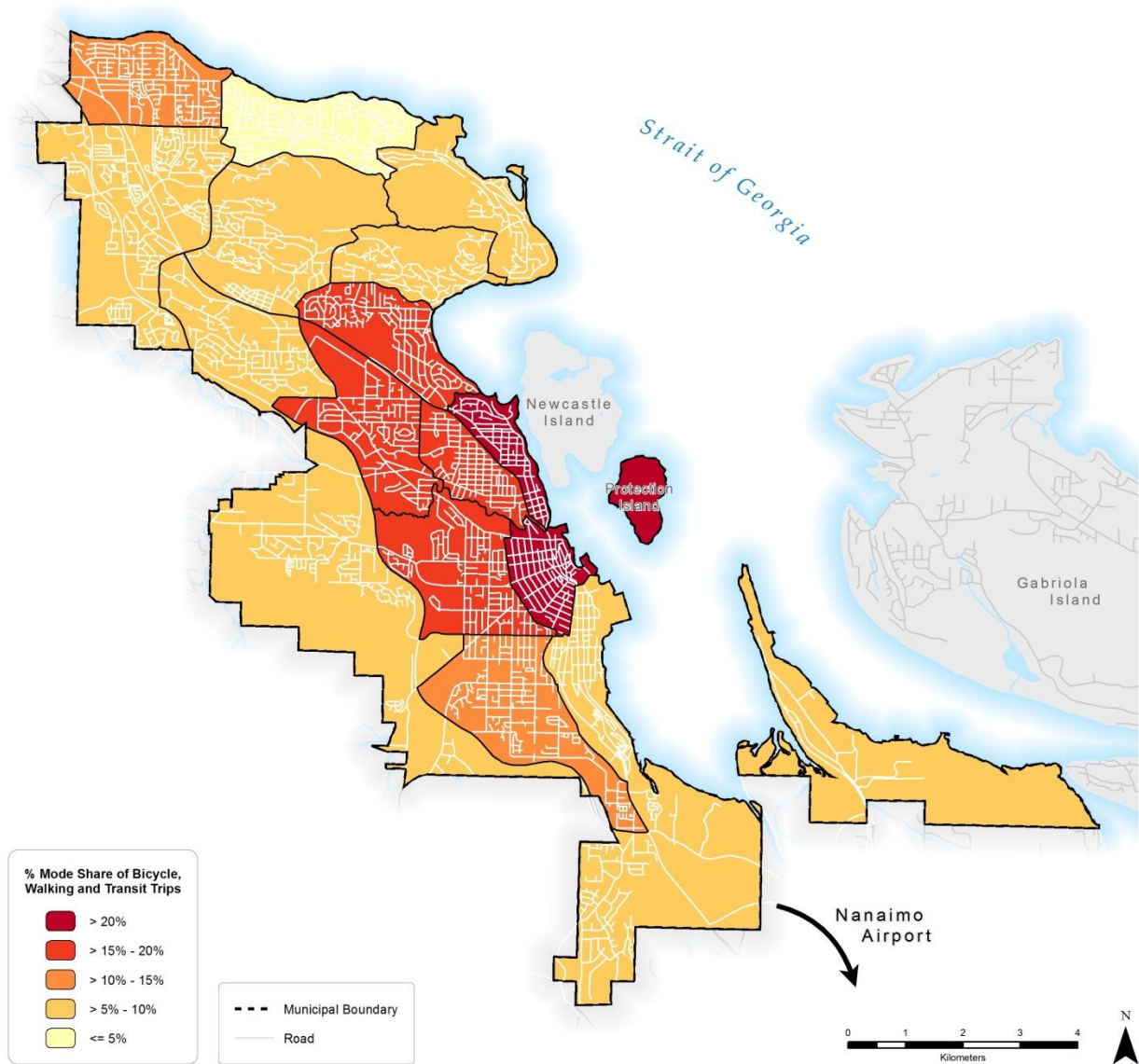
Source: 2006 Census and Household Travel Survey

Mode	2012 Household Travel Survey (all daily trips)	2006 Census (daily commute trips)
Automobile	88%	86%
Public Transit	3%	3.4%
Walking	8%	7.1%
Cycling	1%	2.0%

Both data sources identified that the mode share for walking, cycling, and transit is much higher in several parts of the City, including the downtown core, which the 2006 Census states has a commuting mode share of 34% of trips made by walking, cycling, and transit, as shown in **Figure 4.4** below. The Household Travel Survey reports that 25% of all trips made within the Downtown are made by walking, cycling, or transit.

Figure 4.4: Mode Share by Census Tract

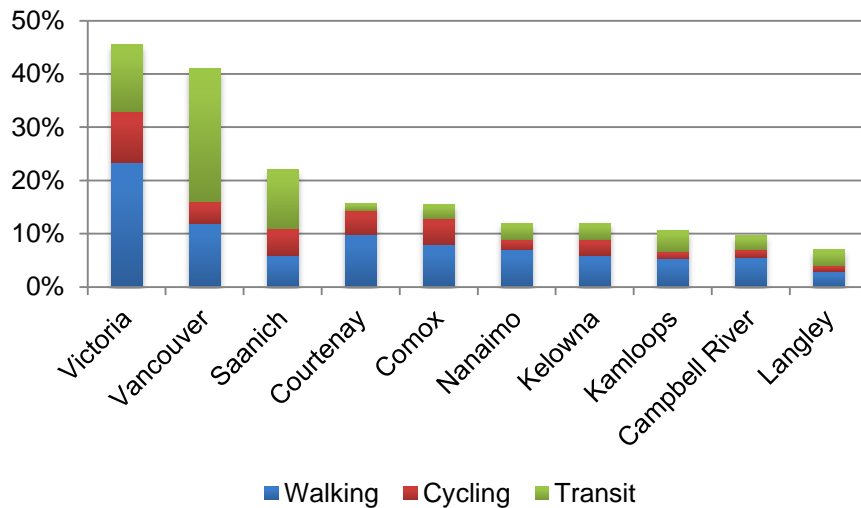
Source: Statistics Canada, 2006 Census



In comparison with the top ten largest cities in British Columbia, Nanaimo's walking mode share is second highest, after Vancouver. However, Nanaimo's cycling and transit mode shares are fairly low in comparison, as can be seen below in **Figure 4.5**.

Figure 4.5: British Columbia Mode Share Comparison

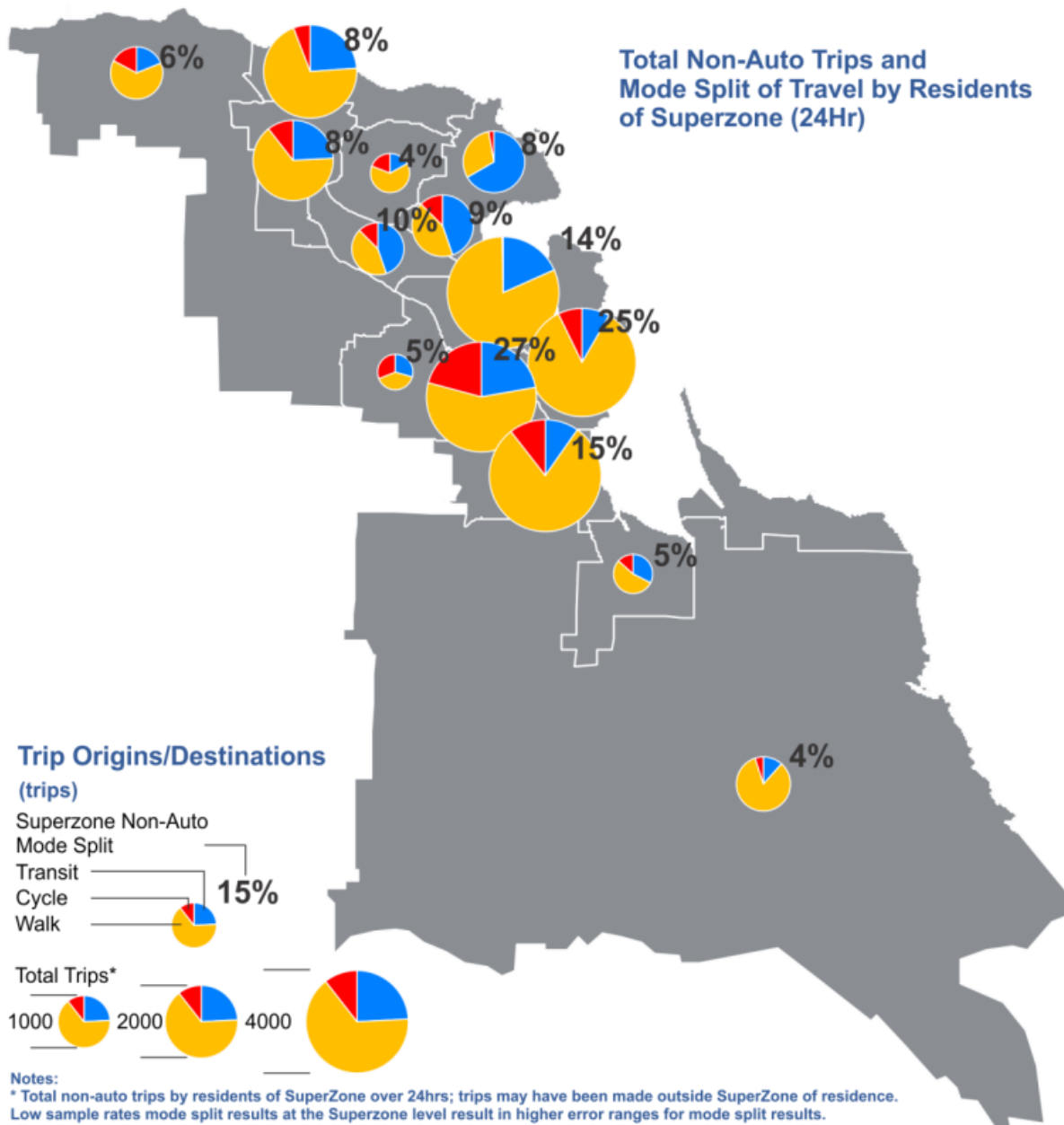
Source: Census 2006



In general, areas of Nanaimo that have a higher land use mix, including services, employment, and residential neighbourhoods see more daily trips being generated, as shown in **Figure 4.6**. These areas of high trip activity include the Woodgrove area in North Nanaimo, and the Downtown and surrounding neighbourhoods such as Brechin and Newcastle. In particular, Downtown and surrounding neighbourhoods generate the majority of non-automobile daily trips in the Nanaimo (transit, walking, and cycling), as well as residents adjacent to Woodgrove who represent a significant amount of sustainable trip making activity. For transit use in particular, the On-Board Transit Survey found that neighbourhoods of Townsite, City Centre, Harewood, and Vancouver Island University had some of the highest transit use in Nanaimo. In general, where people live influences how far they travel and what mode they use to access employment, goods, and services. For example, residents of rural areas and from neighbourhoods at the edge of the City travel more, and have a greater impact on the road network.

Figure 4.6: Sustainable Trip-Making Patterns in Nanaimo

Source: Household Travel Survey



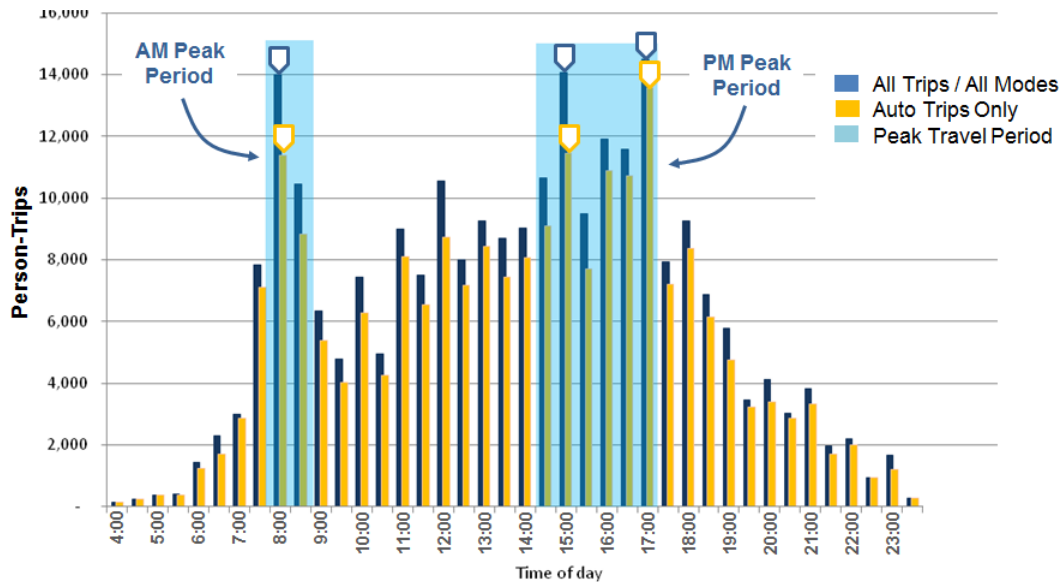
4.1.3 Travel by Time of Day

The Household Travel Survey analyzed the total daily trips in Nanaimo taken by time of day. As shown in **Figure 4.7**, clear travel peaks emerged in the morning peak from 7:30 – 8:30, dominated by trips taken to go to school and work. In the afternoon, two travel peaks were clear at 3:00 pm (coinciding with the end of the school day) and at 5:00 pm (coinciding with the end of the work day) – which together create an extended afternoon travel peak from 2:30 – 6:00 pm. Captured within this time is the busiest travel hour of the day in Nanaimo of 4:30 - 5:30 pm which accounts for over 26,000 trips of 10% of the total daily trips in the City. Together, these two afternoon travel peaks capture 36% of all the daily trips taken within the City

with the later peak exhibiting a trend towards greater automobile use than in the afternoon/morning peak when greater student travel occurs.

Figure 4.7: Distribution of Travel in Nanaimo in a 24-Hour Period

Source: Household Travel Survey



4.1.4 Trips by Age Group

The Household Travel Survey also identified trips by age cohort. It was found that age has a significant impact on daily trip activity, with the age demographic of 35-54 years responsible for the majority of daily trips. For those over the age of 55 years old, trips rates are high but shift away from morning travel, to more mid-day and afternoon/evening travel. Those less than 17 years old were primarily making trips as an automobile passenger. The results also illustrated that as one ages, the likelihood of being a car driver increases, while the likelihood of being a car passenger remains similar throughout all ages. The results of the Household Travel Survey also illustrated that most non-automobile trips are happening around Downtown and Vancouver Island University, and many of these trips are made by youth, young adults, and seniors (see **Figure 4.8** and **Figure 4.9**).

Figure 4.8: Daily Trip Rate by Age Group

Source: Household Travel Survey

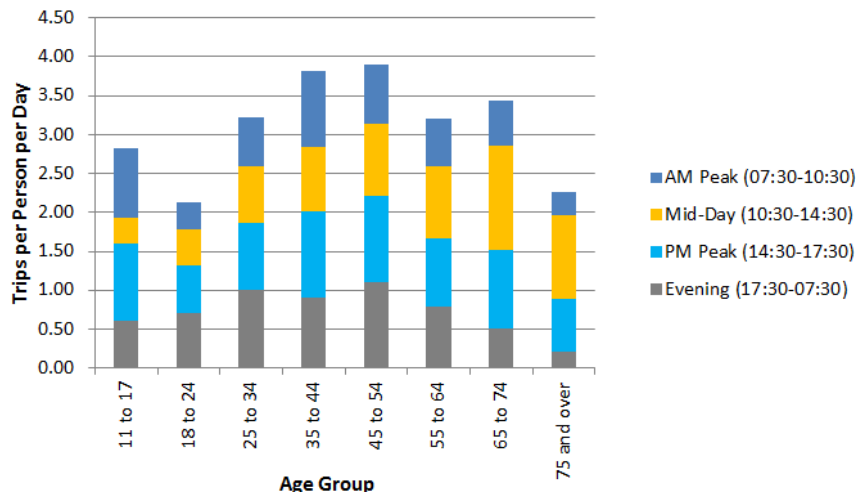
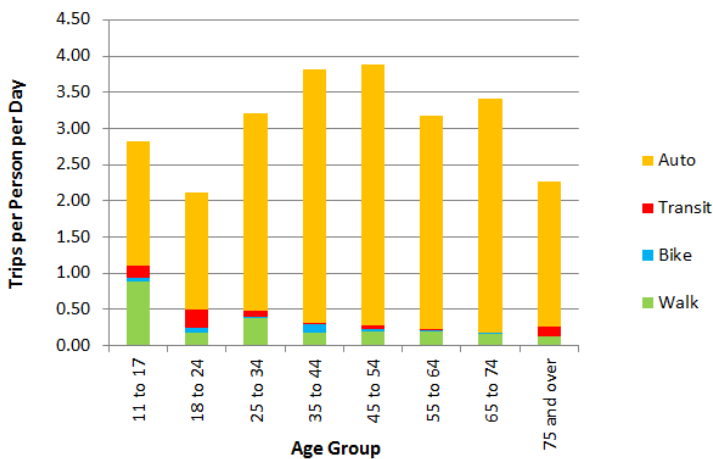


Figure 4.9: Mode Split by Age Group

Source: Household Travel Survey



For transit, the On-Board Transit Survey indicated that Nanaimo’s transit passengers are predominantly young and ‘transit-captive’. In all, just over 60% of transit riders surveyed did not possess a driver’s licence with 75% reporting that a vehicle was unavailable for their use. The 18-24 demographic made up 40% of all riders, reflecting the fact that trips to/from VIU make up much of Nanaimo’s transit demand. Only 28% of system users surveyed were above the age 34. The vast majority of transit users (nearly 70%) earn less than \$30,000 per year, while transit usage among higher income earners is negligible. Interestingly, there is a significant gender imbalance in transit ridership with females making up nearly two-thirds of all transit riders (64%).

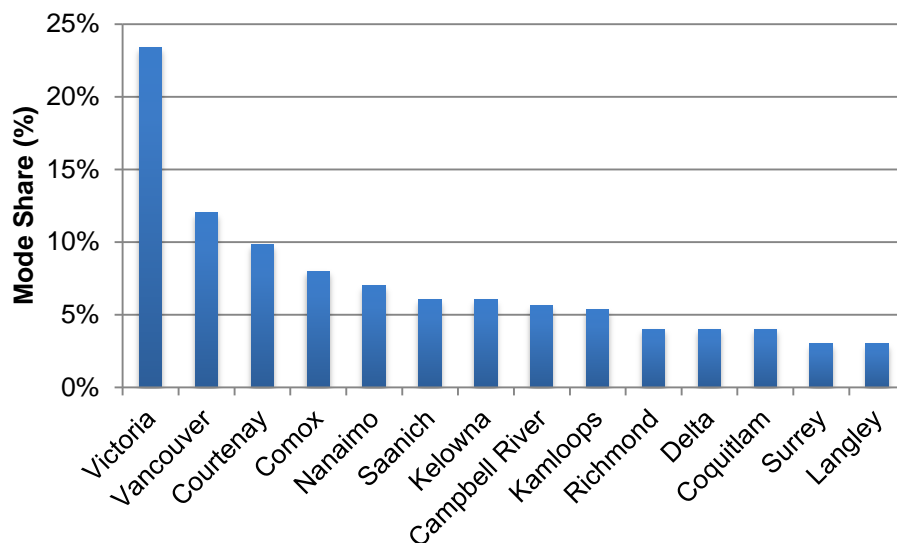
4.2 Trip Characteristics

The Household Travel Survey also reported on detailed travel patterns for walking, cycling, and transit, which are described in further detail below.

4.2.1 Mode Share

- Walking:** According to the 2006 Census, 7% of commute trips to work are by walking. In comparison with the ten most populated municipalities in British Columbia, Nanaimo has the second highest mode share for walking trips to work. According to the 2012 Household Travel Survey, which includes all trips over 24hrs versus just work commute trips, 8% of daily trips in Nanaimo are made by walking, which represents over 20,000 daily trips.

Figure 4.10 Walk Mode Share (Commute to Work) Comparison with Similar Size Communities (Census 2006)



- Cycling.** According to the 2006 Census, 1% of commute trips in Nanaimo are made on bike, while 2% of daily trips are made on bicycle, according to the Household Travel Survey.
- Transit.** According to the 2006 Census, approximately 3.5% of Nanaimo residents commute to work by public transit. When compared with a peer grouping of BC municipalities, Nanaimo has a similar transit mode share to Kelowna (3%) and Langley (3%), and a greater transit mode share than Abbotsford (1%). Municipalities within large metropolitan regions such as those within the Capital Region District and Metro Vancouver tend to have more transit infrastructure and higher transit mode shares.
- Driving.** According to the 2006 Census, 88% of commute trips in Nanaimo are made by car. Similarly, the Household Travel Survey reports that 86% of daily trips (for all purposes) are made by private vehicle. As such, Nanaimo residents are currently traveling a lot by car.

