Coquitlam

City of Coquitlam

Strategic Transportation Plan Update

Discussion Paper #4: Transportation Improvement Possibilities

August 2011
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APPENDICES

1.0 INTRODUCTION

The Strategic Transportation Plan (STP) Update is intended to help shape Coquitlam's transportation investments and programs over the next twenty years and beyond. This process is important to ensure that transportation investments work towards achieving the City's strategic vision and community goals, and make the best use of available resources. In order to provide the City with clear directions and priorities, the STP Update will provide the City with a clear vision of the multi-modal transportation system to serve the residents and businesses of the community for the next twenty years and beyond.

Rapidly growing and changing communities such as Coquitlam can no longer afford to deal with goals such as transportation, land use patterns, the environment, and the economy in isolation. It is uneconomical to invest in a single set of priorities such as transportation without serving other City goals and objectives. The benefits of investing in transportation infrastructure go far beyond simply the provision of roads, transit services, bicycle routes and pedestrian facilities. In broader terms, investment in transportation can also help the City achieve overarching goals and objectives, such as creating a compact, complete community with land use patterns that support alternatives to the automobile; promoting a healthy environment where greenhouse gas emissions are reduced and local and regional air quality is improved; and ensuring a vital economy that allows residents to live, work and play locally while also supporting regional economic priorities through effective goods movement. In fact, transportation can be regarded as a "foundational" element in achieving the City's broad goals and objectives related to environmental, economic, and social sustainability.

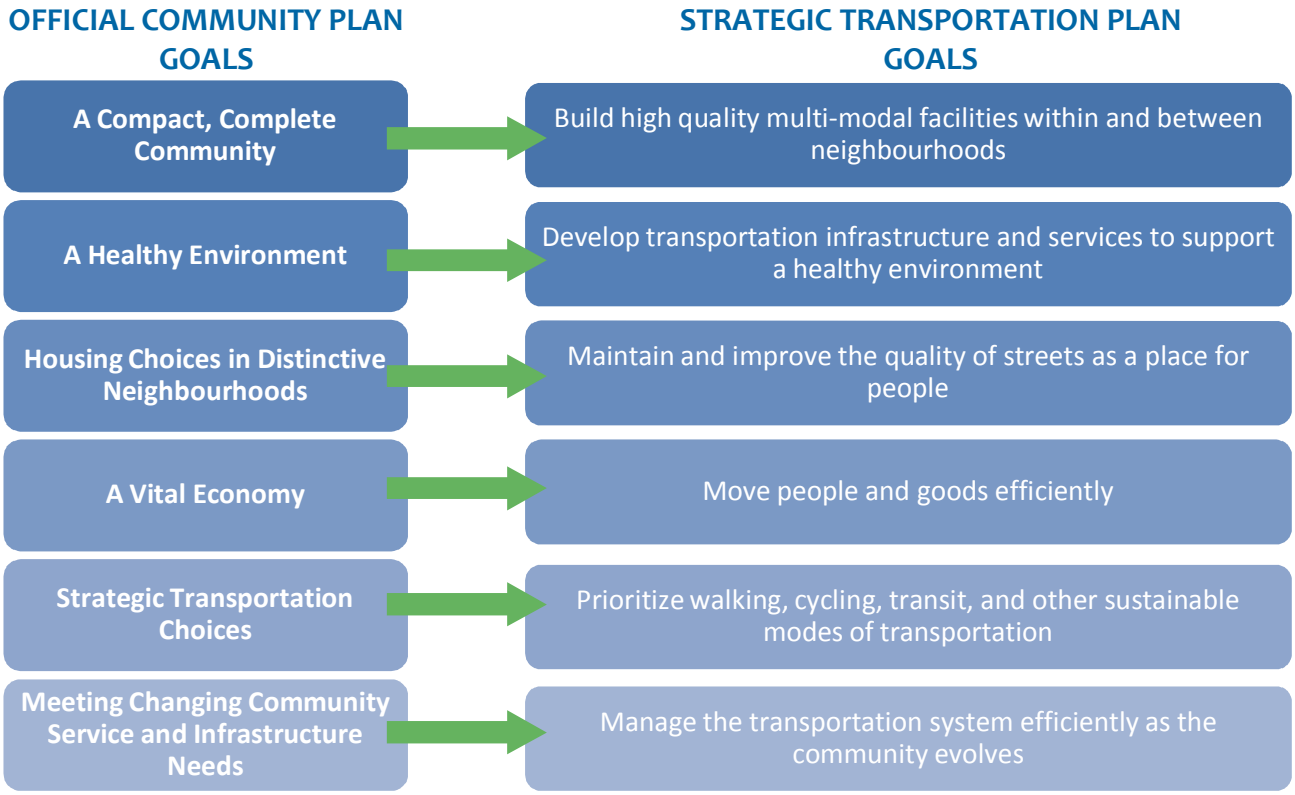
To that end, the STP Update is explicitly linked to the City's overall commitments towards sustainability and livability. A vision for the STP Update has been developed that builds upon the City's commitments to sustainability as outlined in a number of plans and strategies, and which emphasizes a community of neighbourhoods where everyone can live, learn, work and play.

Strategic Transportation Plan Vision

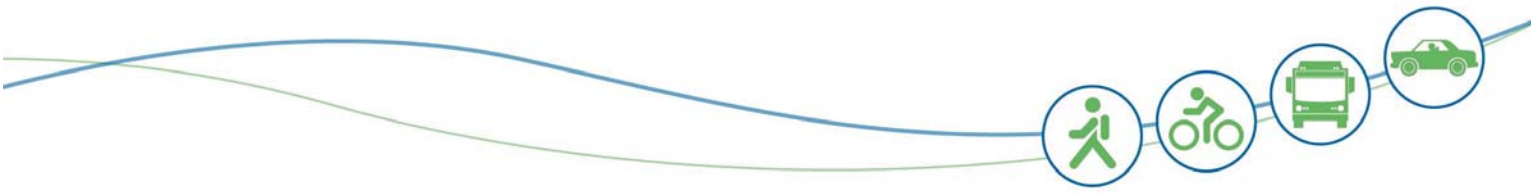
Coquitlam's transportation system by 2031 will enhance the livability and sustainability of our community of neighbourhoods, by providing accessible, safe and convenient transportation choices with a greater emphasis on transit, walking and cycling both locally and between neighbouring communities.

The proposed goals for the STP Update are intended to provide clear direction to help achieve the vision identified above, and are shaped by the City's Official Community Plan. The proposed Goals are linked directly to the six overarching community goals identified in the OCP. For each overarching community goal, a transportation-related goal statement has been identified as shown in **Figure 1** below.

Figure 1: Relationship Between Official Community Plan and Strategic Transportation Plan Goals



This is the fourth Discussion Paper prepared as part of the STP Update. This Discussion Paper presents the range of long-term transportation improvement concepts examined for each mode of transportation that have been developed to meet the vision, goals and objectives developed for the STP Update. For each mode of transportation, the Discussion Paper includes the following three sections:



- **Shaping Influences** describes the various factors that have influenced the development of the concepts for each mode beyond the overall transportation vision, goals and targets;

- **Ideas & Opportunities** summarizes the overarching approach and themes for the range of long-term possibilities based on discussions with agency and public stakeholders as well as the shaping influences.

- **Improvement Concepts** outlines the potential range of improvements for each mode of transportation that will be examined in the STP update.

Although the improvement concepts have been presented separately for each mode of transportation, it should be emphasized that each of these chapters are inter-related and have not been developed in isolation of each other.

Many of the improvement concepts presented in this Discussion Paper are based on comments received from stakeholders and the public. A public workshop was held on November 24, 2010 to identify transportation possibilities in Coquitlam. 34 participants attended the workshop. The workshop involved two separate facilitated discussions at small group tables where each participant was asked to provide input regarding transportation improvement possibilities for the street network, walking, cycling, transit, goods movement, and transportation demand management (TDM). In addition, a public survey was available on the City's website and hard copies were also made available at City Hall and libraries and community centres between December 1 and 17, 2010. 60 people responded to the survey.

The improvement concepts presented in this Discussion Paper will then be assessed and summarized in Discussion Paper #6 using a comprehensive evaluation framework that was developed in *Discussion Paper #3 – Evaluation Criteria and Funding Trends Outlook*. This evaluation will be used to select a preferred scenario to be included in the updated Strategic Transportation Plan.

2.0 WALKING

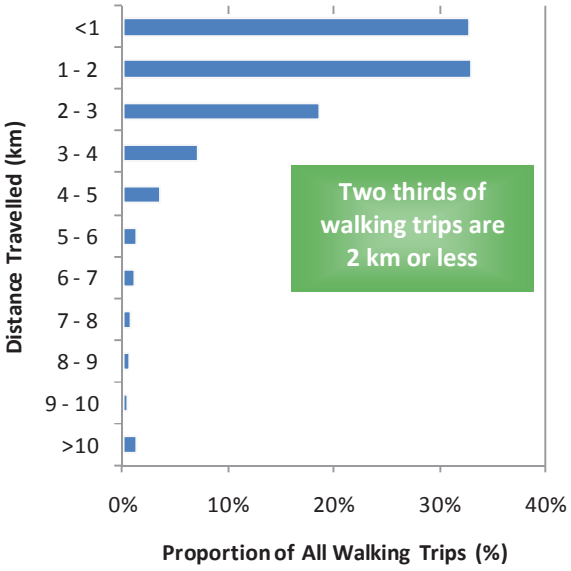
Walking is the most fundamental form of transportation. Walking is part of every trip, whether that trip is made by car, transit, or bicycle. If suitable conditions exist within a community – such as having a complete, connected sidewalk network and major destinations close to where people live – walking 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, increase social connections, reduce infrastructure demands, and create more livable and vibrant communities. Walking is a key element to support the City's commitments towards liveability and sustainability as well as the vision and goals for the STP Update.

2.1 Shaping Influences

Beyond the role of pedestrian facilities in creating vibrant, attractive, walkable communities and in supporting other modes of transportation, there are many factors that influence the long-term direction of the development of pedestrian improvement concepts for Coquitlam, as described below:

- **Most walking trips are short trips**. Across Metro Vancouver, a third of all walking trips are less than one kilometre in distance (approximately a 10 minute walk), and two thirds of walking trips are less than two kilometres in distance (approximately a 20 minute walk), as shown in **Figure 2**. Walking is a convenient alternative to the automobile for these short distance trips. In fact, approximately 40% of all trips under two kilometres in distance in Metro Vancouver are made by walking. In order to increase walking, pedestrian improvements can focus strategically on those short distance trips that are less than two kilometres in length. There is a significant opportunity to shift some of these short trips from automobiles to walking, as nearly 15% of all trips made in Coquitlam – approximately 40,000 trips – are less than two kilometres in distance, which represents a significant potential market for walking trips.

Figure 2: Length of Walking Trips in Metro Vancouver



Source: TransLink 2008 Trip Diary Survey

- **Significant growth is planned in key areas and future developments in those areas should be pedestrian oriented.**

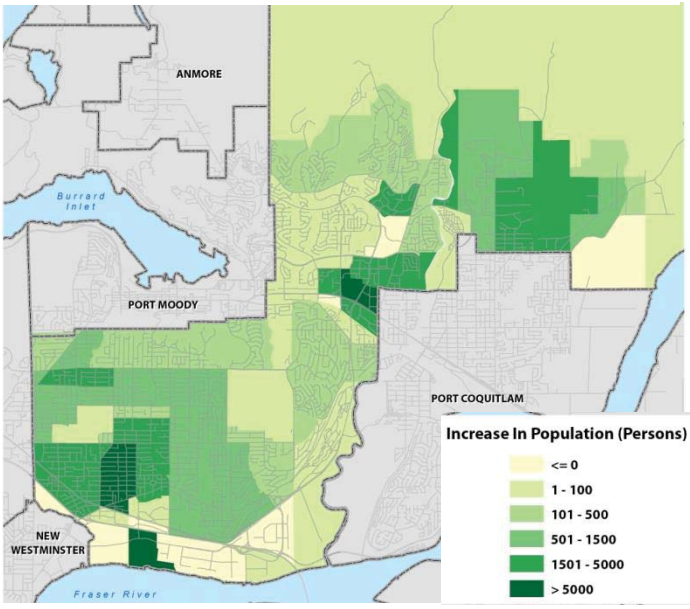
  Rapid growth is expected in Coquitlam over the next twenty years, with an additional 100,000 residents projected by 2031. The majority of this growth – roughly 60% of new residents – will be accommodated in the Regional City Centre and in other Neighbourhood Centres, as shown in **Figure 3**. The City Centre is expected to see the most significant increase from approximately 5,000 residents today to nearly 30,000 residents in 2031, and a number of Neighbourhood Centres are anticipated to see significant growth over that period as well, notably in the Austin Heights, Burquitlam, Fraser Mills, Maillardville, and Northeast Coquitlam neighbourhoods. The City has developed Neighbourhood Plans in many of these areas that include focusing growth in high density, mixed use nodes that support walking, cycling, and transit, as illustrated in **Figure 4**. The rapid growth in these centres presents a significant opportunity to ensure that new developments and redevelopments in these areas are designed to be support and prioritize pedestrians.

Figure 4: Concept for "Ridgeway Avenue Walk" in Austin Heights

Source: City of Coquitlam, Austin Heights Neighbourhood Plan (November 18 2010 Draft)

Figure 3: Residential and Employment Growth in Coquitlam 2006 - 2031

Residential Growth



Employment Growth

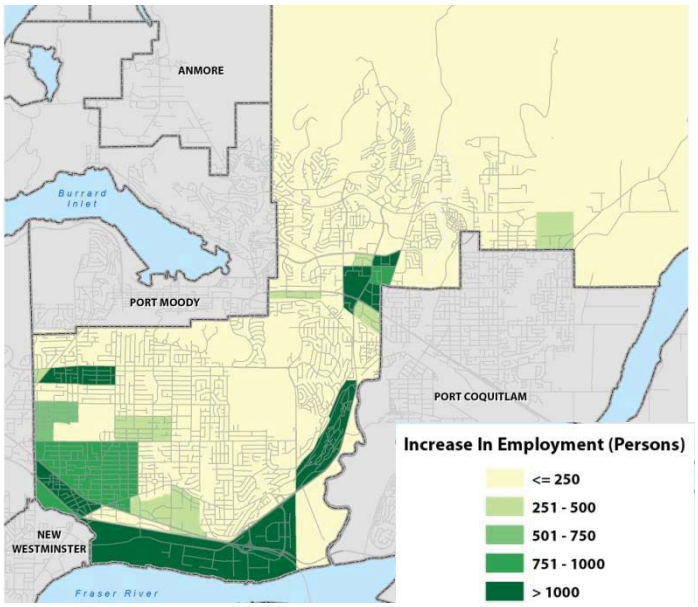
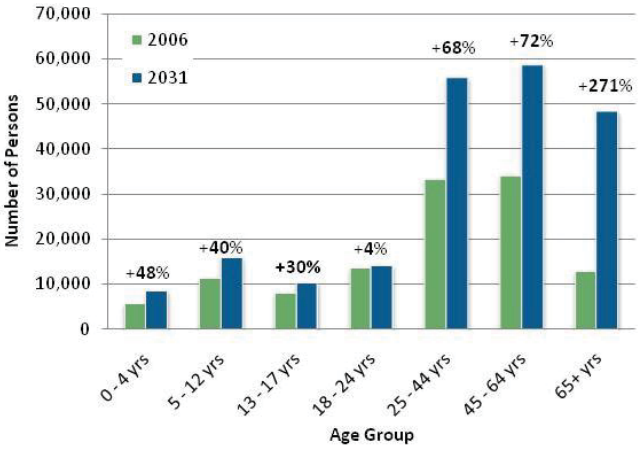


Figure 5: Population Growth in Coquitlam by Age Group, 2006 - 2031



Source: Metro Vancouver

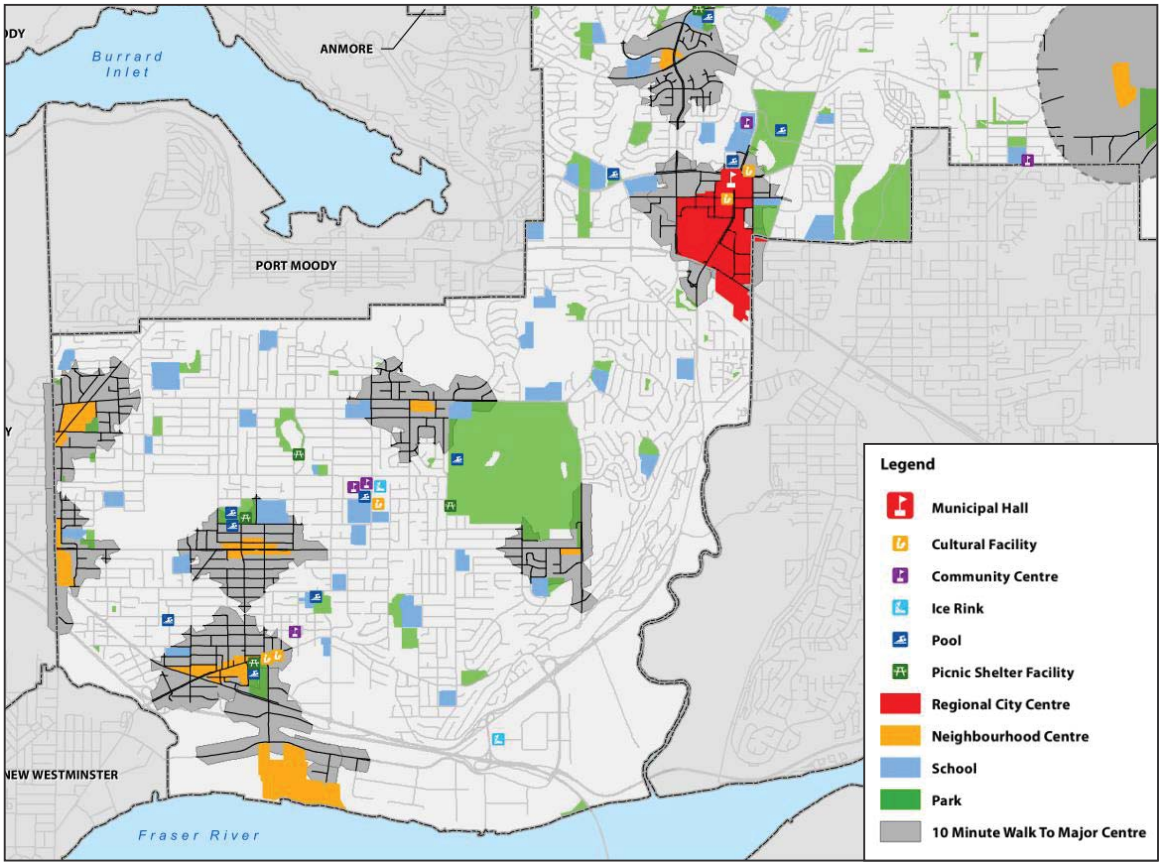
- **The number of people with mobility challenges is rapidly increasing.** Coquitlam has an aging population as the 'baby boomers' move into older age groups. Travel making behaviour will change significantly over the next 20 years as more people enter retirement age. By 2031, the increase in the number of people moving into older age groups will create new and varied transportation needs, as seniors generally have a greater need for localized and midday travel as well as a need for highly accessible transit services and pedestrian facilities. As shown in **Figure 5**, people aged 65 and over currently make up approximately 10% of Coquitlam's population. By 2031, this age group will represent nearly 25% of the entire population – an increase of over 270%. Seniors as well as people with cognitive, physical and sensory disabilities face significant mobility challenges. With a significant increase in the number of people with mobility challenges over the next twenty years, there is an increasing need to ensure that pedestrian and transit facilities are universally accessible.

- **Improving walkability around schools can encourage children to walk at an early age**. The City has conducted a study that identifies improvements for all 27 elementary schools in Coquitlam that will make walking to school safer. The improvement of the walking environment around schools will encourages children to walk as a mode of transportation at an early age, which can be continued later in life. Improvement concepts for pedestrians can build on the recommendations of the Elementary School Walkability Study to improve walkability around all schools and encourage children to walk to school.

- **Pedestrian treatments can be tailored to areas of higher pedestrian activity.** Key pedestrian generators, such as schools, parks, commercial areas, and transit facilities are located throughout the City as shown in **Figure 6**. Attractive and comfortable pedestrian facilities above and beyond simply providing sidewalks are

required around these generators in order to encourage pedestrian activity in and around these areas, particularly within relatively short walking distances to these areas, such as a five – to ten-minute walking distance, or approximately 800 metres.

Figure 6: Key Pedestrian Generators



However, not all of these pedestrian generators are equally important destinations for walking as they do not necessarily generate the same demand patterns. The relative demand for pedestrian activity can vary significantly based on type of land use and proximity to that land use, as shown conceptually in the table below, as shown in **Table 1**. The pedestrian strategy should consider the different demand patterns associated with each type of pedestrian generator and provide treatments that are appropriate for each type of land use.

Table 1: Relative Pedestrian Demands for Typical Activity Centres and Proximities

Pedestrian Generators	Proximity to Land Use			
	<250 m	250-500 m	500-750 m	750-1000 m
Rapid transit station	●	●	◕	◑
Major commercial area	●	◕	◑	◔
Post-Secondary School	●	◕	◑	◔
Middle / Secondary School	●	◕	◑	◔
Elementary School	◕	◑	◔	○
Recreation centre	◕	◑	◔	○
Major park	◑	◔	○	•
Hospital	◑	◔	○	•
Health centre	◑	◔	○	•
Shopping mall/plaza	◑	◔	○	•
Local commercial (e.g., corner store)	◑	◔	○	•
Major office building	◑	◔	○	•
Place of worship	◑	◔	○	•
Neighbourhood park	◔	○	•	•
Industrial site	◔	○	•	•
Highway commercial	○	•	•	•

●	◕	◑	◔	○	•
Highest Demand	**High Demand**	**Moderate Demand**	**Low Demand**	**Lower Demand**	**Lowest Demand**

- **Pedestrian facilities should be seamlessly integrated with transit.** Keeping in mind that every transit user is a pedestrian at some point, the pedestrian plan should integrate with the transit strategy. Although pedestrian trips are generally short-distance trips, walking can also support longer distance travel by transit. In that regard, pedestrian improvements should be integrated with public transit improvements, to ensure that pedestrian safety and comfort is enhanced at transit exchanges and along key transit corridors. This can be achieved, for example, by ensuring that sidewalks provide access to bus stops throughout the City.

2.2 Ideas & Opportunities

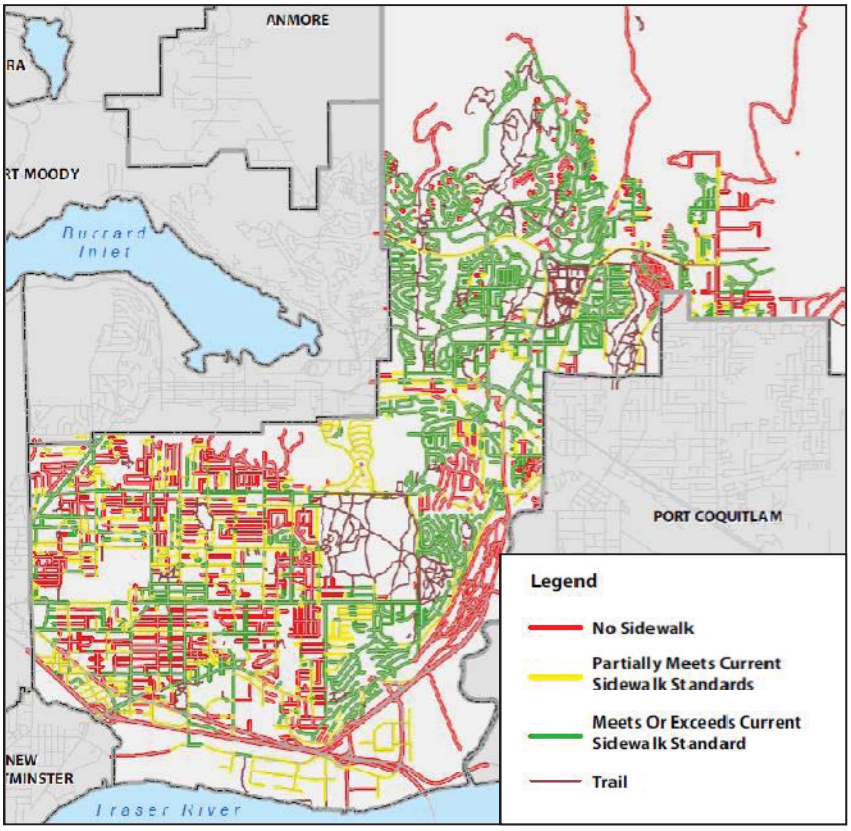
This section summarizes the overarching approach and themes for improving walking in Coquitlam based on the shaping influences described in the previous section as well as input from agency and public stakeholders.

- **The City requires that sidewalks be provided on both sides of most streets as part of new development.** The City's Subdivision and Development Servicing Bylaw requires that sidewalks be provided on both sides of all streets as part of new developments in residential and commercial areas, except industrial areas and cul-de-sacs, which may have a sidewalk only on one side of the street.

- **Many areas of the City do not meet the City's sidewalk standards.** The City's current sidewalk network includes approximately 479km of sidewalks. However, in many of the areas of the City, particularly in the older areas in Southwest Coquitlam, existing sidewalk coverage does not meet the standard noted above, as shown in **Figure 7**. The lack of sidewalks in many areas can discourage people from walking for more of their short trips within Coquitlam, as this forces pedestrians to walk on the street and makes walking a less desirable mode of transportation in these neighbourhoods.

- **The City has an existing and planned trail network.** There are currently approximately 90 kilometres of maintained trails in the City, as shown in **Figure 7**. The City's major trails are generally located within major parks, such as Mundy Park, Town Centre Park, Blue Mountain Park, Como Lake Park, Mackin Park, and Ridge Park; in forested areas, such as Riverview Forest, Coquitlam River Park, and Chineside Ravine; and within major utility rights-of-way. Although the majority of these trails are primarily recreational, some of these facilities provide important connections to the overall pedestrian network. The City has completed a Master Trail Plan (which is currently being updated), which provided recommendations for the planning, development and construction of a system of off-road trails in the City's parks and natural areas. The Master Plan Trail Plan identifies approximately 90 km of proposed trails throughout the City.

Figure 7: Existing Sidewalk and Trail Network



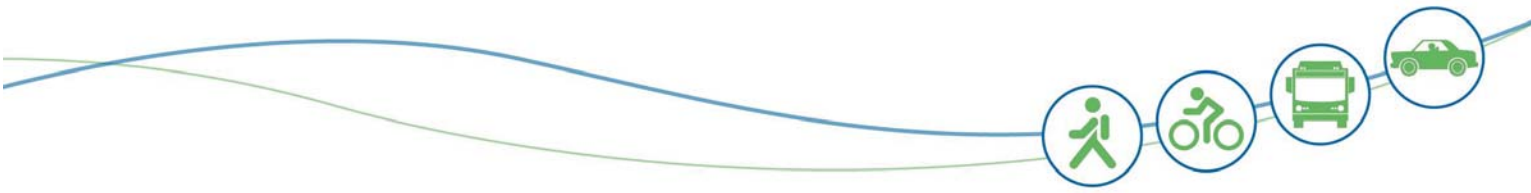
- **Significant investment is required to fully implement the sidewalk network to a full City standard.** The City typically spends approximately $300,000 annually for construction of new sidewalks. However, to implement the sidewalk network to full City standards, over 250 km of additional sidewalks are required, which would require a significant investment of over $100 million.