4.2.2 Trip Activity

- **Walking Activity.** The area with the most amount of walking activity in Nanaimo is Downtown and the University area, with 21% and 15% respectively of daily trips in these areas made by walking. The dense mix of land uses in Downtown, and the high number of students living in university residence likely contributes to the high amount of walking trip activity in these areas. In addition, the areas of Hospital/Townsite and Harewood / South End, which are also high density areas, have a sizable proportion of non-auto trips with 11% and 12% of trips made by walking.
- **Transit Activity.** The On-Board Transit Survey revealed passenger boarding and alighting locations. Overall, the four main areas within which riders boarded and alighted Nanaimo buses were VIU (21%), City Centre (19%), Dover – Woodgrove Mall (17%) and Long Lake – Country Club Mall (12%), activity that is largely concentrated around transit exchanges. These four locations made up over two-thirds (69%) of total boarding and alighting locations for respondents across all routes.

4.2.3 Trip Purpose

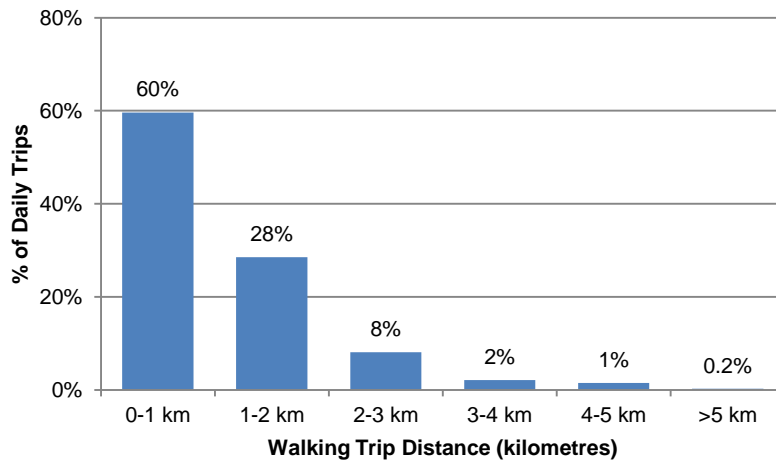
- **Walking.** 50% of walking trips are made to and from work and returning home. 10% of daily trips are for going to and from school, followed by 34% of trips made for other reasons stated, such as personal business, recreation, social reasons, and so on.
- **Cycling.** In general, the majority of bicycle trips in Nanaimo are made for trips going to and from home, for personal errands, and recreation.
- **Transit.** The On-Board Travel Survey revealed that commuting to work or school is the purpose of most Nanaimo transit trips, followed by shopping.

4.2.4 Trip Length

- **Walking trips.** The majority of daily walking trips in Nanaimo are 1 km or less in distance, with 50% of daily walking trips less than 800m. Almost the remainder of all walking trips are less than 2 km in length, indicating that overall, most walking trips in the community are short, local trips.

Figure 4.11: Daily Walking Trips by Distance

Source: Household Travel Survey



- **Cycling trips.** The average bicycle trip length is 2 km, which is approximately a 10-minute bicycle ride. The majority of bicycle trips are local and short trips– with almost 90% of cycling trips less than 4 km in length.
- **Transit trips.** The Household Travel Survey found that the average transit trip length is 5.5 km, indicating longer trips similar to cars, with fewer short trips.
- **Driving trips.** Driving trips have a large range of lengths, and many car trips are relatively long distances, likely due to land use patterns and the linear nature of the community. However, many car trips are short, with approximately 60% of car trips less than 4 km, and some less than 1 km. These trips in particular could be replaced by walking, biking, or transit trips, provided these were an attractive and convenient option.

In general, walking and cycling are dominated by short, local trips typically under 1-2 km in length. Transit and driving trips range in distance, but trend towards longer trips (i.e. 4 km and over). **Figure 4.12** illustrates the distributions of trip lengths by driving, cycling, and walking. **Figure 4.13** demonstrates average trip length by neighbourhood, indicating strongly that where one lives strongly influences how far trips are to access employment, goods, and services. Residents of rural neighbourhoods and areas at the edge of the City travel more and have a greater impact on the road network.

Figure 4.12: Trip Length by Mode

Source: Household Travel Survey

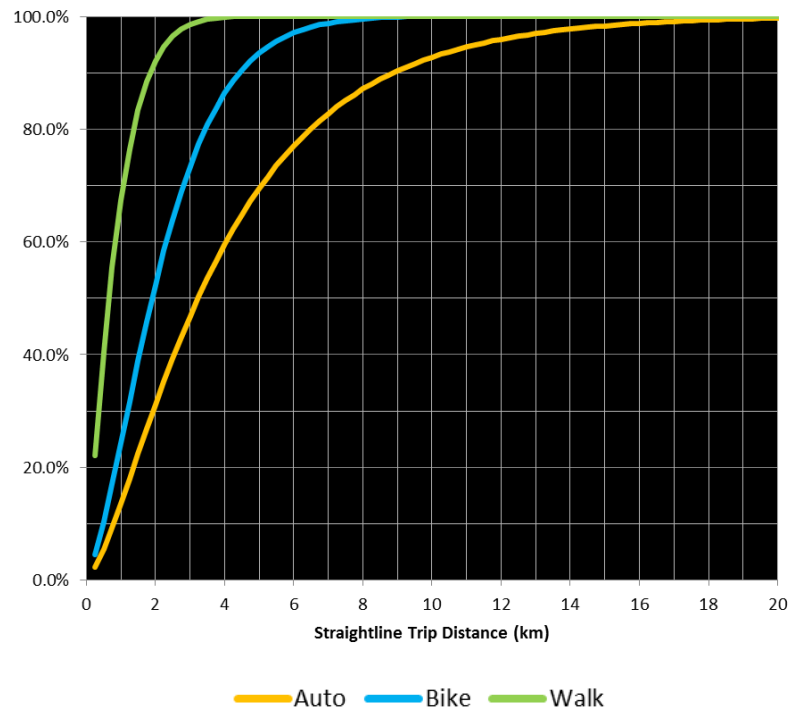
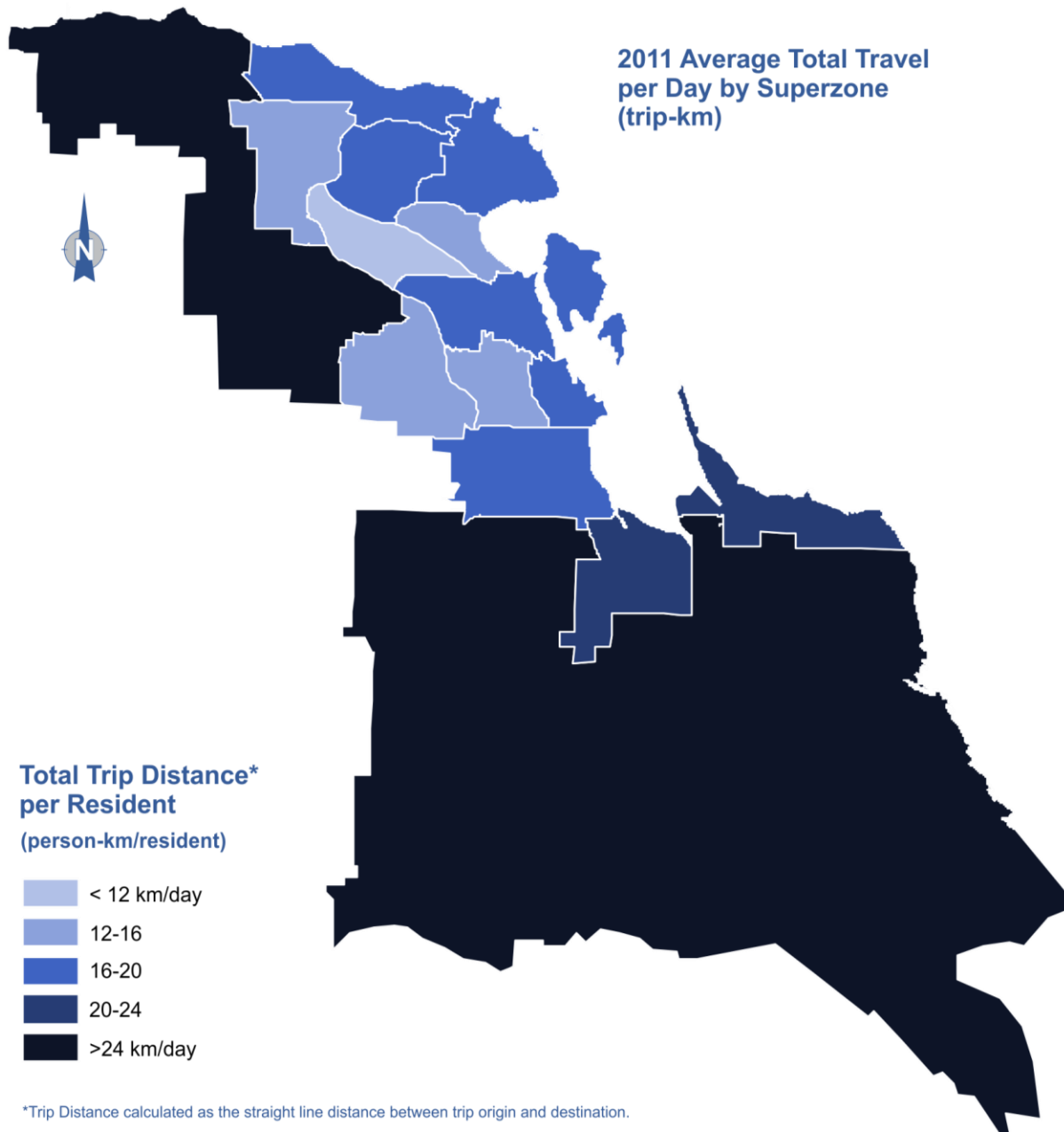


Figure 4.13: Trip Length by Neighbourhood

Source: Household Travel Survey



5.0 Walking

Walking 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. Promoting walking can help reduce automobile dependence and greenhouse gas emissions, improve public health outcomes and help to create more liveable and vibrant communities.

Within many older neighbourhoods (Downtown, Newcastle, Harewood, Townsite, Hospital), the grid road network pattern supports a high level of connectivity for pedestrians. In general, it is these areas with mixed use development and high levels of residential development that are typically associated with higher levels of walking. While pedestrians enjoy high connectivity throughout the Downtown and surrounding residential neighbourhoods, there remain gaps in the sidewalk network due to barriers presented by the highway corridors, steep grades, competing demands for road space, and a lack of pedestrian facilities in certain areas.



In particular, Nanaimo is primarily made up of low-density developments with little mixture between land uses, with long distances between destinations that create barriers to walking. Densification and mixed-use development can create more destinations for residents to walk to while improving the pedestrian environment with better sidewalks, lighting, street furniture, crossings and traffic calming measures can make walking more enjoyable, encouraging residents to walk longer distances and more often.

5.1 Policy Context

Nanaimo's Official Community Plan has clear mobility objectives for walking. At a broad level, the OCP seeks to improve mobility through the creation of urban nodes and corridors. This entails targeting future growth on these areas to create areas with a concentration of population and land use mixes, that will make walking a more viable option to automobile travel. Further, walking policies within the OCP focus on the development of a more comprehensive system of pedestrian routes, and integrated and safe walking environments. The policies of the Plan seek to integrate pedestrian infrastructure into new developments, and create walking routes that are connected to open spaces and parks, schools, transit stops, and major community destinations.

These themes of connected, integrated, and safe walking routes also emerge through several other Nanaimo community plans, such as the Downtown Plan, which has a clear emphasis on making the Downtown attractive for pedestrians, through comfortable and convenient connections, and a high quality pedestrian environment. Similarly, many of the City's neighbourhood-specific plans (i.e. Departure Bay, Newcastle + Brechin, South End) emphasize walkability, safe crossings, and sidewalk connectivity.

Trails also play a prominent role in City's directions for walking, with the City's Trail Implementation Plan focuses on developing the trail system to provide connectivity and alternative transportation options for

residents and visitors, connecting to all areas of the City. Likewise the Parks, Recreation, and Culture Master Plan, identifies a continued public interest in Nanaimo for trail developing linking key areas of the City, as this increases accessibility and supports healthy lifestyle and transportation choices.

5.2 Recent and Planned Projects

The City has developed a comprehensive Sidewalk Evaluation and Prioritization Program which assesses and prioritizes new sidewalk construction throughout the City based on a range of criteria. The key data inputs to the process include:

- Estimated level of pedestrian activity generated by surrounding land uses, transit stops, community facilities, schools and other pedestrian generators.
- Typical traffic operating speeds and volumes.
- Existing walking facilities.
- Consideration of vulnerable road users such as seniors and children.
- Access to schools.
- Coordination with other capital or repaving projects.

However, although this is a comprehensive methodology, it has only been applied to sidewalks that have been requested by residents or identified as issues, and has not been systematically applied throughout the City.

This process has been used to prioritize sidewalks that have been constructed over the past several years as well as sidewalks that are currently funded in the City's five year plan, as described in further detail below. In many cases improvements to transit stops, cycling facilities, pedestrian crossings, street lighting and roadway geometry are made concurrently with sidewalk projects; resulting in a better road for all users.

Improving Pedestrian Crossings. While sidewalks are an important part of the pedestrian network the improvement of road crossings and crosswalks are also a priority for the City. This is particularly true as most pedestrian collisions occur at intersections or during crossings of the roadway. To address these issues smaller targeted *Pedestrian Facility* projects may use such tools as curb extensions (shortening the crossing distance and improving visibility), flashing warning beacons, improvements to lighting, traffic calming, traffic signals and count-down timers to make it safer for pedestrians to cross streets. In many cases these projects provide benefits to other road users as well.

Recently completed sidewalk projects between 2010-2012 include sidewalk installation and improvements along corridors such as Hammond Bay Road, Departure Bay Road, Wallace Street, Fourth Street and Norwell Drive. Some of the sidewalk projects were completed as part of road rehabilitation projects, while others were stand-alone sidewalk improvements. These sidewalk improvements improved mobility through a variety of purposes, including as infill work, improving connecting between Vancouver Island University and Downtown, improvements to the central business district, to better delineate pedestrian facilities and access, and to create more separation between parked vehicles and pedestrian area.

Between 2010 and 2012, the City constructed 2.8km of new sidewalks, including improvements for cyclists and transit users at a cost \$1 million. In addition, the City completed the Bowen Road Bridge Project improving another 1.2km of sidewalks as part of this large capital project.

Over the same period, the City also undertook 20 pedestrian facilities crossing improvement projects with a value of \$246,000. On average, over the last three years the City spent about \$400,000 developing

about 1km of new sidewalks per year (excluding Bowen Rd), improving pedestrian crossings and where possible improving conditions for cyclists and transit users.

Table 5.1: Sidewalks Constructed Between 2010-2012

Street	From	To	Year Completed	Length (m)	Estimated Cost
Hammond Bay Rd	Kenwill Dr	Emil Pl	2010	700m	\$237,380
Fourth St	Wakesiah Ave	Harewood	2011	730m	\$240,000*
Harewood Road	Fourth Street	Fifth Street	2011	650m	\$175,000*
Bowen Road	Buttertubs Dr	Pryde Ave	2011	1200m	\$420,000
Departure Bay Rd	Rock City School	Newton St	2012	500m	\$209,500*
Wallace St	Fitzwilliam		2012	50m	\$30,000*
Norwell Dr	Island Highway North	Departure Bay Rd	2012	115m	\$126,000*
Total Sidewalks			2010-2012	3,945m	\$1,437,880
Total Pedestrian Crossing Improvements			2010-2012		\$246,000
Total			2010-2012		\$1,683,880

Planned sidewalk projects that are currently planned as part of the 5-Year Plan for 2013-2017, include improvements to sidewalk segments along Hammond Bay Road, Wakesiah Avenue, Dover Road, Bowen Road, and Victoria Road. These planned projects involve a range of treatments, including installing sidewalks where there is currently a paved or gravel shoulder, filling in missing sidewalk gaps, enhancing safer school travel routes, and improving intersection safety and access to transit stops.

Between 2013 and 2017, the City has funding in place for 13 new sidewalk projects with a total length of 4.1km and cost of \$1.5 million over the next five years. In addition, the City also plans to invest \$687,000 in pedestrian crossing improvements. On average over the 5 year term of the current capital plan expenditures on sidewalks and pedestrian crossing improvements are projected at \$429,000/year, resulting in development of 0.8km of sidewalk per year.

Table 5.2: Sidewalks Currently Planned Between 2013-2017

Street	From	To	Year Planned	Length (m)	Planned Cost
Dover Rd	Applecross Rd	Uplands Dr	2013	210	\$63,000
Strathmore St	Boundary Ave	Hallen Ave	2013	110	\$55,000
Hammond Bay Rd	Toms Turnabout	Dunn Pl	2013	480	\$144,000
Bing Kee Rail Crossing	Railway Ave	View St	2013	300	\$132,000
Bowen Rd	Buttertubs Dr	Cemetery	2014	1000	\$309,000
Rosstown Rd	Pheasant Terr	Sun Valley Dr	2014	70	\$34,000
Wakesiah Ave	Foster St	Fourth St	2015	170	\$46,000
Boundary Cres	Townsite Rd	Dufferin St	2015	460	\$139,500
Townsite Rd	Boundary Cres	Boundary Ave	2015	250	\$75,000
Departure Bay Rd	Uplands Dr	Rock City Rd	2016	250	\$74,000
Victoria Rd	Needham St	Rainer St	2016	400	\$197,000
Hammond Bay Rd	Overlook Dr	Piper Cres	2017	480	\$140,000
Pine S	Fourth St	Albion St	2017	180	\$52,500
Total Sidewalks			2013-2017	4,110	\$1,461,000
Total Pedestrian Crossing Improvements			2013-2017		\$687,000
Total			2013-2017		\$2,148,000

5.3 Key Issues & Opportunities

To help understand existing transportation issues and opportunities, the first phase of the NTMP included two open houses, one stakeholder workshop, and an online survey, that was available to the public from October - November 2012. Survey respondents and attendees of the open houses and workshop were asked to identify the top transportation issues or challenges facing Nanaimo today or in the future. Commonly identified walking issues emerged throughout the feedback, with key themes summarized below:

- **Lack of sidewalks and pathways** make for a fragmented and disconnected walking network.
- **Poor quality, uneven, and inaccessible sidewalks** make for uncomfortable walking conditions, and can be problematic for seniors and those using wheelchairs and strollers.
- **More priority and space for pedestrians** to improve the comfort of the walking environment.



- **Unsafe crossings or lack of crossings**, including in the Downtown and the Harewood area, were cited as a concern by respondents. There was a stated need for more crosswalks and pedestrian-activated signals.

Opportunities to improve pedestrian facilities that were identified throughout the feedback included:

- **Improved sidewalk network**, with more complete sidewalks provided in Fairview, Harewood, the University area, and Hammond Bay.
- **More walkable areas**, including safe route to school treatments, and more attractive and pedestrian friendly streetscapes, within neighbourhoods and Downtown.
- **More short-cuts and neighbourhood connections** were identified, which could make walking trips shorter, and more convenient and time-competitive with other modes.
- **Well maintained and high quality sidewalks** that are more comfortable to use.
- **Better street and trail lighting** for pedestrians using on and off-street routes.
- **More separation between pedestrians and vehicle traffic**, including wider sidewalks, more barrier landscaping, and more separated pathways/trails.

5.4 Pedestrian Inventory & Assessment

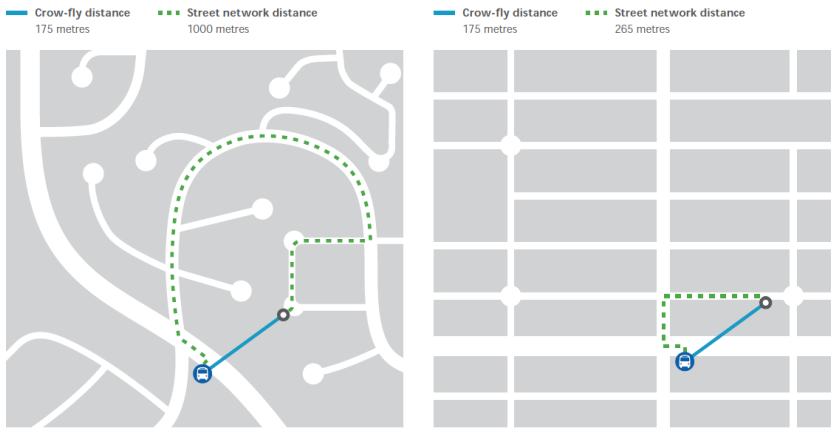
- **Existing Sidewalks.** Currently there are 350 km of sidewalks in Nanaimo. Approximately 40% of all City streets have sidewalks on at least one side of the street. As part of new development, sidewalks are required on all streets except in industrial areas.

Concrete sidewalks are standard in the City new construction with asphalt used along roads not yet completed to their ultimate cross section and thus are considered temporary in nature. Concrete sidewalks are common throughout the Downtown and new, recently developed, neighbourhoods. Many sidewalks are located on arterial or collector roads within the community, and as such, there is relatively good connectivity between arterial and local streets for pedestrians. However, many local roads within Nanaimo lack sidewalk facilities. As part of new development, sidewalks are generally required on all streets except in industrial areas.

Table 5.3: Existing Sidewalk Coverage by Road Classification

Road Classification	0 Sidewalks	1 Sidewalk	2 Sidewalks	Total 1 or 2 sidewalks
Provincial Highway	86%	3%	11%	14%
Arterial	27%	17%	56%	73%
Major Collector	21%	48%	31%	79%
Minor Collector	44%	34%	22%	56%
Commercial Road	32%	37%	31%	68%
Industrial Road	95%	4%	1%	5%
Neighbourhood Collector	51%	31%	18%	49%
Local Road	75%	8%	17%	25%
Total	62%	18%	20%	38%

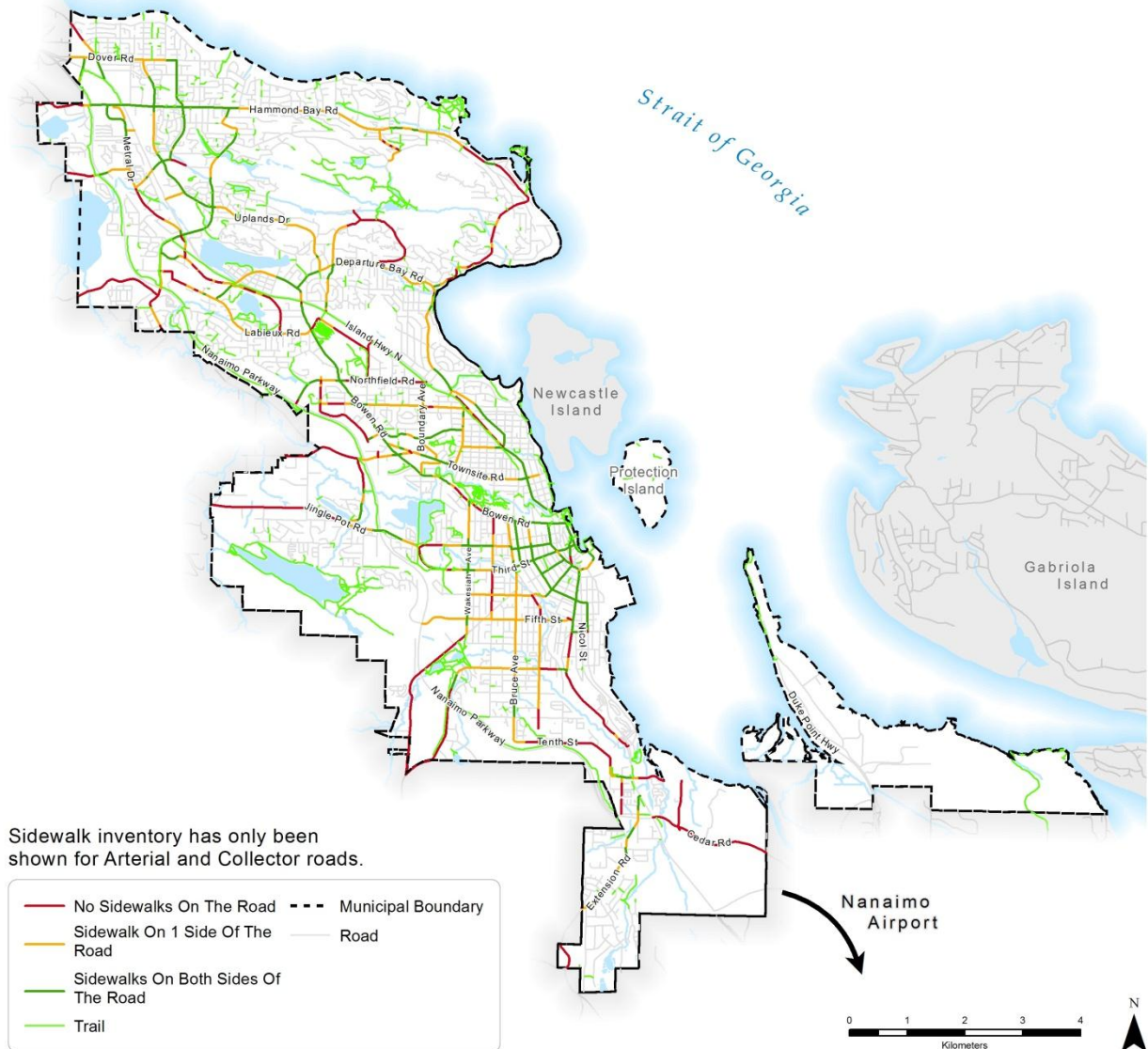
- Network Connectivity.** Pedestrian connectivity is often high in areas such as Downtown, with a road network that has a strong, continuous grid pattern. The logical and interconnected layout of these street networks is generally easy to navigate, and provide numerous route options to destinations. However, in suburban or rural settings can often be challenging due to a lack of alternate through roads and the concentration of motor vehicle traffic on arterials. As demonstrated in the image below, the ‘loop and lollipop’ street patterns commonly found in many suburban housing developments decrease pedestrian connectivity (Image source: TransLink).



- Trail Network.** The City Nanaimo has a number of trails and pathways, including major multi-use trails such as Harbourfront Walkway, the Parkway Trail, and the E&N Trail. Nanaimo’s 130km trail network is comprised of both hard and soft-surface trails. Many trails serve as important components of the pedestrian and cycling network. In general, hard surface trails are used for popular routes with a diverse array of users such as pedestrians, cyclists, rollerbladers, and commuters. Many trails do not have lighting and thus are less effective travel routes during the evening or afternoon in winter months.
- Accessibility.** One of the key challenges to accessibility is the lack of sidewalks or paved shoulders, the lack of curb ramps at intersections, or curb ramps that are not designed to be accessible. Many accessible features such as tactile pavers, curb ramps, and pavement surface quality may not be noticeable to many people, but if not in place may act as a significant deterrent for those with mobility challenges. Within the trail network, the major routes such as the Harbourfront Walkway, the E&N Trail, and the Parkway Trail are all universally accessible due to hard surfacing. Some parts of trails with soft surface also have some accessible areas for people with physical disabilities. As the City’s population ages providing good quality walking infrastructure will become more important. Design

standards (i.e. for roads, curbs, and sidewalks) are an important tool to enhance accessibility, and can provide detailed guidance on the nuances of infrastructure design that can remove and prevent barriers for people with disabilities.

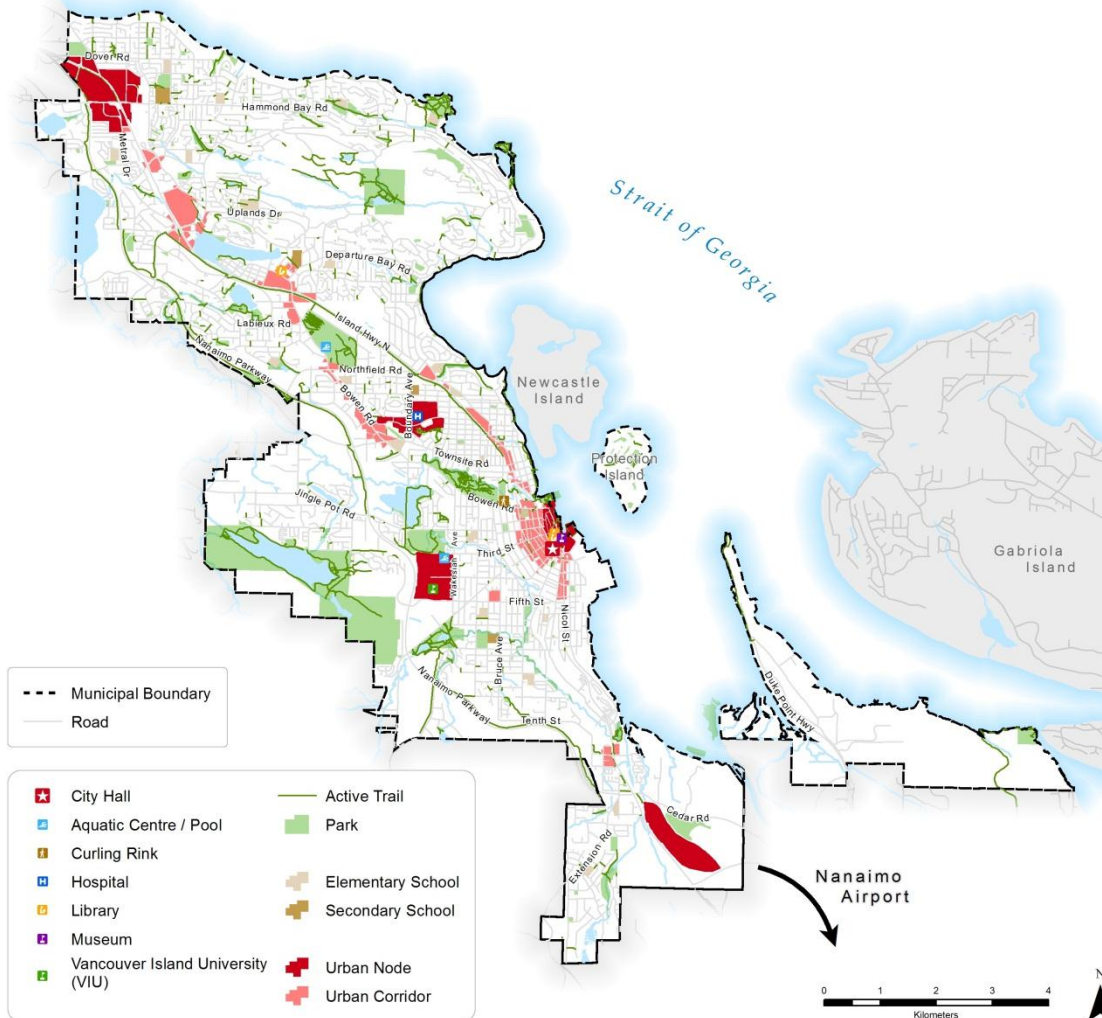
Figure 5.1: Sidewalks on 1 or 2 Sides of the Street (Arterial and Collector Streets only)



- **Pedestrian Generators.** Key pedestrian generators, such as commercial areas, institutions, schools, parks, and transit facilities are located throughout Nanaimo, as can be seen below in **Figure 5.2**. Major pedestrian generators include the many Downtown civic destinations such as the City Hall, the library, museum, transit exchange, as well as the dense mix of retail and commercial areas, including the Port Place Mall. In addition, the Woodgrove Centre and North Town Centre commercial and shopping areas along North Island Highway. Vancouver Island University in central Nanaimo and Southgate Mall are also pedestrian generators. Transit exchanges are also pedestrian hubs, including the Woodgrove Exchange, Country Club Exchange, and Prideaux Street Exchange. In addition, Nanaimo has several elementary, middle, and high schools, many of which are adjacent to community

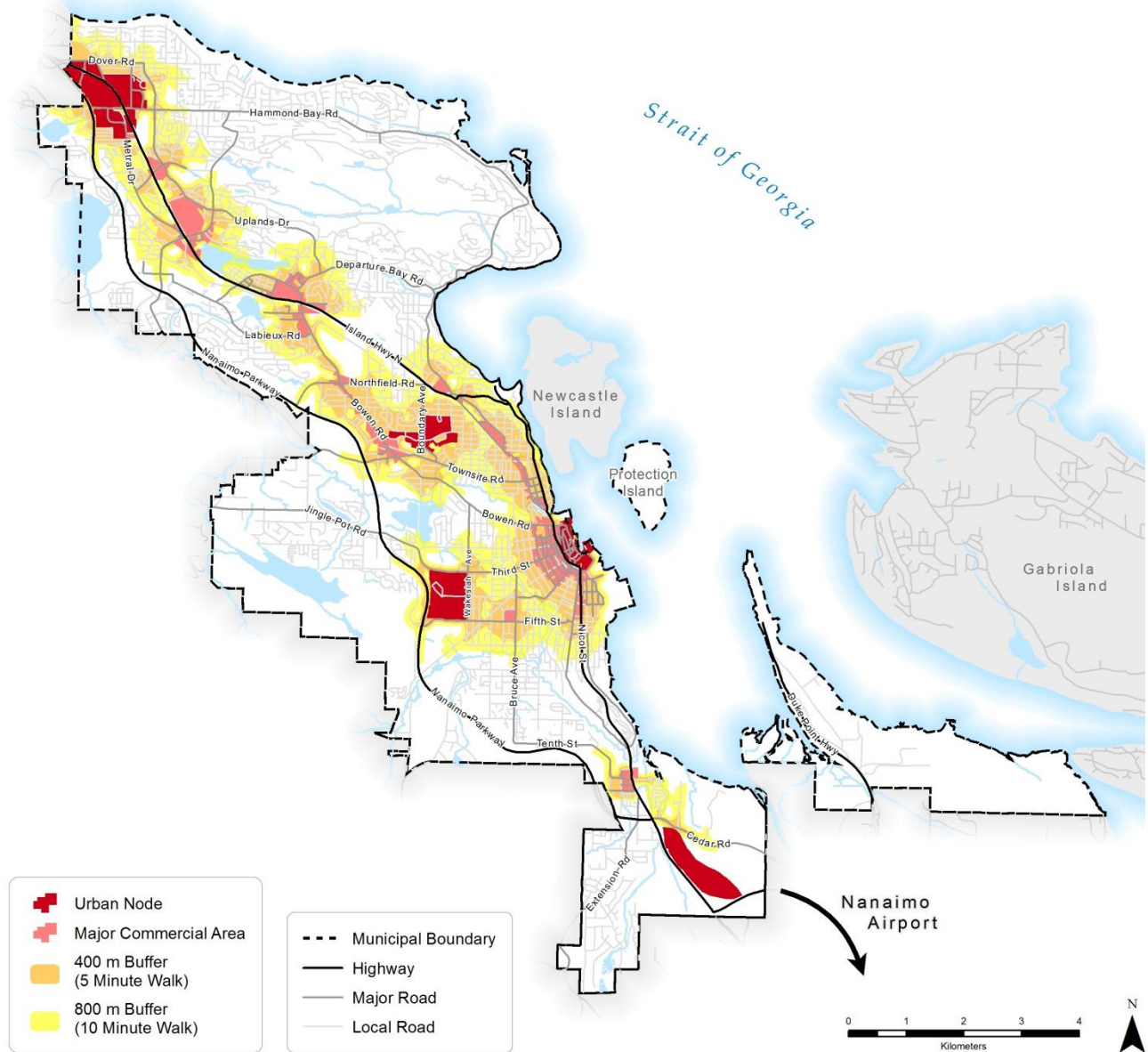
parcs. These parks and schools generate considerable pedestrian traffic in the surrounding residential neighbourhoods.

Figure 5.2: Key Pedestrian Trip Generators



- **Pedestrian Walksheds.** Figure 5.3 shows pedestrian walksheds in Nanaimo, modelled on walking distance from the Urban Nodes identified in planNanaimo. This map highlights areas of the community that are within a 400-800 metres (approximately 5-10 minute walk respectively) radius of key commercial zoned properties in Nanaimo. As is apparent, neighbourhoods within short walking distance of the commercial hubs are found mainly in the downtown core, in Country Club, and in the Woodgrove area.

Figure 5.3: Pedestrian Walksheds from Urban Nodes



- **Topography.** Physical challenges are presented by areas of steeper topography and can act as a significant deterrent to many pedestrians. Most of Nanaimo has rather favorable topography that is likely not a barrier to many pedestrians or cyclists. However, Nanaimo has several areas with steeper slopes, particularly in the north end (between Departure Bay and Hammond Bay Roads and along the North Slope), south and east of Westwood Lake, along the Chase River, and in the southern Cinnabar Valley region. In addition, hilly areas tend to have more circuitous road networks that increase trip lengths.

- The Safer School Travel Program is an electronic web-based tool the City promotes to support Parent Advisory Committees in developing a School Road Safety Plan. The goal of the program is to assist every elementary school in Nanaimo to create their own School Road Safety Plan, which addresses:
 - Identification of all issues in the walk/cycle limits of a school;
 - Strategies for all modes of transportation;
 - Vehicle reduction initiatives; and
 - Engineering, education and enforcement.

To date, several elementary schools in Nanaimo have participated in the program and developed safer school walking maps, including Bayview Elementary, Claire Elementary, Coal Tye Elementary, McGirr Elementary, Quarterway Elementary, and Forest Park Elementary. The City is currently working to update and simplify the process to encourage greater participation. A portion of sidewalk and pedestrian facility spending is targeted to improve walking access to schools.

6.0 Cycling

Supportive cycling infrastructure contributes to promoting physical activity, public health, reduced greenhouse gas emissions, and it also increases mobility options within a community. Developing a safe and comprehensive bicycle network along with supporting education, communication and promotional programs is an important way to support healthy lifestyles and to recognize the positive environmental aspects of cycling as a viable and attractive mode of transportation. With appropriate facilities, cycling can be time-competitive with both automobiles and transit, particularly over short-to-moderate distances during peak travel periods.

The backbone of Nanaimo's existing cycling network is multi-use pathways. In particular, the E&N Trail efficiently connects a number of major commercial and residential centres along the length of the City, including Downtown while the Trans-Canada Trail and Parkway Trail provide connectivity to VIU. The cycling network also includes on-street routes, primarily in the form of shared routes and paved shoulders. In many cases the quality and type of cycling facility can vary significantly along on-street routes. In addition, there are gaps in the bicycle network in certain areas, and lack of connections to many neighborhoods and major destinations. Working off the current network of on and off-street facilities, the City will explore how to expand and improve upon this existing network to enhance bicycle use in Nanaimo.



6.1 Policy Context

The City has three main overarching documents currently in place to guide the development of bicycle routes and trails, which are the Official Community Plan, the Trail Implementation Plan, and the Bicycle Facility Design Guidelines. The OCP provides reflects community-wide aspirations for cycling through several cycling-specific policies. These OCP policies are targeted at increasing the amount of safe on and off-street bicycle infrastructure and routes, development of a comprehensive way finding system in place, promotion of end-of-trip facilities in private developments, and more bicycle education and awareness programming. The OCP also speaks to urban corridor and node development as a way to promote cycle-friendly areas, and to developing a trail system that supports cycle travel for commuting, recreation and tourism purposes. The Trail Implementation Plan further builds on developing a comprehensive trail system that supports safe cycling for these purposes, with connections between the trails and on-street bicycle facilities. Much of this Plan alludes to building trails and on-street infrastructure as per the Bicycle Facility Design Guidelines which provides guidance on the planning, design, and maintenance of on and off-street facilities. The Guidelines focus on the bicycle infrastructure treatments of marked wide curb lanes, shared routes, bicycle lanes, and multi-use pathways. Guidance is also provided on crossing treatments, end-of-trip facilities, and signage and pavement markings. **The Nanaimo Transportation Master Plan seeks to provide updated bicycle facility design guidelines that reflect current**

knowledge and trends in bicycle planning and identify a long term cycling network to guide future investments.

6.2 Recent & Planned Projects

Recent projects include a bicycle lane on Fourth Street (constructed 2012), which improves connections for cyclists between Downtown and Vancouver Island University. The bike lane was installed alongside road and sidewalk improvements. In coordination with sidewalk improvements along Hammond Bay and Departure Bay Roads bicycle friendly shoulders were installed to allow separation between cyclists and motorists.

Planned projects include improvements along Bowen Road, Dover Road, Albert Street, Bruce Street, Boundary Avenue, and Strathmore Street. These planned improvements will involve creating dedicated space and facilities for bicycles, such as bicycle lanes and shoulders.