- **New sidewalks should be prioritized based on the areas of highest demand and the most vulnerable pedestrians.** Recognizing that the implementation of new sidewalks to the full City standard is well beyond the City's financial resources, the Pedestrian Plan recommends strategically expanding sidewalk coverage throughout the community in areas with the highest pedestrian potential and in areas to address the most vulnerable pedestrians (such as children, seniors, and people with disabilities).

- **The quality of the pedestrian realm can create great places.** In addition to providing sidewalks, other pedestrian amenities can help to improve the public realm and can enhance the community livability as well as economic vitality of an area. Although these amenities can help create attractive areas, they require significant investment above and beyond the provision of sidewalks.

- **Improve pedestrian connections**, particularly across major roadways which act as barriers for pedestrians, including Barnet Highway, Lougheed Highway, and Highway 1. In addition, pedestrian connections can be improved to the Coquitlam Centre Park and Ride; commercial areas, such as between Cariboo Shopping Centre and Westview Drive; and along trails.

- **Ensure accessibility,** by providing sidewalks that have a sufficient clear width to accommodate wheelchairs and other mobility aids, using appropriate paving materials, providing accessible curb letdowns and wide landings, and ensuring that intersections in key areas have accessible features such as enhanced pedestrian crossings.



- **Enhance Safety** at several locations, including improvements to sidewalks directly adjacent to travel lanes, maintenance, improving wide road crossings, and driveway crossing treatments.

- **Provide pedestrian amenities**, including benches, signage and wayfinding, lighting and other features to make the pedestrian realm more attractive.

- **Integrate pedestrians with transit** by ensuring there is pedestrian access to transit facilities, including improved access to the Coquitlam Park and Ride, as well as support amenities at bus stops and transit exchanges, such as benches, lighting, and shelter.

2.3 Improvement Concepts

The Pedestrian Plan recognizes that in some areas of the City, the provision of sidewalks to complete the network and provide continuity for walking trips is essential. In that regard, the improvement concepts for pedestrians include completing the sidewalk network in key areas of the City, including the areas around the City Centre, Neighbourhood Centres, transit facilities, and schools, as well as along major roadways in other areas throughout the City.

The Pedestrian Plan also recognizes that certain areas of the City will generate more pedestrian demand over a larger area than others. For many areas of the City, such as the City Centre and Neighbourhood Centres where walking will be most prominent, extraordinary treatments above and beyond the provision of sidewalks are required to make walking even more attractive. These will require treatments within and leading to those areas that go beyond the minimum standard and are accessible for all levels of mobility. In addition, improvements for pedestrians include the development of key greenway corridors to provide enhanced multi-modal linkages throughout the City. With these enhanced pedestrian facilities, walking will become a highly

convenient and attractive mode choice for more residents and visitors. Specific improvement concepts for the Pedestrian Plan are described below.

1. Increase Sidewalk Coverage

As discussed above, there are several large areas that do not meet the City's sidewalk standards. Most of the areas that are deficient in sidewalks are in some of the older subdivisions in the City, particularly in Southwest Coquitlam. However, implementing new sidewalks throughout the City to meet the full City standards is beyond the City's financial resources. Improvements in the pedestrian strategy recommend strategically increasing sidewalk coverage in areas that reflect higher pedestrian demand as well as areas that address safety concerns. To that end, the implementation of new sidewalks can be prioritized in the following areas:

1. All streets in and around the City Centre and Neighbourhood Centres should have sidewalks on both sides of the street.
2. All streets adjacent to schools should have a sidewalk preferably on both sides of the street
3. All streets adjacent to a bus stop should have a sidewalk on the side of the street with the bus stop complete with accessible transit landing.
4. All arterial streets should have sidewalks on both sides of the street to improve pedestrian safety, preferably separated by boulevards.
5. All collector streets should have a sidewalk on at least one side of the street to improve pedestrian safety and neighbourhood livability.

Recommended sidewalk prioritized are summarized in **Table 2** below and shown in **Map 1.**

Table 2: Sidewalk Priorities

		Minimum Standard	Length of Sidewalk
1.	Within & around City & Neighbourhood Centres	2 sides	79.4km
2.	Adjacent to schools	2 sides	12.4 km
3.	Adjacent to bus stops	1 side	11.9 km
4.	Arterial roads	2 sides	6.9 km
5.	Collector roads	1 side	0.6 km

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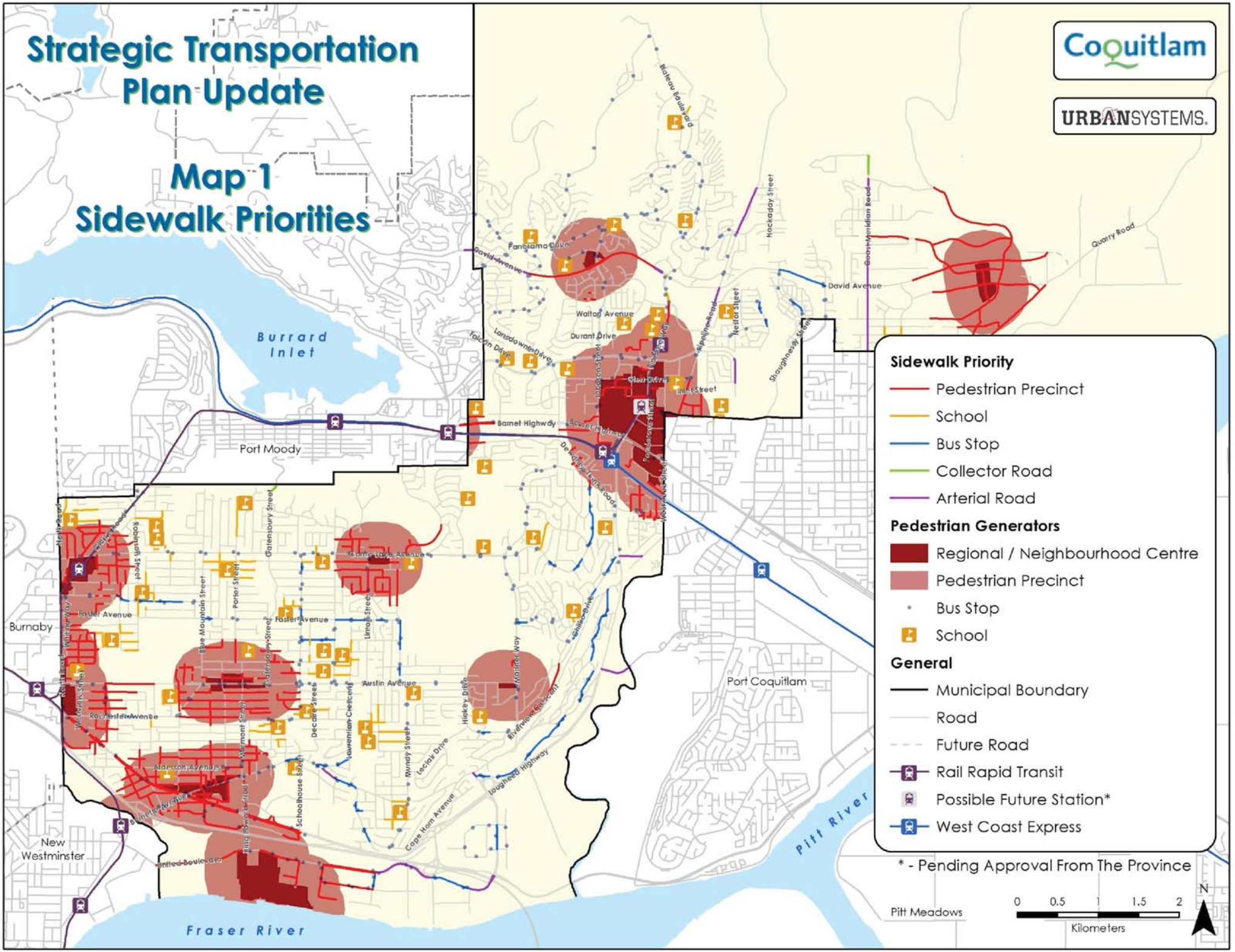
Map 1
Sidewalk Priorities



2. Enhance Pedestrian Quality

The Pedestrian Plan defines four types of pedestrian areas in which to identify design treatments that will make Coquitlam an even more walkable community in the long-term. The Pedestrian Plan recommends a range of enhanced treatments in each of these pedestrian areas to improve the quality of the walking experience, above and beyond simply expanding the sidewalk network as noted in the previous section. The range of treatments in each area is summarized below in **Table 3** and described in further detail in **Appendix A**, but generally includes:

- **Crossing treatments** – beyond the provision of sidewalks, it is also important to address pedestrian barriers by improving pedestrian crossings.
- **Accessibility** – With an increase in seniors and people with mobility challenges, a variety of treatments are included that help to provide universally accessible facilities
- **Amenities** – above and beyond improving safety by providing sidewalks and crosswalks, as well designing pedestrian facilities to be universally accessible, there are a range of other pedestrian amenities that can be considered to help make attractive places such as signage and wayfinding, landscaping, benches, and lighting.

For planning purposes, the "catchment" for each pedestrian area has been defined based on the existing street grid and other features, such as topographical limitations, highways, and railway corridors. A radius of approximately 300 – 400 metres has generally been used to define these areas for each pedestrian generator identified above, which is reflective of a four- to five-minute walk and considered to be a reasonable walking distance. Because of the proximity of many pedestrian generators in the City, these areas will typically overlap and pedestrian activity closer to the generator will be greatest.

The discussion below briefly describes each pedestrian area in the City, as shown in **Map 2**. The Pedestrian Plan includes a range of treatments for each pedestrian area, as summarized in **Table 3** and described in further

detail in **Appendix A**. In this regard, the areas that could potentially generate the most walking should receive extraordinary pedestrian treatments to encourage people to walk and make these areas "people places". The following discussion highlights the range of pedestrian treatments that are recommended within each of the pedestrian areas to help make the Coquitlam more walkable.

1. ***Pedestrian Precincts and People Streets*** are those areas where walking could be the primary mode of travel and should be prioritized. These are areas that support a diverse mix of higher-density land uses that attract multi-purpose trip making and where significant volumes of pedestrians can be expected. They are both walking destinations and areas within which people would likely walk between several locations for a variety of needs, such as to home, work, shopping or personal business. In addition to supporting walking, Pedestrian Precincts also support cycling and transit, and exhibit many of the typical characteristics of transit oriented communities. In that regard, Pedestrian Precincts generally correspond with the Urban Centres and Frequent Transit Development Areas identified in Metro Vancouver's Regional Growth Strategy.

   Pedestrian Precincts throughout Coquitlam include the City Centre area, Neighbourhood Centres throughout the City – including Austin Heights, Lougheed, Maillardville, Burquitlam, Como Lake Village, Austin-Mariner, Westwood, and Northeast Coquitlam – as well as areas near rapid transit stations. The highest quality and intensity of treatments in Pedestrian Precincts would be located immediately within the commercial nodes or rapid transit station areas, to create pedestrian "high streets" in these centres. However, the pedestrian precinct extends beyond these nodes to ensure a high quality walking experience to and from these centres within a five minute walking distance.

2. ***School Pedestrian Areas*** include areas around schools throughout the City. These areas will attract children and youth and require attractive and safe pedestrian facilities to increase pedestrian travel. These specific uses include elementary schools, middle schools, secondary schools and post-secondary schools.

3. ***Community and Recreation Pedestrian Areas*** are those land uses within the City that will typically generate a moderate number of walking trips. As such, pedestrian facilities in the immediate area will be provided to encourage walking to and from the area. The specific uses identified as primary pedestrian generators include major parks, community centres, cultural facilities, ice rinks, and pools.

4. ***Other Areas*** essentially represent the remaining areas of the City where lower volumes of pedestrians are expected, and where pedestrian facilities will be required to encourage people to walk. These areas generally comprise low density residential and light industrial developments.

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Map 2
Pedestrian Areas

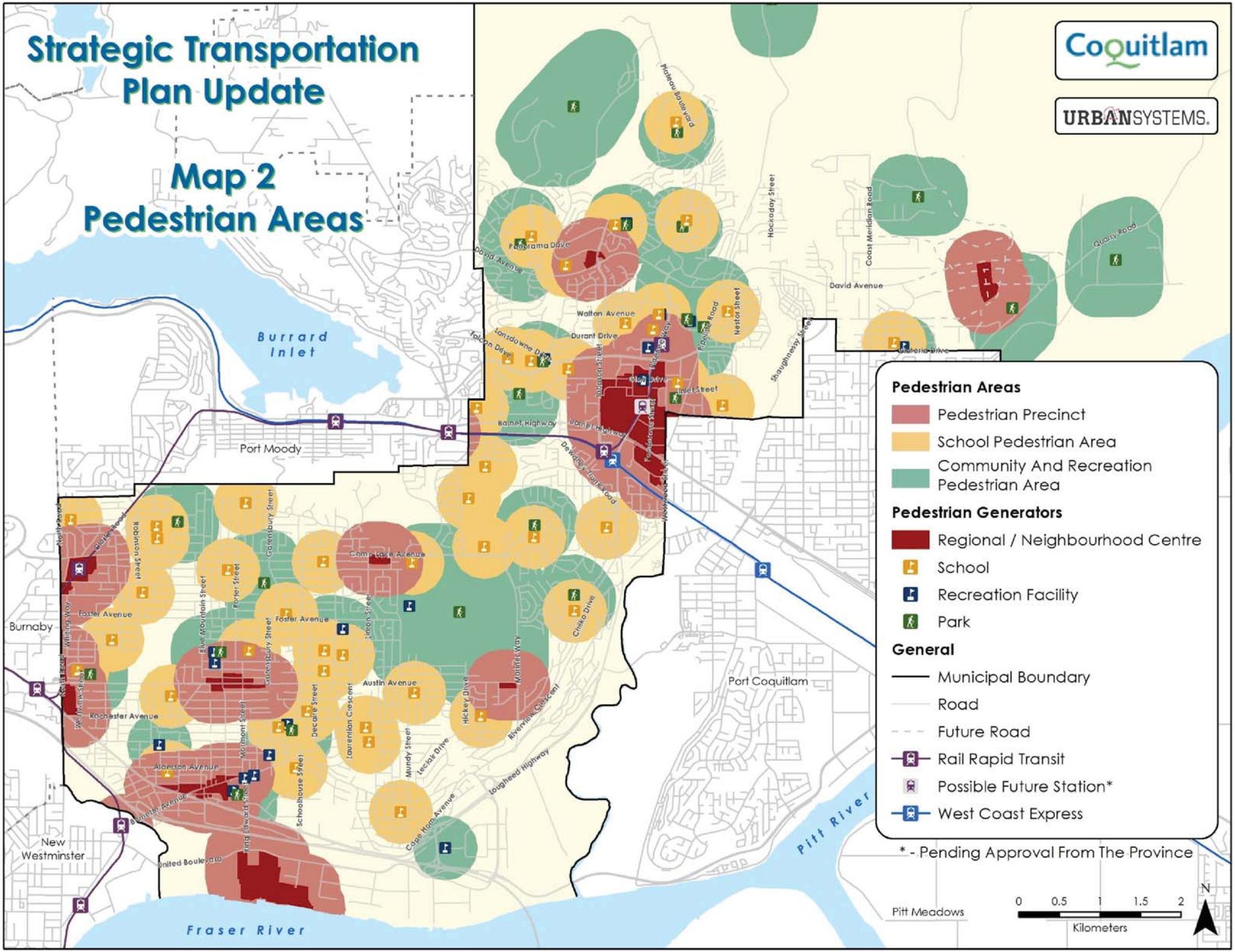

Table 3 – Pedestrian Area Treatments

	Pedestrian Precincts & People Streets	School Pedestrian Areas	Community and Recreation Pedestrian Areas	Other Areas
	• City Centre • Neighbourhood Centres • Rapid Transit Stations	• Elementary Schools • Middle Schools • Secondary Schools • Post-Secondary Schools	• Parks • Community Centres • Cultural Facility • Ice Rinks • Pools	• Other Land Uses
Enhanced Sidewalk Width	✓	✓	✓	
Boulevards	✓		✓	
Narrower Crossings	✓	✓	✓	
Accessible Curb Letdowns	✓	✓	✓	✓
Accessible Bus Ramps	✓	✓	✓	✓
Marked Crossings	✓	✓	✓	✓
Enhanced Crosswalks	✓	✓	✓	
Accessible Pedestrian Signals	✓	✓	✓	
Countdown Pedestrian Timers	✓	✓	✓	
Automatic Pedestrian Phase	✓			
Wayfinding/signage	✓		✓	
Street furniture	✓			
Street lighting	✓	✓	✓	✓
Public facilities	✓			
Building design guidelines	✓		✓	
Weather protection	✓			

3. Develop Trails & Greenways

The Pedestrian Plan recommends developing a network of on-street and off-street trails and greenway facilities throughout the community to support walking, cycling and other non-motorized modes of transportation for recreational and commuting purposes.

There are currently approximately 90 kilometres of maintained trails in the City. The City has completed a Master Trail Plan (which is currently being updated) that provides recommendations for the planning, development and construction of a system of off-road trails in the City's parks and natural areas. The Master Plan Trail Plan identified approximately 90 km of

proposed trails throughout the City (which may be revised through the Master Trail Plan update). The Master Trail Plan includes five types of off-street trails, all of which are suitable for pedestrians, including Urban Multi-Use Trails, Access Road Trails, Urban Nature Trails, Park Connectors, and Nature Trails.

In addition to a comprehensive off-street trail network, the recommended Pedestrian and Bicycle Plans in the STP Update include a comprehensive greenway network, which is made up of both Citywide Greenways and Neighbourhood Greenways. The Citywide and Neighbourhood Greenway network redefines the role that City streets and boulevards can play in a sustainable community as these are intended to be multi-modal streets that encourage and support walking and cycling for both recreational and commuting purposes.

Citywide Greenways are intended to be continuous routes that provide strategic links to major destinations throughout the City, including major commercial centres, schools, parks, and other community facilities, as shown in **Map 3**. The Citywide Greenway network accommodates many of the links needed to make walking to key pedestrian areas more attractive.

Neighbourhood Greenways will generally be shorter and will provide connections within the City Centre and Neighbourhood Centres, as well as connections to the Citywide Greenway network and new and enhanced connector pathways, when opportunities exist, as an opportunity to enhance pedestrian connections and shorten walking distances. Specific Neighbourhood Greenways will be defined through future neighbourhood planning processes.

The City should support the development of a network of Citywide and Neighbourhood Greenways made up of both on-street and off-street facilities throughout the community. These greenways should have enhanced treatments to distinguish them from other cycling and walking routes. Potential treatments along Citywide and Neighbourhood Greenways are shown in **Figure 8** and include:

- **Enhanced sidewalk width** on some streets to improve pedestrian comfort
- **Local street bikeways** on low volume roadways where cyclists and motor vehicles can safely share the road
- A continuous, accessible wide **multi-use pathway** on one side of the street that can safety accommodate both pedestrians and cyclists
- Significant **landscaping**, including a boulevard between the curb and the pathway
- **Narrow crossings** at arterials using curb extensions
- **Traffic calming** features along the street to discourage speeding and short-cutting
- **Pedestrian amenities**, such as park benches and water fountains
- Street level **lighting**
- **Public art** and interpretive signage
- Alternative **stormwater management** techniques, such as rain gardens.

As greenways are implemented, the City should establish names for each greenway and implement signage and wayfinding to help raise awareness of the greenway network.

Figure 8: Potential Greenway Treatments

	Local Streets	Collector and Arterial Streets	Off-Street
Enhanced Sidewalk Width	✓	✓	
Local Street Bikeway	✓		
Multi-Use Pathway		✓	✓
Landscaping	✓	✓	✓
Narrower Crossings	✓	✓	
Traffic Calming	✓	✓	
Pedestrian Amenities		✓	✓
Street Level Lighting		✓	✓
Public Art	✓	✓	✓
Alternative Stormwater Management	✓	✓	✓

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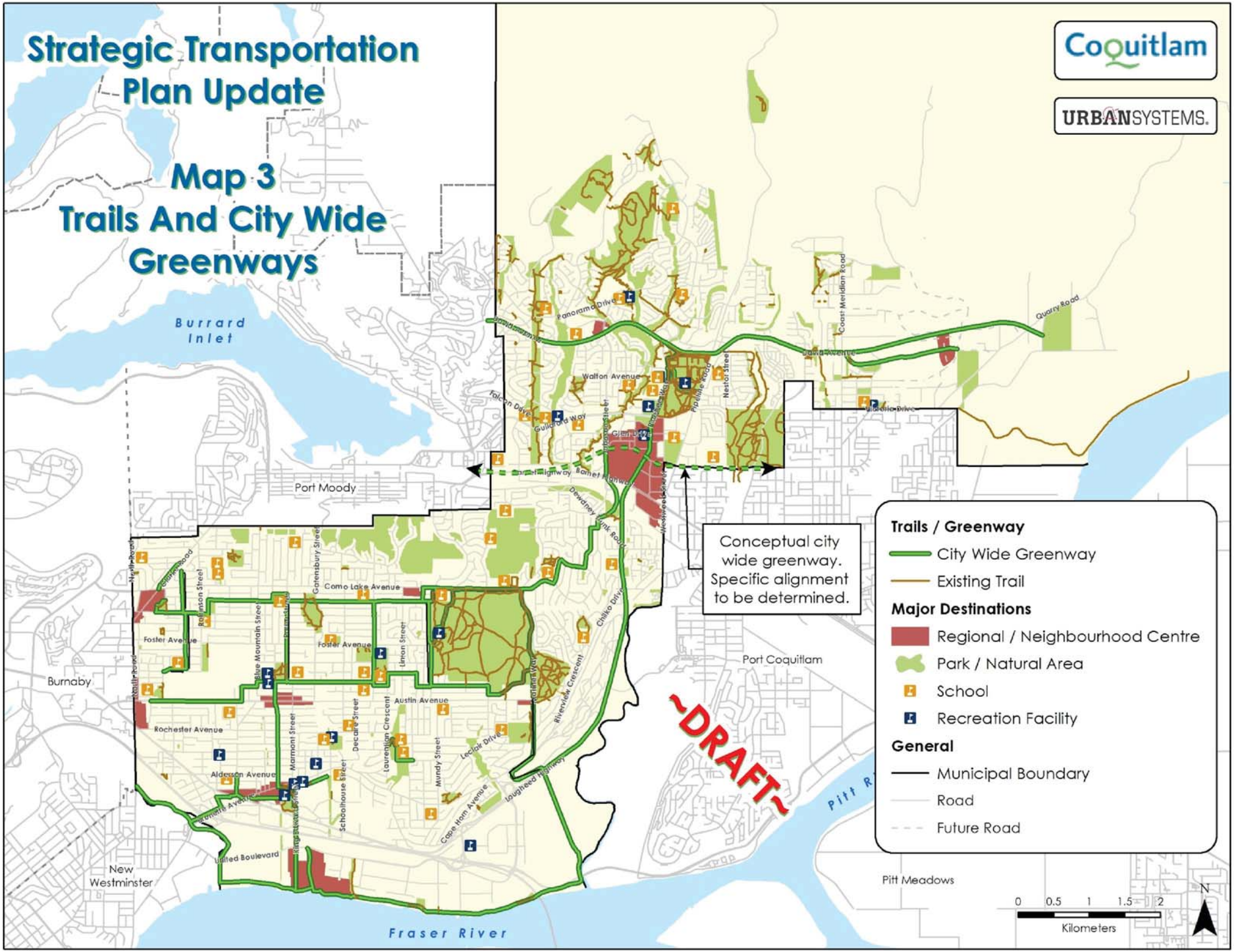
Map 3
Trails And City Wide Greenways

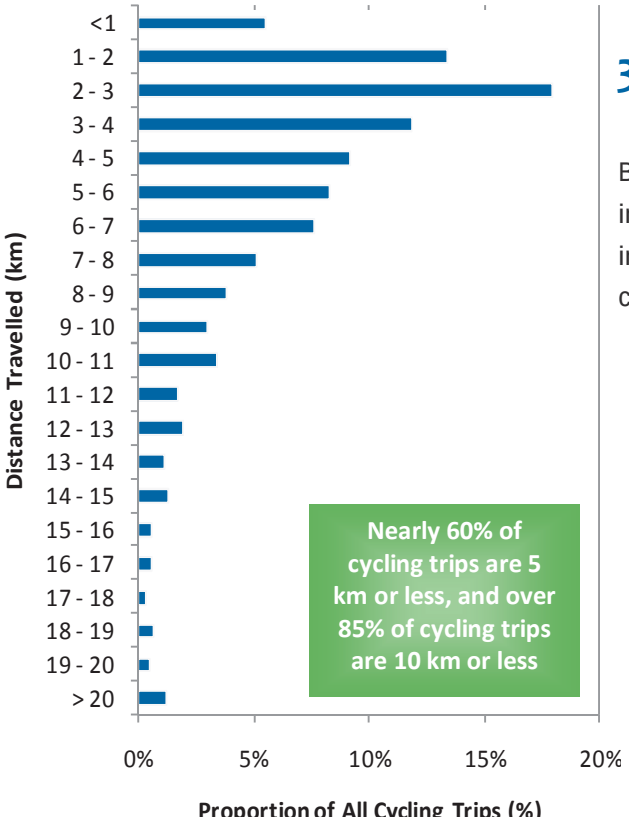


3.0CYCLING

Cycling is an increasingly important mode of transportation for both local and longer-distance trips. Cycling is an effective mode of transportation for short- and medium-distance trips, as short and medium distance trips are time-competitive with driving and transit in congested environments.

The City is committed to developing a safe and attractive network of bicycle facilities to accommodate all cyclists. To achieve the City's objectives to encourage sustainable transportation and promote healthy lifestyles, recommended improvements to the cycling network include the development of a network of high quality bicycle routes to support those residents that wish to cycle on designated routes, as well as to provide support facilities, policies, and programs to encourage cycling.