6.3 Key Issues & Opportunities

The City distributed a survey, held two open houses, and hosted one stakeholder workshop to gather input and feedback on issues and opportunities. In regards to cycling, respondents identified the top bicycle-related issues or challenges facing Nanaimo today and in the future. Commonly identified issues emerged throughout the feedback, with key themes are summarized below:

- **Lack of dedicated bicycle facilities**, with cyclists often required to share the road with motorists
- **Limited network coverage**, with areas of the community lacking bicycle routes or facilities.
- **Limited network connectivity**, with a need for safer, more connected bicycle routes
- **Unsafe roadways** due to traffic volumes and speeds, such as Hammond Bay Road, Terminal Avenue, and Bowen Road.
- **Way finding**



Based on the feedback from the survey and public consultation activities, residents indicated that cycling in Nanaimo could be improved by providing the following:

- **More bicycle network coverage and connectivity**, including in south Nanaimo, Harewood, Hammond Bay, Downtown, and around Vancouver Island University.

- **More bicycle lanes and paved shoulders**, to separate cyclists from other road users
- **Separated bicycle lanes** to further separate cyclists from traffic, and to increase safety.
- **More multi-use trails**, including an extension of the E&N trail and more general recreational trails.

6.4 Bicycle Inventory & Assessment

- **Existing Bicycle Infrastructure** The bicycle network in Nanaimo is structured primarily through a series of multi-use pathways shared routes and paved shoulders. Trails such as the Parkway Trail, E&N Trail loop, and the Harbourfront Walkway are some of the primary facilities for cyclists in Nanaimo, as they provide cross-community connections. In addition, the City has on-street bicycle routes, paved shoulders, and more planned bicycle lanes.

- **E&N Trail.** This multi-purpose paved trail runs adjacent to the former E&N rail line, and is one of the most popular trails in Nanaimo, stretching 8 km from Rosehill Avenue in the south to East Wellington in the north. The trail connects to the waterfront and Downtown Nanaimo, as well as schools and shopping areas throughout the community. As such, the E&N Trail is used by commuter and recreational cyclists.

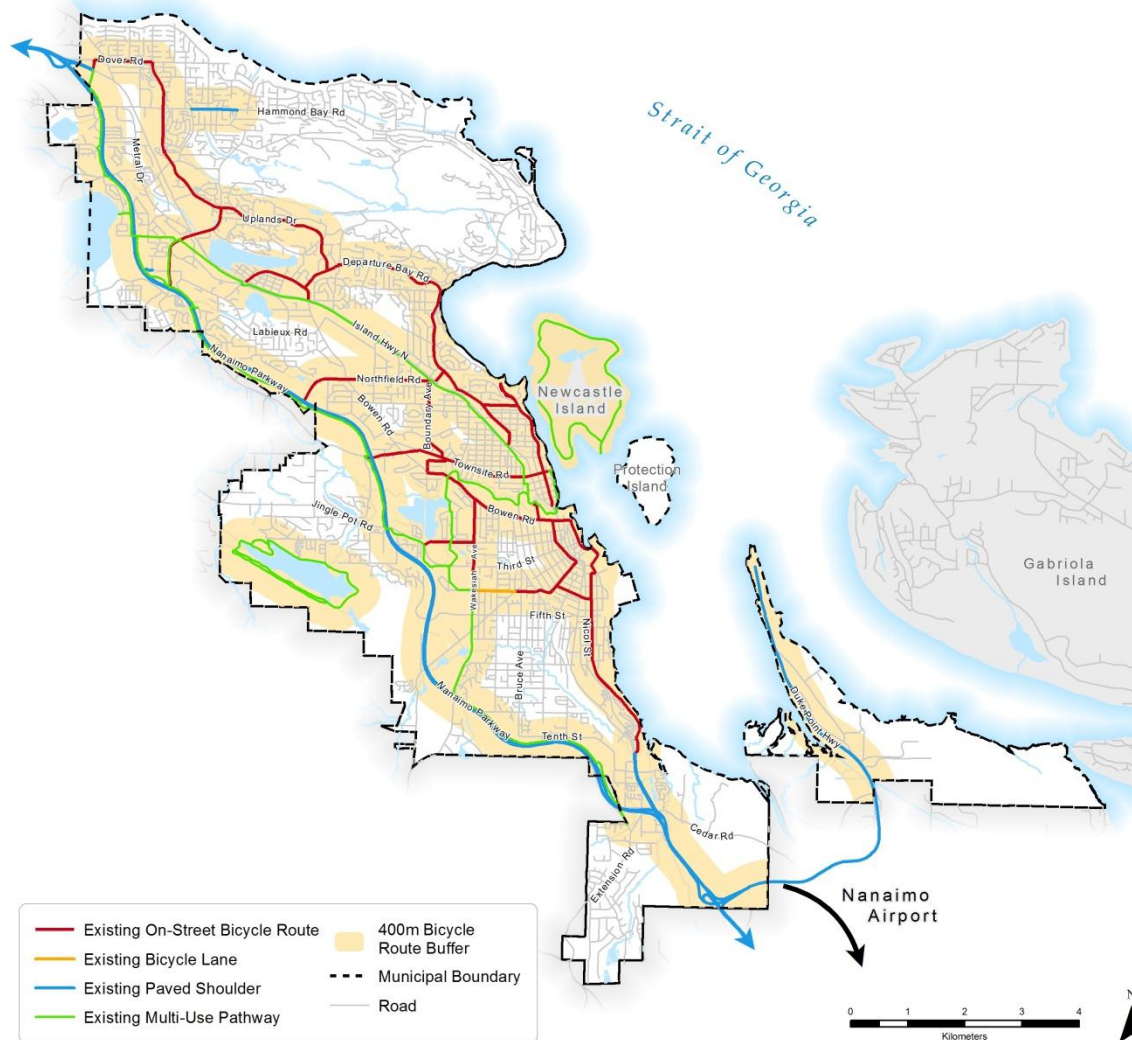


- **Parkway Trail.** A paved multi-use trail that runs adjacent to the Parkway Highway. This provides access to key community recreational areas and amenities, such as Colliery Dam, Morrell Sanctuary, Westwood Lake, Buttertubs Marsh, Bowen Park, Millstone River and Harbourwide Walk. It also provides access to and from the Vancouver Island University grounds.
- **Harbourfront Walkway.** A waterfront paved pathway along Newcastle Channel and the Downtown waterfront. Popular with many different kinds of users, cycling is allowed in some locations.
- **Altrusa Park \ Beban Park** have paved trails where families and children can cycle in safe environments.
- On-street routes such as on **Bowen Road, Departure Bay Road, Wakesiah Avenue** have shared lanes in many sections.
- The **Fourth Street bicycle lane** was installed in 2012, and is a 1.5m wide dedicated facility, 750m in length, forming part of connection between Downtown and Vancouver Island University. It is the first of four proposed projects along the Fourth/Albert Street Corridor to improve cycling facilities between VIU with Downtown.
- In conjunction with sidewalk improvements the City has developed cycling friendly shoulders on sections of Hammond Bay Road and Departure Bay Road.

The bicycle network in Nanaimo is comprised of:

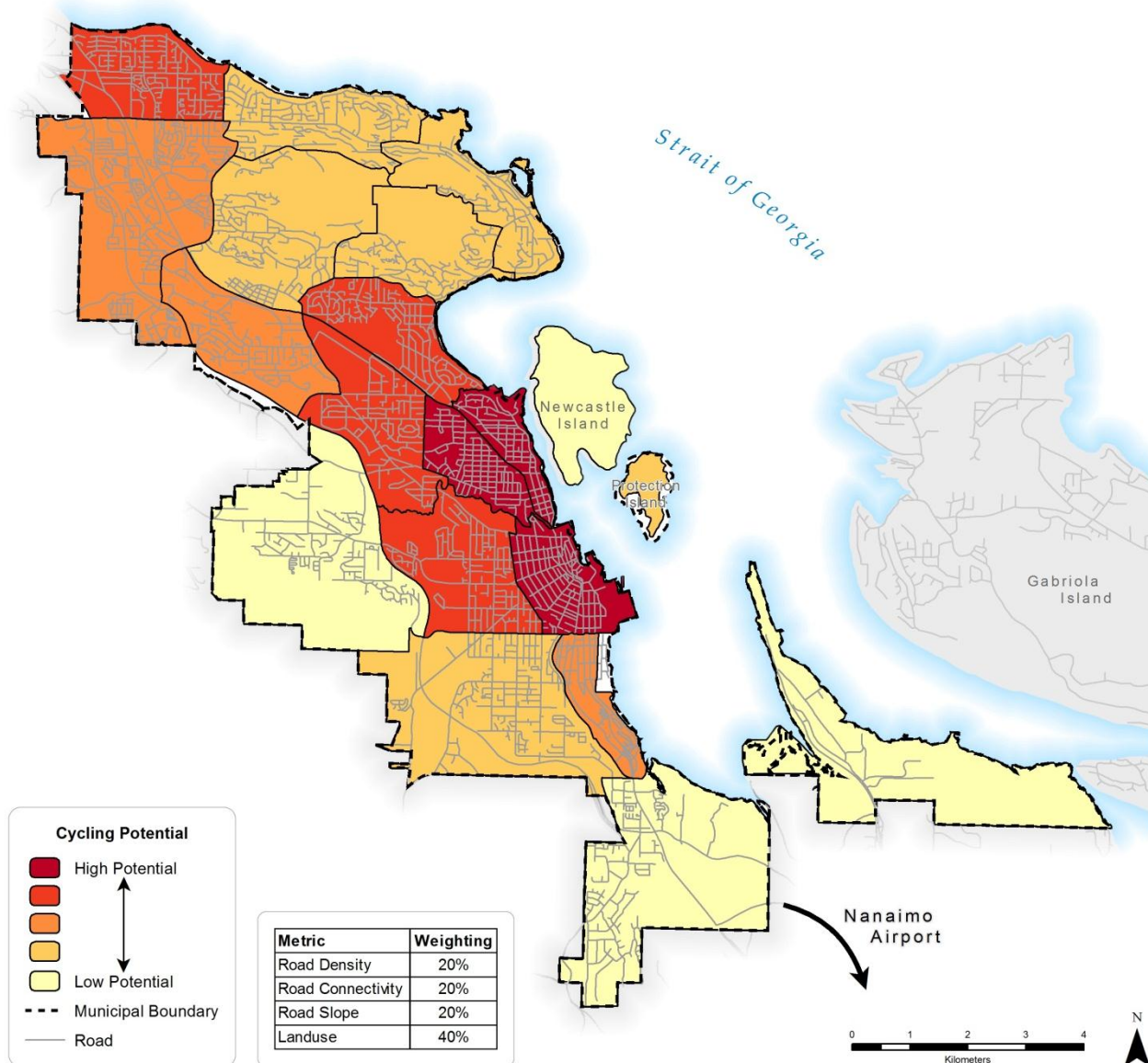
- 50 km of multi-use pathways
- 40 km of on-street shared routes
- 60 km of paved shoulders (largely along Highway 19 / the Parkway)
- <1 km of bicycle lanes

Figure 6.1: Existing Bicycle Network



- **Cycling Potential.** An analysis of Nanaimo’s land use characteristics, such as road density, road connectivity, topography, and degree of land use mix can provide an understanding of what areas of Nanaimo are more likely to support cycling activity. As shown in **Figure 6.2** Downtown and the Hospital and Townsite neighbourhoods have the greatest potential to attract cycling activity, primarily indicating the short cycling distances in these areas between neighbourhoods, services, and amenities. Areas around VIU also have the potential for higher cycling use due to significant student populations.

Figure 6.2: Areas of Cycling Potential in Nanaimo



- **Regional Integration.** The paved shoulders of the Trans-Canada Highway connect cyclists between Nanaimo outwards to adjacent communities, such as Ladysmith and Parksville. In addition, via bicycle routes out to Duke Point and Departure Bay Ferry, and with RDN busses equipped with bike racks, cyclists are able to make regional connections outside of the City of Nanaimo. In coordination with the District of Lantzville and the RDN extension of the E&N Trail north and south of the City is also planned.
- **Facility Types.** Currently, the City has a combination of off and on-street bicycle facilities. There are off-street bike routes, which can consist of a paved or unpaved pathway that is physically separated from traffic, and shared between different active transportation users (i.e. E&N Trail). There are on-street bike lanes or shoulders, such as those on Nanaimo Parkway. The majority of on-street routes

are shared travel lanes with signs and markings and the majority of off-road routes are unlit and have limited utility past sunset.

- **Transit Integration.** BC Transit low-floor busses are equipped with bicycle racks, with a limit of two per bus. The bicycle rack service is designed to assist longer commuters on a first-come first-served basis. There is no extra charge to bring a bike on the bus.
- **Topography** The generally rolling topography found in much of the City is conducive to cycling. However, there are some areas with steeper slopes, particularly in north Nanaimo, such as on Departure Bay Road, parts of Uplands Drive, Mostar/Rutherford Road and areas above Hammond Bay and in the Linley Valley.



- **End-of-trip Facility Requirements.** The City of Nanaimo's Zoning Bylaw does not require bicycle parking for buildings, however for buildings where additional density is permitted, the provision of bicycle parking, is stated as an amenity requirement in order for development to include additional density. Within the amenity category of "Parking and Pedestrian Connectivity", developers can opt to provide covered and secure bicycle storage. The requirements under this provision are at least 1 bicycle space provided per 2 dwelling units in multi-family residential developments, and 1 bicycle per 250m² for non-residential developments.
- **Support Programs.** The City of Nanaimo has supported cycling behaviour through initiatives including
 - Participating in the Bike to Work celebration
 - Supporting Bike to School week.
 - In conjunction with the Regional District of Nanaimo, the City published a dual purpose cycling and transit user map (as shown below in **Figure 6.3**), showing locations of trails, bicycle routes, family friend routes, steep hills, parks, and places of interest.

Figure 6.3: City of Nanaimo Bicycle User Map



7.0 Transit

Public transit is an important alternative to automobile travel in Nanaimo. For those who do not drive or don't have access to an automobile, transit is often the only option for longer distance trips to jobs, school, shopping, and recreation. As the distance between many important destinations within the City is significant; transit service is an essential part of many residents' travel options.

BC Transit and the RDN are responsible for the provision of transit in Nanaimo and the Regional District. The regional transit system provides service from Cedar in the south to Deep Bay in the north, including Nanaimo, Lantzville, Parksville, Qualicum Beach and surrounding rural areas. However, due to Nanaimo's size and urban character, the majority of service and ridership occurs within Nanaimo. The transit system fleet contains both conventional bus service as well HandyDART custom transit services.

Transit accounts for approximately 3.5% of all commute trips in the City of Nanaimo. Two-thirds of all transit trips are commuting to work or school (including Vancouver Island University). Altogether, the transit system in Nanaimo typically carries over 9,500 people per day.

Transit services in Nanaimo are planned and operated by the RDN, with support from BC Transit. City staff work with the Regional District and BC Transit on matters influencing current and future services as representatives of the community. In this regard, the NTMP provides the City with an opportunity to examine the role of transit within a multi-modal framework to support and shape land use patterns and other City goals and objectives.



7.1 Policy Context.

There are several overarching transit planning strategies that guide the direction of transit service development in Nanaimo and the surrounding region. As mentioned previously in Section 3.0, the 2008 RDN Transit Business plan was developed as a ten year plan, to guide transit service planning and delivery in the Nanaimo region. The longer-term Transit Future Plan currently under development will identify improvements and priorities for the transit system over the next 25 years. Both the NTMP and Transit Future plan should work together to provide overarching guidance on improving and strengthening regional transit service and infrastructure within Nanaimo.

7.2 Recent Projects

The 2008 Nanaimo Regional Transit Business Plan sets out a number of short and medium-term improvements, with a ten year planning horizon. **Table 7.1** summarizes the project improvements set out in the Plan. Many short term improvements and some medium term improvements have been completed as of 2012. In addition to these improvements, the Plan also recommends a number of custom transit improvements, namely increased HandyDART service, as well as increased Taxi Saver and Taxi Supplement.

Table 7.1: Summary of Proposed and Completed Transit Improvements

Short- Term Improvements (2009-2010)			
	<i>Route</i>	<i>Improvement Description</i>	<i>Status</i>
S1	Route 5-Fairview Route 6-Harewood	30-minute peak period service	Not complete
S2	Route 90-Intercity Connector Route 10- Lantzville	Additional peak period trips	90 – Complete 10 – Incomplete
S3	Routes 8-South & 9-North	30 minute peak period service	Complete
S4	Earlier morning start		Not Complete
S5	Route 2-Hammond Bay	Restructuring, including improved service to the Departure Bay ferry terminal	Not Complete
S6	New route: Hammond Bay to Hospital and Malaspina		Not Complete
S7	Route 7 Cinnabar/Cedar	3 additional trips per day	Complete
S8	Route 15	Extend to South Parkway Plaza (60-minute service)	Not Complete
S9	Extend Route 3-Hospital to Woodgrove		Complete
S10	Route 90-Intercity Connector	60-minute daytime service & increased evening service	Complete
Medium-Term Improvements (2011-2018)			
M1	Bus Rapid Transit Phase 1	15 min peak/30 min midday, evening, & weekend service	Not Complete
M2	Extend BRT to Malaspina UC		Not Complete
M3	Parksville & Qualicum Beach:	60 minute local service	Partially complete
M4	Downtown-Departure Bay-Country Club Shuttle		Complete
M5	Route 5-Fairview Route 6-Harewood	30-minute midday & Saturday service	Not complete
M6	Route 1-Woodgrove, Route 2-Hammond Bay Route 3-Hospital	15-minute peak period service	
M7	Routes 10-Lantzville	60-minute service	
M8	Route 7-Cinnabar/Cedar	Increased service frequency	
M9	Increased Evening Service		
M10	Route 15-VIU Connector	Increased service frequency	
M11	Route 90-Intercity Connector	30-minute peak period & 60-minute evening service	
M12	Route 44-Malaspina UC	10-minute peak period frequency	
M13	Bus Rapid Transit Phase 2	15-minute weekday service	
M14	Route 7:Cinnabar/Cedar	30-minute peak period service	

7.3 Key Issues & Opportunities

Through the NTMP consultation residents identified transit issues and challenges facing Nanaimo today and in the future. Commonly identified issues that emerged throughout the feedback, with key themes summarized are below:

- **Infrequent service** especially during the evenings and weekends, where schedules involve long transit headways. Many people commented that infrequent service was problematic for those taking

transit outside the standard 9-5 working day. Infrequent transit service was cited as making driving a more appealing option than taking transit.

- **Slow bus travel times** reduce the competitiveness of transit, and make driving a more appealing transportation option.
- **Unreliable service** including busses not staying on schedule, with passengers waiting longer than anticipated at stops and missing transfers.
- **Underserved areas** including Duke Point, the Airport, South Nanaimo (Cinnabar and Chase River) and outer rural areas.
- **Bus times not integrated with the BC ferry schedule** at Departure Bay terminal.
- **Bus stop conditions**, such as the need for shelters and accessible bus stops.
- **Better regional connections** are needed to nearby communities Parksville, Lantzville, Ladysmith, and Duncan.
- **Improved service and U-Pass fares** for Vancouver Island University students.



Based on the feedback from the survey and public consultation activities, residents indicated that transit in Nanaimo could be improved by providing the following:

- **Improved scheduling and frequency** especially outside of peak hours
- **Improved connections to key destinations** such as Downtown, Vancouver Island University, the ferry terminals, recreation centres.
- **Improved route coverage** to underserved neighbourhoods, such as the South end

- **Better passenger amenities** such as bus stops with shelters and lighting
- **Rapid transit options** to connect Nanaimo to nearby communities.

7.4 Transit Inventory & Assessment

- **Types of transit services.** Both local and regional transit service operate within the City. The majority of routes are local operating within the City of Nanaimo and nearby outlying areas. Additionally Route 90, an intercity connector links Nanaimo with Parksville and Qualicum Beach to the north and the limited stop Route 15 connects VIU to Woodgrove via Highway 19.

There are a variety of different service types that are aligned with transit markets in the Nanaimo area.

- **Local service** provides fixed-route local area service within Nanaimo and to nearby areas using low floor standard 40-foot buses.
- **Regional service** connecting Nanaimo with Nanoose, Parksville, and Qualicum Beach via Highway 19 is provided by Route 90 – Intercity Connector.
- **Handy DART** provides door-to-door custom transit service for people with physical or cognitive disabilities who are unable to use the conventional system without assistance.
- **Transit facilities.** The City's transit services are centred around four primary transit exchanges. Nanaimo's four primary exchanges are as follows:
 - **Prideaux Street Exchange:** Located Downtown Nanaimo, this exchange is the system's dominant anchor. The Prideaux Street Exchange serves routes to the south, north and west and is the southernmost node along Nanaimo's dominant north-south transit axis.
 - **Woodgrove Centre Exchange:** Located at the northern end of the City next to a dominant regional shopping centre, Woodgrove Centre Exchange is the system's northern anchor and is the northernmost node along Nanaimo's north-south transit axis. Woodgrove Centre provides interconnection with services to Lantzville, Qualicum Beach and Parksville.
 - **Country Club Mall:** Located mid-way between Prideaux Street Exchange and Woodgrove Centre at a significant shopping complex, Country Club Mall is the mid-point in the City's dominant north-south transit axis.
 - **Vancouver Island University:** The VIU campus, located west of Downtown, is served by four routes. Direct connections link the exchange to the other three major exchanges.

- Network Structure.** Nanaimo’s north-south transit spine extends from Cedar in the south through Prideaux Street Exchange (Downtown), Country Club Mall, and Woodgrove Centre. Many local routes connect two or more of these focal points, with most routes north of Downtown oriented north-south. The primary segment of the north-south transit axis runs along or parallel to Island Highway from Downtown to Country Club Mall, then along Island Highway, Uplands Drive or Labieux Road/Mostar Road/Metral Drive to Woodgrove Centre Exchange. Additional routes connect the Downtown with either Country Club Mall or Woodgrove Centre Exchange via Hammond Bay or the Hospital.



Route 4 provides a direct connection between Prideaux Street Exchange, VIU and Country Club Mall. Additional routes connect Downtown and the University more circuitously via the inner neighbourhoods close to Downtown and the VIU. Route 15 is a direct north-south service connecting VIU with Woodgrove Exchange to the north via the Parkway.

The Departure Bay Ferry Terminal is accessible by bus, served by over 60 scheduled bus stops daily during the week. Service is also planned to connect the Departure Bay Ferry Terminal with Country Club and Downtown. The Gabriola Island ferry terminal is well served by transit connections as the terminal is located in the Nanaimo Harbour (in Downtown). There is no transit service provided to the Duke Point Ferry Terminal.

- Route coverage.** General transit planning guidance suggests that most people are willing to walk 5-6 minutes (approximately 400 metres) to access frequent local stop transit service. Nanaimo’s transit route coverage generally provides transit service within a reasonable walking distance to many Nanaimo residents, as most developed areas of the City are within 400 metres – less than a five minute walk – from a bus route.

Nanaimo’s bus network provides connections to most major community destinations including Downtown, the VIU campus, the Nanaimo Aquatic and Ice Centre, Cinnabar, Cedar, and most major shopping centres (including Downtown, Country Club, and Woodgrove). One major destination and transportation hub that is not served by bus transit is the Duke Point ferry terminal. Bus network coverage is shown in **Figure 7.1**.

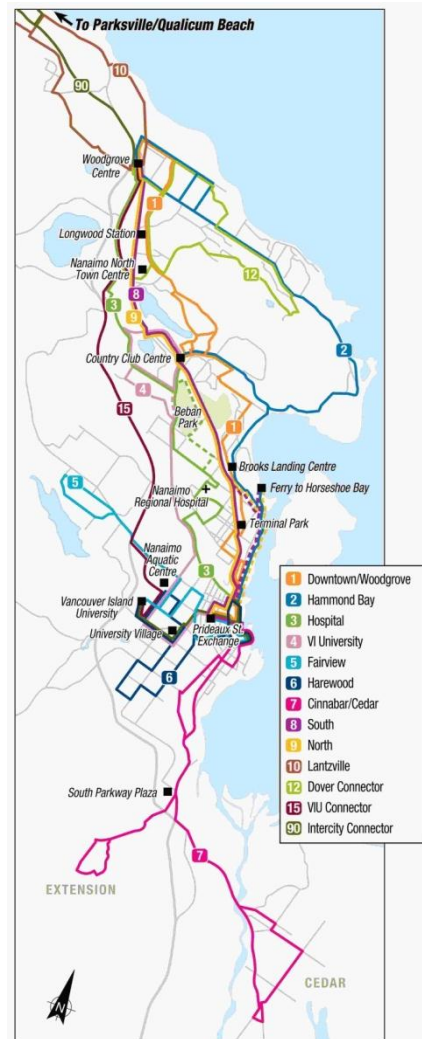


Figure 7.1: Bus Network and Coverage

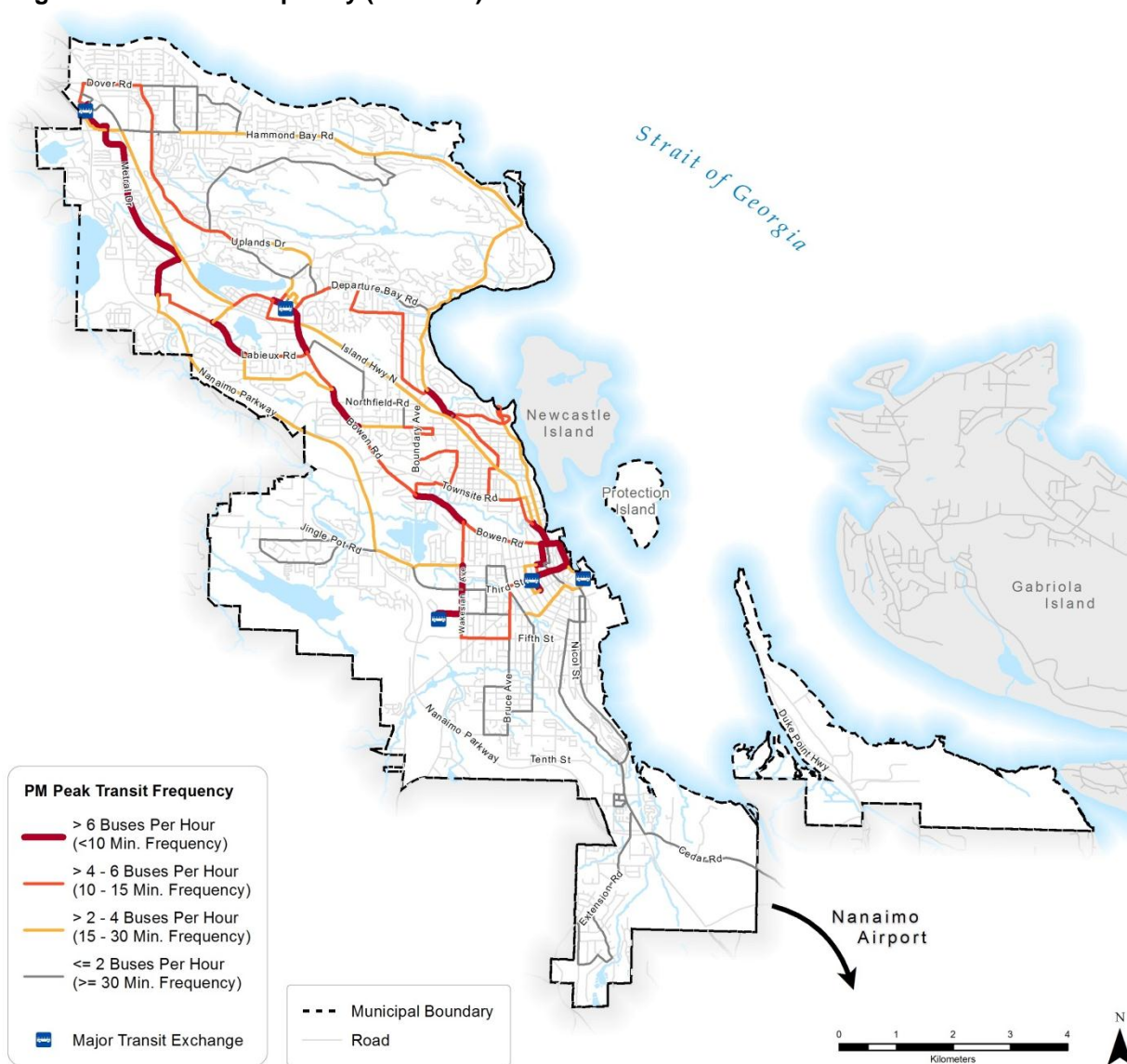
- Service Frequencies.** The frequency of transit service plays an important role in encouraging people to take transit. Although bus service in Nanaimo is provided seven days a week, with regular bus service typically beginning early in the morning and continuing until the late evening, the frequency of transit service on many Nanaimo bus routes is relatively low. An analysis of transit headways - a term used to describe the amount of time between transit vehicles – highlights the variation in service frequencies in Nanaimo. For example, Route #2, the only route serving the Hammond Bay area, has transit headways of 20 – 30 minutes during morning (AM) and afternoon (PM) peak periods. However, Nanaimo also has higher frequency transit routes, such as Route #1, which serves the Downtown, the Country Club Centre, and Woodgrove Centre with 15 – 30 minutes headways during peak periods and 30 – 60 minute headways during off-peak periods. Route #4 (V.I. University) which operates between the Country Club Centre and the University, also provides higher frequency service with headway ranges of about 15 minutes during the AM peak period, and 20 minutes during the PM peak period.

At the corridor level, several corridors along the primary north-south transit axis connecting Downtown with Woodgrove Centre operate with PM peak service headways of 15 minutes or better. This includes the Bowen Road, Labieux Road, and Metral Drive corridors on the west side of Island Highway and portions of Uplands Dr to the east. Main corridors connecting VIU and Prideaux Street Exchange similarly operate with PM peak headways of 15 minutes or better. In addition, Island Highway, Hammond Bay Road, and Nanaimo Parkway operate with PM peak headways of 15-30 minutes. Routes south of Downtown typically operate with PM peak headways of greater than 30 minutes. **Table 7.2** and **Figure 7.2** below show transit headways and frequency on Nanaimo transit corridors.

Table 7.2: Summary of Typical Transit Headways (minutes)

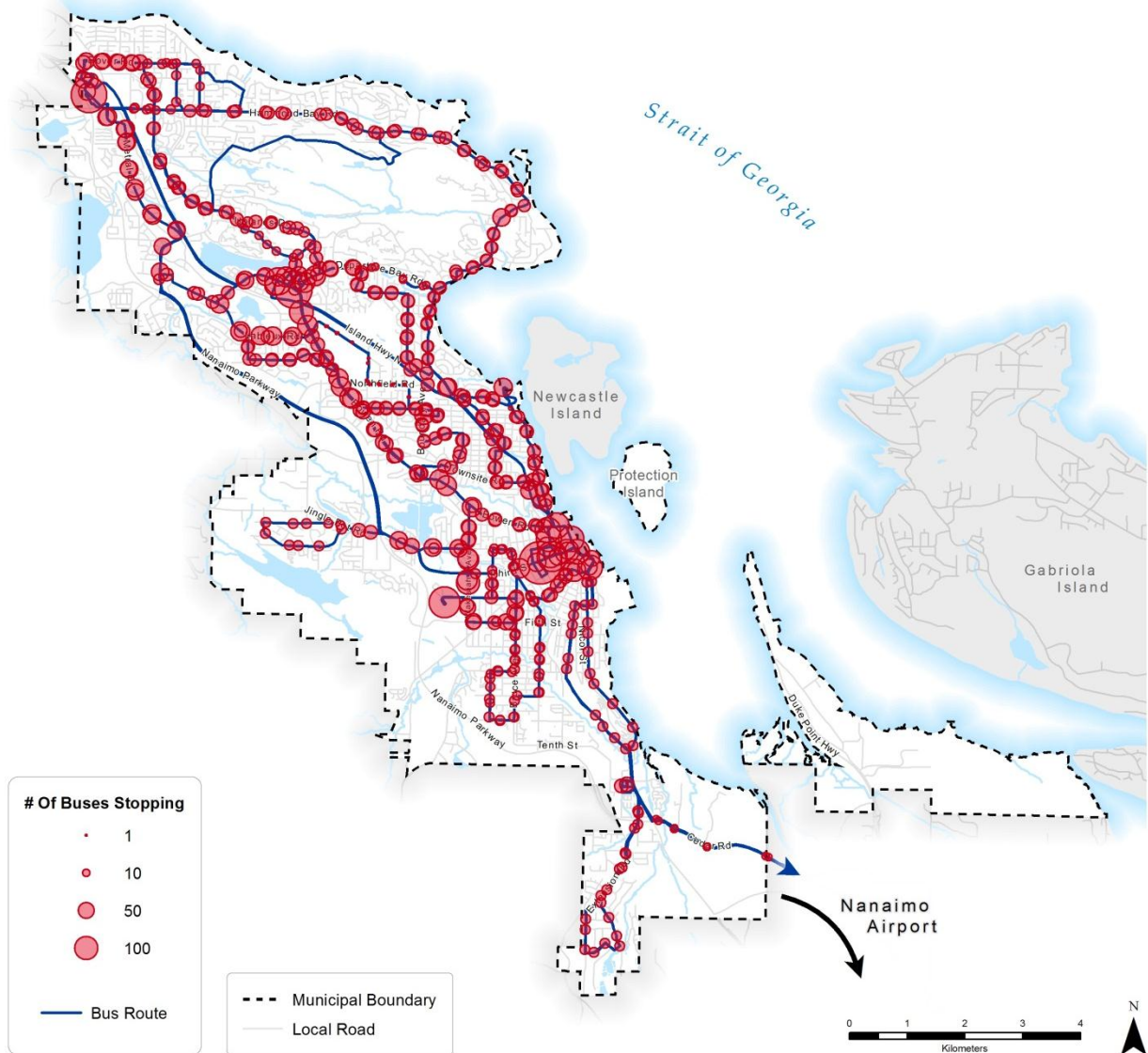
Route	Description	AM Peak	Mid	PM Peak	Eve.	Late Eve.	Sat	Sun/Hol
1	Downtown/Woodgrove (East-Central Routing)	20	30	15-30	40-60	60	30	70
2	Downtown/Woodgrove (Hammond Bay)	30	30	30	60	60	30	70
3	Downtown/Woodgrove (Hospital/West-Central)	20	30	20	30-60	60	30	70
4	Downtown / University / Country Club	20	30	20	30-60	60	30	70
5	Downtown / Fairview	35-70	70	70	60	-	70	70
6	Downtown/University (Harewood)	20-30	70	70	60	60	60-70	70
7	Downtown/Cinnabar/Cedar	70	70	30-45	45-55	50-60	60-70	30-70
8	Downtown/Woodgrove (Island Hwy SB)	30	30-60	30-60	60	60	60	75
9	Downtown/Woodgrove (Island Hwy NB)	25-40	30	30	30-60	30	50-80	40-70
10	Woodgrove/Lantzville	40-120	90	70	-	-	90-140	90-120
12	Woodgrove/Dover	*	-	60	-	-	-	-
15	Woodgrove/University	15-20	20-40	20-30	70	*	-	-
90	Intercity Connector	30-160	60-90	180	-	*	-	-

Figure 7.2: Transit Frequency (PM Peak)



Transit usage, as reported by average number of buses stopping per weekday is highest at the Prideaux Street Exchange, the VIU campus, Country Club Exchange, and Woodgrove Centre Exchange, as shown in **Figure 7.3**. As noted previously, many bus routes converge at these locations. The Downtown area is also a significant node of transit activity, with transit activity travelling along many Downtown streets.

Figure 7.3: Weekday Transit Service (Buses/weekday)



- Transit Accessibility.** All bus stops in Nanaimo have been classified based on whether they are considered to be accessible. An accessible bus stop is defined as a bus stop that is designated as wheelchair accessible by display of a white and blue decal featuring the International Symbol of Access. In order for a stop to be designated as wheelchair accessible, it must include a raised passenger landing area (such as a sidewalk or an asphalt lift). This would involve specific minimum dimensions to allow buses to safely deploy a mechanical ramp for wheelchair patrons to board or alight buses. At the end of 2012, 57% of Nanaimo area bus stops were classified as accessible. **Figure 7.4** shows the distribution of accessible transit stops throughout Nanaimo. Scheduled fixed route service in Nanaimo is provided on low floor kneeling buses, which make it easier for persons with disabilities to get on and off transit vehicles. Courtesy seating at the front of the bus is available for customers with scooters, wheelchairs, mobility aids or baby strollers or for customers with a

disability or mobility issue. Accessible stops and low floor kneeling buses can be important features for seniors with restricted mobility and can reduce injuries associated with boarding.

Additionally, HandyDART, a demand responsive service specifically for persons with disabilities provides door-to-door transit service for individuals unable to use the conventional transit system. Passengers must first register to use HandyDART services. Registration is free.

Figure 7.4: Accessible Bus Stops

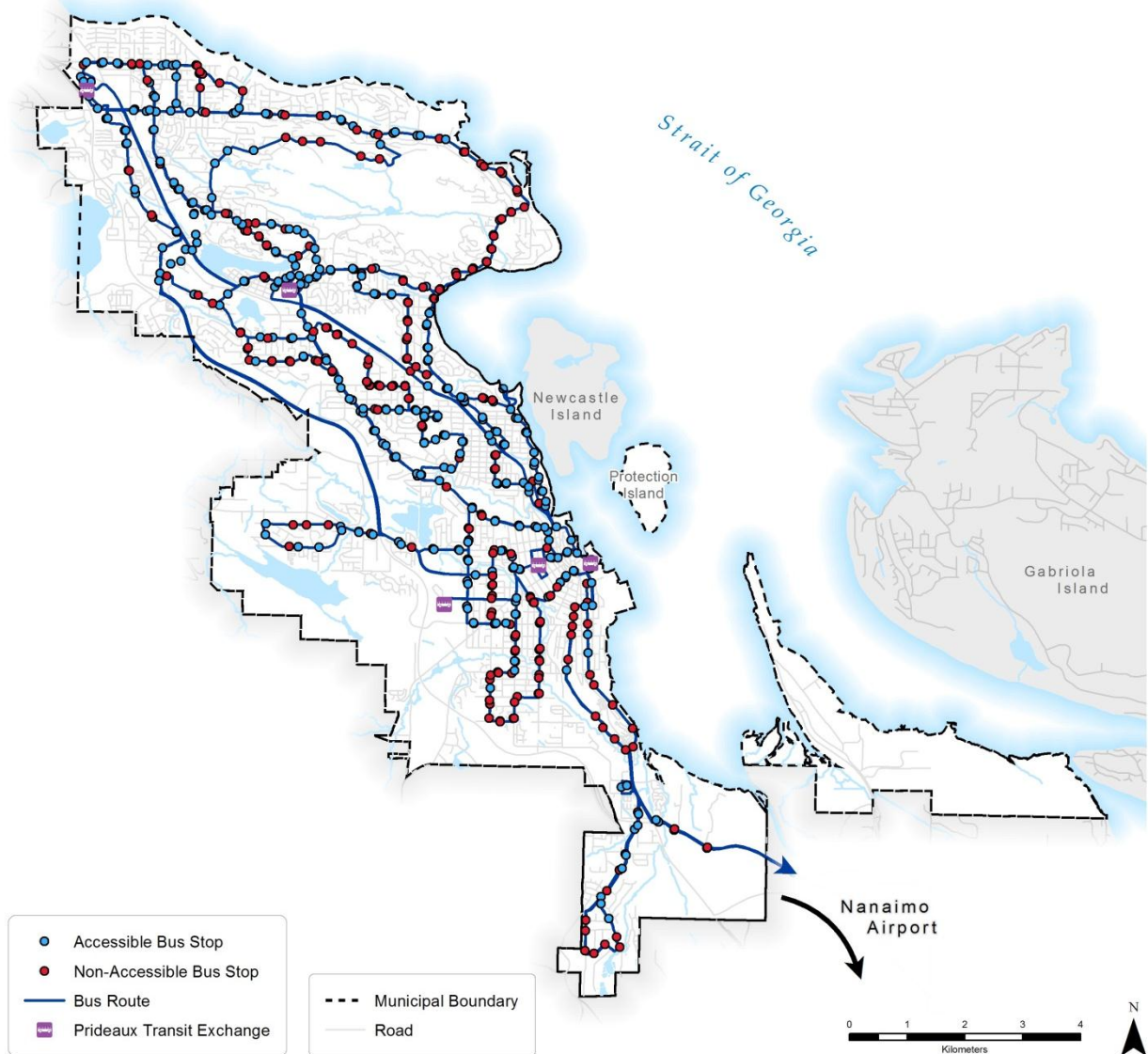
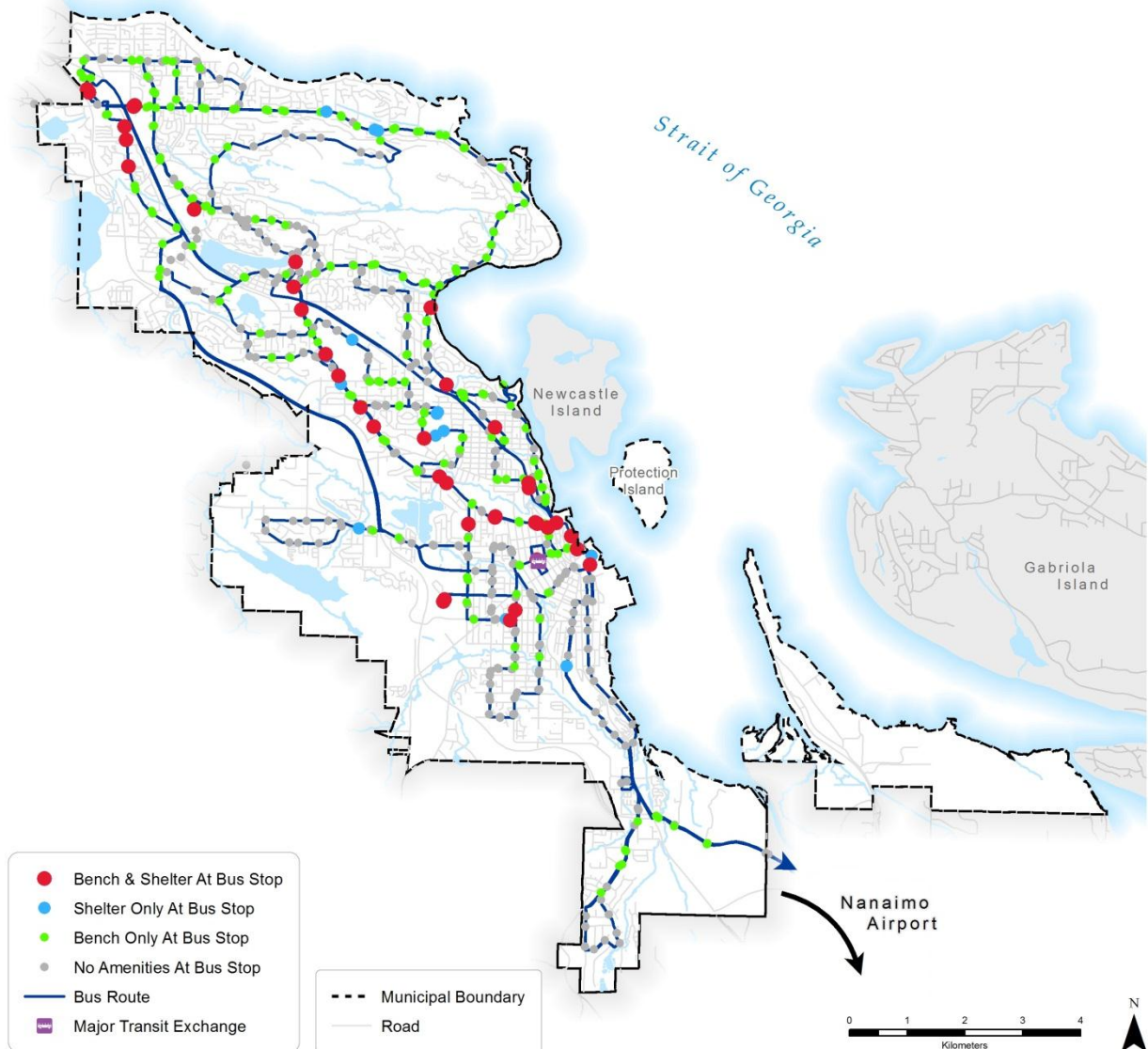