Figure 9: Length of Cycling Trips in Metro Vancouver



Source: TransLink 2008 Trip Diary Survey

3.1 Shaping Influences

Beyond the role of bicycle facilities in creating attractive, communities and integrating with other modes of transportation, there are many factors that influence the long-term direction of the development of cycling improvement concepts for Coquitlam, as described below:

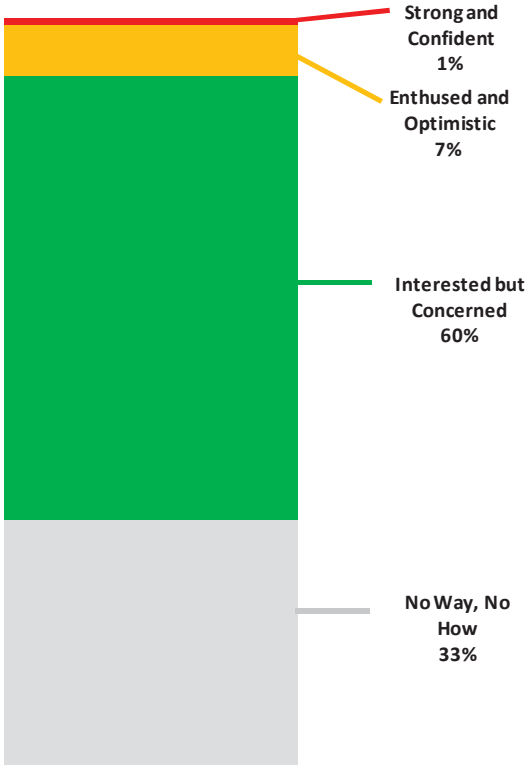
- **Most cycling trips are less than 5 km.** Similar to walking, most cycling trips are relatively short. In fact, as shown in **Figure 9**, nearly 60% of all bicycle trips across the region are under five kilometres in distance (approximately a fifteen minute bicycle ride), and over 85% of all bicycle trips are under ten kilometres in distance (approximately a thirty minute bicycle ride), although it should be noted that only a relatively small number of very short trips (less than one kilometre) are made by bicycle. There is a significant opportunity to shift some of the trips made in Coquitlam that are between one and five kilometres to cycling trips. Nearly 40% of all trips made in Coquitlam – over 115,000 daily trips –are between 1

and 5 km in distance, which represents a significant potential market for cycling trips.

- **There are a wide range of different types of cyclists and there is an opportunity tailor investments towards those who are interested in cycling but concerned about safety.** There are a wide range of different types of cyclists, ranging from those who currently cycle regularly for commuting purposes, to others who may not be comfortable cycling on bicycle routes on busy roadways. The City of Portland has categorized the cycling market based on people's willingness to use bicycles for transportation, as shown in **Figure 10**. The first group, "Strong and Confident" cyclists, are a small group of very regular cyclists, representing less than 1% of the population, who would cycle regardless of road conditions. The "Enthused and Optimistic" group is made up of 7% of the population and is comfortable on most cycling facilities, such as bicycle lanes on arterial streets. The "No Way No How" group makes up 33% of the population and would be unwilling to use a bicycle for transportation, regardless of conditions.

  What remains is the key untapped market, the "Interested but Concerned" group, and there is a significant opportunity to focus on the needs of this large market segment to achieve a significant increase in bicycle use. In Portland it is estimated that this group accounts for approximately 60% of the population. Currently, less than 1% of trips in Coquitlam are made by bicycle, suggesting that most current cyclists are the "strong and fearless" or even the "enthused and confident" groups. The City has not significantly tapped in to the "interested but concerned" market but could see significant benefits if cycling improvements target that group and are able to shift even a modest proportion of trips made by that group towards cycling.

Figure 10: Markets for Cycling



Source: Adapted from Portland Office of Transportation Survey On Public Attitudes Towards Cycling

- **Most cyclists prefer facilities that are separated from motor vehicle traffic or are on streets with low traffic volumes and speeds.** A network of bicycle facilities is crucial to get people

cycling, but careful consideration needs to be given to the selection and design of different types of bicycle facilities, as different types of bicycle facilities vary in their desirability. It is important to consider the types of cyclists and ensure that the type of facility matches the target user group. Research at the Cycling in Cities Program at the University of British Columbia asked about preferences for different types of bicycle facilities across the region, and found that all types of cyclists showed a preference for bicycle facilities that were separated from motorized traffic – such as off-street pathways or separated bicycle lanes – or which were located on residential streets with low traffic volumes. The study also found that the least preferred types of bicycle facilities were those located on major streets, particularly if on-street parking was present.

- **A dense bicycle network is required to make cycling an attractive option.** Research conducted at the Cycling in Cities Program at UBC also found that, while good cycling facilities are important, cyclists need to be able to access these routes quickly. The study found that cyclists are unlikely to detour more than about 400 metres to find a route with a bicycle facility. As a result, the study concluded that a bicycle route network with designated facilities spaced a minimum of every 500 metres should be the goal for urban areas where there is a desire to increase the modal share of cycling. Further, the Regional Cycling Strategy prepared by TransLink recommends a dense bicycle network such that bicycle network density is highest in urban centres and areas of high cycling potential, as shown in **Figure 11**.

Figure 11: Approach to Bicycle Network Spacing and Classification

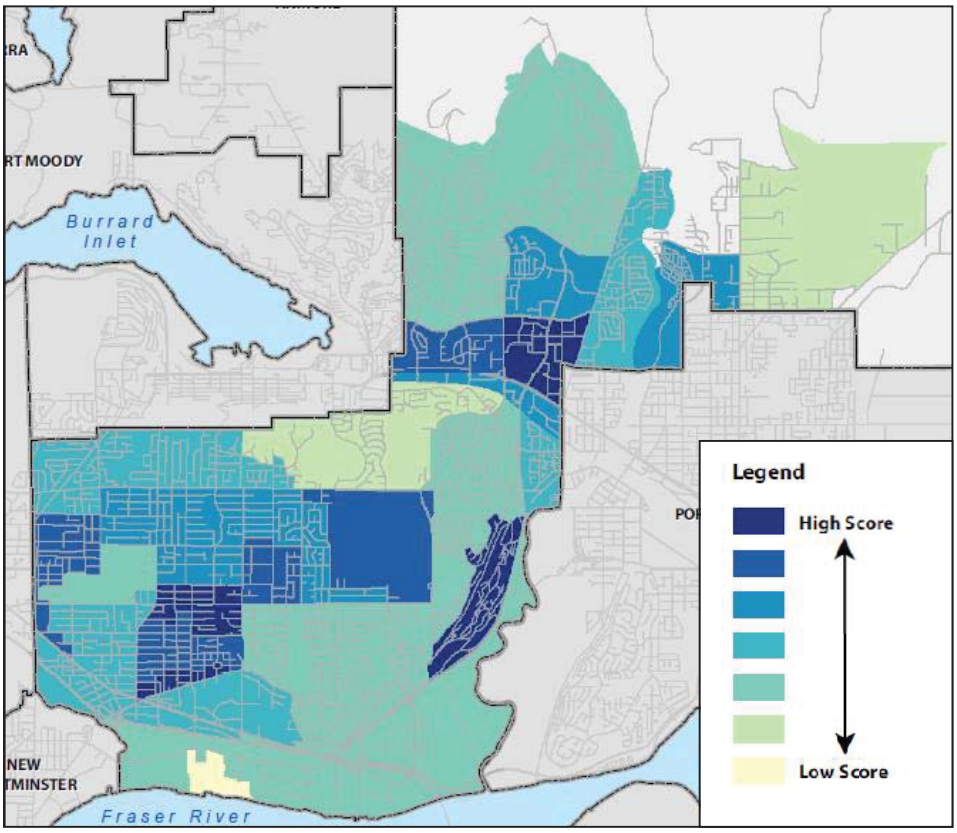
		Network Design	
		Bikeway Spacing	Bikeway Classifications
Urban Designation	Urban Centres	200m	Class 1
	General Urban (high cycling potential)	300m	Class 1 & 2
	General Urban (low cycling potential)	800m	Class 2 & 3
	Non-Urban	1600m +	Class 2 & 3

Source: TransLink Regional Cycling Strategy

- **The greatest potential for increasing bicycle use is in the City Centre and parts of Southwest Coquitlam.** The City of Coquitlam is a diverse community comprising a range of different environments ranging from the City Centre and other neighbourhood centres to residential subdivisions and industrial areas. To help understand the unique conditions for cycling throughout the City and which areas of the City are most 'bicycle—friendly' an analysis of the

cycling conditions throughout the City was conducted. This analysis examined a variety of factors that can help make cycling more attractive, such as road network density, road network connectivity, land use mix, and topography, in order to identify unique issues and opportunities throughout the City and identify the areas with the highest potential to increase bicycle use. As shown in **Figure 12**, the Cycle Zone Analysis indicates that the areas with the highest 'cycling potential' are the Coquitlam City Centre and several Neighbourhood Centres, such as Maillardville and Austin Heights, as well as the neighbourhoods at the top of plateau in Southwest Coquitlam. These areas have relatively well-connected grid road networks, a significant amount of cycling generating land uses, and are relatively flat. In addition, the Riverview area and Mundy Park are also have relatively high cycling potential, although these areas are particularly suited for recreational cycling.

Figure 12: Cycling Potential in Coquitlam



- **The City's bicycle network should be integrated with surrounding municipalities.** Many bicycle trips are medium to longer distance trips that extend outside the City of Coquitlam's boundaries. In that regard, the City's bicycle network should be integrated with existing and planned facilities in surrounding municipalities. Important connections outside the City include links to the Central Valley Greenway, which provides a high quality cycling connection to New Westminster, Burnaby, and Vancouver, as well as the Lougheed and Braid SkyTrain stations. Bicycle facilities should also connect with other bicycle routes in New Westminster, Burnaby, Port Moody and Port Coquitlam.

- **Bicycle facilities should be integrated with transit.** Although most cycling trips are relatively short distances, if cycling trips are integrated with transit longer distance trips become more attractive. Cycling facilities can be integrated with transit through the provision of bicycle parking at transit exchanges and rapid transit stations, and by allowing bicycles on transit vehicles.

3.2 Ideas & Opportunities

This section summarizes the overarching approach and themes for increasing cycling in Coquitlam based on the shaping influences described in the previous section as well as input from agency and public stakeholders.

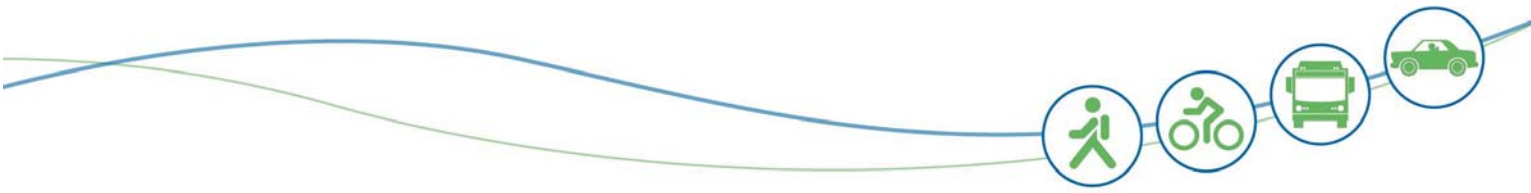
- **A recommended bicycle network has previously been identified through various studies**. The Bicycle Plan in the STP provided recommendations for the development of an on-street bicycle network throughout the City. In addition, the City has developed an Off-Road Cycling Strategy and has identified additional bicycle routes and greenway corridors through various area planning and neighbourhood planning process, particularly in the Lougheed, Burquitlam, City Centre, Waterfront Village, and Northeast Coquitlam areas. These previous initiatives have helped shape the updated

recommendations for the bicycle network. In addition, the Regional Cycling Strategy prepared by TransLink identifies a conceptual Major Bikeway Network throughout the region which should generally consists of Class 1 and 2 facilities where possible.

- **The City has made significant progress implementing the bicycle network in recent years.** The City has implemented approximately 40 km of bicycle routes since the previous STP, including bicycle lanes on Guildford Way, David Avenue, Chilco Way, Lougheed Highway, and portions of Barnet Highway; Marked Wide Curb Lanes on Foster Avenue, Alderson Avenue, Rochester Avenue, Westview Street, Whiting Way, Wilmot Street, and Gatensbury Street; and multi-use pathways on David Avenue and adjacent to Mundy Park.

- **Significant steps are still required to make cycling more attractive in Coquitlam.** Although the City has made progress in developing its bicycle network, many of facilities that have been implemented in the past several years have been on roads with moderate or high volume corridors and are generally not attractive to the "interested but concerned" segment of the population. In order for the City to make significant steps towards increasing bicycle use, the City needs to consider higher quality facilities. However, more attractive facilities can be significantly more expensive to implement – particularly in the case of off-street facilities – and the City will need a strategic approach to investing in future cycling facilities to provide the best return on investment by prioritizing bicycle routes on neighbourhood streets with lower traffic volumes and speeds and considering treatments to provide separation between motor vehicles and bicycles on busier roadways.

- **Improve cycling connections**, particularly to provide improved east-west and north-south connections through Southwest Coquitlam and to the City Centre; improved connections parallel to Lougheed Highway; and improved external connections. Bicycle routes should



also connect with key destinations such as the City Centre, Neighbourhood Centres, parks and schools.

- **Improve crossings** at several intersections including intersections along Lougheed Highway.

- **Enhance signage** on existing bicycle routes to provide improved wayfinding, visibility and awareness for cyclists and motorists on existing bicycle routes, as well as improved signage on trails, particularly through Mundy Park.

- **Develop and support encouragement and awareness initiatives**, such as the development of a bicycle user map, supporting encouragement programs such as bike to school campaigns and bike to work week.

- **Integrate bicycle and transit** by providing bicycle parking at transit exchanges and stations and coordinating bicycle routes and transit routes so that cyclists can choose to take the bus in the uphill direction and cycle in the downhill direction.

- **Ensure bicycle parking** is provided at key destinations throughout the City to ensure that cyclists have a place to store their bicycles at their destinations.

3.3 Improvement Concepts

The improvement concepts for cycling include recommendations for providing a dense network of high quality bicycle facilities that are attractive to a variety of target markets, including the "strong and confident", "enthused and optimistic" and "interested but concerned". The improvement concepts also involves support facilities, policies and programs, such as bicycle parking and other end-of-trip facilities, improved signage and wayfinding, bicycle-

transit integration, and developing a bicycle user map. Specific improvement concepts for the Bicycle Plan are described below.

1. Expand Bicycle Network Coverage

As noted above, research at UBC found that cyclists are unlikely to detour more than about 400 metres to find a route with a bicycle facility. As a result, the study concluded that a bicycle route network with designated facilities spaced a minimum of every 500 metres should be the goal for urban areas where there is a desire to increase the modal share of cycling. In that regard, the potential bicycle network includes enhanced network coverage compared to the plan identified in the previous STP to ensure that most residents will be located within 500 metres of a bicycle route when the entire bicycle network has been complete. Further, as noted above the Regional Cycling Strategy prepared by TransLink recommends a dense bicycle network such that network density is highest in urban centres and areas of high cycling potential.

The recommended bicycle network is shown in **Map 4** and builds on the network identified through the previous Bicycle Plan, Off-Road Cycling Strategy and other area planning and neighbourhood planning initiatives in recent years to develop a denser and more-connected grid of bicycle facilities throughout the City. With this updated grid network, the City's bicycle network would grow from approximately 40km today to approximately 150 km upon full build out, with approximately 110km of planned bicycle routes. Although this may seem like a significant increase to the bicycle network, the City has implemented 40 km of bicycle routes over the past decade. An additional 110 km of facilities could be implemented over the next twenty five years and beyond at approximately the same implementation rate as over the past decade. In addition, the complete network would place most residents within close proximity to a bicycle route. Today, less than 30% of the urban area of the City is located within approximately 500 metres of a bicycle route (approximately a one to two minute bicycle ride). When the full bicycle network is complete, over 70% of the urban area of the City would be located within 500 metres of a bicycle route.

2. High Quality Bicycle Facilities

There a range of different types of bicycle facilities that can be considered in different contexts and which have varying levels of appeal to different types of cyclists. As noted previously, research at UBC found that all types of cyclists surveyed preferred those types of bicycle facilities that were physically separated from motorized traffic, or which were located on low volume streets. Based on this research, the Bicycle Plan includes a classification of bicycle facilities based on their target markets:

- **Class 1 Facilities** would appeal to a wide variety of cyclists including the "strong and confident", "enthused and optimistic", and "interested but concerned" cyclists. These facilities have the potential to significantly increase cycling among the interested but concerned group in particular. These high quality routes can include off-street pathways, separated bicycle lanes, and local street bikeways on streets with low traffic volumes (less than 3,000 vehicles per day in both directions). These facilities can also act as a "springboard" facility for new cyclists, to allow them to become more confident cyclists who could then move to using other types of facilities with increased confidence.

- **Class 2 Facilities** appeal to more limited group of cyclists including the "strong and confident" and "enthused and optimistic" groups, and include facilities such as unpaved multi-use pathways, bicycle lanes on collector or arterial roads, or shared facilities on busier roadways (with more than 3,000 vehicles per day in both directions).

- **Class 3 Facilities** would appeal to a limited group of commuter cyclists and consist of facilities on major roads with higher motor vehicle volumes and speeds. Facilities could include paved shoulders, bicycle lanes on arterial roads or highways, or marked wide curb lanes.

Many of these bicycle facilities would coincide with the city-wide greenways and be multi-modal corridors that connect major activity centres, such as major commercial areas, schools, parks, and other community facilities. These greenways should be high quality routes (Class 1 facilities) where possible to not only provide enhanced bicycle facilities but also enhanced pedestrian treatments such as wayfinding, benches, bicycle racks, public art and other amenities, as described in the Pedestrian Plan.

A summary of the typical characteristics of Class 1, 2 and 3 facilities is provided in **Table 4**. The classifications in this table are based on TransLink's Regional Cycling Strategy, relevant Transportation Association of Canada guidelines, and other applicable guidelines. However, it should be recognized that there are a wide variety of considerations for selecting the type of facility for a given context, including motor vehicle volumes and speeds, roadway width, anticipated users, on-street motor vehicle parking, truck and bus traffic, and land use, among other things.

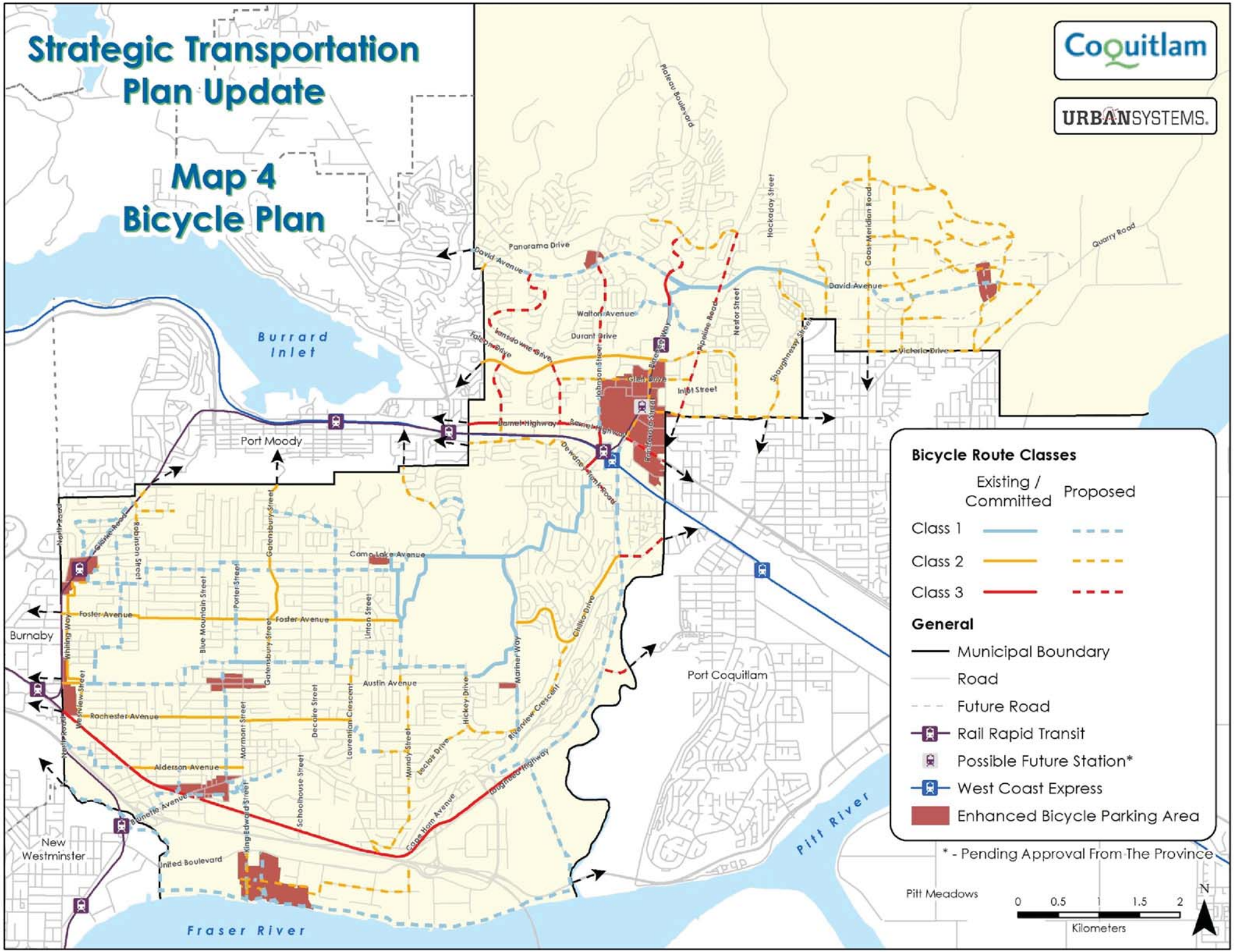
Table 4: Bicycle Facility Classification

	Local Street (<6,000 vehicles per day, both directions)	Collector / Arterial Street (>6,000 vehicles per day, both directions)
Class 1	• Local Street Bikeway (< 3,000 vehicles per day, both directions)	• Off-Street Pathway • Separated Bicycle Lanes
Class 2	• Local Street Bikeway (3,000 – 6,000 vehicle per day, both directions) • Marked wide curb lanes	• Marked Wide Curb Lanes • Bicycle Lanes (6,000 – 15,000 vehicles per day, both directions)
Class 3	• Marked wide curb lanes	• Bicycle Lanes (>15,000 vehicles per day, both directions) • Paved Shoulders • Marked Wide Curb Lanes

Source: Adapted from TransLink Regional Cycling Strategy

Strategic Transportation Plan Update

Map 4 Bicycle Plan



3. Develop Support Facilities, Policies & Programs

In addition to providing a comprehensive network of high quality bicycle facilities, the following support facilities, policies, and programs are essential to consider as part of a comprehensive approach to make cycling more convenient and attractive in Coquitlam:

a) Support Facilities

- **Enhanced On-Street Bicycle Parking in Key Areas**. Every trip by bicycle requires that the bicycle be parked at the end of the trip. In many cases, this means locking the bicycle on the street where it could be stolen. The fear of theft or vandalism is a significant deterrent to cycling. Regardless of whether a bicycle is worth $100 or $5,000, no-one wants to have their bicycle stolen, particularly if they depend upon it for transportation. Consequently, providing safe and secure on-street parking at key locations throughout the City is a significant means of encouraging cycling. Additional bicycle parking is recommended in key areas of Coquitlam such as:
    - The City Centre
    - Neighbourhood Centres
    - SkyTrain stations and transit exchanges
    - Community centres
    - Schools
    - Key parks, such as Mundy Park

Ideally, each of these areas should offer a range of bicycle parking facilities, especially where the duration of parking may vary significantly. Options should include:

- **Bicycle Racks** are the most common and versatile type of short-term bicycle parking. There are many different types of bicycle racks, including 'U' Racks, Post-and-Ring racks, and Coathanger racks.

- **Bicycle 'Corrals'**, also known as 'in-street bicycle parking' consist of bicycle racks grouped together in a common areas

Figure 13: In-Street Bicycle 'Corral'

within the roadway traditionally used for automobile parking, as shown in **Figure 13**. Bicycle corrals can be implemented by converting one or two parking stalls. Bicycle corrals move bicycles off the sidewalks, leaving more space for pedestrians, sidewalk café tables, etc. Because bicycle parking does not block sightlines (as large motor vehicles would do), it may be possible to locate bicycle parking in 'no-parking' zones near intersections and crosswalks. In most communities the installation of bicycle corrals is driven by requests from adjacent businesses, and is not a city-driven initiative. In such cases, the City does not remove motor vehicle parking unless it is explicitly requested.

Figure 14: Bicycle Shelter

- **Bicycle Shelters** consist of bicycle racks grouped together within structures with a roof that provides weather protection, as shown in **Figure 14**. Bicycle shelters provide convenient short-term and long-term bicycle parking.

- **Bicycle Lockers** are essentially large metal or plastic stand-alone boxes that accommodate longer-term parking. They are most appropriate to consider at locations where cyclists will park their bicycles for an extended period of time, such as rapid transit stations or transit exchanges.

Bicycle parking can be cost-effectively included in off-street parking lots by converting motor vehicle parking stalls to bicycle parking, including provision for covered, sheltered bicycle parking.

- **Enhanced Wayfinding and Signage** helps to identify designated bicycle routes and guide cyclists throughout the bicycle network, and also provide a visual cue to motorists that they are driving along a bicycle route. This can also help "brand" the bicycle network, increasing awareness and marketing of the bicycle network for both cyclists and motorists. Enhanced wayfinding and signage can include:

- **Regulatory and warning signs** provide information for cyclists and motorists regarding appropriate use of bicycle facilities, such as "Share the Road" signs and "Yield To..." signs.

- **Route signs** indicate which streets are designated bicycle routes through the use of bicycle route signs and bicycle symbols on street name signs, as shown in **Figure 15**. Supplementary tabs can be installed below bicycle route signs to indicate major destinations.

Figure 15: Street Name Sign with Bicycle Symbol

- **Wayfinding signs** can indicate directions to key destinations, as well travel distance and estimated riding time, as illustrated in **Figure 16**. Signs may consist of a single placard that lists several destinations with directional arrows or several destination blades that can be angled to emphasize the direction of **travel**.

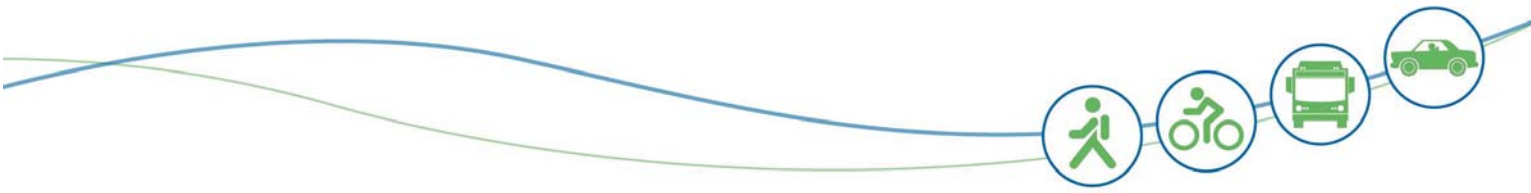
Figure 16: Wayfinding Sign Showing Travel Time and

Source: City of Gresham, Oregon

- **Public Bike Sharing.** Public bike sharing programs are common in Europe and increasingly popular in communities throughout North America, including Montreal, Washington DC, and Boston. Public bike sharing programs can range significantly in size and scale. For example, the Town of Golden BC recently launched s small bike sharing program with 15 public bicycles and two docking stations. The City can work with other agencies to determine the feasibility of implementing a public bike sharing program in Coquitlam or the broader Northeast Sector. There are a number of factors to consider in a feasibility study for a public bike share program, such as population density, demographics, mixture of land use, completion of the bicycle route network, current bicycle use, bicycle culture, and partnering opportunities with other agencies or the private sector.

b) Support Policies

- **Bicycle Parking Requirements.** The City does not currently have requirements for bicycle parking in its Zoning Bylaw. Although there



are no formal requirements for bicycle parking in private developments, many private developers have recognized the need to provide these facilities. It is recommended that the City amend its Zoning Bylaw to provide requirements for the bicycle parking and also develop design guidelines to regular the overall quality and design of bicycle parking facilities. These requirements may also consider flexible parking requirements that allow for reductions in automobile parking if the number of bicycle parking spaces provided exceeds the City's minimum requirements.

- **End-of-Trip Facility Requirements,** as these are a critical factor in whether someone decides to make a trip by bicycle. Although end-of-trip facilities are not currently required in the Zoning Bylaw, staff is already working informally with developers to implement these facilities. However, it is recommended that the City amend its Zoning Bylaw to require that end-of-trip facilities such as showers and clothing lockers be provided at major workplaces.

- **Bicycle-Transit Integration**. Integrating bicycle facilities with transit is particularly important in Coquitlam given the topography of the community and the need to accommodate longer-distance commute trips. Bicycle-transit integration includes the provision of bicycle racks on buses, allowing bicycles on rapid transit, as well as secure parking at major transit facilities as noted above.

c) Support Programs

- **Education and Awareness Programs.** While it is important to focus on improving bicycle infrastructure to make cycling safer and more attractive, it is equally important to ensure the residents have the skills, information, confidence and support they need to bicycle more. There are a number of education and awareness programs and initiatives that the City can develop and support with its partners, including supporting cycling skills programs, safe routes to

schools program, and events such as Bike to Work Week and Bike Month.

- **Marketing and Promotion Strategies.** The City can actively market and promote its bicycle facilities, policies and programs using various media. This can include developing a Bicycle User Map for Coquitlam residents which could display information such as bicycle routes, key destinations, transit routes, bicycle parking, and bicycle retailers, for example. The City could also develop a dedicated web presence and use other social media tools to promote and market cycling initiatives in Coquitlam.

4.0 PUBLIC TRANSIT

Transit is the primary alternative to the automobile for travel in Coquitlam and across the region, as it can offer competitive travel times and reduce overall environmental and community impacts of motor vehicle transportation. For those who do not drive, transit is often the only option for getting to jobs, shopping areas, and recreational centres.

The Transit Strategy assumes that the Evergreen Line will be implemented and that local transit services will be moderately increased in conjunction with planned growth. In addition to these features, the Transit Strategy identifies a number of improvements above and beyond the integration of the Evergreen Line into Coquitlam's transportation network.

Transit services in Coquitlam, and throughout Metro Vancouver, are planned and funded by TransLink and operated by various subsidiary companies and contractors. The City participates in the transit planning process through TransLink's Northeast Sector Area Transit Plan, which was completed in 2002 and is anticipated to be updated in 2013. The Transit Strategy is intended to provide strategic direction to the City and TransLink regarding the long-term needs of the community with respect to transit services.

4.1 Shaping Influences

There are a number of factors that will influence the success of the transit strategy, above and beyond the provision of attractive transit services and facilities. Perhaps the most important factor influencing the demand for transit is land use. In order to ensure the success of the transit strategy, it is important that the City implement transit supportive land uses. In addition to the role of land use in shaping the transit system, current and forecast travel patterns within Coquitlam and the surrounding areas are important to understand as these define the "markets" for transit service. This section describes some of the key influences shaping the transit strategy:

- **There are a number of external transit initiatives that need to be integrated with the Transit Strategy**. In 2008, the Provincial Government announced the Provincial Transit Plan, which sets a target to increase transit ridership in Metro Vancouver from 12% to 22% by 2030. The Provincial Transit Plan included a number of transit commitments in the Northeast Sector, including the provision of the Evergreen Rapid Transit Line as well as Bus Rapid Transit services and transit priority measures along Highway 1 to Surrey and Langley and along Lougheed Highway to Pitt Meadows. In addition, as noted above, TransLink is planning to update the Northeast Sector Area Transit Plan in 2013.

- **The provision of the Evergreen Line and moderate local transit service improvements is projected to result in a doubling of peak hour transit ridership by 2031.** Today, transit accommodates approximately 4,500 trips during the AM peak hour and 45,000 daily trips to and from Coquitlam, resulting in a 9% transit mode share. With population and employment levels in Coquitlam both projected to nearly double by 2031, and the provision of planned improvement such as the Evergreen Line and moderate local service improvements, peak hour transit ridership to and from Coquitlam is projected to increase by approximately 125% by 2031 to approximately 10,000 trips during the AM peak hour, as shown in **Table 5**. These increases in transit use are based on assumed transit improvements included as part of the future baseline conditions. Additional transit improvements identified in the Transit Strategy could be expected to further increase future transit ridership.

Table 5: Number of Trips To and From Coquitlam (AM Peak) in 2008 and 2031 with Baseline Transit Improvements[1]

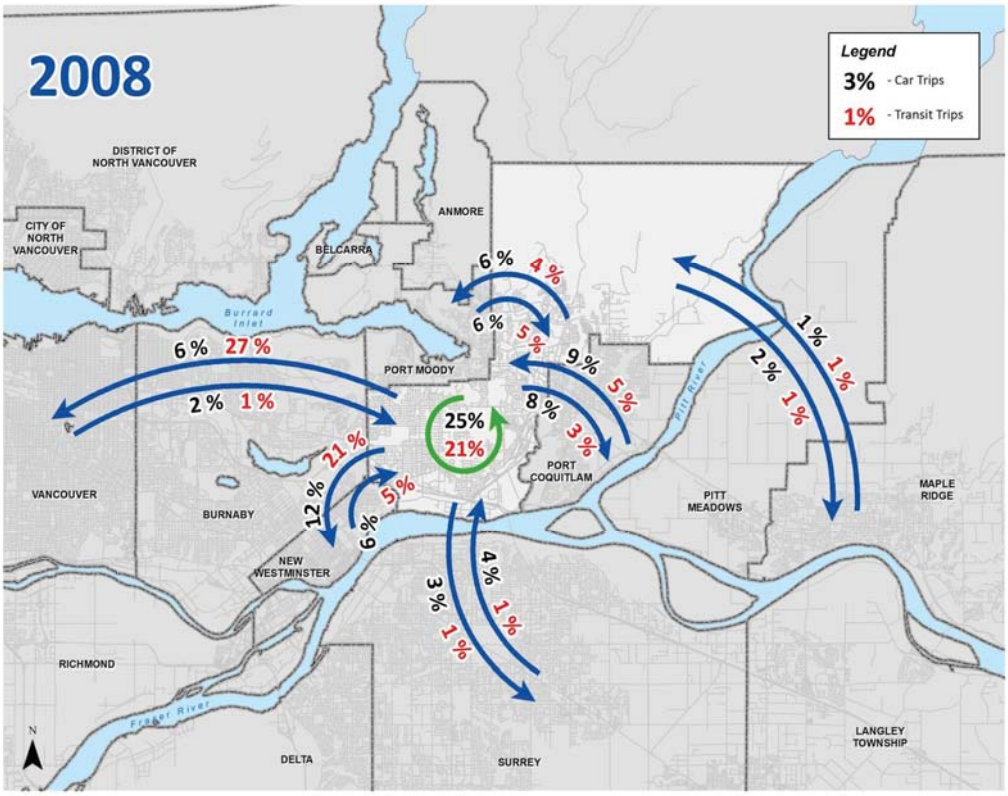
	2008	2031	Growth
Automobile	36,700	52,800	+ 44%
Transit	4,400	9,800	+ 125%

[1] Baseline transit improvements include Evergreen Line and moderate local transit service improvements

- **Internal daily travel represents a strong market for transit.** During the peak periods, internal transit travel makes up a reasonable proportion of the market today (approximately 21% of trips during the AM peak period, compared to 25% of automobile driver trips during this period), as shown in **Figure 17**. It is anticipated that this internal peak period market will continue to expand in the long-term with continued growth and development of the City Centre, key Neighbourhoods Centres within Southwest Coquitlam, and areas of Northeast Coquitlam. Throughout the entire day however, internal travel comprises less than 25% of the daily transit market while approximately 45% of daily trips made by automobile are internal to Coquitlam. These patterns would suggest that the off-peak market potential for transit internal to Coquitlam is quite high today and in the long-term.

- **Communities to the west such as Burnaby, New Westminster and Vancouver account for a large majority of the transit market today and for the long-term.** In particular, transit trips 'to' these communities in the morning and returning in the afternoon are significantly higher than the proportion of vehicle trips to those destinations as shown in **Figure 17**. In the 'reverse peak' direction however, the transit market is more consistent with the proportion of driving trips generated by Coquitlam during the peak periods – a trend that is expected to occur for the long-term. In an effort to capitalize on the significant investment in rapid transit and other services, opportunities may exist to increase the proportion of reverse peak trips using transit with enhanced local services within the City.

Figure 17: Travel Patterns Within Coquitlam and External to Coquitlam by Automobile and Transit (AM Peak)



Source: TransLink Regional Trip Diary Survey

- **Enhanced local services between Coquitlam and Port Coquitlam during the peak and throughout the day may support a larger market than what exists today.** The proportion of both peak period and daily trips made by transit between Coquitlam and Port Coquitlam is slightly below that of the total vehicle trips. Improved transit connections and service levels between and within both communities will likely result in greater transit usage in order to be competitive with driving.

- **Within the City of Coquitlam, planned development of the City Centre creates the need for improved mobility.** In addition to making the City Centre more pedestrian and bicycle friendly, transit also plays an important role in getting around the

City Centre. Internal trip making within the City Centre is expected to grow substantially with planned growth and development. Over the next twenty years, the population and employment within the City Centre is expected to increase by 450% and 115% respectively. While improved rapid and conventional transit services to the City Centre will make transit more attractive to getting to the area, internal services will be required to improve mobility around the City Centre beyond the planned stations and between future uses.

- **With the build-out of Northeast Coquitlam, this area of Coquitlam is expected to experience the largest increase in travel, much of it to other parts of the City and Port Coquitlam.** In the long-term, the population of Northeast Coquitlam is projected to growth from less than 4,000 residents today to over 26,000 residents by 2031. During this time, the peak hour driving trips are projected to increase by 300%, with over 50% of automobile trips in 2031 going to other parts of Coquitlam and Port Coquitlam, as shown in **Table 6.** In this regard, travel between Northeast Coquitlam and the City Centre area as well as the Southwest Coquitlam will grow significantly over the next 20 years. Additionally, travel to North Port Coquitlam and other parts of the City are also expected to increase.

Table 6: Automobile Trips To and From Northeast Coquitlam (AM Peak)

	2008		2031		Percent Change (2008 – 2031)
	#	%	#	%	
Internal (NE Coquitlam)	100	6%	1,300	18%	+ 1,200%
To/From NW Coquitlam	500	28%	1,400	19%	+ 180%
To/From SW Coquitlam	200	11%	600	8%	+ 200%
To/From Port Coquitlam	500	28%	2,000	27%	+ 300%
To/From Other Areas	500	28%	2,000	27%	+ 300%
Total	1,800	100%	7,300	100%	+ 300%

- **Topography as well as growth in key areas of Southwest Coquitlam such as Burquitlam, Austin Heights, Maillardville, and Waterfront Village are projected to result in increased local travel that could potentially be served by enhanced transit.** Today, most transit services in Southwest Coquitlam are designed to connect with key community nodes and traverse the area in an east-west direction to connect with the Millennium SkyTrain Line. In the long-term, local travel within Southwest Coquitlam is projected to increase by during the morning peak hour and more over the course of the day with increased commercial activity. Because the topography of portions of Southwest Coquitlam may limit walking and cycling, transit may serve as the primary alternative to driving and to enable people to use other modes when closer to their destination.

- **Land use patterns** – such as type, density, and form – can significantly influence overall travel patterns and, consequently, the success of transit. The relationship between land use patterns and transit service levels is critical. For example, higher density mixed-use areas, as is planned for City Centre and some Neighbourhood Centres such as Burquitlam and Austin Heights, can typically generate high transit ridership, which, in turn, supports attractive levels of service. Conversely, low-density, single-use areas (such as single-family residential) with curvilinear street patterns typically generate single-purpose trip making, directional travel patterns, and increased travel times. These characteristics make transit service more costly to provide and generate low ridership. Low ridership discourages the provision of higher frequency service, thereby further discouraging the use of transit.

4.2 Ideas & Opportunities

This section summarizes the overarching approach and themes for improving public transit in Coquitlam based on the shaping influences described in the previous section as well as input from agency and public stakeholders.

- **Improve existing service coverage and internal connections**. There are currently 30 transit routes that provide service locally and regionally in the Coquitlam area. Route coverage generally provides most Coquitlam residents access to transit services within a five-minute walking distance (approximately 400 metres). Bus routes are largely structured in a "hub and spoke" pattern in the northeast area with most routes connecting radially with timed transfers at the Coquitlam Exchange. In the southwest, routes are structured with a modified grid pattern and connected to the Coquitlam Recreation Centre, Lougheed Town Centre and Braid Station Exchanges. There are opportunities to improve service coverage and local connections by providing more direct east-west and north-south connections to key activity nodes to better serve local transit trips, particularly in Southwest Coquitlam.

- **Improve regional connections** to accommodate future growth in areas to the south and east, such as Port Coquitlam, Pitt Meadows, Maple Ridge, Surrey and Langley.

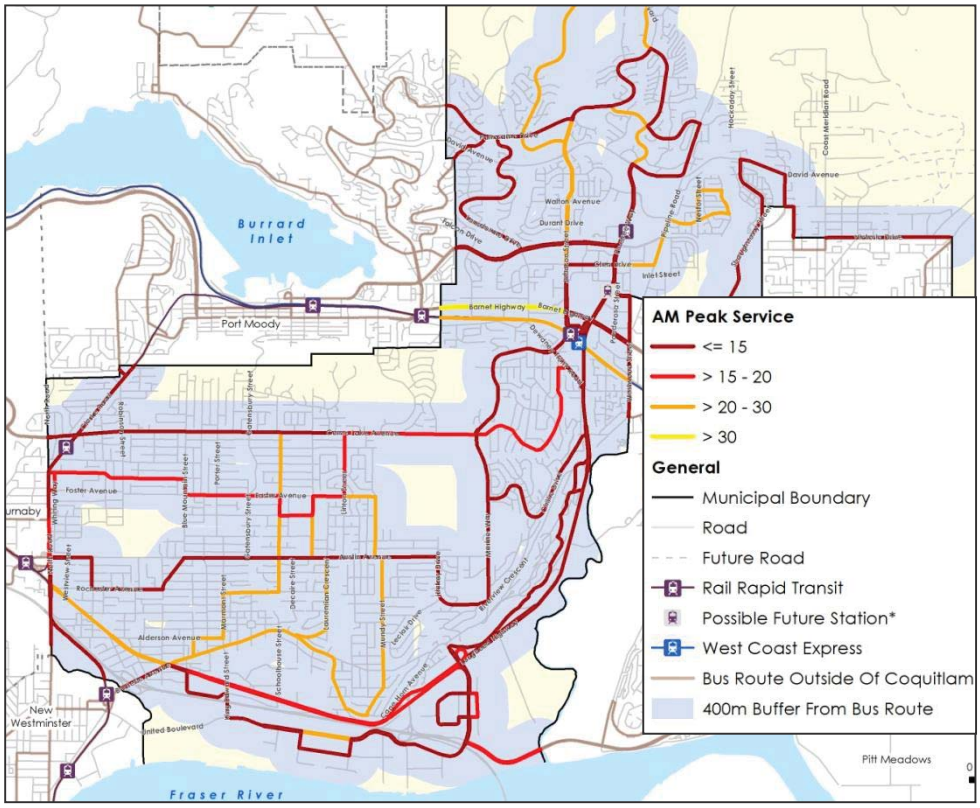
- **Increase service frequencies.** Generally, peak hour service levels in Coquitlam in both the AM and PM peak periods are 15 minutes or better, but off-peak services tend to be 30 – 60 minutes, as shown in **Figure 18**. Service levels of 30 minutes or more are unattractive.

- **Improve passenger amenities** including lighting, bus shelters, and transit information such as signage, maps, and schedules.

- **Improve accessibility** to ensure that the transit system is safe and accessible for all users.

- **Improve security** by following Crime Prevention Through Environmental Design (CPTED) principles.

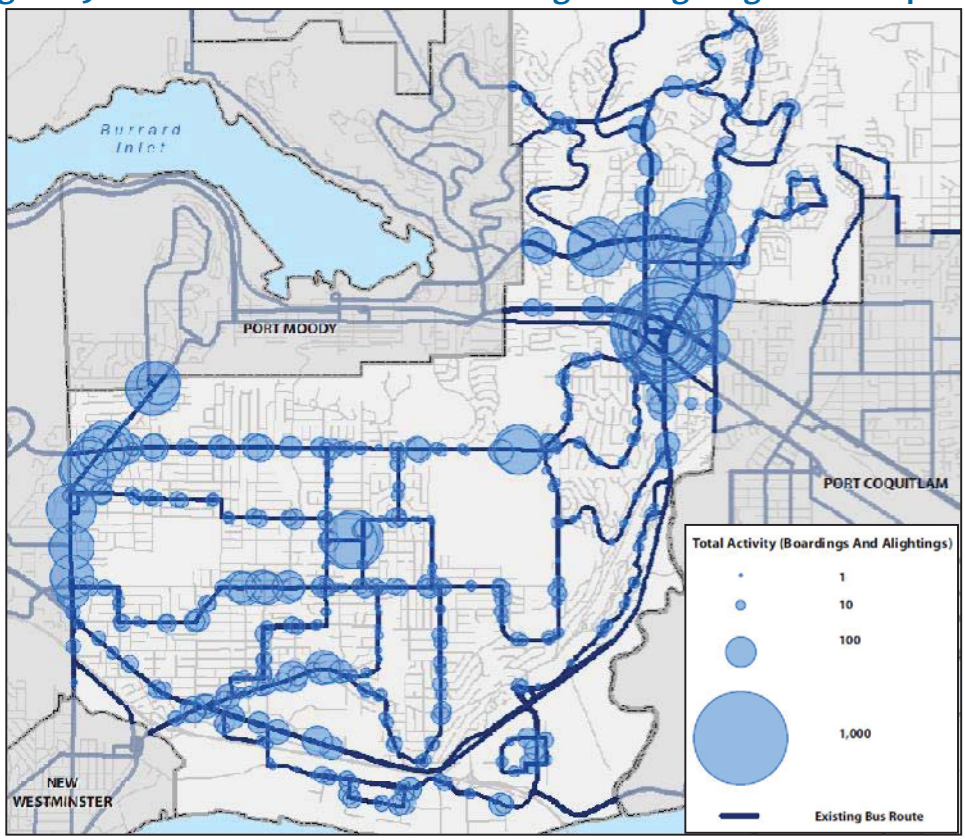
Figure 18: Existing Transit Route Coverage and Service Frequencies (AM Peak)



Source: TransLink bus route coverage shape files and current schedule information from www.TransLink.ca

- **Existing Transit Ridership.** Transit usage today is concentrated around the Coquitlam Town Centre area where many of the transit services converge, as shown in **Figure 19**. Ridership is also high along the 97 B-Line route that provides express bus service between Coquitlam Town Centre and which will be replaced by the provision of the Evergreen Line.

Figure 19: Am and PM Peak Period Boarding and Alighting at Bus Stops



- **Improve transit competitiveness** by making transit equally, if not more attractive, than the driving through increased transit frequencies and reliability as well as other support strategies such as better customer information and passenger amenities.

4.3 Improvement Concepts

The improvement concepts for public transit include improvements to local transit service within Coquitlam through additional local routes to connect key destinations and overall service increases; enhanced regional transit connections, particularly to communities to the south and east; and recommendations for a variety of transit support measures to help ensure that transit is an attractive and convenient transportation option. The

improvement concepts below are intended to provide strategic direction to the City and TransLink regarding the long-term needs of the community with respect to transit services to help inform the Northeast Sector Area Transit Plan Update. Specific improvement concepts for the Transit Strategy are described below.

1. Increased Local Area Frequency and Coverage

The Transit Strategy recommends increasing local area frequency and coverage, particularly in Southwest Coquitlam to accommodate the increasing demands for travel locally within the City. The following improvement opportunities have been identified, as shown on **Map 5:**

a. **Enhance services in Southwest Coquitlam.** A number of transit improvements are recommended in Southwest Coquitlam to address identified gaps in coverage and improve service frequency along key corridors, and improve service levels throughout the area. In particular, recommended improvements include:
   - **Increased service levels on existing routes** throughout Southwest Coquitlam to keep place with planned growth in the area;
   - **More direct and frequent services on Austin Avenue** to improve connections between the City Centre, Austin Heights, and Lougheed Station.
   - **New north-south local services** in the eastern and western areas of Southwest Coquitlam between Como Lake and United Boulevard to serve growing local markets

b. **Frequent, Direct Connection from Northeast Coquitlam to the City Centre and Evergreen Line.** With significant growth planned in both the City Centre and Northeast Coquitlam, it will be important to provide direct, frequent service during both the peak and off-peak periods to connect these two growth nodes and provide enhanced access to the Evergreen Line for Northeast Coquitlam residents.

c. **Lower Lougheed Rapid Transit Service.** The #169 route currently provides direct, frequent transit connection between Coquitlam City Centre and the Braid SkyTrain Station, operating at 15 minute frequencies throughout the day and early evening 7 days a week, and 60 minute frequencies in the late evening and on weekends. Enhanced rapid transit service should be assessed along the Lougheed Highway corridor, providing a two-way service with enhanced frequencies between Coquitlam City Centre and Braid Station along dedicated transit lanes.

d. **Improve City Centre Mobility**. With significant planned residential and employment growth in the City Centre, as well as an increasing proportion of seniors and people with mobility challenges living in the City Centre, there will be increasing need to support mobility within the City Centre area. In that regard, the Transit Strategy recommends that the City consider possible solutions to improve mobility in the City Centre such as a new circulator service or strategic design of existing services to connect key destinations through the City Centre including rapid transit stations and the transit exchange.

2. Enhance Regional Services

Expanded regional transit connections are needed to provide more travel options and to make transit a viable alternative for more residents of the Northeast Sector. The Transit Strategy recommends that the City work with TransLink through the Area Transit Planning process to pursue the following improvement priorities for regional routes serving the City Centre and to improve connections from the Northeast Sector and South of Fraser communities to the Evergreen Line, as shown in **Map 5**:

a. **Integrate with Port Coquitlam.** The Transit Strategy identifies the need to seamlessly integrate transit services between Coquitlam City Centre and Port Coquitlam. There are currently limited connections between Coquitlam City Centre and Port Coquitlam,

including the regional service on the #160 route from Port Coquitlam City Centre to Vancouver via Coquitlam Centre, local service on the #C38 route, and limited service on the #189 route to north Port Coquitlam during the peak hours only. Improved connections between Coquitlam City Centre and Port Coquitlam will be particularly important to provide frequent, direct connections to the Evergreen Line. In that regard, the Transit Strategy proposes enhanced community bus services in areas west of the Coquitlam River Bridge through to the Coquitlam City Centre, and more direct services between North Port Coquitlam and Coquitlam City Centre.

b. **Enhance Pitt Meadows – Maple Ridge Service.** The #701 route currently provides an attractive connection to Pitt Meadows and Maple Ridge, with 15 minute frequencies during the day and early evening and 30 minutes frequencies during the late evening. With the implementation of the Evergreen Line, there will be a need to increase service along this corridor to provide frequent connections to Coquitlam Station as well as to improve connections between city centres in Maple Ridge, Pitt Meadows, Port Coquitlam and Coquitlam.

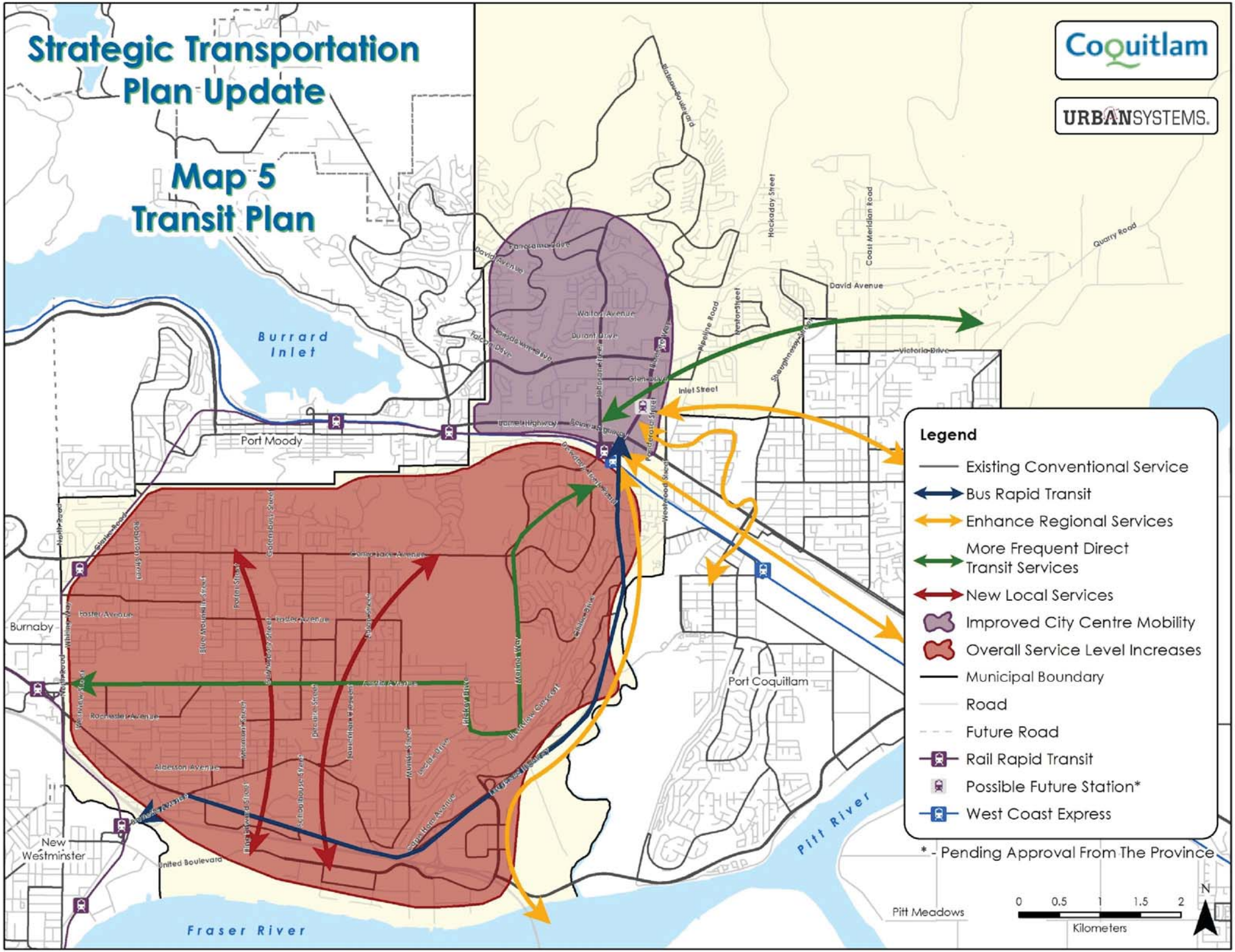
c. **New Coquitlam – South of Fraser Services.** There are currently no direct transit services between Coquitlam and the communities south of the Fraser River. TransLink and the Provincial Government have identified the need to provide rapid bus service between Burnaby, Coquitlam, Surrey and Langley. This is an important link to connect several of the highest growth communities in Metro Vancouver, and would provide a direction connection from Coquitlam City Centre and Lougheed Town Centre to Surrey City Centre and the planned rapid transit network in Surrey, as well as indirect connections to other local services in the Northeast Sector and Surrey. The new connection from Coquitlam to the south of Fraser area should be a frequent two-say service throughout the day.