Figure 7.5: Transit Passenger Amenities



- **Customer Satisfaction.** The Regional District of Nanaimo conducted an extensive On-Board Transit Survey as part of the Transit Future Plan public consultation strategy. The survey was administered throughout the network and resulted in a total of 112 written and 107 online submissions, alongside 462 comments.

Similar to the responses gathered from NTMP consultation activities, respondents noted the following priorities for system improvement:

- Increase service frequency;
- Improve transfers/connections, specifically integration with BC Ferry connections;
- Extend late evening service;

- Initiate inter-regional service; and
- Smaller buses for low ridership routes.

The transit system was generally viewed as reliable and safe, with courteous bus drivers, reasonable fare pricing, and accurate and available schedule information; frequency, route directness, as well as good connections and wait times were perceived to be inadequate. Non-transit users identified that the primary reasons for not using the system are because transit is not provided to their area of residence and/or work, transit service is too infrequent, bus routes are too indirect.

8.0 Major Roads

The street network is designed to support mobility by all travel modes including automobiles, trucks (goods movement), transit, walking and cycling. However, in most North American communities, motor vehicles are often given preferential treatment, sometimes at the expense of walking, cycling or even transit users. Whether this preferential treatment toward vehicles is merely a reflection of current travel demand patterns, it can certainly influence the shape of the community and the travel modes that people are most inclined to use in addition to the liveability of neighbourhoods and major activity nodes in the City.

Traditionally, Nanaimo's transportation network has been built to accommodate vehicles, and many major streets are unattractive and uncomfortable places for pedestrians, cyclists, and transit users. Improving and developing roads and sidewalks to support walking, biking, transit, and vehicle concurrently is required to shift to a more sustainable transportation system. Future improvements will require consideration of either building more road space, or managing existing road space to support all modes.

8.1 Policy Context

PlanNanaimo recognizes that while vehicle travel will continue to be a major part of the City's transportation system, and that to meet the demands of growth, new roads and road upgrades must be planned and built the City should prioritize alternative modes through the development of new and renewal of existing infrastructure. The policy objectives of planNanaimo emphasize the need to strengthen existing road infrastructure, to control access to roads, ensure traffic safety and efficiently, and that priority is given to road improvements that service growth areas (i.e. within Urban Nodes and Corridors). In addition planNanaimo contains policies focussing on the multi-modal integration throughout the road network, and the creation of livable and attractive streets.

8.2 Recent Projects

- **Quarterway Bridge / Bowen Road Project.** Triggered by the need to replace the Quarterway Bridge (1939), this project involved widening Bowen Road from two to four lanes, including the bridge between Pryde Avenue and Buttertubs Drive. This project enhanced safety of all road users, including pedestrians and vehicular traffic at both intersections. The phased bridge construction was completed in the summer of 2012.

8.3 Key Issues & Opportunities

The City distributed a survey, held two open houses, and hosted one stakeholder workshop to gather input and feedback on issues and opportunities, including on roads. Respondents identified the top road issues or challenges facing Nanaimo today and in the future. Commonly identified issues emerged throughout the feedback, with key themes summarized below:

- **Road congestion** on roads such as on Northfield and Brechin (associated with ferry traffic), Hammond Bay Road, and on major arterial routes throughout the community.
- **Traffic signal quantity** and signal timing along Island Highway and BC Parkway
- **Parking pressures** around the downtown, residential neighbourhoods, and Vancouver Island University

- **Impact of ferry traffic** on the road network and surrounding neighbourhoods
- **Connectivity** between Hammond Bay, in terms of east-west routes and the rest of City's road network
- **Neighbourhood livability** affected by shortcutting and traffic volumes on local roads
- **Improved safety** at intersections

Based on the feedback, residents indicated that the road network in Nanaimo could be improved by providing the following:

- **Road improvements** to Northfield Road, Departure Bay Terminal, Linley Valley Drive, Bowen Road, and Stewart Avenue
- **Intersection Improvements** at Hammond Bay and Departure Bay Road, Northfield and Boundary Road
- **Road safety improvements**
- **Better enforcement** of speeding vehicles
- **Provisions of more attractive** alternatives to driving, such as improved transit service and safer walking and cycling routes.

8.4 Major Road Inventory & Assessment

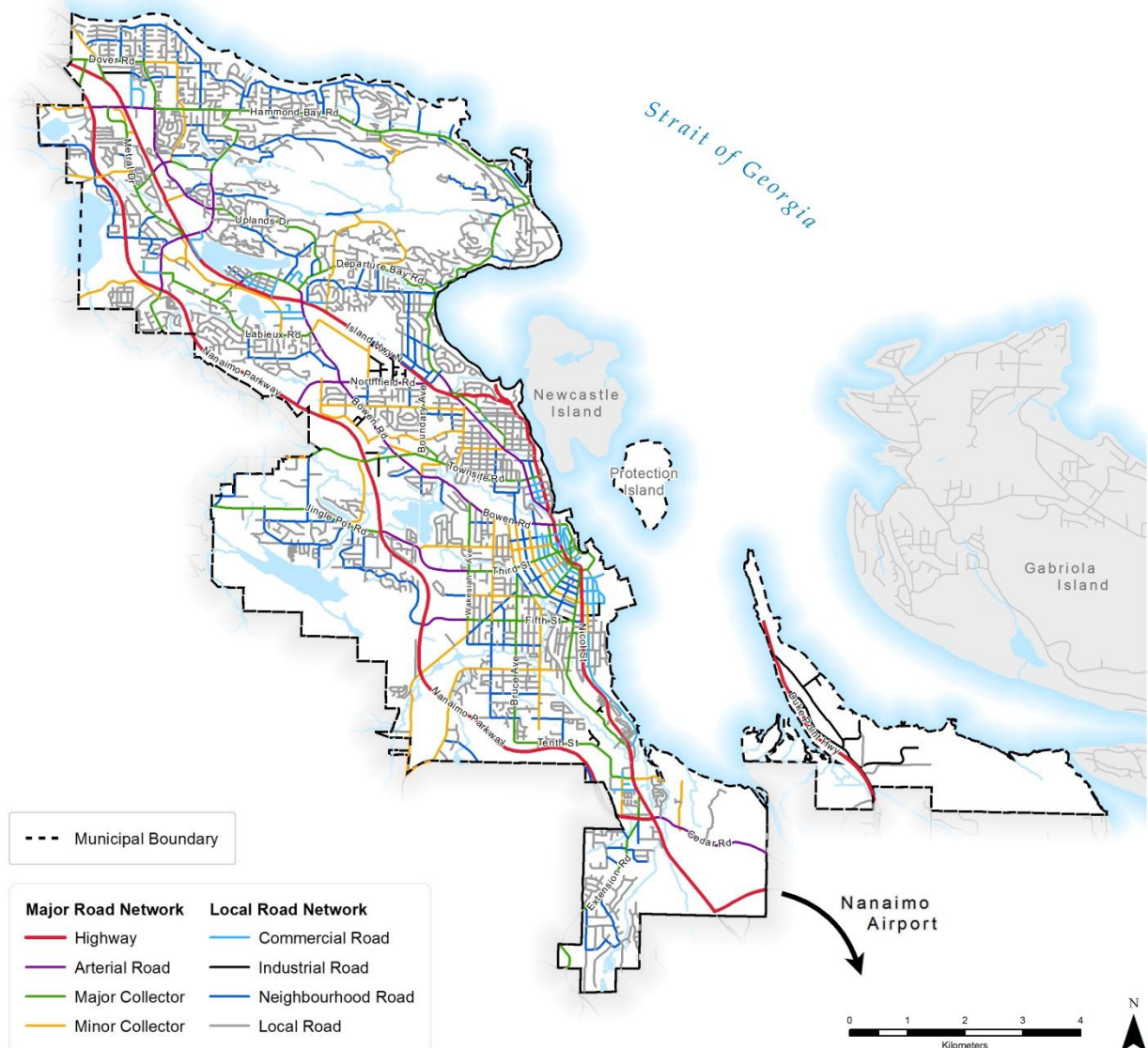
The following discussion highlights key facts and observations about the road network in Nanaimo:

- **Road classification and jurisdiction.** Nanaimo's road system is classified according to a hierarchy based on function, traffic service, land access, and traffic volumes. Nanaimo has a Major Road Network that carries significant amounts of traffic between neighbourhood and through the City. The three road classifications that comprise the Major Road Network are arterials, major collectors, and minor collectors. These are described as:
 - **Provincial Highways.** While Provincial Highways (Highways 1/19/19A, Brechin Rd, Stewart Ave, Nicol St, Terminal Ave (south of Stewart)) are an important components of the City's transportation network they are not under City jurisdiction, instead falling under the jurisdiction of the Ministry of Transportation and Infrastructure as part of the provincial highway network.
 - **Major Road Network.** The Major Road Network, with a focus on mobility, is made up of three road classifications: Arterial, Major Collector and Minor Collector. These roads carry significant amounts of traffic between neighbourhoods and through the City. A large range of vehicles including trucks, transit and buses should be expected as well as vulnerable road users such as cyclists and pedestrians.
 - **Arterial.** Arterials connect principle areas of traffic generation and are intended to carry large volumes of all types of traffic, including transit and trucks. The ultimate cross section of arterials is four lanes with left turn bays at most intersections. Their primary role is mobility with significant restrictions on direct access to adjacent

development. Access should be provided by adjoining streets, lanes, and rights-of-ways. Examples of arterial roads include Bowen Road, Uplands Drive, and Mostar Road.

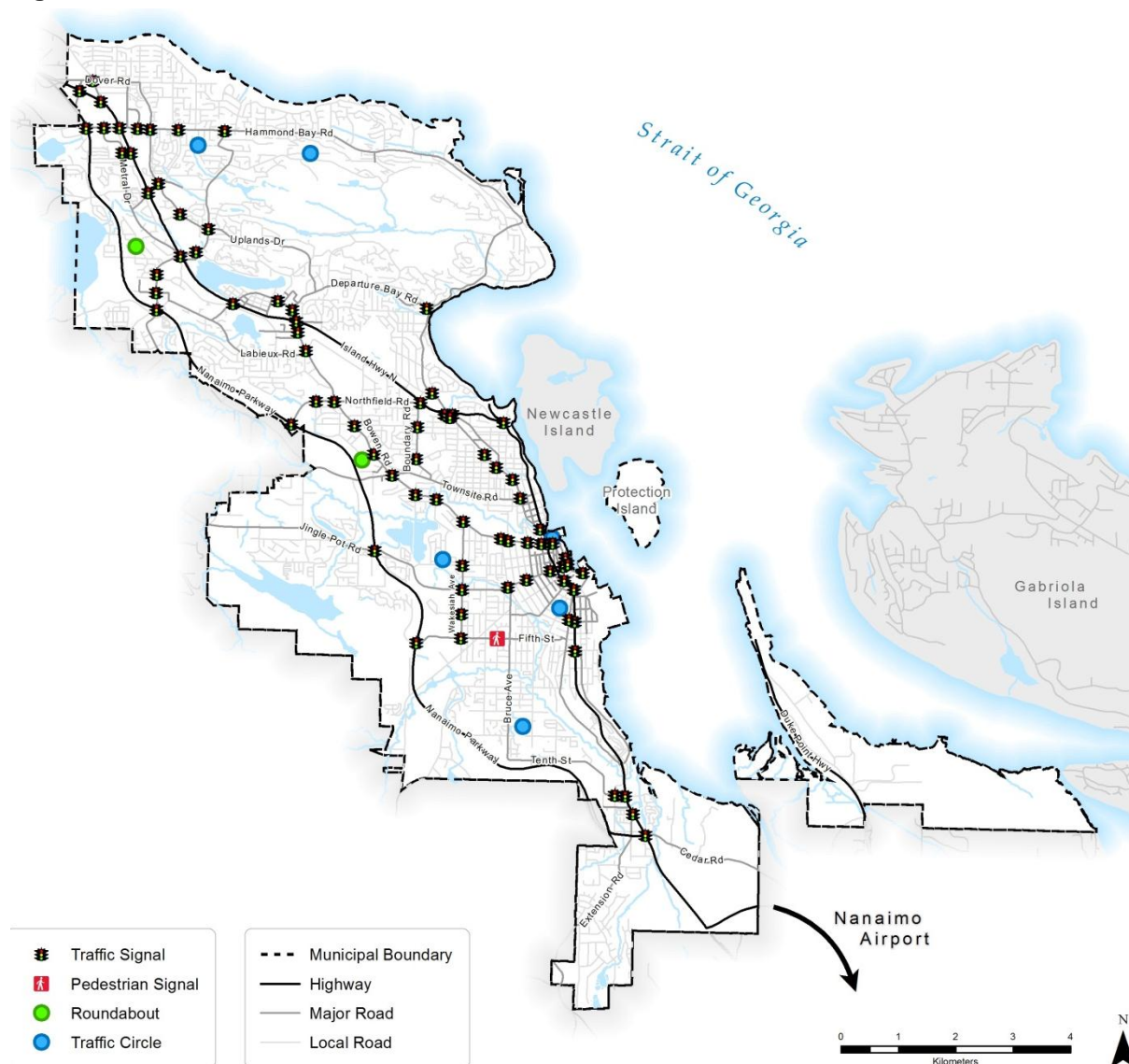
- **Major Collector.** Major Collectors connect principle areas of traffic generation and are intended to carry significant volumes of all types of traffic, including transit and trucks. The ultimate cross section of major collectors is four lanes and left turn bays at some intersections. Their primary role is mobility with some provision for direct access to development. While limited movement access is generally supported, full movement access will generally be provided via adjoining streets, lanes, and rights-of-ways. Examples of major collector roads include Departure Bay Road, Wakesiah Ave, Townsite Road, and Bruce Avenue.
 - **Minor Collector.** Minor Collectors connect areas of traffic generation, higher classification roadways and neighbourhoods carrying moderate volumes of all types of traffic including transit and some trucks. The ultimate cross section of minor collectors is two lanes with on-street parking and left turn bays at intersections with other major roads. Their role and function is a mix of mobility and access. While direct access to adjacent development is generally supported it will be restricted near intersections and other conflict areas.
- **Road network.** Nanaimo’s major road network is made up of 23 km of arterial roads, 62 km of major collector roads, 49 km of minor collectors, , and 43 km of provincial highways (outside of municipal jurisdiction). In addition to the major road network, Nanaimo’s local road network consists of 416 km of neighbourhood streets, local roads, commercial and industrial roads. In addition, the City has 31 km of commercial and industrial roads, and contains 42 km of Provincial Highway. The main arterial roads in Nanaimo are Terminal Avenue, Bowen Road, Northfield Road, Uplands Drive, and Cedar Road. The Trans-Canada Highway (Highway 1) is the major between Nanaimo and Victoria, while Highway 19 is the major north-south connection between Nanaimo and communities to the north of the Island. **Figure 8.1** shows Nanaimo’s road network, including road classifications.

Figure 8.1: Road Network in Nanaimo



- **Road Standards.** Nanaimo’s engineering standards and specifications guide the design of infrastructure in the City. In addition to the required design and dimensions of different road classifications, the standards provide for pedestrian accommodation on many road types through sidewalk requirements. The standards specify 1.8m sidewalks are required for major roads and 1.5m sidewalks on local, neighbourhood collector and commercial roads. Roads within industrial developments currently do not require sidewalks and current cross sections accommodate cyclists within shared travel lanes.
- **Traffic Controls.** There are approximately 80 signalized intersections in Nanaimo, one-third of which are located on provincial highways and under the jurisdiction of the Ministry of Transportation. The City has one modern roundabout and several traffic circles.