Strategic Transportation Plan Update

Map 5
Transit Plan

Coquitlam

URBANSYSTEMS.



Legend

- Existing Conventional Service
- Bus Rapid Transit
- Enhance Regional Services
- More Frequent Direct Transit Services
- New Local Services
- Improved City Centre Mobility
- Overall Service Level Increases
- Municipal Boundary
- Road
- Future Road
- Rail Rapid Transit
- Possible Future Station*
- West Coast Express

* - Pending Approval From The Province

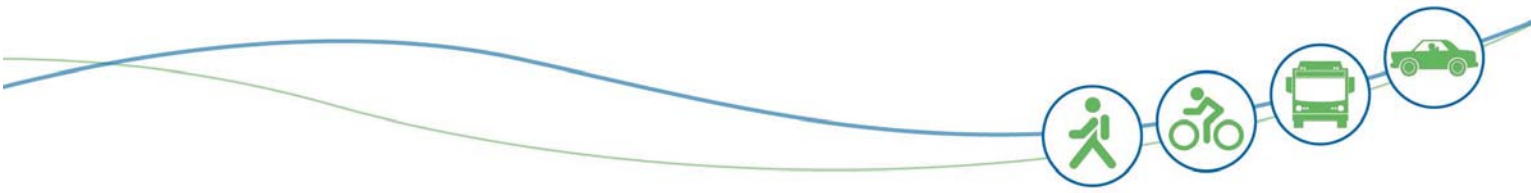
0 0.5 1 1.5 2
Kilometers

N

3. Transit Supportive Strategies & Policies

- **Transit priority treatments** are recommended along future Frequent Transit Network corridors. Where delays and congestion exist today or are anticipated to get worse in the future, the City will examine opportunities for priority treatments that reduce delays to bus services. These transit priority treatments will improve service for transit, often at the expense of vehicles. Although many of these treatments will impact vehicles, they are key to supporting long-term transit ridership by prioritizing transit over vehicles. Transit priority treatments to be considered include, but are not limited to:
  - Transit signal priority measures
  - Bus bulges
  - Intersection queue jumpers
  - Dedicated bus lanes

- **Transit Oriented Design.** Land use patterns significantly influence overall travel patterns and, consequently, the success of transit. Communities that are more "transit oriented" not only support higher levels of transit, but also are more pedestrian and bicycle friendly. TransLink defines Transit Oriented Communities as "places that, by their design, allow people to drive less and walk, cycle, and take transit more. In practice, this means concentrating higher density, mixed-use, human scale development around frequent transit stops and stations, in combination with mobility management measures to discourage unnecessary driving." There are several attributes that make up Transit Oriented Communities, referred to by TransLink as the "Six Ds" of Transit Oriented Communities:
  - Major **Destinations** and centres are lined up in reasonably direct corridors making them easy to serve efficiently by frequent transit
  - Walking **Distance** (if a five minute walk, or approximately 400 metres) to frequent transit is minimized by creating a fine-grained urban structure of well-connected streets around which to focus



- People-friendly urban **Design** including safe, comfortable, and direct pedestrian and bicycle routes
- Higher levels of residential and employment **Density**
- A rich **Diversity** of land uses and housing types
- **Demand** management measures that discourage unnecessary auto trips

The City should follow these principles to ensure transit oriented designs are provided along future Frequent Transit Corridors and in Frequent Transit Development Areas.

- **Enhance Passenger Facilities.** Although providing attractive bus services with connections to desired destinations both locally and regionally is critical to the success of transit in Coquitlam, passenger amenities at bus stops, transit exchanges and rapid transit stations can also have a significant impact on attracting new users. In the long-term, the City should strive to provide seating, lighting, and customer information at all bus stops, rapid transit stations and transit exchanges in Coquitlam. In addition, shelters are desirable at key stops served by multiple bus routes and in Pedestrian Precincts.

- **Improve accessibility to transit.** Increased accessibility to transit is designed to enhance services and facilities for all existing customers and to attract new riders. Today, many individuals experience barriers to using transit for various reasons, ranging from the physical challenges of system elements (such as accessing bus stops and transit exchanges) through to those that experience cognitive difficulties getting around on transit. With a rapidly aging population, the number of people with mobility impairments will increase in the future. In 2007, TransLink approved the recommendations of the Access Transit Project, which was designed to create "a seamless and inclusive public transit system that welcomes members of the Region's diverse communities with a fully integrated range of bus, rail, ferry and custom transit services that is inviting, responsive, safe, comfortable, and affordable; and that meets the needs of our customers to access transit vehicles,

information, customer service, training and other programs." Recommendations to improve transit accessibility largely involve the overarching direction of TransLink, but require municipal support, and include:

- **Improve access to transit facilities** to support a seamless experience for customers on the adjacent street system leading toward transit facilities, riding on transit fleets, and using other transit facilities such as bus stops, rapid transit stations, and transit exchanges. TransLink has developed Universal Accessibility Guidelines for transit vehicles and facilities to set a standard for all future investments in fleets and facilities. The City of Coquitlam will increase accessibility of bus stops and transit facilities by ensuring adequate sidewalk and crosswalk access to transit facilities.

- **Provide better customer support** that goes beyond reducing physical barriers, to giving customers clear information that is easy to find, signage they can clearly understand, and support from front-line staff in order to use transit successfully. Initiatives such as enhancements to the website, real-time transit information showing the actual time until the next bus arrival, directional signage, customer outreach, and specialized training for transit users and staff will make the system more accessible for everyone. Within Coquitlam, improved on-street signage to key transit nodes will enhance customer access.

- **Expand Transit Pass Programs.** A partnership between the Provincial Government and TransLink now offers the U-Pass BC Program to students at all public post-secondary schools across the province. The U-Pass Program places a universal transit pass in the hand of each student as a mandatory program at each participating institution – currently at SFU, UBC, Langara College, and Capilano University. TransLink supports expanding the U-Pass Program to other post-secondary institutions, including Douglas College, subject to a student referendum to approve participation. Based on the experience of other schools, this initiative will significantly increase

transit ridership and reduce driving trips, consequently minimizing congestion on the roadway network.

The City could also work with TransLink to examine the potential of resident pass programs along future Frequent Transit Network Corridors, Frequent Transit Development Areas and other major centres throughout the City. In core areas of the City, such as the City Centre, where attractive transit services are already or planned to be in place, resident transit pass programs may be possible for new or existing developments to reduce impacts on the roadway network – similar to UniverCity at SFU. In such cases, new developments would be required through the development approvals process to provide transit passes for each unit. Similar to the U-Pass Program, a resident pass program would require high participation levels in order to make the reduced pass cost feasible. TransLink and the City would need to monitor usage patterns and perhaps make adjustments to service levels as demands rise.

5.0VEHICLE TRAVEL

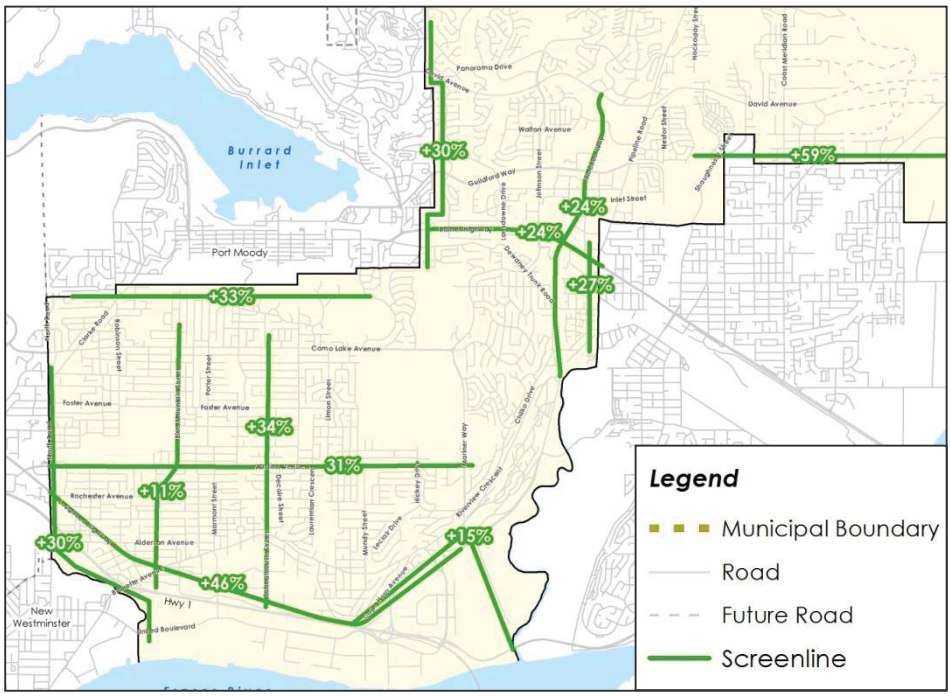
Vehicle travel is the predominant mode of transportation for most residents and visitors to Coquitlam, as automobiles account for over 80% of all trips made by Coquitlam residents. In most communities, vehicles have often been given preferential treatment on the roadway network. However, the road network is designed to support mobility for all modes of travel including general purpose traffic, goods movement, transit, walking and cycling. Maintaining an efficient street network to support all modes is critical to supporting the vision and goals of the STP Update, as this helps to ensure that people and goods move efficiently through Coquitlam to support the economic vitality of the City and surrounding area.

5.1 Shaping Influences

The road network plays a critical role in supporting vehicle travel and ensuring the efficient movement of both people and goods. This section describes some of the key shaping influences for vehicle travel by summarizing existing and forecast conditions for vehicles throughout the City and surrounding area.

- **Traffic volumes in Coquitlam are expected to increase by approximately 30% by 2031 throughout the City, with some areas anticipated to have significantly higher growth in volumes.** Overall, local traffic volumes within Coquitlam are anticipated to increase by approximately 30% between 2010 and 2031 under the future base scenario. A number of screenlines have been identified to compare traffic volumes between current and future conditions, as shown in **Figure 20**. The most significant growth in traffic volumes are expected to occur north-south across Lougheed Highway (with a 46% increase in traffic volumes), as well as in the north-south direction to Northeast Coquitlam (with a 59% increase in traffic volumes).

Figure 20: Growth in Traffic Volumes Across Screenline Locations, 2010 to 2031 (PM Peak)

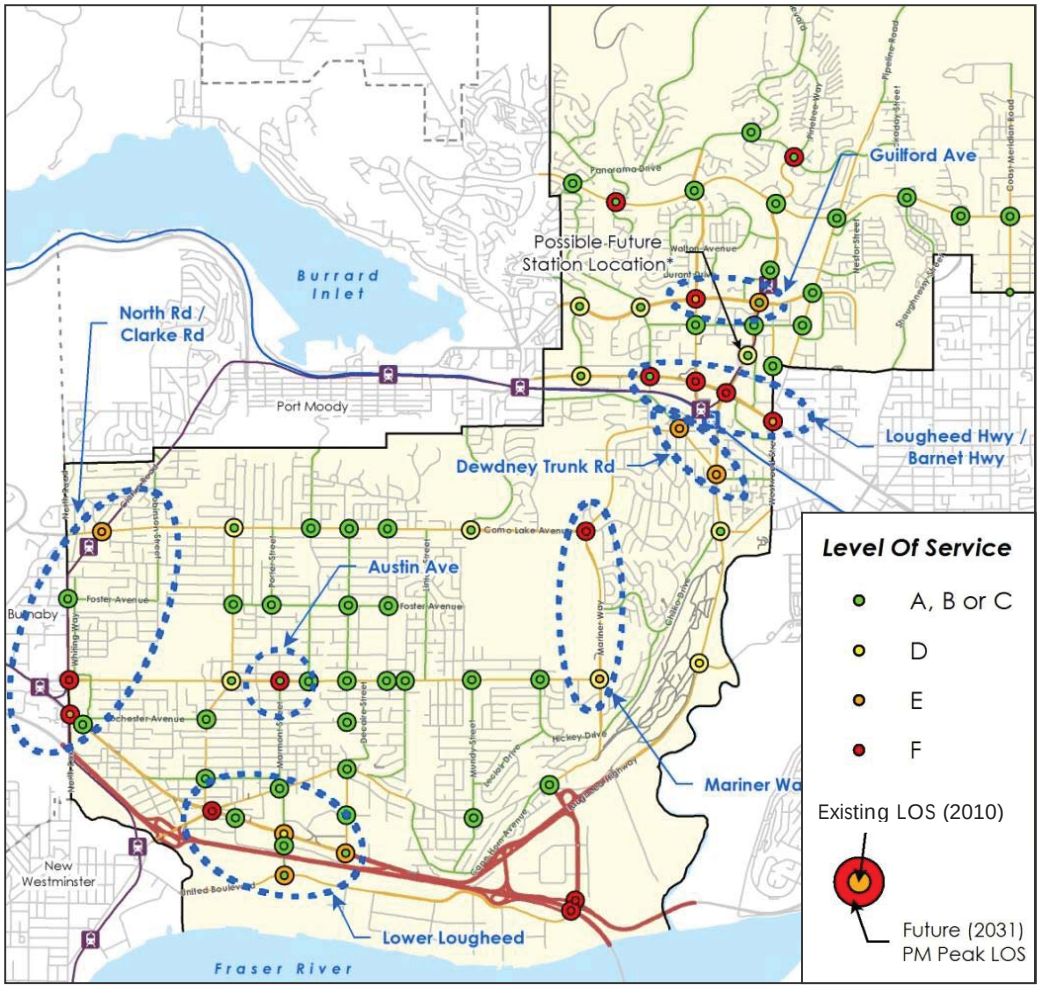


- **There are several key areas of delay and congestion today and in the future.** The overall performance of an urban roadway is typically measured by the delays experienced at major intersections, also referred to as Level of Service (LOS). In most urban areas, signalized intersections are the source of most delay experienced on the roadway network. The level of service is a measure of vehicle delay where LOS A suggests that there is no delay and LOS F indicates that there is significant delay and the intersection is experiencing significant queuing. A LOS D or better is generally used as the target for planning purposes. Overall, most signalized intersections in Coquitlam are operating at LOS D or better during the peak periods today and in the future, as shown in **Figure 21**. However, there are several key areas throughout the City which experience LOS E or F today or in the future as shown in the figure below, including:

  - **North Road / Clarke Road** at Lougheed Highway, Austin Avenue and Como Lake Avenue

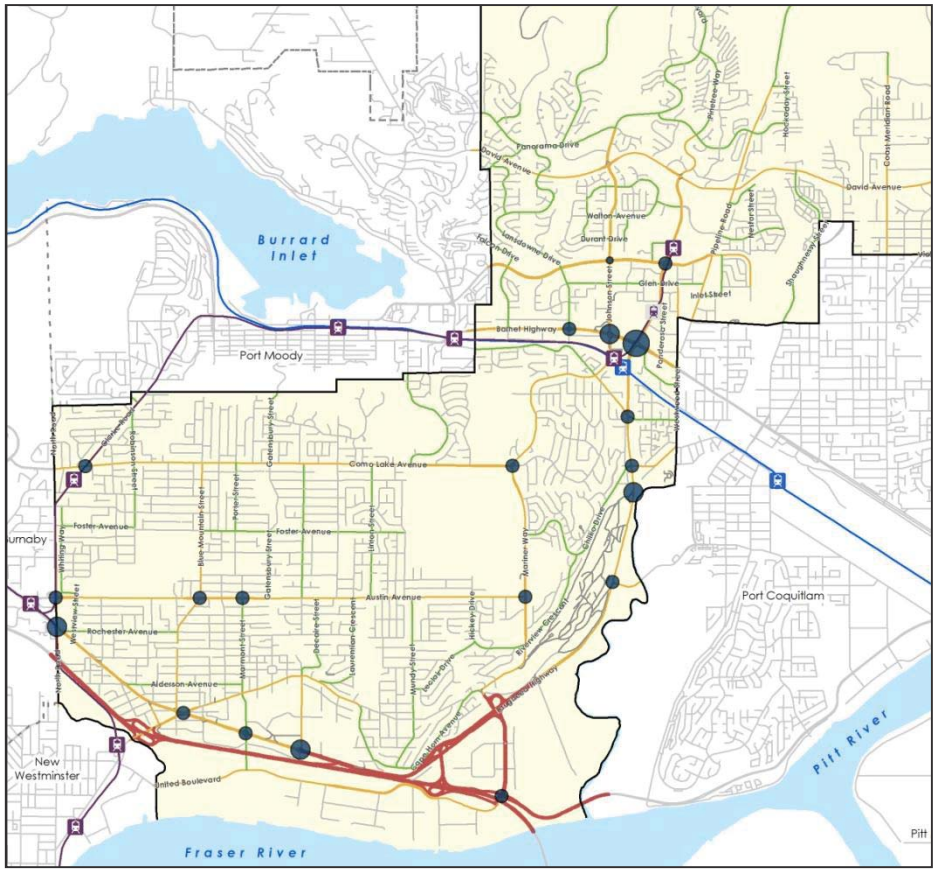
- **Mariner Way** at Como Lake Avenue, Austin Avenue, and Dewdney Trunk Road
- **Lougheed Highway** at Dewdney Trunk Road, Schoolhouse Street, King Edward Street, and Brunette Avenue
- **Barnet / Lougheed Highway** at Lansdowne Drive, Johnson Street, Pinetree Way and Westwood Street
- **Guildford Avenue** at Johnson Street and Pinetree Way
- **Austin Avenue** at Marmont Street

Figure 21: Intersection Levels of Service, 2010 and 2031 (PM Peak)



- **Several key intersections within the City have relatively high collision rates.** ICBC collects and maintains statistics for all reported collisions in British Columbia. Collision data was provided for all collisions reported to ICBC between 2005 and 2007. To further account for traffic volumes, collision rates were calculated for the locations with the highest number of collisions throughout the City. For the twenty locations thoughout the City with the highest number of collisions, collision rates were calculated which identify the relative number of collisions based on the traffic volumes through the intersection. Areas of the City with the highest collision rates are generally similar to those locations which experience congestion and delay as noted above, as shown in **Figure 22**.

Figure 22: Collision Rates[1] at Twenty Highest Collision Locations



[1] Collision Rates defined as the number of collisions per million entering vehicles

- **The street network not only supports vehicle travel but all other modes of transportation**. The street network represents a critical component of the City's transportation, not only for supporting automobile traffic, but also walking, transit, cycling, and goods movement. Effectively, the road network is the skeleton of the overall transportation system. Although this chapter focuses only on vehicle travel, it must be recognized that many of the shaping influences for vehicle travel – such as high collision locations and areas of delay – also impact all other modes. To that end, this section recognizes opportunities to integrate improvement opportunities for all modes along the street network, not just vehicle travel.

- **Neighbourhood livability** is affected by traffic volumes, noise, and speed. Traffic noise, vehicle speeds on residential streets, and short-cutting and overall traffic volumes are primary concerns of many residents. These issues can become more prominent when there are recurring delays on the major roadways. Generally speaking, the local area traffic issues may often be dealt with through neighbourhood transportation improvements, although they are often affected by the designation and design of the street as well. Neighbourhood Transportation guidelines are being developed as part of the STP Update and will be designed to respond to these concerns.

- **External Initiatives.** The City's transportation system is influenced by decisions and directions from neighbouring municipalities and other levels of government, including TransLink and the Province. There are several roadway-related projects being undertaken or considered by agencies external to the City of Coquitlam that will have long-term influences on Coquitlam's transportation system and are assumed as part of the base year 2031 improvements, as shown in **Figure 23**. Projects currently

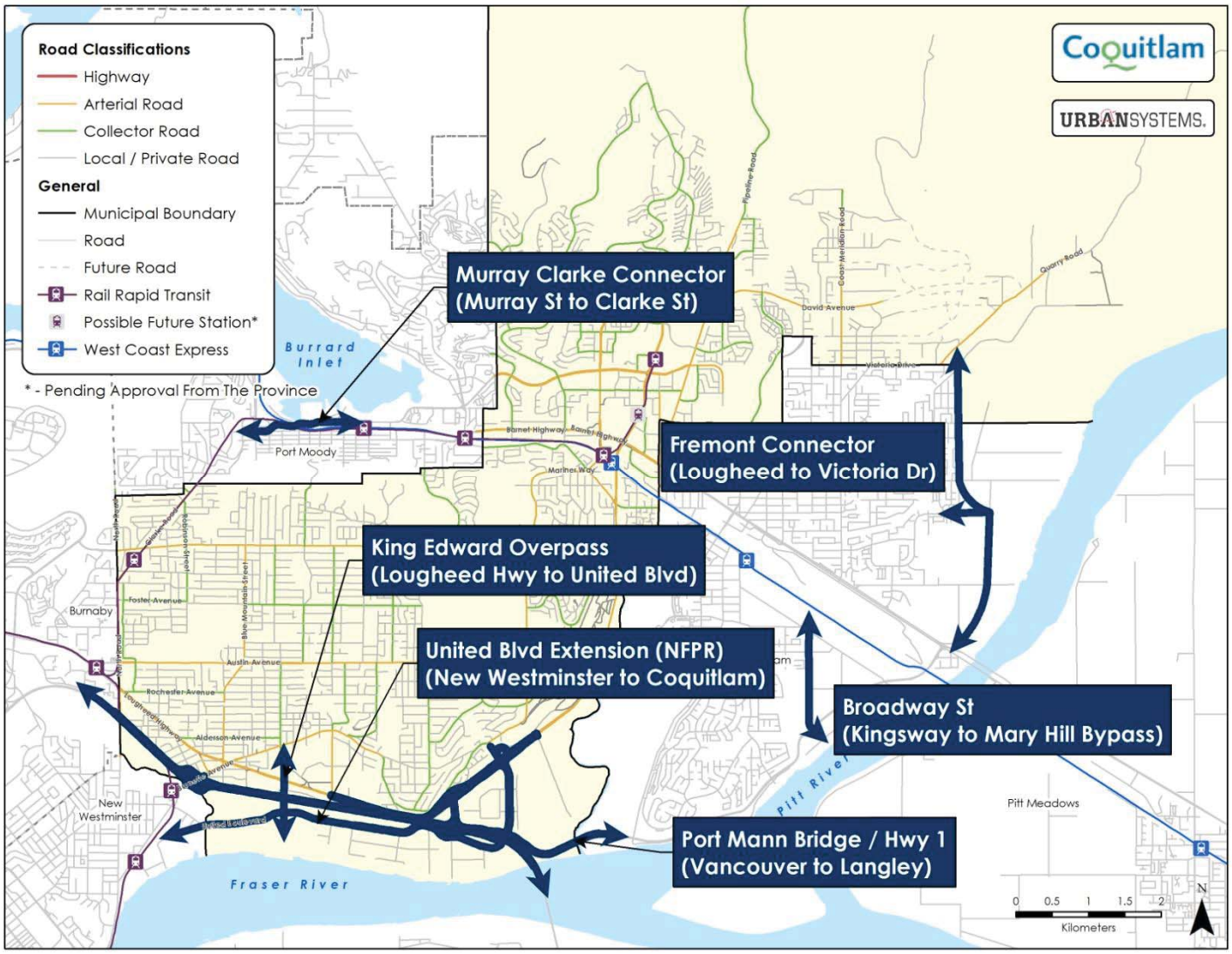
under construction, being planned, or under consideration by other agencies include:

- **Port Mann Bridge / Highway 1 Expansion**. The Provincial Government is currently constructing the Port Mann / Highway 1 project, which is scheduled to be completed by 2013. This project includes widening of Highway 1 through Coquitlam to eight lanes, a new ten lane bridge, and a reconfiguration of several interchanges, including the Cape Horn and Brunette Interchanges.
- **King Edward Overpass** was identified in the City's 2001 STP and is currently under construction in conjunction with the Port Mann Bridge / Highway expansion project. This will include a new four-lane overpass with bicycle lanes and a multi-use pathway over Highway 1 and the rail corridor between Lougheed Highway and United Boulevard.
- **Murray Clarke Connector** is a potential four-lane road to improve east-west traffic flow in Port Moody. The connector would be between Murray Street and Clarke Road and would consist of a 4-lane road with a rail overpass between Murray Street and Clarke Road. The project does not have confirmed funding at the current time.
- **United Boulevard upgrades** have been considered as part of the North Fraser Perimeter Road (NFPR) Project to improve the connection between United Boulevard and Brunette Avenue; support the transportation network; and enhance and benefit the local community. TransLink has conducted extensive analysis and received significant community input on options for the United Boulevard Extension. TransLink has concluded that, at this point in time, there is no project option that currently meets the needs of both the regional road network and local interests and is not pursuing this project at the current time. However, TransLink and the City remain interested in exploring alternative options to improve connections in this area.
- **Fremont Connector** is a planned project in Port Coquitlam that would provide a direction connection between from the Pitt River Bridge to Northeast Coquitlam. The Fremont Connector would connect Lougheed Highway to Victoria Drive and would

consist of some new road segments and widening existing road segments to provide an arterial road connection.

- **Broadway Street is a planned project** in Port Coquitlam to improve north-south connections between the new Coast Meridian Overpass and the Mary Hill Bypass. This would involve widening Broadway Street from two to four lanes.

Figure 23: Externally Planned and Potential Roadway Network Improvements



5.2 Ideas & Opportunities

As was the case in the previous STP, there are essentially three foundational approaches to shaping the long-term direction of the roadway network in the City to address issues of mobility and safety as well as to accommodate planned expansion and growth areas. For the purpose of identifying all long-term possibilities for the City's major roadway system, the approaches are generally aligned with the following three areas.

- **Manage the existing roadway network.** In an effort to make best use of resources and minimize costs to address mobility and safety issues, there are several strategies and improvement concepts to manage the existing roadway network. In relative terms, these are often referred to as management strategies or minor capital improvements to enhance the performance of the existing system. In some cases, these improvements could include incorporating transit priority measures to support the movement of people, not just traffic.

- **Expand the existing network.** In some cases, the existing roadway network may be expanded to address issues of mobility and safety. These improvements may include corridor widening for general purpose or high occupant vehicles and buses as well as accommodate other modes.

- **Build new roadway connections.** While there is much infill and new development projected within Coquitlam, there are also some new growth areas of the City and neighbouring municipalities. In addition to this, the roadway network in some areas of the City is not well developed and many major roads serve regional, local, neighbourhood and site traffic. Regardless of the condition or reason, new roadways are also examined in the STP Update to address some of these challenges.

Discussions with community and agency stakeholders are used to assess the relative merits of these three approaches - not only evaluating the optional

improvement concepts, but to develop priorities that best serve the interests of the community.

5.3 Improvement Concepts

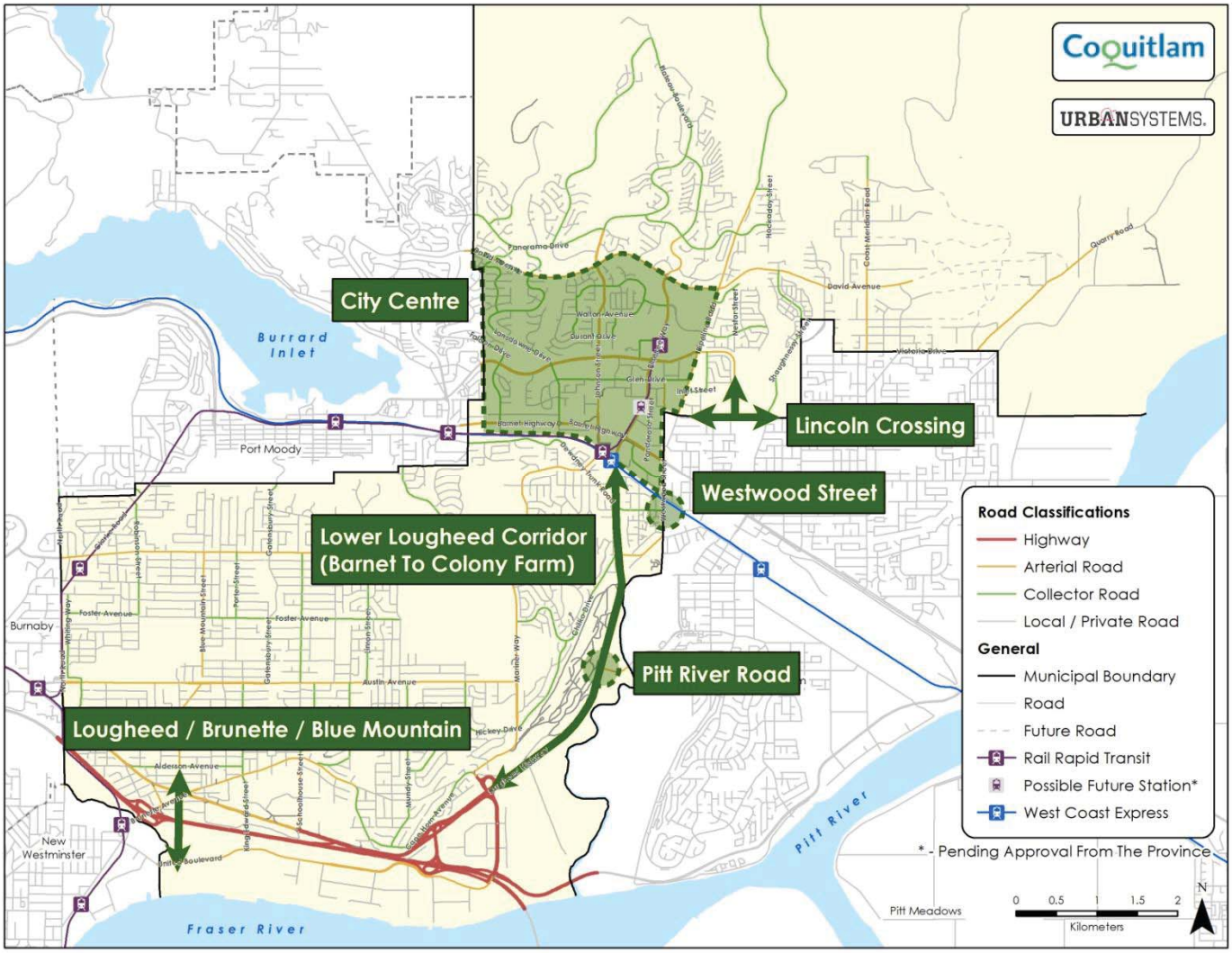
Although the improvement concepts are designed to address overall mobility and safety issues within Coquitlam, many of the improvements also address delays and congestion experienced by transit as well as the movement of goods and services. In addition, provision of new streets also provides connections for pedestrians and cyclists where barriers currently exist.

This section highlights the three categories of possible roadway network improvements considered in the context of the STP Update.

1. Major Network Improvement Concepts

All possible major network improvement concepts identified and considered in the STP Update include the provision of new roadway links to serve growth areas and those parts of the City where the network is less complete, as well as major corridor widenings and/or the provision of grade-separated intersections to address existing and projected delays and congestion. Three primary areas for major network improvements were identified as possibilities for the long-term plan as described and illustrated in **Figure 24**.

Figure 24: Major Network Improvement Concepts



a. City Centre Network Improvements

Coquitlam's City Centre area is generally bound by the Canadian Pacific Railway in the south, David Avenue in the north, and the boundaries with Port Moody in the west and Port Coquitlam in the east. Today, the City Centre is the major commercial area in Coquitlam. The role of the City Centre area is expected to change significantly in the coming years with planned residential and employment growth. The City Centre is expected to increase from approximately 5,000 residents today to nearly 30,000

residents in 2031, while employment is expected to double from approximately 7,500 jobs today to over 15,000 jobs in 2031. The City Centre area is intended to become the new "downtown" of Coquitlam and the Northeast Sector and is identified as a Regional City Centre in Metro Vancouver's Regional Growth Strategy.

For the most part, the arterial roadway system in the City Centre – such as Lougheed Highway, Johnson Street, Pinetree Way, and Westwood Street –all serve multiple functions, including regional, city-wide, local area, goods movement, and site access functions. This is largely due to the lack of roadway development within the City Centre area where 'superblocks' of a suburban nature exist without a support network of collector and local roads. With the growth in regional, city-wide and local area travel, the major intersections along Lougheed Highway at Johnson Street, Pinetree Way and Westwood Street are all operating with significant delays and congestion today and in the long-term throughout the peak and some off-peak periods. These patterns in turn affect mobility for transit as well as the movement of goods and services to, from, and within the City Centre area.

The City Centre Area Plan process outlined the long-term form of growth and development patterns throughout the area. As part of the City Centre Area Plan process, alternative methods of accommodating growth in the City Centre were examined and largely revolved around the themes of either 'Great Street' or 'Nodal' concepts. From a transportation perspective, both forms of growth were designed to support a multi-modal environment that gives priority to pedestrians, cyclists and transit that will contributed toward the vibrancy of the City Centre. The recommended 'Great Street' concept was designed to keep the frontages of buildings facing the all streets, including many of the arterial roads within the area such as Barnet / Lougheed Highways, Pinetree Way and Johnson Street. Beyond the form of growth and planned land uses within the City Centre area, the transportation system aspirations contained in the Official Community Plan (amended in 2008 for the City Centre) included a bundle of complementary policies and commitments that are necessary to support the 'Great Streets' proposal and to transform the area from a suburban setting to more of an urban downtown. In addition to designing for priority modes within the City

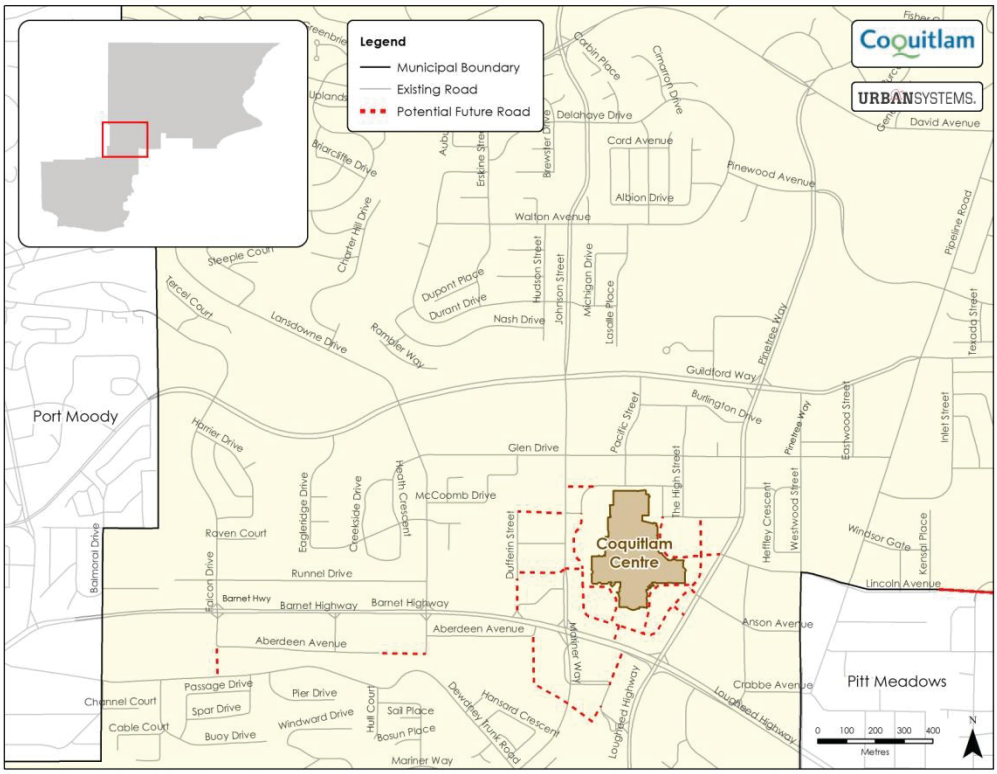
Centre, the plan identified the need for a grid system of collector and local streets to contribute toward the transformation to an urban scale and to support the major roadways by providing other routes that could perform access and circulation of traffic within the City Centre beyond the major arterial road.

The following discussion highlights all the possible improvement strategies considered for the City Centre area to address not only delays and congestion on the major roads, but to enhance access and circulation within the City Centre and to support the goals and policies of a thriving downtown area within the City.

i. **Grid Street System.** In support of the 'Great Street' concept included in the City Centre Area Plan, the arterial road system could potentially be complemented with a finer grain of east-west and north-south roadways as illustrated conceptually in **Figure 25**. While the arterial roadway system will still serve overall travel to, from and through the City Centre area, a support system of collector and local roads would provide the needed access and circulation within the City Centre. It would also provide additional vehicle capacity to the system to overcome some of the major areas of delay and congestion. For example, one collector roadway within the City Centre could support an additional 800 to 1,200 vehicles per hour. In an area where the arterial roadways are already very wide and can be barriers to walking and cycling, the provision of the support roadways can be a manageable way of accommodating growth in traffic throughout the area without creating larger barriers for people travel in the City Centre.

   It must be recognized however, that the grid system of roadways could only be achieved through redevelopment as well as an overt plan to partner with private interests as well as other public sector stakeholders such as TransLink. In fact, experience in other communities suggests that this grid system of roadways cannot be achieved without public sector leadership and private sector engagement in the redevelopment process.

Figure 25: Conceptual City Centre Grid Network*



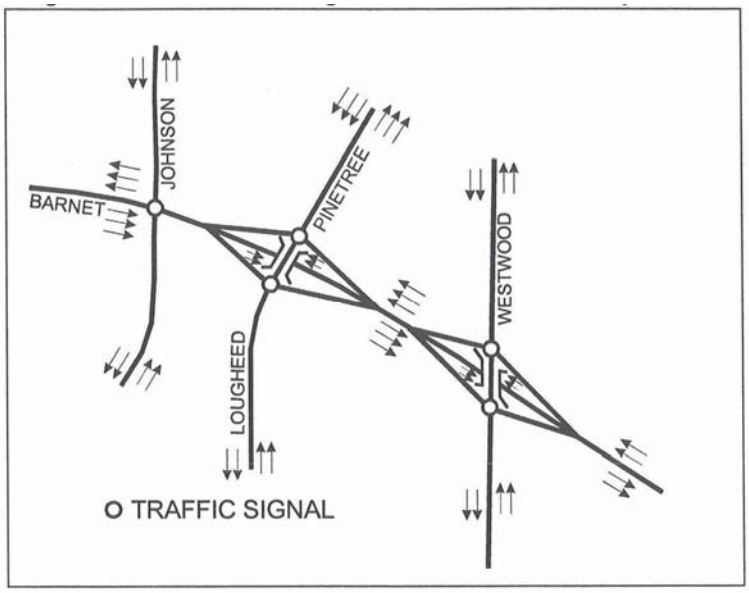
* As the mall site redevelops, opportunities will be sought to provide direct east-west connections

ii. **Grade Separation on Lougheed/Barnet Corridor.** The intersections of Johnson Street, Pinetree Way and Westwood Street along the Lougheed / Barnet corridor are already very large – equipped with several through lanes and double left-turn lanes in each direction. The outlook for the area as previously described is that the corridor and major north-south cross-streets will continue to experience significant growth in local, city-wide and regional traffic as well as extended periods of delay and congestion.

As an alternative to the grid street system previously described, the 2001 STP examined potential concepts for grade-separating these major intersections (with a primary focus on Westwood Street and Pinetree Way). Although only developed conceptually, the preliminary options included the construction of overpasses of the Lougheed-Barnet Highway corridor at each of these major cross-

streets. The Lougheed-Barnet Highway corridor could either be raised or dropped to accommodate the grade-separation of each cross-street. With the provision of an elevated Evergreen Line across Barnet Highway, north-south roadways would likely go over top of the Lougheed-Barnet corridor if grade-separated concepts are found to be a desirable solution. In fact, one of the candidate concepts developed from the 2001 STP included a depressed east-west corridor with ramps connecting to service roads that ran parallel to the Lougheed-Barnet Highway, and connected with cross-streets at-grade, as shown in **Figure 26**.

Figure 26: Example Lougheed-Barnett Grade-separation Concept from the 2001 STP



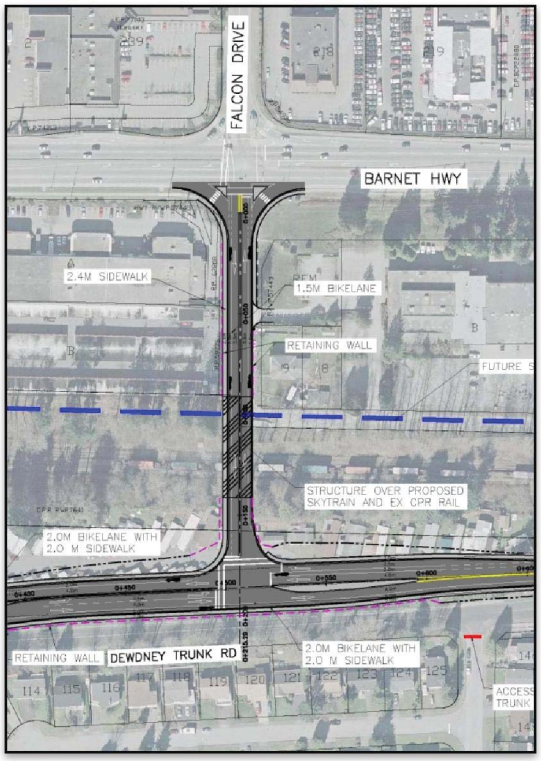
Although the evaluation process will highlight some of the many potential impacts and benefits from the grade-separation concepts, they are generally not consistent with urban scale transportation solutions for all modes that are needed to make a vibrant City Centre.

iii. **Falcon Overpass.** The Falcon Overpass of the CPR tracks was identified as a new, north-south connection between Barnet Highway and Dewdney Trunk Road. The basic intent was to provide

additional north-south capacity as an alternate to address the delays and congestion along Johnson Street and Pinetree Way.

In 2009, Urban Systems examined the physical feasibility and the traffic demands generated from a two lane overpass of the CPR tracks that connected to the existing signalized intersection on Barnet Highway and formed a new intersection with Dewdney Truck Road (see image below). The conceptual design of the overpass also included provisions for cyclists and pedestrians that desire better north-south access across the CPR tracks in communities to the north and south, as shown in **Figure 27**.

Figure 27: Conceptual Design for the Falcon Overpass of CPR Tracks



b. Blue Mountain, Lougheed and Brunette Improvements

The 2001 STP identified several improvements to address projected delays and congestion in the Brunette Avenue, Lougheed Highway and Blue

Mountain area. The recommended plan included the King Edward overpass to United Boulevard and the United Boulevard Extension to Brunette Avenue with a grade-separated intersection. The plan also identified possible improvement strategies for the Brunette Avenue and Lougheed Highway intersection to address projected delays and congestion.

Since that time, the Ministry of Transportation & Infrastructure has begun construction on the Gateway Project that includes the widening of the Highway 1 corridor and twinning of the Port Mann Bridge along with the provision of the King Edward Overpass and improvements to the Cape Horn and Brunette Avenue interchanges. This project is scheduled to be complete by 2013.

Even with these committed improvements, the Brunette / Lougheed / Blue Mountain area is still projected to experience significant delays and congestion, much of which is attributable to the limited capacity of the Brunette Interchange with the upgraded Highway 1.

The City of Coquitlam is working with the Ministry of Transportation and Infrastructure to examine improvement options that will address the vehicle queues and spillback impacts with the Brunette Interchange and to enhance multi-modal connections across Highway 1 and to Braid Station. The potential concepts at this stage include the widening the Brunette Overpass of Highway 1 or the provision of the Blue Mountain Overpass to connect with United Boulevard. These alternatives will be examined outside the STP Update process to identify a preferred course of action to be included in the long-term transportation strategy.

c. Lincoln Avenue Crossing of the Coquitlam River

The Lincoln Avenue crossing of the Coquitlam River was identified in the City of Port Coquitlam's 2000 Master Transportation Plan as a two lane connection between Shaughnessy Street and Pinetree Way. The potential crossing would be connected with Ozada Avenue immediately west of the Coquitlam River providing a direct link to Guildford Way and another east-west alternative through the City Centre. The project benefits highlighted in the Port Coquitlam MTP included:

- Alternative access into the Coquitlam City Centre area

- Enhanced connections for the growth areas of North Port Coquitlam and Northeast Coquitlam
- Additional east-west capacity to provide relief to delays and congestion along the Lougheed Highway

The City of Coquitlam's 2001 STP also included the Lincoln Avenue Crossing of the Coquitlam River in addition to the David Avenue crossing which was built in 2005. This STP Update will confirm the suitability of this project within the context of the City's current circumstances and future plans for growth and development. It should be noted that the south side of the Lincoln Avenue right-of-way is on the border of Port Coquitlam and Coquitlam between Pipeline and Oxford.

d. Upper Lougheed Corridor Transit/HOV lanes and intersection improvements (Barnet Highway to Colony Farm Road).

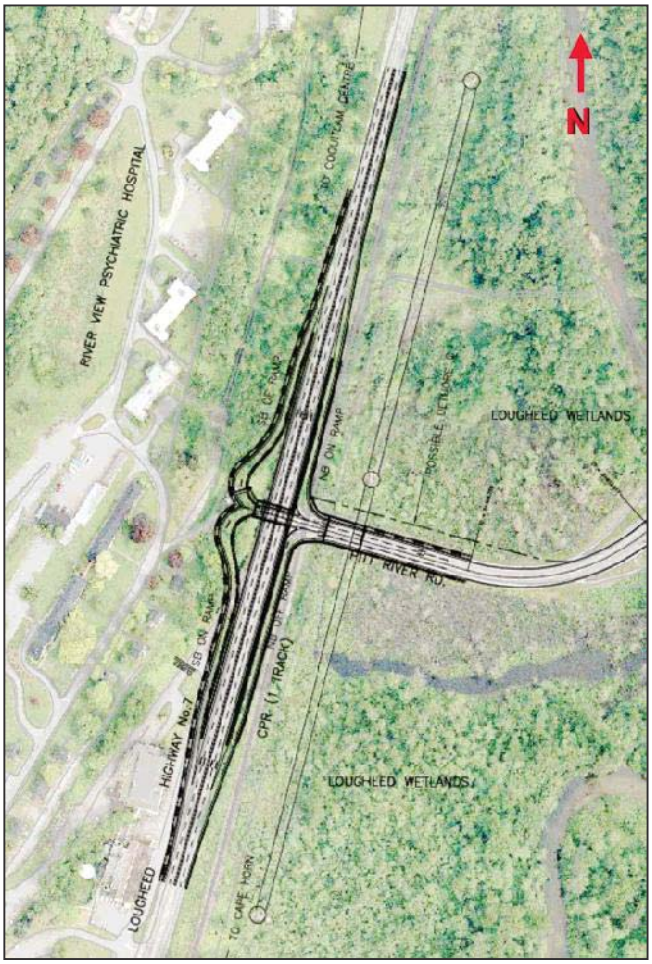
The Upper Lougheed corridor – between Barnet Highway and Colony Farm Road – serves city-wide and regional travel through to the Southwest area and connections to the Highway 1 corridor. The future base forecasts suggest that AM peak hour traffic volumes along the corridor will increase from 2,300 vehicles to 2,500 vehicles south of Pitt River Road, and from approximately 1,400 vehicles to 1,500 north of Pitt River Road in the peak (southbound) direction between 2010 and 2031. Although increases in traffic volumes are modest, the corridor will be operating near capacity with V/C ratios of 0.8 and 0.9 along the corridor under the future base scenario. In addition to the increased delays and congestion at the key intersections of Dewdney Trunk Road and Westwood Street, the intersection of Pitt River Road and Lougheed Highway continues to experience significant delays due to the at-grade crossing of the CPR tracks that parallel Lougheed Highway. When trains pass, traffic turning right from Lougheed Highway to Pitt River Road generally backs-up well beyond the end of the existing right turn bay, subsequently causing delays for through moving vehicles on Lougheed. With the projected growth in right-turn vehicles from 920 to 1,190 per hour in the PM peak hour, additional storage beyond the current 80 metres will be required.

This section of the report highlights those potential improvement concepts examined for the Lougheed Highway corridor to address delays and congestion.

i. **Widening for HOV/Transit Only Lanes.** The widening of the Lougheed Highway from four to six lanes was identified as a potential strategy to reduce projected delays and congestion along the corridor. At the same time, the interest in a southern rapid transit connection between Coquitlam Station and Braid Station as well as the extension of the HOV system that exists on Lougheed Highway east of the Pitt River was also indicated as a reason to explore this concept further in the STP Update.

ii. **Pitt River Road Grade Separation.** Pitt River Road is one of the most direct routes to access the Port Coquitlam City Centre from Highway 1. The existing intersection at Pitt River Road and Lougheed Highway is a three-leg intersection within Coquitlam. Pitt River Road is bisected by an at-grade rail crossing approximately 15 metres east of the intersection. Several issues have been identified at this location, including queuing of northbound right-turn traffic from Lougheed Highway when trains cross Pitt River Road, and westbound queuing on Pitt River Road onto the rail tracks, increasing the risk of train collisions. The intersection has one of the highest collision rates in the City, as noted above. Previously identified improvement concepts for this intersection include grade separation to eliminate the existing at-grade crossing of the rail line, which would allow for uninterrupted movement along Lougheed Highway and offer southbound left turn movements onto Pitt River Road. This project was also identified in the South Shore Trade Area Study of 2009 as a desirable project and illustrated in **Figure 28**.

Figure 28: Grade Separation Concept for Pitt River Road and Lougheed Highway



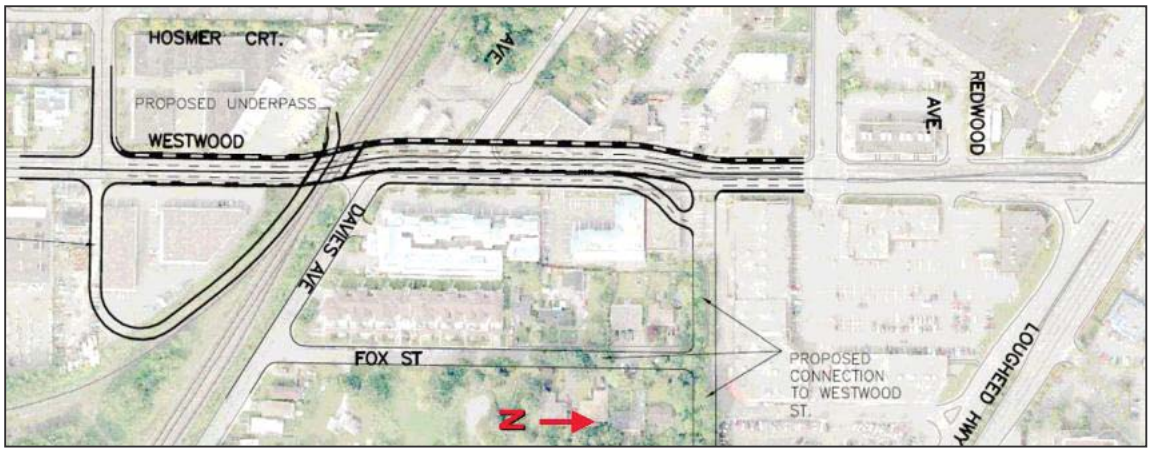
Source: SNC Lavalin South Shore Trade Area Study

e. Westwood Street Grade Separation.

Westwood Street is located on the border between the cities of Coquitlam and Port Coquitlam and currently has an at-grade rail crossing directly west of the CPR Coquitlam Yard. The crossing currently experiences a high number of train crossings, which affects north-south traffic accessing the Lougheed Highway area. The crossing also also experiences a high number of collisions, typically consisting of read end

accidents as vehicles stop for a train or slow down at the at-grade crossing. The South Shore Trade Area Study recommends an underpass structure at this location that would eliminate the existing at-grade crossing of Westwood Street with the CPR trunk line. The concept allows for uninterrupted north-south vehicle movement without loss of access to the commercial areas along Westwood Street, as shown in **Figure 29**.

Figure 29: Grade Separation Concept for Westwood Street



Source: SNC Lavalin South Shore Trade Area Study

2. Minor Network Improvements

There are a number of other future 'problem' areas throughout the City that have been considered for various improvement strategies. These include improvements that were previously identified in the Strategic Transportation Plan as well as other improvements identified to address safety or operational issues. The primary distinction between these improvements and the Major Road Network improvements is that the improvement strategies discussed in this section are less extensive than providing new or expanded roadways. In most cases, they simply involve intersection modifications to improve traffic operations. The range of treatments could include:

- **Signal timing and coordination.** In an effort to maximize the efficiencies of the signal system and minimize stops and delays at key intersections, practices are needed to plan, operate and maintain signal systems in Coquitlam. Ultimately this will increase mobility for all modes by optimizing and coordinating the timing of signals along priority corridors. Recommended initiatives include:

    - Establish performance guidelines for planning and operating signals
    - Develop design guidelines for signal systems along primary corridors to ensure that treatments for all modes are consistent throughout the City.
    - Implement signal warrants (including pedestrian signals) along the primary roadways within the region that restrict the implementation of unwarranted signals.
    - Establish guidelines for the design and implementation of timing plans for seven periods of the day and week as follows: AM peak, PM peak, off-peak, evening, late night, Saturday, and Sunday.
    - Develop a monitoring plan in which to re-examine daily and peak traffic conditions and signal timing plans along primary roadways and intersections.

- **Intelligent Transportation Systems (ITS)** refers to the use of information and communications technology to support transportation infrastructure and vehicles, including priority modes such as transit and the movement of commercial vehicles. Communities throughout North America have made significant advances in the signal systems hardware, software, and practices for managing mobility along urban roadways. Specific ITS measures recommended in the plan include:

    - **Signal System Upgrades.** The City has committed towards a long-term program to upgrade signal systems, including the implementation of new controllers, fibre optics, and central control systems that permit communications between signalized intersections in order to provide real-time controls. 76 out the

City's 135 signalized intersections are connected to the City's traffic network and monitored by the Central Traffic System. The City should connect the remaining signals to the communication fiber in the future.