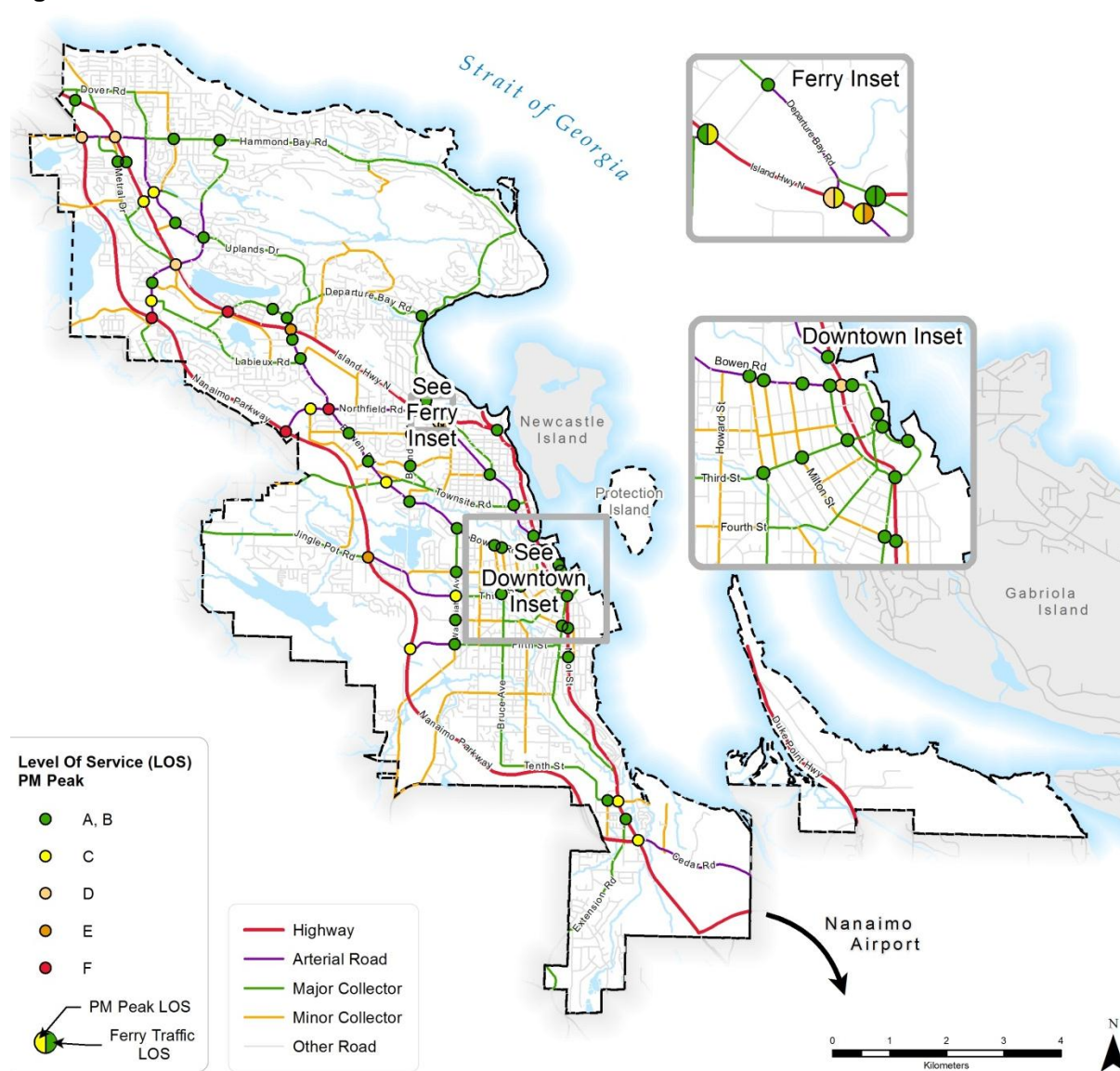
Figure 8.2: Traffic Controls



- Congestion and Delay.** The overall performance of an urban road network is typically measured by the delays experienced at major intersections, also referred to as Level of Service (LOS). A six point scale from A to F, LOS A suggests that there is no delay and LOS F indicates that there is significant delay and queuing; LOS C or better is generally used as the target for planning purposes. Overall, most signalized intersections in Nanaimo are currently operating at an acceptable level of service (LOS A to C) indicating little or minimal delays; however, there are exceptions. Along the Island Highway and Parkway Corridors from Downtown to North Nanaimo congestion is observed in the PM peak period. On the Bowen Road corridor delays are observed at intersections where left-turning or cross-traffic volumes are significant; and in particular at Bowen and Northfield Road. During Ferry

discharges, and particularly during late afternoon arrivals, significant congestion occurs starting at Brechin Rd and cascading north and west. Notably many of these problematic intersections are on corridors under provincial jurisdiction. However, with future growth expected in the City, it is likely that more areas of congestion and delay may be experienced.

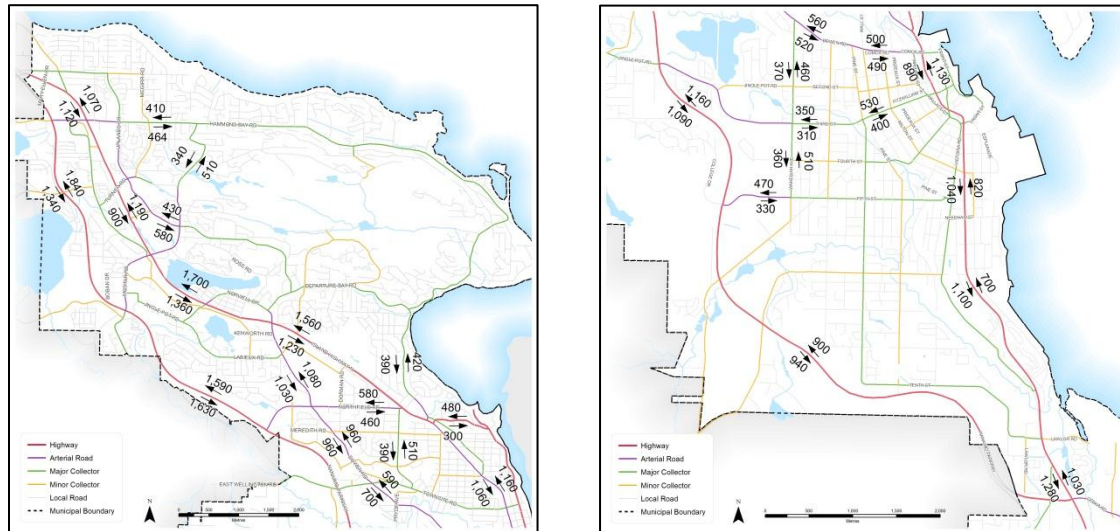
Figure 8.3: Intersection Levels of Service in Nanaimo



- **Current Traffic Volumes.** Traffic volumes in Nanaimo during the afternoon (PM) peak are highest on the north-south routes, including the provincial corridors within the road network. The volumes shown in **Figure 8.4** are based off intersection turning movement counts provided by the City and the Ministry of Transportation. The corridor volumes shown are drawn from a balanced model of the existing PM peak hour conditions. For corridor sections with more than two intersections, the average of the

entering and exiting volumes for each direction was taken to represent the amount of vehicles travelling along the analyzed corridor.

Figure 8.4: PM Peak Traffic Volumes (North Nanaimo at left, South Nanaimo at right)



- **Safety.** ICBC collects and maintains statistics for all reported collisions in British Columbia. The collision data classifies collisions based on the type of collision as follows: fatality, injury, or property damage only and also includes reported collisions involving pedestrians or cyclists. The highest collision locations throughout the City are generally found at various intersections on major traffic corridors. Intersections with the highest incidence of collisions, according to ICBC 2011 data, include:
 - Island Highway intersections at Mostar Road, Bowen Road, Northfield Drive; and Turner Road;
 - Nanaimo Parkway at Jinglepot Road, Northfield Road, and Mostar Road;
 - Bowen Road and Northfield Road; and
 - Aulds Road and Hammond Bay Road.

Collision data is often presented two ways; the total number of collisions at an intersection of a time period (as shown in **Figure 8.5**) and the number of collisions per million vehicles entering the intersection (as shown in **Figure 8.6**). While total collisions is a commonly used measure of safety performance it tends to highlight large intersections with large numbers of vehicles passing through daily and thus high number of collisions. By dividing but the number of collisions by the number of vehicles passing through the intersection, the second approach makes it easier to compare the relative risk to road users at intersections of differing sizes. The following two maps present both values for key intersections in Nanaimo.

Figure 8.5: Collision Frequency (2007 – 2011)

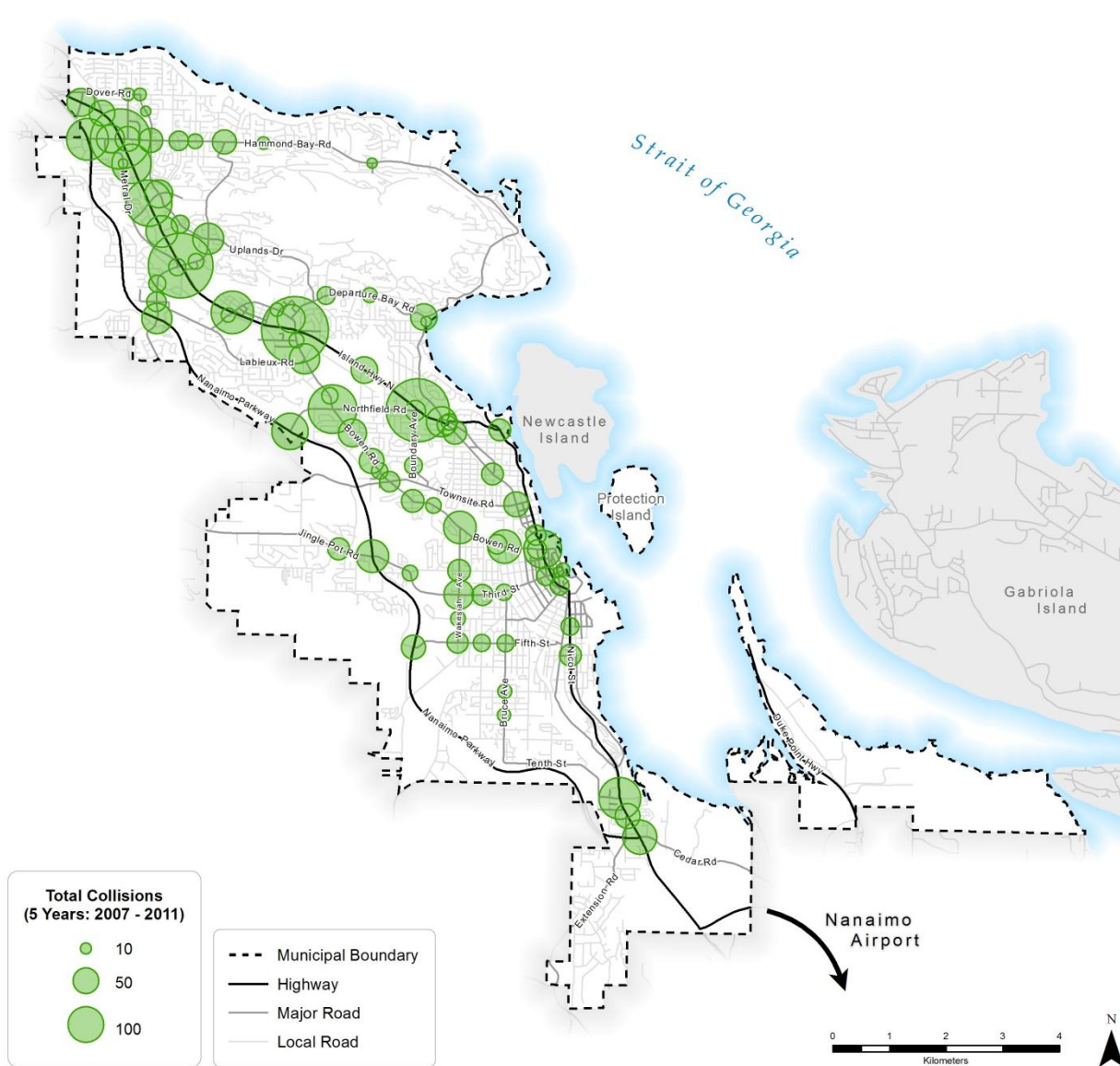
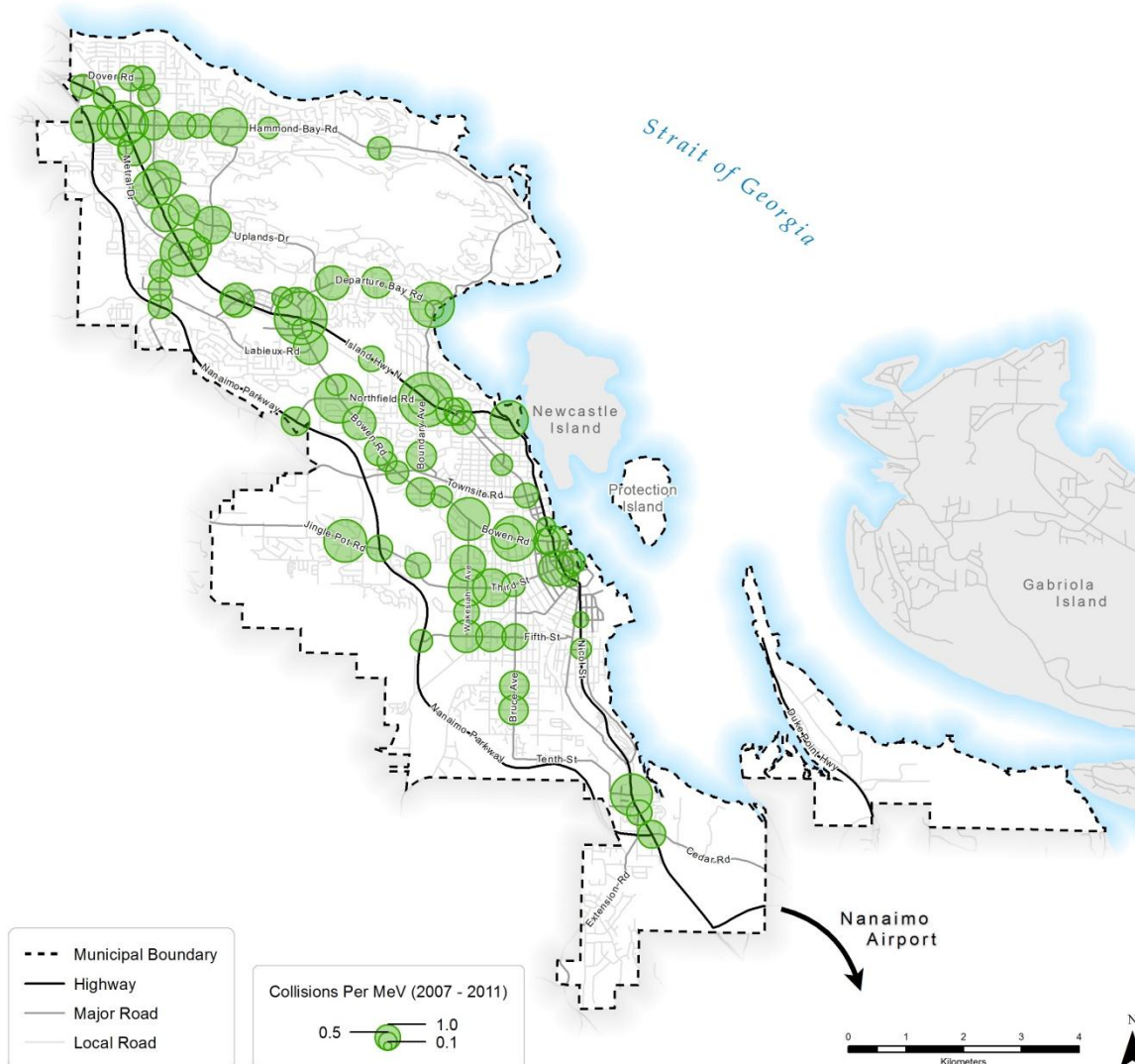


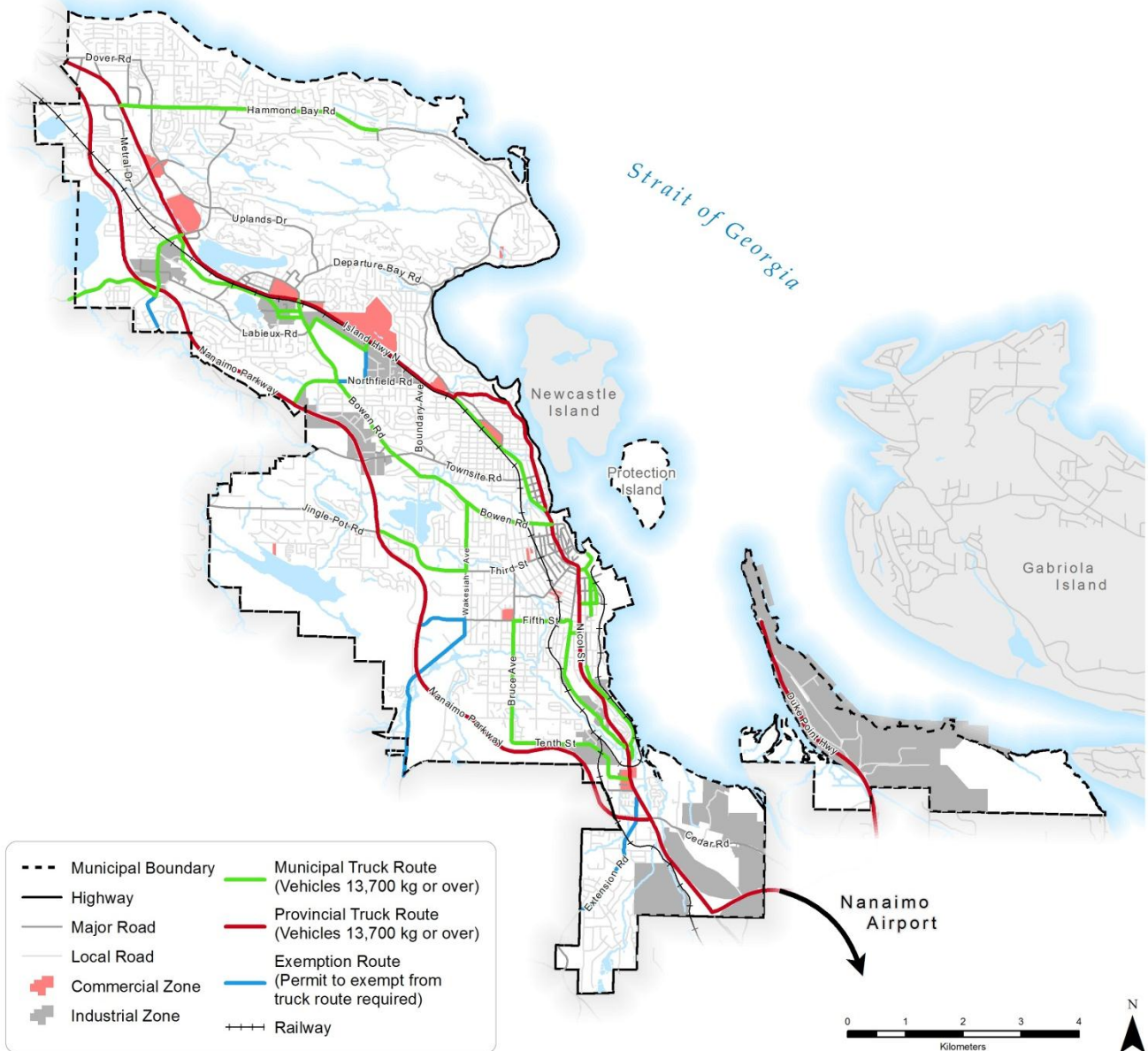
Figure 8.6: Collision Rates (2007 – 2011)



■ **Truck Routes.** There is a network of designated trucks routes throughout Nanaimo, which are regulated by the City’s Traffic and Highways Regulation Bylaw. The truck routes have been established and signed to restrict truck traffic from using certain streets and roads in Nanaimo to limit the impact of truck (commercial vehicle) traffic on City streets, neighbourhoods and other road users. The designated truck routes protect residential neighbourhoods and other areas not suited to the size and noise associated with large trucks. **Figure 8.7** illustrates the truck route network within Nanaimo, on both the municipal and provincial road corridors. The provincial routes of Island Highway and Nanaimo Parkway are key routes, while the municipal routes of Bowen Road, Terminal Avenue, Tenth Street, Victoria Road, and Haliburton Street are key spines in the network. In some cases trucks to make longer journeys through the City to remain on the truck route system. Where City streets are used as truck routes conflicts between different road users can occur. For example, Haliburton Street is a route that is popular for cyclists going to and from Downtown to South Nanaimo, but the presence of a truck route can make conditions more dangerous for both users. When developing the City’s road network consideration of the presence of trucks within the roadway should be a key consideration

along designated truck routes. As the City grows and new areas of intense commercial vehicle/truck activity are formed (i.e. new industrial areas) new truck route segments may be required.

Figure 8.7: Truck Routes



9.0 Neighbourhood Streets

Neighbourhood streets are an important part of the identity of residential areas, and can be an important part to the overall environment of a neighbourhood. Neighbourhood streets in Nanaimo are categorized as those roads within the City's *Local Road Network*, which comprise nearly 85% of Nanaimo's total road network, meaning that these neighbourhood street corridors are effectively the largest public space in the City. The shape, environment, and character of many neighbourhoods are defined by how neighbourhood streets are designed and used, and as such these public spaces substantially influence neighbourhood quality of life and livability. On many neighbourhood streets in Nanaimo, vehicles have been the prioritized mode in the design and management of the street space, sometimes at the expense of other modes to get around. Many neighbourhood streets in Nanaimo lack traffic calming measures, have limited or fragmented pedestrian infrastructure, and have circuitous road networks that lead to inefficient and indirect connections for pedestrians and cyclists. This is leading to neighbourhoods that are not pedestrian or cyclist friendly, providing preferential treatment for driving, likely a reflection of current travel demand patterns in many areas. Such street environments can also perpetuate conflicts between the different road users of pedestrians, cyclists, drivers, and residents using the streets for recreational or other reasons (i.e. children). A focus on the level of design and treatments applied to neighbourhood streets can positively influence the shape of neighbourhoods and the quality of life enjoyed by those living in them, and reduce conflicts between road users and residents.