- **Vehicle Detection and Signal Preemptions.** 85 out of the City's 135 signalized intersections are equipped with preemption capabilities to provide right of way priority to Fire and Rescue vehicles. The City should equip the remaining traffic signals with preemption capabilities, and encourage TransLink and Coast Mountain Bus Company to equip transit vehicles with transmitters to allow for transit detection and preemptions.
- **Vehicle Actuated Traffic Calming Signs.** The City has three vehicle actuated traffic calming signs (VATCS or Speed Reader or Radar sign) which are being employed on routes with reported speed issues. The City has chosen to target roadways which are adjacent to elementary schools as a means to improve walkability for the school community. A larger variable messaging sign has also been purchased recently to convey information about road closures and construction. This sign is also equipped with a radar.

- **Minor intersection upgrades.** The provision of additional turn lanes at key intersections could be considered to address localized safety and mobility issues, because they generally enhance mobility for through movements. The City will need to allocate sufficient resources for intersection upgrades to address safety and operational improvements.

- **Improved signage** can help enhance the flow of traffic within commercial or residential areas. Signage can be used to encourage motorists to use key intersections and the adjacent support roadways – instead of the through roadway – to access certain developments. In addition, signage can be used to alleviate existing or developing safety problems.

In addition, wayfinding signage can be provided to provide clear direction to residents and visitors along preferred routes to specific destinations within the community, particularly within the City Centre area. Enhanced signage benefits not only visitors – who will be provided with clear direction on how to get to and from these destinations – but also Coquitlam residents – because the signage plan can ensure that visitors are directed to use appropriate roads. This will mitigate some impacts of visitor traffic, such as traffic congestion, noise, emissions, and so forth.

3. Multi-Modal Street Guidelines

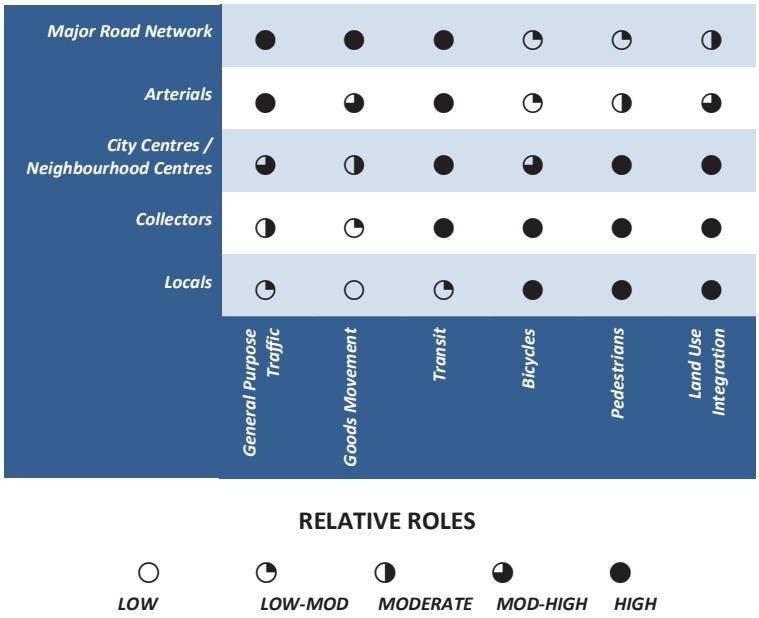
The street network within Coquitlam generally serves two primary roles – access and mobility. The City has adopted a street classification system to guide its short- and long-term decisions regarding the configuration and design of streets and supporting facilities, as shown in **Table 7**. This classification establishes a 'hierarchy' to describe four different types of streets according to their speed limit, width, type of bicycle facilities, and whether on-street parking is permitted, as shown below. Unlike design standards for roads and other municipal infrastructure, a classification system represents the typical form and functions for each class and are meant only as guidelines.

Table 7: Roadway Classification Guidelines from Current STP

	Provincial Highway	Major Road Network (MRN) / Arterial	Collector	Local
Function	Provincial and regional traffic	Regional and municipal traffic	Connection between locals and arterials, some private access	Access to land uses
Speed limit	80 km/h or more	50 km/h or more	30 to 50 km/h	30 to 50 km/h
Bicycle facilities	None or designated	Designated	Designated or shared	Shared
Parking	Not permitted	Not desirable	Permitted	Permitted
Transit	Express services	Yes	Yes	No
Traffic calming	No	No	Yes	Yes

While the current street classification guidelines provide general direction for vehicular traffic, they do not provide sufficient direction for alternate modes, nor do they consider context sensitive applications based on the surrounding land uses. As a result, it is recommended that the City develop flexible, inter-modal street guidelines to consider the relative priority of general purpose traffic, goods movement, transit, bicycles, pedestrians, and land use integration based on the road classification, as shown in **Figure 30.**

Figure 30: Multi-Modal Street Classification Guiding Principles



The updated street classification guidelines could include typical characteristics for all modes based on a range of criteria, including:

- expected traffic demands (daily traffic volumes);
- target travel speed (km/h);
- typical form and cross-section (road width, number of travel lanes, width of travel lanes, sidewalks);
- intersection controls;
- typical intersection spacing;
- land use and building design (typical building entrance orientation, setback requirements, off-street parking access/location);
- minimum and desired sidewalk width and buffers;
- pedestrian crossing frequency;
- on-street parking width;
- class of bicycle facilities; and
- type of transit services and facilities.

Updated street classification guideline recommendations are provided in **Appendix B**.

6.0 PARKING

The City of Coquitlam plays an important role in the overall provision of parking in the community. On one hand, the City's policies affect the supply of parking for new developments through the parking requirements outlined in the Zoning Bylaw. On the other hand, the City can also influence and be involved in the provision of public parking that is often used to support the economic vitality of activity centres such as the City Centre or Neighbourhood Centres. Within these areas, public parking can be either operated privately or through a more integrated on-street and off-street public parking system designed to achieve other land use and commercial objectives.

The effective management of parking supply throughout the City is fundamental to achieving many of the City's broad goals, including creating a compact, complete community, supporting a vital economy, and ensuring a healthy environment, as well as supporting transportation choices. In fact, parking management can help achieve each of the STP goals, as follows:

- **Build high quality multi-modal facilities within and between neighbourhoods** by encouraging parking supply and management policies that not only support the commitment to sustainable modes, but will encourage higher densities and mixed uses in the City Centre and Neighbourhood Centres.

- **Develop transportation infrastructure & services to support a healthy environment** through parking policies that minimize the physical areas needed for parking such as by discouraging surface parking in the City Centre and Neighbourhood Centres and through management strategies that may be used to limit greenhouse gas emissions.

- **Maintain and improve the quality of streets as a place for people** with on-street parking policies that enhance access to key

community activity nodes and yet minimize the negative impacts on residents.

- **Move people & goods efficiently** through parking policies that support a vital local and regional economy by ensuring a sufficient supply of parking in the City Centre and Neighbourhood Centres and ensuring provisions for on-street loading.

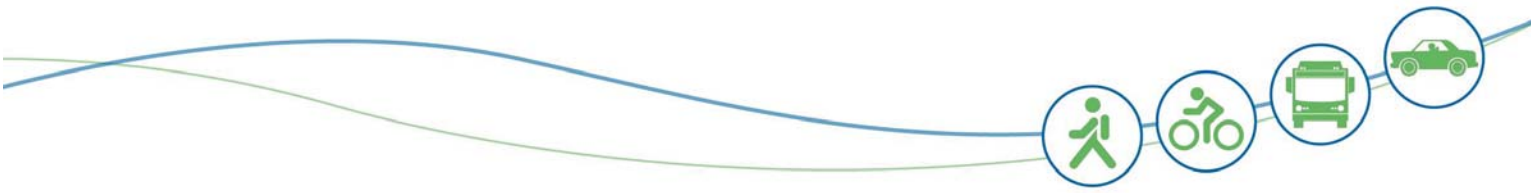
- **Prioritize walking, cycling, transit and other sustainable modes of transportation** through the application of parking policies and practices that encourage sustainable modes and discourage driving alone, such as reducing parking requirements if a development is located in close proximity to a rapid transit station or if enhanced bicycle parking is provided, for example.

- **Manage the transportation system efficiently as the community evolves** through progressive parking policies that maximize effectiveness of parking facilities and minimize net system costs and by monitoring parking usage and ensuring it is properly allocated among land uses.

In this regard, parking management is a foundational element in achieving the City's goals of encouraging sustainable forms of transportation while supporting the economic vitality of the City. Parking management is particularly important in the City Centre due to planned rapid growth and development in the coming years as well to support the Evergreen Line.

6.1 Shaping Influences

Beyond the role parking in ensuring mobility, providing transportation choices, and supporting local and regional economic activity, there are a number of factors that influence the long-term direction of the parking strategy, as follows:



- **Typical suburban parking requirements for new developments are not reflective of demands in higher density, mixed use areas such as the City Centre and Neighbourhood Centres.** Over the past several decades, parking policies in most Metro Vancouver communities have resulted in a plentiful supply of parking throughout much of the region. These policies are typically viewed as local, technically-oriented issues which are only evaluated on a site-by-site basis. However, this approach has had significant impacts on local and regional parking systems. In general terms, this has resulted in over-abundant supplies of parking, which have restricted attempts to create sustainable communities within urban and suburban environments.

  In the Coquitlam City Centre, for example, there are over 20,000 parking stalls provided to area residents and businesses, with the majority of the stalls located in off-street facilities, and approximately 500 spaces accommodated on-street. In addition, the majority of parking in the City Centre and Neighbourhood Centres is surface parking, and the footprint associated with off-street parking can be reduced by encouraging structure parking, particularly in the City Centre and in Neighbourhood Centres. A major supplier of off-street parking in the City Centre is Coquitlam Centre Mall, which provides more than 4,500 surface parking spaces to its patrons. In particular, much of the parking supply in the City Centre and Neighbourhood Centres is for commercial uses. The City has conducted parking surveys in the City Centre which indicate that the current supply of commercial parking is generally sufficient to accommodate peak demands for most of the specified uses in the City Centre.

- **Off-street parking variances.** In recent years, Coquitlam City Council has authorized a number of parking variances. Between 2008 and 2010, out of 28 development permit applications, Council authorized ten multi-family residential parking variances and two commercial parking variances ranging from 17% to 30% reductions. This has led to various questions being raised regarding the accuracy of regulatory provisions in the City's Zoning Bylaw for off-street parking standards. A

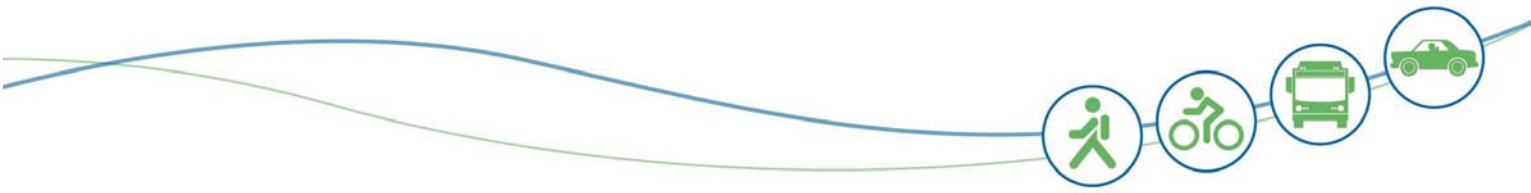
contributing factor that encourages developers to seek parking variances is that a number of existing policies in the Citywide Official Community Plan for City Centre and other neighbourhood plans1 allow for "consideration of variances to on-street parking requirements".

- **An abundant supply of free parking in any area of the City will continue to make it more convenient to drive to, from, and within key areas and primary trip generators.** With over 20,000 parking stalls throughout the City Centre – much of which is free – in addition to free parking in other areas of the City, the attractiveness of driving is increased, while the effectiveness of investments in transit, walking, and cycling facilities are reduced.

- **Parking can strategically support rapid transit in the City Centre.** Parking management is an important strategy to directly support the provision of Evergreen stations in the City Centre. Parking management in the City Centre should anticipate a significant shift of travel demand from private automobiles to public transit, in particular commute trips to and from work. These shifts will be most noticeable in those areas best served by the Evergreen stations, i.e., within an 800-metre radius from the West Coast Express, possible Lincoln Station, and Douglas stations. Parking requirements in these areas must acknowledge and reflect the anticipated mode changes.

- **The costs of building, operating and maintaining parking infrastructure are significant.** It is important to recognize the real value of a parking space in order to understand a portion of the hidden subsidies for automobiles and to appreciate the impact of high parking requirements. There are generally four major components of parking facility cost: construction; operation and maintenance; land value; and for most projects debt service. Although the land value portion of parking will vary between developments, the other three components

[1] Policy ST 25 of City Centre Area Plan states that the City will give consideration to reducing on-site parking requirements. Policy 3.1.3j of the Lougheed and Burquitlam Neighbourhood Plans are more prescriptive and indicate that a reduction of up to 30 percent could be considered for on-site parking requirements.



are relatively consistent. According to the *Work Program for the Implementation of the City Centre Parking Management Plan* recently prepared by the City, depending on the type of parking – surface, structure or underground, the capital cost of parking can be as much as $40,000 per stall to construct, while operating costs for a parking stall are in the order of $500 to $700 per year. Moreover, although indirect costs are seldom reported as part of most projects, there is a direct correlation between parking availability and external costs attributed to traffic congestion and pollution. While congestion effects are associated with the increase of travel time cost, pollution contributes directly to green house gas (GHG) emissions and air contaminants that impact on rising health care costs.

- **Onerous parking supply requirements for typical suburban developments can make it difficult for redevelopment to occur.** As noted above, parking supply requirements can result in both a significant cost to developers to provide parking. This can be present challenges redeveloping key areas of the City.

- **Excessive parking supply policies can negatively impact the character of neighbourhoods.** In particular, parking supply should be treated as an integral element of urban form and the transportation system, rather than an isolated feature of land use policies. In that regard, parking management policies and practices should be integrated with the City's land use initiatives that support higher-density development such as pre-zoning of City-owned land, comprehensive development (CD) zone designation, potential additional density bonusing provisions, development agreements, and other instruments of the Economic Action Plan.

- **Parking policies in most suburban settings are generally focussed on standalone uses, whereas the policies and strategies for mixed-use commercial areas may be best viewed as an integrated system.** Current parking requirements for private

developments are established for standalone uses. Each of these individual destinations may have different peak periods for parking and have a significant portion of unused spaces. To allow parking facilities to be used more efficiently, policies and practices for the provision of private off-street parking should be integrated with public parking practices for on-street and off-street facilities.

- **Regional, Provincial and Federal policies for parking can influence the effectiveness of the City's parking strategies.** The effectiveness of the City's parking strategies is based not only on local policies and practices within Coquitlam, but also other external initiatives ranging from parking requirements for new developments and parking pricing practices in neighbouring municipalities, to federal policies. For example, while the provision of parking is not recognized as a taxable benefit, the provision of a cash subsidy for parking or other transportation benefits are, thus reducing the choice for employers and employees.

- **Charging for public parking.** For many suburban communities, there is no fee charged for using public parking facilities – either on-street or off-street. In some cases, an abundance of free on-street and/or off-street parking can limit the effectiveness of charging for specific public parking facilities. In some communities, the perceived impacts of charging for on-street or off-street parking is viewed as a economic disadvantage for the survival of some businesses and commercial districts relative to those that do not charge for parking. In many established urban centres however, the reality is quite different. Charging for public on-street and off-street parking can be part of an comprehensive strategy to provide, manage and maintain attractive parking required to make a commercial area economically viable by encouraging frequent parking turnover, thereby freeing up parking stalls for potential customers. Further, it can also help to finance additional public parking required to further support economic growth and development. In the Coquitlam City Centre, there are a number of on-street and off-street pay parking facilities, including the Evergreen Cultural Centre and Town Centre Park, City Centre Aquatic Complex, Pinetree Community Centre, and 3045 Lincoln.

- **Attractive and well-managed parking systems are an important part of the economic success of commercial areas.** In fact, research has indicated that the provision of attractive and well managed public parking can generate over $50,000 in revenue per year for nearby retail land uses in downtown areas. Because of the importance of attractive parking in many communities, community businesses associations and interests will often work closely with local municipalities to develop complete strategies and other agreements for the provision of attractive public parking facilities.

6.2 Ideas and Opportunities

A number of ideas and opportunities were received regarding parking, including the need to be careful about reducing parking requirements because of pressures from population growth and the car dependent nature of the community.

6.3 Improvement Concepts

The long-term improvement concepts to consider for parking focus on three broad parking management strategies:

- Private development parking policies;
- Public parking systems; and
- Parking support strategies.

There are a range of specific parking management tools that can be implemented under each of these scenarios at various scales, ranging from city-wide techniques to those that would be implemented only in the City Centre area, around Rapid Transit stations, or in Neighbourhood Centres, as described below. City Centre and Rapid Transit Station Area parking management strategies should be further explored through the development of a comprehensive Parking Management Strategy for the City Centre and

Rapid Transit Station Areas in conjunction with stakeholders. A summary of the parking management strategies that should be considered in on a City-wide basis, in the City Centre and Rapid Transit Station areas, and in Neighbourhood Centres is shown in **Figure 31** and described in further detail in **Appendix C**. Implementation of the Parking Management Strategy should include the development of a City Centre Parking Management Strategy, as noted above, and will also require changes to parking requirements in the City's Zoning Bylaw. Parking policies should also be included in the City's OCP as well as relevant Area Plans and Neighbourhood Plans.

Figure 31: Parking Management Strategy

	City-wide	City Centre / Rapid Transit Station Areas	Neighbourhood Centres
Private Development Policies			
Parking Maximums	✓	✓	✓
Flexible Standards	✓	✓	✓
Off-Street Bicycle Parking	✓	✓	✓
Electric Vehicles	✓	✓	✓
Shared Parking		✓	✓
Minimize Principal Use Facility		✓	✓
Preferential Parking		✓	✓
Unbundle Parking		✓	
Public Parking Systems			
On-street time limits		✓	✓
Parking Pricing		✓	
Public Off-street parking		✓	
Cash-in-lieu		✓	
Park-and-ride	✓		
On-Street Bicycle Parking	✓	✓	✓
Parking Support Strategies			
Financial Incentives	✓		
Alter Tax Exemptions	✓		
Enforcement		✓	✓
User Information		✓	✓
Overflow Parking Areas		✓	✓

1. City-Wide Policies

Potential city-wide parking strategies are largely intended to ensure that the supply of parking best reflects the demands of an evolving community where

site specific attributes may suggest that parking requirements could be managed differently. The City-wide policies apply mostly to the following parking policies for the private sector in the case of supply strategies and policies of senior levels of government with regard to support strategies.

a. Private Development Parking Policies

The City should amend its Zoning Bylaw to **establish parking maximums** to limit the amount of parking that developers may build in order to ensure that an overly abundant supply of parking is not provided, and to consider **flexible or reduced parking standards** to reduce parking requirements based on the location features of a site relative to other modes of travel or in return for agreements to support local or on-site initiatives for transit, carpooling, vanpooling, cycling, cash-in-lieu for parking and/or a cash out program. The Zoning Bylaw should also be amended to require developers to provide **bicycle parking and other end-of-trip facilities**, as noted in the Bicycle Plan, and to require **provisions to accommodate electric vehicles and other new technologies**.

b. Public Parking Systems

The City should work with TransLink to encourage **park & ride facilities** at transit stations, bus stops, and highway onramps to facilitate transit and rideshare use. The City should also provide **on-street bicycle parking** at major destinations throughout the City.

c. Parking Support Strategies

The City should encourage **financial incentives** to use alternate modes of transportation and reduce the use of parking facilities as part of the Transportation Demand Management strategy, such as employers' funding employees' fees for transit and rideshare, and encouraging **cash-out employer parking subsidies**.

2. City Centre and Rapid Transit Station Areas

The City Centre area is evolving from a predominantly suburban character to an urban downtown area that will serve the needs of the Northeast Sector

with significant increases in population and employment projected over the next 20 to 30 years. With this change will come the need to actively develop a comprehensive City Centre Parking Management Plan that may include a variety of strategies that support the economic vitality of the area and at the same time support the provision and use of sustainable modes such as walking, cycling and making use of transit to, from and within the area.

The City Centre Area Plan includes a recommendation to develop an effective and equitable parking management strategy to manage the full range of parking demand in the City Centre, as well as to formulate a multi-faceted Transportation Demand Management Strategy that reduces the dependency on Single Occupancy Vehicle travel in the City Centre. Specifically the Area Plan recommends:

- Designated on-street parking wherever appropriate and effective to support mixed-use and high density development in the City Centre,
- Considering parking supply management and pricing as a disincentive to single occupant vehicle travel.
- Avoid the placement of at-grade and structured off-street parking between the front of a building and the public sidewalk throughout the City Centre.
- Consider variances to on-site parking requirements within the City Centre if the applicant adequately justifies the proposed variance through factors such as direct access to high frequency transit service and promotion of its usage, lower private automobile ownership and shared parking opportunities, unbundles parking measures, TDM measures, and other long term incentives leading to reduced vehicular use by occupants.

The City is in the process of developing a City Centre Parking Management Plan. Potential parking strategies that may be examined as part of this plan may include those noted above within the City-Wide Policies, as well as those briefly highlighted below:

a. Private Development Parking Policies

In addition to City-wide policies to establish parking maximums, flexible or reduced parking standards, and bicycle parking and other end-of-trip facilities, there are a number of policies the City should consider in the City Centre and around rapid transit stations, including **shared**

parking, where parking spaces are shared by more than one user; **minimizing principal use facilities** to limit the number of new facilities which are constructed for the sole purpose of providing parking; establishing **preferential parking areas** to allocated parking spaces for ridesharing participants and car sharing programs; and **unbundling parking**, whereby parking costs are separated from building costs.

b. Public Parking Systems

In addition to City-wide policies to promote park-and ride facilities and provide on-street bicycle parking, the City should consider establishing **on-street time limits** and **parking pricing** in the City Centre and around rapid transit stations. In addition, the City should take on a greater role in managing and/or providing centralized **public off-street parking facilities**, and encourage developers to provide **cash-in-lieu fees** to fund public parking facilities as an alternative to minimum requirements for off-street parking.

c. Support Strategies

The City can consider a number of support strategies in the City Centre and around rapid transit stations, including **enforcement programs**, **user information and marketing**, **developing overflow parking plans**, and **addressing spillover problems**.

3. Neighbourhood Centres

In Neighbourhood Centres, many of the same parking management strategies would apply as in the City Centre, with less emphasis on parking pricing, public off-street parking, and financial exemptions, for example. The key features of the parking strategy in Neighbourhood Centres are summarized below.

a. Private Development Parking Policies

In Neighbourhood Centres, private development parking policies would be the same as those considered on a City-wide basis related to creating

flexible parking standards, adopting parking maximums, implementing park & ride facilities at major transit facilities, developing bicycle parking requirements, promoting shared parking, minimizing principal use facilities, establishing preferential parking areas, as described in the previous section.

b. Public Parking Systems

Public parking systems in Neighbourhood Centres would consist primarily of establishing time limits for on-street parking.

c. Support Strategies

Support strategies in Neighbourhood Centres would consist primarily of increased enforcement of on-street time limits, improved user information, and establishing overflow parking plans.

7.0MANAGING DEMAND

A major component of developing a sustainable transportation plan includes managing existing transportation infrastructure, providing attractive services and facilities to encourage sustainable modes, and developing supportive strategies using a demand-oriented approach. In support of the City's goals towards promoting sustainable transportation, the STP Update includes long-term directions for transit, cycling and walking for local and inter-municipal travel. In order to encourage residents and the local workforce to make use of these alternatives, support policies and programs may be implemented by public and private sector agencies.

Travel Demand Management (TDM) is the term used to represent a broad range of policies and programs used in many communities throughout North America to encourage people to walk, bicycle, use transit and rideshare, as well as to discourage individuals from driving alone. Attractive alternatives must be in place in order to make TDM policies and programs more effective. In support of the City's overall goal for a sustainable transportation plan, TDM strategies can be expected to influence travel behaviour in the following three overarching ways, thereby reducing the costs of maintaining and expanding transportation facilities:

- **Change the amount of travel** by encouraging trip-makers to combine two or more purposes into a single trip, by avoiding commute trips, and by reducing the length of trips.

- **Change the mode of travel** by encouraging the use of non-SOV modes, such as walking, bicycling, carpooling, and transit, and/or by discouraging people from driving alone.

- **Change the time of travel** to reduce the growth in peak period travel by encouraging shifting the time in which people travel to outside peak periods.

7.1 Shaping Influences

In addition to providing safe, attractive, and convenient transit services and facilities, bicycle facilities, and pedestrian infrastructure, there are a number of other factors that can help to encourage sustainable transportation choices and reduce automobile travel. Some of the key shaping influences for managing travel demand include:

- **For the foreseeable future, driving is and will continue to be the most convenient and flexible mode of transportation in many areas of Coquitlam and the region.** Driving accounts for the majority of trips in Coquitlam, as over 80% of trips made by Coquitlam residents are made by automobile, with 18% of all trips made by walking, cycling or transit. A comprehensive strategy is required beyond simply providing sustainable transportation infrastructure and services that extends to providing other incentives to using transit, walking or cycling as well as disincentives to driving in order to achieve the STP target of 30% of all trips made by walking, cycling, or transit.

- **There are few incentives to using sustainable modes of transportation**. At this point, there are few policies and programs that encourage City residents to use sustainable modes. Incentives to reduce single occupant vehicle travel include improving infrastructure and services for non-automobile modes, transit pass programs, and employer assistance programs.

- **There are few disincentives to driving alone.** Along the same lines, there are currently few policies or programs in the City that discourage City residents and workers from driving alone. These disincentives may include parking management (as described in the previous section) and other road pricing strategies.

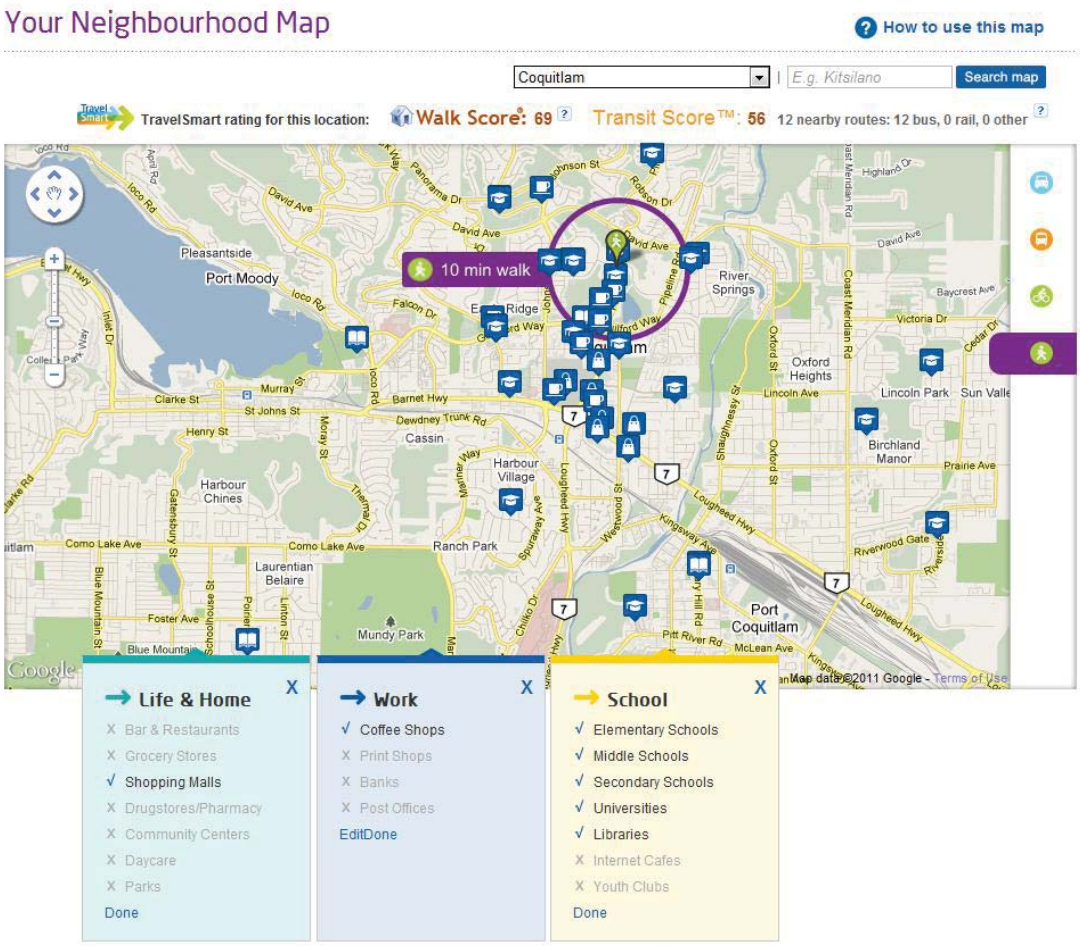
- **Most residents are not well aware of the transportation choices available to them.** Residents of the City are not well aware of the options that are available to them for using non-automobile

modes, as there are currently few targeted educational or promotional programs directed by the City or other agencies.