9.1 Recent Projects & Programs

To date, a number of local and neighbourhood street improvements have been implemented in Nanaimo, in order to address a range of concerns regarding traffic speeds and volumes and neighbourhood quality of life. In 2009, the City reviewed traffic conditions in the Brechin Hill area, in response to concerns about excessive speeds and volumes on local streets. The City implemented stop sign reversal treatments to create a condition of alternating stops to mitigate speeds. Along Drake Street where stop sign reversals were not practical, speed humps were installed. Over the last ten years the City has undertaken a number of traffic calming projects using a variety of strategies to reduce speeds in identified local streets.



The City has also undertaken a number of initiatives to improve the environments of neighbourhood streets. These include:

- The City developed **Neighbourhood Traffic Calming Guidelines**, based on the Transportation Association of Canada's Guide for Neighbourhood Traffic Calming. These guidelines provide a comprehensive approach to developing neighbourhood traffic calming plans for areas challenged with vehicle speeds and volumes, with the goal of creating safe communities and increasing neighbourhood livability. As such, the guidelines provide the steps required as part of a traffic calming plan, including the technical review to confirm on-site conditions, a resident survey to meet both technical warrants and neighbourhood support. The traffic calming review can result in a range of solutions, such as enforcement, speed reader boards, signs or pavement markings, and other engineering measures.

- A **Speed Monitoring Awareness Radar Trailer** is used by the City to ensure compliance with the speed limit in neighbourhoods to help promote compliance with the speed limit. These give drivers the opportunity to see how fast they are driving and to modify their driving behaviour by slowing down.

9.2 Key Issues & Opportunities

The City distributed a survey, held two open houses, and hosted one stakeholder workshop to gather input and feedback on issues and opportunities. In regards to neighbourhood streets, respondents identified the key issues or challenges facing their local corridors. Key themes that emerged throughout the feedback are summarized below:

- **Shortcutting** occurring on local streets, generating more traffic on local streets as drivers seek to avoid congestion on major corridors and to cut down on travel time;
- **Truck traffic** on neighbourhood streets;
- Excessive **speeding** on neighbourhood / local streets as wide cross-sections and lower volume routes encourage high speeds; and
- **Neighbourhood livability** impacted by more vehicle traffic.

Opportunities to improve neighbourhood streets that were identified included:

- Implementing **traffic calming measures** in order to reduce vehicle volumes and speeds, including treatments such as speed humps and traffic circles.

In many cases, good local street design during development can avoid long term traffic concerns within a neighbourhood. As examples, Neighbourhoods that have direct and efficient connections out to the major road network can reduce resident travel within the neighbourhood, traffic calming measures can be included in the original street design such as curb extensions, on-street parking and street trees can narrow the perceived width of streets and reduce speeds. Once a neighbourhood has been built, retrofitting to address traffic issues is much more difficult and costly.

9.3 Neighbourhood Streets Inventory & Assessment

- The **Local Road Network** has a primary focus on access, with roads intended to carry smaller volumes of traffic within neighbourhoods, as well as, provide access for emergency and utility vehicles. “Neighbourhood streets” refers to the roads comprising the local road network, with different road types including:
 - **Commercial and industrial** roads serve specific land uses, and apply to streets serving commercial and industrial lands. They are intended to carry a higher percentage of truck traffic and provide for on-street parking.
 - **Neighbourhood collectors** connect local streets, special generators such as parks and schools and neighbourhoods to the Major Road Network. This classification provides

similar service as Local streets with provision for higher volumes of traffic via increased travel lane width to reduce conflicts with on-street parking, transit and cyclists. Traffic volumes should typically not exceed 3000 vehicles/day.

- **Local streets** primarily carry traffic with an origin and/or destination along its length or adjoining street. These streets are not intended to carry significant through traffic other than to the immediately adjoining network. Local streets typically serve residential areas. Traffic volumes should typically not exceed 1000 vehicles/day.
- **Laneway** provide direct access to parcels with a mix of land uses, typically at the rear of the property, with little or no through traffic component. Expected travel speeds and volumes are low; with vehicles, cyclists and pedestrians operating in a mixed environment.

■ **Road standards.** The design of local street infrastructure is guided by the City's Engineering

Standards & Specifications, as well as the Subdivision Control Bylaw. The Subdivision Control Bylaw has requirements for street design, including road width, sidewalks, boulevards, and lighting. At a more detailed level, the Standards & Specifications set out the design requirements, material specifications, and installation requirements for municipal infrastructure, including all types of roads within the municipal road network. Standard drawings for local roads and neighbourhood collectors require 1.5m sidewalks on both sides of a two lane road, with no landscaping, street trees, boulevard or passive traffic calming elements required. These requirements are reflected in many of the neighbourhood streets in Nanaimo, as can be seen at right (top image). While these streets are up to standard, the street environment ultimately prioritizes vehicles and the conditions can encourage higher speeds. However, other neighbourhood streets in Nanaimo (see image at right, bottom) have gone beyond the standard requirements to include street trees, landscaping, and boulevards. This design creates a more pleasant street environment, with greater separation between the sidewalk and road, and visual elements that can indicate to drivers to slow down and be more aware of other road users.



- **Traffic Calming.** Despite the City's Neighbourhood Traffic Calming Guidelines, there has not been much uptake in developing traffic calming plans for residential areas. As such, few traffic calming projects have been implemented, thus there are currently limited measures in place that reduce volumes and speeds on neighbourhood streets. The City may need to explore introducing a more flexible tool to make it easier for residents to initiate new traffic calming projects. This can mean introducing a toolkit of treatments appropriate for consideration on local streets, including vertical deflections (i.e. speed humps, textured crosswalks), horizontal deflections (i.e. curb extensions, traffic circles), pedestrian and cycling accommodation measures (sidewalk, crosswalks), and education and enforcement initiatives.

Grid Street Network



"Loop and Lollipop" Street Network



- **Neighbourhood Design.** Neighbourhood streets are often a result of subdivision development patterns. As mentioned in Chapter 5, network connectivity is strongly influenced by neighbourhood design and the supportive street layout. Suburban housing developments commonly result in the 'loop and lollipop' street layouts, which tend to require longer trips, and make driving the most convenient mode of travel. However, neighbourhoods designed on a more grid-like street network are more likely to lead to more vibrant streets, with a network that supports short, local trip-making for pedestrians and cyclists. Involving more appealing public realm elements into neighbourhood design, such as street lighting, landscaping, street trees and benches can not only make neighbourhood streets more aesthetically attractive, but can also increase a perceived sense of safety among residents.

- **Existing and Future Neighbourhood Streets.** Improving neighbourhood streets requires addressing both existing neighbourhood streets in Nanaimo, as well as future streets that will be built as growth occurs. Retrofit opportunities for existing streets, such as infilling sidewalks can revitalize existing neighbourhood streets and generate more emphasis on road users apart from cars. This can involve prioritizing infill sidewalk projects in major activity nodes, such as on neighbourhood streets near urban nodes, schools, and parks. For future streets, revising City road standards to include more bicycle and pedestrian accommodation elements, as well as more 'livable' street design components, can enhance streetscapes for future neighbourhoods. In addition, working with developers on the design of suburban neighbourhoods can be an opportunity to ensure new road infrastructure is more comfortable and safe for all users and residents.

10.0 Parking

Parking refers to the space allocated both on and off-street for the storage of vehicles. Parking provision, management, and policies largely impact the travel choices that people make in a community and can be a central element to travel demand management. The amount of parking available, and the form in which it is provided (i.e. on-street, off-street facilities, private driveways/garages) has implications on wider issues of neighbourhood design and street layout. Often parking takes up a significant amount of land use in cities, and its presence impacts (often in a negative way) the environments of streets, neighbourhoods, and business districts. Parking can be used beyond the traditional management of land for parking provision. Strategic parking management techniques can shape and influence the availability, cost and extent of parking, and can impact people's decisions to drive to their destination, thus having broader impacts on transportation patterns within cities. Parking provision can be used to accommodate certain users of the transportation system, and it can also be managed to encourage decreased car use in order to improve traffic and environmental conditions. Parking can also be used as a tool to achieve broader transportation and sustainability objectives within a community.



In Nanaimo, parking requirements are stipulated within the City's Development Parking Regulation Bylaw and the Zoning Bylaw. The Development Parking Regulation Bylaw stipulates the minimum off-street parking requirements for all zoning designations within the City. This Bylaw contains special parking stipulations for Downtown Nanaimo and neighbourhoods immediately adjacent to the Downtown, in order to minimize land used for parking, and to maintain a certain environment with walkable streets and compact land uses. For example, off-street parking is not required for buildings within the Downtown area, unless the building contains residential uses. In Downtown, the City has approximately 1,500 off-street parking spaces available, with an additional 900 parking spaces available on-street (30% of which are metered).

10.1 Recent Projects

Recognizing the impact of parking on transportation patterns within and throughout the community, the City recently developed a Parking Strategy that provides long-term guidance on parking management in Nanaimo. In response to this strategy, Vancouver Island University also developed a TDM Strategy to address parking management and sustainable transportation on their two campuses. Both of these strategies shape the availability and form of parking in the community today, and are described in further detail below:

- The **Parking Strategy** (2009) was developed with the intent to address issues such as non-residential parking on neighbourhoods, inconsistent parking regulations, parking safety and security, enforcement, and changes in parking demand. The scope of the Parking Strategy is high demand areas in Nanaimo, including the Downtown, Vancouver Island University, Nanaimo

Regional General Hospital, and the BC Ferries Terminal Area. Some key findings that emerged were that on-street parking in Downtown is less than 30% full at most times, with only select Downtown corridors experiencing medium-high parking occupancy. In addition, parking regulations were found to be complicated and difficult to enforce in certain areas, and spillover parking is occurring on streets adjacent to Vancouver Island University and the Hospital. Short, medium, and long term strategies are recommended, including increased parking pricing in certain areas of Downtown, increased parking prices on the University and Hospital sites, parking restrictions/resident-only permit parking in adjacent neighbourhoods, and more parking-related communications, education, and way finding. Since that adoption of the strategy, several of the recommendations of the Strategy have been initiated and are at various stages of completion.



- Vancouver Island University developed an **Integrated Transportation Demand Management Strategy** in 2011, following the recommendations of the City's Parking Strategy. As of 2010, the University's Nanaimo campus had over 2,000 parking spaces available, with a utilization of 98%. In comparison with other post-secondary institutions in BC, the parking rates at VIU are inexpensive, and are seen to encourage driving to campus. In addition, the number of parking permits issued exceeds the parking capacity of the campus, creating parking spillover onto neighbouring residential streets. Recognizing that the University campus is built-out, VIU has a "no net additional parking supply" policy and seeks to reduce parking over time (to less than 1,400 spaces). The TDM Strategy recommends that VIU parking rates be raised at least 50%, the number of permits issued be reduced, long-term parking permits be eliminated, and that a variable pricing scheme be introduced. These recommendations are intended to alleviate parking pressures on the VIU campus and in the adjacent residential areas, and to promote alternative modes of transportation to and from campus.

10.2 Key Issues & Opportunities

The City distributed a survey, held two open houses, and hosted one stakeholder workshop to gather input and feedback on issues and opportunities. In regards to parking in Nanaimo, respondents identified the key issues or challenges facing Nanaimo today and in the future. Commonly identified issues emerged throughout the feedback, with key themes are summarized below:

- **Parking within Downtown**, where businesses and residents are competing for space, sometimes not enough spaces available;
- **High parking demand** at Vancouver Island University, creating spillover to neighbourhood streets and residential areas;
- **Parking prices** too expensive in certain areas;
- More land being allocated to **parking lots**;
- Parking pressures within residential areas, as more households have more than one vehicle; and
- Limited **parking availability** in certain locations.



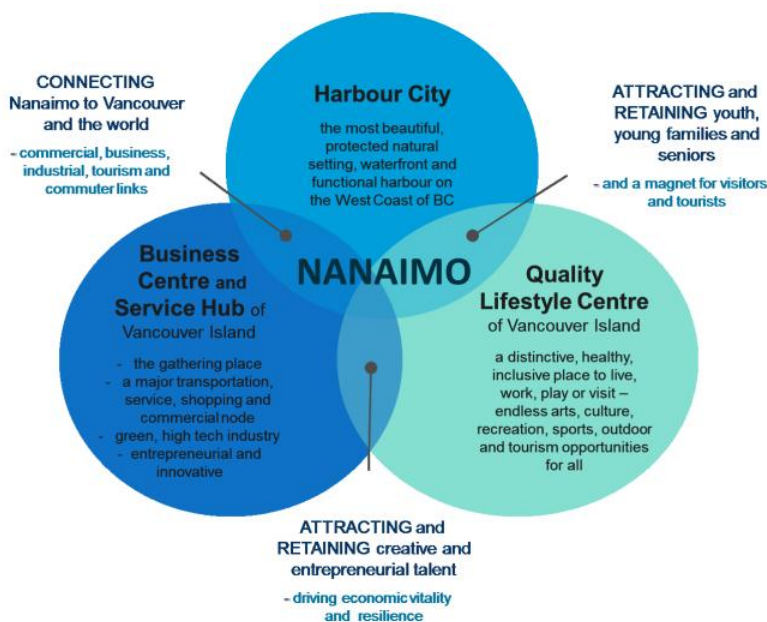
11.0 External Connections

The City of Nanaimo is a significant economic and transportation hub on the east coast of Vancouver Island. The City is strategically located as a major service center that acts as a gateway to communities throughout central and North Vancouver Island. As such, the development of the NTMP requires a regional transportation lens that recognizes Nanaimo’s significant road, air, rail, and water-based transportation networks that connect the City to the rest of Vancouver Island as well as to Metro Vancouver and which are critical to both the local and regional economy. These external connections play an important role in Nanaimo’s transportation system, and the approach to transportation management in the City cannot be evaluated in isolation of its role within larger context of regional goods and people movement. Historically, the economy of Nanaimo was reliant on the external connections and freight movements provided by the rail line and port.

11.1 Policy Context

The City’s **Strategic Plan** identifies the City’s strategic location as a significant economic and transportation hub for Vancouver Island. In fact, in the Strategic Plan the vision for the City as articulated in the Strategic Plan is that *“by 2025, the City of Nanaimo will proudly feature its harbour and inclusive quality lifestyle; excelling as both the business centre and transportation/service hub for Vancouver Island.* In support of this statement, the Strategic Plan provides a strategic focus nurturing the City’s role as a Harbour City, a Business Centre and Service Hub, and a Quality Lifestyle Centre as a means of connecting Nanaimo to Vancouver and the world; attracting and retaining youth, young families and seniors; and attracting and retaining creative and entrepreneurial talent, as shown in the image below.

Figure 11.1: Strategic Plan Vision



11.2 Key Issues & Opportunities

Throughout the public consultation process, residents provided a significant amount of feedback and input on external connections, including rail, the airport, and the ferries. Commonly identified issues are summarized below:

- **More connections to the airport**, from the ferry and the major business centres in Nanaimo.
- **Ferry Service** cited as being too expensive, having challenging schedules (infrequent), limited service, and too inefficient and slow (need for a rapid/fast ferry to BC Mainland). Many respondents also identified the need for improved integration with bus transit at the Departure Bay and Duke Point terminals.
- **Regional bus connections** connecting to adjacent communities within and outside the Regional District of Nanaimo, such as Ladysmith, Parksville, Qualicum Beach, and Lantzville.
- **Rail connections/rapid transit connections** to communities such as Victoria, Duncan, Parksville, Qualicum Beach, Ladysmith. The E&N Rail line was identified as an opportunity for light rail connections between different areas of Nanaimo and for external travel outside of the City.

11.3 External Connections Inventory & Assessment

Today, the economy and transportation system of Nanaimo is reliant on a larger and more complex transportation network that includes road, rail, air and marine connections as described below. For the most part, the vast majority of the external connections are owned and operated by external agencies, such as BC Transit, the Ministry of Transportation and Infrastructure, the Nanaimo Airport, BC Ferries, the Island Corridor Foundation, and private transportation service providers. Although the City has limited influence on many of these external connections as they are under the jurisdiction of other agencies, the NTMP can examine the interface between these external connections and the City's transportation network. Key external connections include:

- **Road Connections**
 - **Road network** in and around the City of Nanaimo serves local and regional transportation demands, as Highway 19 (Nanaimo Parkway), Trans-Canada Highway, and Island Highway move people and goods up and down the Island. The external road connections are primarily provided on Provincial Highways which are under the jurisdiction of the Ministry of Transportation & Infrastructure. The Provincial Highways also connect with the BC Ferries terminals as described below.
 - **Regional Transit** connections are provided by BC Transit to communities outside the City of Nanaimo, including the #7, which provides service south of the City to the community of Cedar in the RDN, and the #10 and #90, which provide service north to Lantzville, Parksville and Qualicum Beach.

■ Rail Connections

- **E&N Rail Line Corridor** runs north-south through the City of Nanaimo and provides a nearly 290km rail link between Victoria and Courtenay/Comox. The railway is owned by the Island Corridor Foundation and operated under contract by the Southern Railway of Vancouver Island. The corridor is currently used primarily for goods movement.

■ Air Connections

- **Nanaimo Airport (YCD)** is located south of the City of Nanaimo in the RDN, approximately 20 km south of Downtown Nanaimo. The airport serves an average 150,000 passengers annually with its main flight services to Victoria, Vancouver, and Abbotsford. The Nanaimo Airport is served by WestJet, Air Canada, and Island Express. The Nanaimo Airport is accessed via Highway 1. BC Transit does not currently provide service to the Nanaimo Airport; however Greyhound provides six trips daily to and from the Nanaimo Airport.
- **Float Plane Terminal** in Nanaimo Harbour serves several float plane operators, including West Coast Air, Harbour Air, and Sea air Seaplanes providing a quick connection to Downtown Vancouver, YVR and other coastal destinations.

■ Marine Connections

BC Ferries. Nanaimo has three ferry BC Ferries terminals: Duke Point and Departure Bay Terminals, which provide connections to Tsawwassen and West Vancouver, respectively; and Nanaimo Harbour Terminal, which provides service to Gabriola Island. The major ferry lines connect between Nanaimo and the BC Lower Mainland through approximately 6 to 16 sailings per day from Duke Point to Tsawwassen, and over 16 sailings per day from Departure Bay to Horseshoe Bay. The ferry from Nanaimo Harbour to Gabriola Island provides at least 16 sailings per day. Duke Point is primarily geared towards goods movement. The City of Nanaimo conducted an On-Board Ferry Survey to understand the trip characteristics and external connections being made via the BC Ferries, and to also understand the impacts of the ferry on the road network and broader transportation movements in and through Nanaimo. It was found that of passengers disembarking at the Departure Bay Ferry Terminal:



- 33% are destined for Vancouver Island North
- 15% are destined for a community in the Regional District of Nanaimo (North)
- 12% are destined for both North Nanaimo and central Nanaimo
- 5% are destined for the Capital Regional District.

For passengers arriving at the Duke Point Ferry Terminal:

- 40% are destined for Vancouver Island North
- 22% are destined for a community in the Regional District of Nanaimo (North)
- 15% are destined for a community south of Nanaimo

These statistics from the On-Board Ferry Survey indicate that for passengers disembarking at Nanaimo's ferry terminals, a significant proportion are heading to destinations farther north on Vancouver Island. Likewise, it was found that many passengers using these terminals to go to the BC Mainland originate from communities in northern Vancouver Island.

- A **privately operated** passenger-only ferry services between Nanaimo Harbour and Protection Island and also between Newcastle Island Marine Park.
- **Seaspan Marine** also operates a marine connection serving Tilbury Island, with 2 to 8 sailings per day which provides drop service for truck trailers and rail car transfer.
- **Port Of Nanaimo** is one of two federal Port Authorities on Vancouver Island, with the other located in Port Alberni. The Port is the largest industrial port on the east coast of Vancouver Island and includes a new cruise ship terminal which opened in 2010. The Port operates two terminals, including Downtown Nanaimo / Assembly Wharf and Duke Point. Major terminal operations include cruise passengers, break bulk, container (barge), wood and lumber, specialized, railcar / drop trailer service.



APPENDIX A

Survey

APPENDIX B

Survey Results

APPENDIX C

Glossary of Terms