- **TDM Strategies can be tailored towards both commute trips and discretionary trips.** Trips to work and school only account for approximately 45% of total daily trips in Coquitlam, with the remaining 55% of trips being made for non-commuting purposes, such as dining, personal business, shopping, recreation, social purposes, or picking up or dropping off a passenger. However, most TDM programs focus on influencing these commuting trips to work and to school, because these trips are a significant component of peak period travel that are typically made every day from the same origin, to the same destination and around the same time. TDM programs for these trip purposes can be targeted through resident groups, employers and educational institutions. Although most TDM programs focus on commute trips, some TDM strategies can also be targeted towards non-commuter trips as well, such as TransLink's TravelSmart program which focuses on discretionary travel.

- **The City can support regional TDM initiatives.** Although there are several opportunities for TDM programs to be developed in Coquitlam, the effectiveness of local programs will be limited unless they are complemented by regional TDM initiatives. TransLink has a responsibility of managing TDM programs in Metro Vancouver and has developed the TravelSmart Program, which includes a number of tools, tips and resources to help incorporate simple and effective changes into people's daily travel, including an on-line mapping tool (shown in **Figure 32**) and tips and resources for driving, walking, taking transit and cycling. Through the TravelSmart program, there are opportunities for TransLink and municipalities to partner together to deliver TDM initiatives.

Figure 32: TravelSmart Interactive Mapping Tool



Source: TravelSmart

- **The City can build on the local initiatives already in place.** The City has undertaken several initiatives in recent years to help manage travel demand, including:
    - Offer the Employee Pass Program (EPP) in conjunction with TransLink, whereby staff receive a 40% discount on an annual transit pass;
    - Provide dedicated carpool parking stalls in the underground parkade at City Hall.
    - Provide secure bicycle parking and showers at City Hall.
    - Work with developers to provide parking spaces for car co-ops at developments with reduced parking, as well as increased

bicycle parking spaces and end-of-trip facilities at mixed use developments.

- Promote and support the Commuter Challenge, Jack Bell Rideshare, and other promotional events such as Bike-To-Work Week.

7.2 Ideas and Opportunities

A number of ideas and opportunities for managing travel demand in Coquitlam have been identified by stakeholders, including:

- A variety of incentive and disincentive policies are needed to manage travel
- Support facilities are required, such as bicycle parking
- Create more mixed use communities and neighbourhoods to reduce the need for automobile travel
- The City should work with TransLink and support major employers to implement TDM programs.

7.3 Improvement Concepts

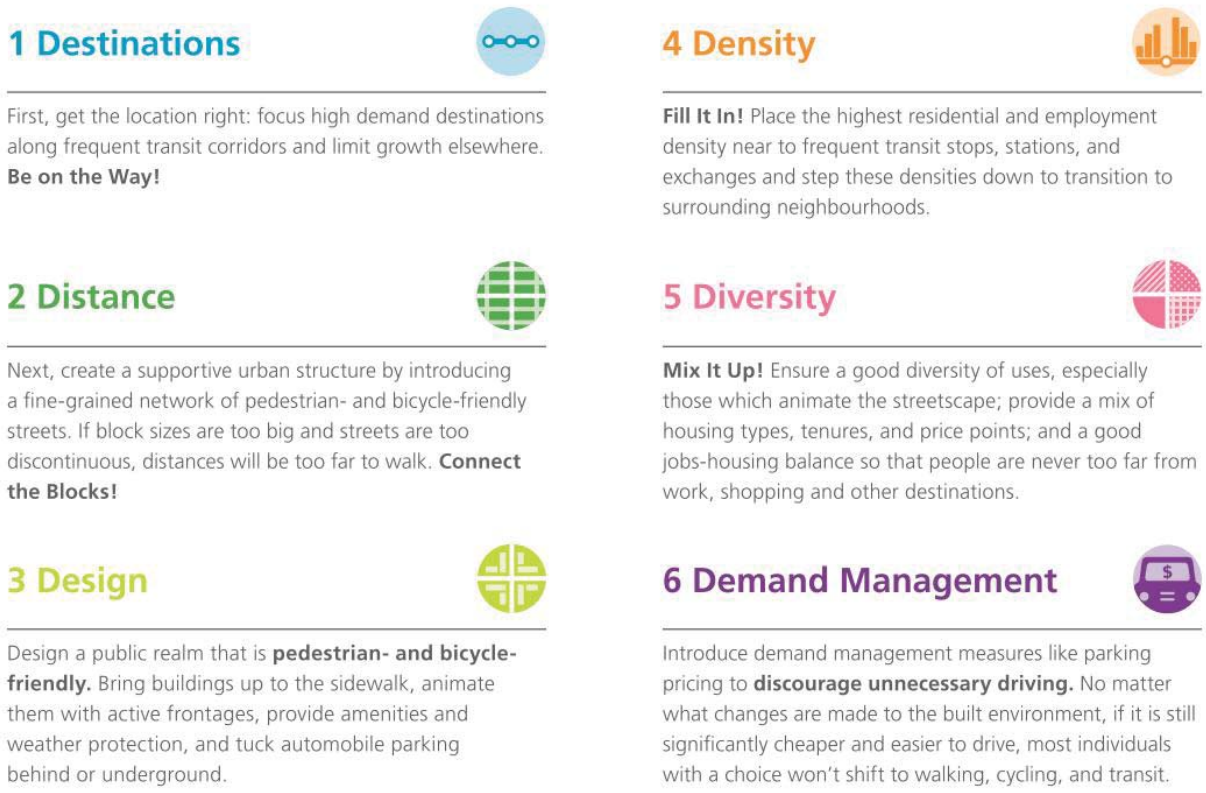
1. Integrated Land Use and Transportation Planning

Land use policies and decisions within the City can have the greatest influence on travel demands and mode choice. Land use policies that support high densities are likely to have the most significant impact on mode choice. Lower density development patterns generally encourage automobile use and discourage the use of other modes of transportation. Higher density development patterns, particularly along primary transit corridors, support the development of attractive transportation services and facilities. Consequently, residents of the City will have a range of attractive transportation choices, reducing reliance on the automobile. Mixture of land uses is also critical to support sustainable modes of transportation, as this ensures that there are a greater variety of destinations within reasonable

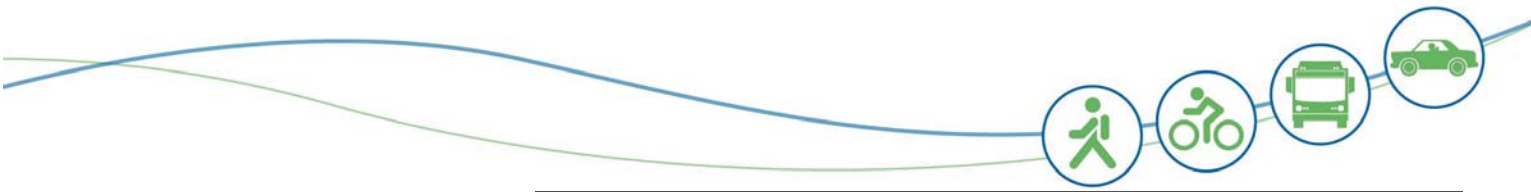
distance (such as homes, workplaces, stores, restaurants, or parks) to generate multi-purpose trips in an area for people to walk or bike.

The City should coordinate land use and transportation planning to develop transit oriented communities in the City Centre and Neighbourhood Centres, as well as along future Frequent Transit Corridors and future Frequent Transit Development Areas identified by the City in conjunction with TransLink. In doing so, the City should consider TransLink's principles for Transit Oriented Communities – the "Six D's" – in new developments and redevelopments, as illustrated in **Figure 33**:

Figure 33: The "Six Ds" of Transit Oriented Communities



Source: TransLink



2. Leadership

If the City wants to encourage other agencies and private sector businesses to implement TDM measures, the City must lead by its actions for its own employees. There are a number of initiatives that the City could take in addition to what it is currently doing to encourage its own employees to use alternate forms of transportation. Possible TDM measures that the City could pursue for its own employees include:

- **Ridematching.** Provide ridematching assistance to encourage and help facilitate employee ride sharing.
- **Guaranteed Ride Home.** Establish and promote a guaranteed ride home (GRH) program for staff.
- **Preferred Parking**. Expand preferred parking policy for carpool groups of two or more employees.
- **Flexible Work Arrangements.** Provide flexibility in start and finish times wherever possible if that flexibility helps facilitate employee carpool arrangements.
- **Teleworking.** Provide opportunities for teleworking/telecommuting on a pilot program basis subject to business case analysis.
- **Car Sharing.** Introduce corporate car Share pilot program, subject to favourable business case evaluation.
- **Bicycle Parking.** Provide covered bike parking at outdoor locations in the City Centre area.
- **Cycling Support Measures.** Encourage employee cycling by offering cycling skills course, through active participation in the annual Commuter Challenge, and by ensuring that bicycle route signage in the City meets high standards.

3. Education & Awareness

TDM is all about changing people's behaviour. However, many residents are not aware of the options available to them. Consequently, an important part of a TDM program and initiative is marketing and education efforts intended

to encourage a shift in travel patterns and greater use of sustainable modes of transportation.

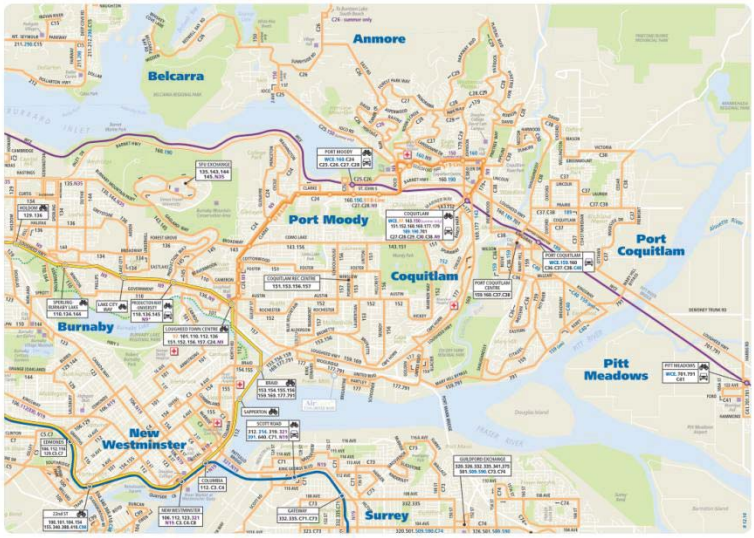
Strategies to improve education and awareness generally fall into two categories: distributing existing information from other groups and agencies, and developing and running more locally generated programs.

a. Information Distribution

The first strategy involves distributing information that has already been produced, either by the City or by other agencies such as TransLink. There are many existing resources that describe programs and initiatives already under way, such as:

- **Transit.** TransLink currently produces a number of materials and resources designed to provide information on transit services and facilities as well as general information on how to use transit, both for the general public and specific groups. Some of the information already produced by TransLink includes:
  - Transit system map for Coquitlam and the Northeast Sector, as shown in **Figure 34**
  - Route maps and schedules
  - Bus Exchange Maps for Coquitlam Recreation Centre and Coquitlam Station as well as exchanges in Burnaby, Port Moody and Port Coquitlam
  - Information on how to use the transit system
  - Accessible services
  - Customer outreach initiatives.

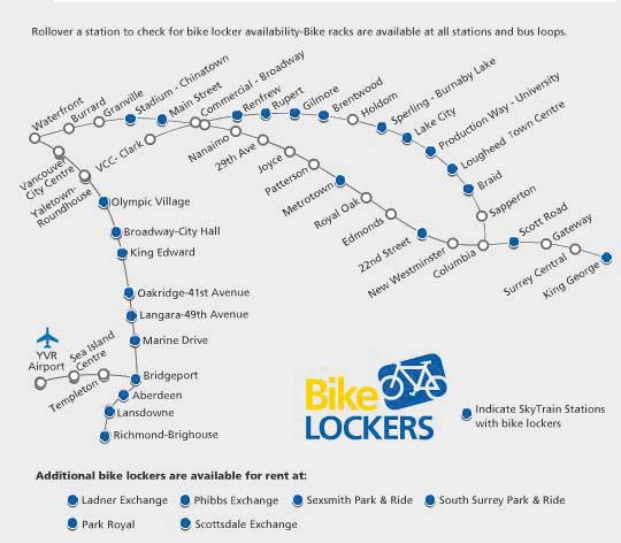
Figure 34: Transit System Map



- **Cycling.** A number of cycling resources are available, including maps of cycling facilities throughout the region that are available on TransLink's website as well as general information about cycling provided by a number of organizations outlined below:

- Greater Vancouver Cycling Map & Guide
- Bike & Ride Information
- Bike Locker Availability (see **Figure 35**)
- Better Environmentally Sound Transportation (BEST)
- Vancouver Area Cycling Coalition
- Cycling BC
- Ministry of Transportation Cycling Links and Information for BC Cyclists.

Figure 35: Bike Locker Availability at SkyTrain Stations



- **Carpooling and Ridesharing**
  - Jack Bell Foundation (JBF)
  - Co-Operative Auto Network (CAN)
  - The Company Car
  - ZipCar

There are many ways in which the City can work to help distribute this information. The City could produce a brochure, newsletter, or newspaper ad, or webpage on the City's website summarizing existing resources and how to find more information.

b. Develop Local Programs

The second strategy involves the City creating developing and running more locally generated TDM programs, and actively working with resident groups, employers and institutions to promote transit, cycling, walking, or carpooling. Under this strategy, it is recommended that the City create a TDM Coordinator position to oversee the development and implementation of these community programs. Several other municipalities throughout British Columbia have hired TDM Coordinators to help develop and implement TDM initiatives, including Vancouver, New Westminster, Surrey, and Kelowna. Some initiatives and programs could include:

- **Safety training and education activities targeting cyclists**, to improve cycling skills in traffic.

- **Marketing activities targeting employers** for adoption of transit fare incentives and implementation of trip reduction programs.
- **Marketing of ridesharing, carpooling and vanpooling services.**
- **Improved information for transit users** regarding routes, schedules and real-time bus arrival information.
- **Education programs for school children and parents** intended to improve pedestrian safety and encourage children to walk to school.
- **Continue to participate in marketing and education programs** such as Bike-to-Work week and other marketing and education programs to encourage cycling.
- **Continue to work with schools** to reduce motorized trips to and from school
- **Community-based marketing of transportation services,** whereby information regarding available transportation services is customized to a person's needs.
- **Recognizing local companies that offer the Employer Pass Program** in conjunction with TransLink.
- **Encourage use of alternate fuel vehicles**, such as hybrid vehicles, electric cars, Smart Cars, etc.

Before identifying or implementing any new initiatives or programs, the assigned TDM coordinator will need to conduct research to identify key barriers and benefits to reducing SOV use and will use this information to provide recommendations to TransLink in implementing appropriate TDM programs affecting City residents. This research can also be used to identify and prioritize potential initiatives and programs that the City can develop and implement.

4. Private Sector and Other Agency Initiatives

In addition to the City-led initiatives described in the previous section, there is also a role for major employers, small businesses, schools, and

residents in reducing travel demands. Each of these groups provides different opportunities for trip reduction. Each of these groups has a different role to play in encouraging TDM initiatives:

- **Major employers.** The are many large employers in the City of Coquitlam, including Douglas College, the School District, and Coquitlam Centre. These employers provide the most significant opportunity for implementing successful TDM programs because they have a much larger pool of potential participants.

- **Small businesses.** On their own, small businesses may not have the resources and staff requirements to successfully implement TDM initiatives. However, many small businesses are clustered together in specific areas, such as the City Centre, Austin Heights, Maillardville, and Burquitlam. By working together, the businesses in each of these areas can develop the resources required to provide programs and incentives to encourage employees to change their travel behaviour. Examples could include having several businesses in an area participate in a company car sharing program.

- **Schools.** Schools present unique opportunities for TDM initiatives because they can target two distinct groups: students and employees. As many schools are large employers, there is an opportunity for the employer to capitalize on this large pool of participants. Schools also provide an opportunity to encourage students to find alternate means of getting to and from school, such as a walking school bus program, improved cycling facilities, and general education and awareness. It is particularly important to promote TDM strategies among students because behaviours that people learn as children often stay with them throughout their life, and because educating children will have spillover effects to their families, as students relay the importance of TDM strategies to their parents and siblings. The City could work with School District 43 in developing policies and programs to reduce car travel from home to school.

- **Residents.** TDM initiatives can be targeted specifically to residents, through incentives and agreements with developers on a site-specific basis. For example, the City could work with developers and other agencies where necessary to provide amenities promoting sustainable modes of transportation in new developments, such as increased bicycle parking, reduced parking standards, and transit passes at reduced rates. The City also supports working with TransLink to implement the TravelSmart program in one of the City's neighbourhoods.

Each of these different groups provides different opportunities for TDM programs and initiatives. **Table 8** summarizes some possible TDM programs and how each of these programs can be targeted to most effectively serve their target audience. As noted above, it is not enough to simply identify these initiatives. The City itself must play an active role in leading by example by encouraging such initiatives, as it is one of the City's major employers, and by actively educating its residents and businesses about the opportunities available to them, and by establishing a TDM Coordinator.

Table 8: Private Sector and Other Agency Initiatives

TDM Program	Target			
	Major Employers	Small Businesses	Schools	Residents
Flexible Work Arrangements	✓	✓		
Ridematching (internal)	✓			
Ridematching (TransLink/Jack Bell Foundation)	✓	✓		✓
Guaranteed Ride Home	✓	✓		
Facilities for cyclists/walkers	✓	✓	✓	
Preferential Parking for Carpool/Vanpool	✓			
Transit Pass Programs	✓	✓	✓	✓
Incentive Programs	✓	✓	✓	✓
Fleet/Company Vehicles	✓			
Transit Management Associations		✓		
Walking School Bus			✓	
Education and Promotion	✓	✓	✓	✓
Co-operative Auto Network				✓
Bicycle Parking Facilities for Multi-Family Developments				✓
TravelSmart				✓

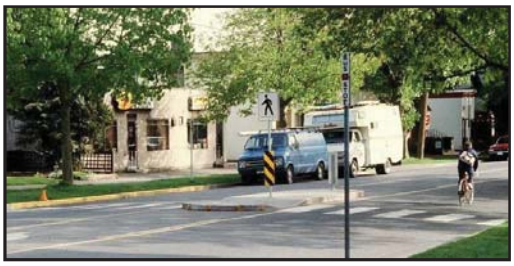
APPENDIX A

Summary of Enhanced Pedestrian Treatments

As previously described, the Pedestrian Plan includes a range of treatments for different types of pedestrian areas based on the predominant land uses in each pedestrian area. In this regard, the areas that could potentially generate the most walking should receive extraordinary, high quality pedestrian treatments to improve safety and accessibility, to encourage people to walk, and to make these areas "people places". The following discussion highlights the range of pedestrian treatments that are recommended within each of the pedestrian areas to help make the City of Coquitlam even more walkable. The focus of the City's efforts in the coming years will be on completing key elements of the sidewalk and greenways network.

- **Sidewalk coverage** and requirements are outlined in the City's Subdivision and Development Services Bylaw and require sidewalks on both sides of most streets. As mentioned previously, it is well beyond the City's financial resources to fully meet this sidewalk standard in all areas of the City. However, streets within pedestrian precincts, community and recreation pedestrian areas, and school and parks pedestrian areas would benefit from having sidewalks on both sides of all streets.
- **Enhanced sidewalk width** is important to ensuring a comfortable space for pedestrians. In general, all sidewalks should have a minimum clear width of 1.5 m and wider in busy pedestrian areas. To be accessible for all individuals, sidewalks must be in good condition and free from major and minor obstructions, such as uneven surfaces, utilities, signs, and other street furniture. Where possible, the following sidewalk widths should be considered in each of the key pedestrian areas.
    - Pedestrian Precincts support higher pedestrian flows and should desirably support 3 m sidewalks
    - Community and Recreation Pedestrian Areas should have minimum sidewalk widths of 1.8 m and preferably 2.0 m to support wheelchair use
    - Other areas should have sidewalks of 1.5 m or more.
- **Boulevards** can be provided between the curb and sidewalk to provide a buffer between pedestrians and motor vehicle traffic. Adjacent to commercial uses, sidewalks should generally extend

from the curb to the property line/building face to maximize pedestrian space and to accommodate other amenities, such as street furniture and bicycle parking that can comfortably accommodate demands and do not interfere with walking aids. Street trees may be incorporated into the sidewalks and can be included along streets with high pedestrian demands and where parking does not provide a buffer between the road and sidewalk, as street trees can play an important role in increasing pedestrian comfort and safety. In non-commercial areas, landscaped buffers may be provided to act as a buffer between pedestrians and vehicular traffic.



- **Narrower crossings** using intersection or mid-block curb extensions, bus bulges, and median islands can be provided to reduce crossing distances. Curb extensions extend the sidewalk across the curbside parking lane. They benefit pedestrians by improving visibility and reducing crossing distances. They also offer opportunities for pedestrian amenities, such as landscaping and benches.

- **Curb letdowns** at all intersections. Where possible, separate curb letdowns should be properly aligned with crosswalks. Curb cuts should satisfy the needs of the City's Access Ability Committee. Designs which incorporate a single ramp that is positioned between the crosswalks will also be considered depending on the intersection configuration.

- **Marked crossings** are the simplest crossing treatment, which involves pavement markings indicating the crosswalk, and accompanying signs. Enhanced pavement markings such as "ladder" and zebra" markings increase the visibility of the crosswalk to approaching motorists.

- **Enhanced crosswalk treatments** may include flashing lights which are activated by pedestrians. The flashing lights alert motorists that pedestrians are crossing, and increase visibility of the crosswalk. A flashing light treatment offers advantages over a signalized pedestrian crossing, as there is no delay for pedestrians waiting to cross, and delays to motorists are minimized because as soon as pedestrians clear the crosswalk vehicles can proceed.

- **Accessible pedestrian signals** at signalized intersections are increasingly being used and desired in high pedestrian areas to assist pedestrians with disabilities. Research has shown that these treatments provide a higher degree of confidence to pedestrians crossing major streets and have generally received positive support among all age groups.
- **Countdown timers** at key intersections to provide timing information to all users.
- **Automatic Pedestrian Phase** in the City Centre to provide priority to pedestrians. An automatic pedestrian phase does not require a pedestrian to active the signal.
- **Important connections**, such as overpasses, are expensive to construct, typically exceeding $1 million. Consequently, they are usually used only on multi-lane roads or other natural barriers such as rivers where there are few opportunities for pedestrians and cyclists to cross, or existing facilities are sub-standard and more costly to improve. Within the City, the Lougheed Highway and Barnet Highway corridors, rail corridors, and several creeks are the most significant barriers for pedestrians and cyclists.
- **Enhanced wayfinding signage and maps** to guide people to and around pedestrian precincts for non-residents and tourists. Enhanced wayfinding signage can be of particular benefit to tourists, to help orient visitors to key destinations within the City. Enhanced signage also benefits all users, and helps to ensure a sense of place at key destinations. Signage standards may support a theme for a given area, and should be designed to meet the needs of visually impaired.
- **Street furniture** (benches, water fountains) and other pedestrian amenities outside of the travelled portion of the sidewalk are essential to making people places and creating environments that are comfortable and interesting for pedestrians.
- **Accessible Bus stops** consistent with TransLink's design guidelines will be implemented to enhance comfort of all transit passengers and to ensure accessibility for all customers.

- **Pedestrian safety** will be enhanced with greater application of Crime Prevention Through Environmental Design (CPTED) audits and design practices.
- **Street lighting** to ensure pedestrian comfort as well as safety and security at all times of day. Street lighting can also be designed to support a particular theme for a given area.
- **Public facilities** such as washrooms and telephones should be available and accessible for pedestrians of all mobility levels and signed accordingly. For people that experience mobility challenges, public restroom facilities provide a high degree of comfort within key pedestrian areas.
- **Building design guidelines** within pedestrian precincts will continue to focus on pedestrian orientation features and accessibility for all people, such as sidewalk and streetscape improvements, accessibility features leading to and from buildings, and pedestrian friendly and accessible pathways leading toward buildings.
- **Weather protection**

The potential range of treatments considered in each area is directly related to the potential of encouraging more people to walk in the City. In this regard, more extensive pedestrian treatments should be considered in high pedestrian areas, and perhaps more modest treatments in areas of lower demand. Because everyone is a pedestrian at some point in their trip or for the entire trip, no areas should be without comfortable and accessible pedestrian facilities. The table below summarizes the potential range of pedestrian treatments that are recommended for each pedestrian area within the City.

Figure A-1: Pedestrian Areas and Treatments

	Pedestrian Precincts	Community and Recreation Pedestrian Areas	School and Park Pedestrian Areas	Other Areas
	• City Centre • Neighbourhood Centres • Rapid Transit Stations	• Post-Secondary Schools • Community Centres • Cultural Facility • Ice Rinks • Pools	• Elementary Schools • Secondary Schools • Parks	• Other Land Uses
Enhanced Sidewalk Width	✓	✓	✓	
Boulevards	✓	✓		
Narrower Crossings	✓	✓	✓	
Accessible Curb Letdowns	✓	✓	✓	✓
Accessible Bus Ramps	✓	✓	✓	✓
Marked Crossings	✓	✓	✓	✓
Enhanced Crosswalks	✓	✓	✓	
Accessible Pedestrian Signals	✓	✓		
Countdown Pedestrian Times	✓	✓		
Automatic Pedestrian Phase	✓			
Wayfinding/signage	✓			
Street furniture	✓			
Street lighting	✓	✓	✓	✓
Public facilities	✓			
Building design guidelines	✓	✓		
Weather protection	✓			

APPENDIX B

Street Classifications

The street classification system is designed to guide the City's short- and long-term decisions regarding the configuration and design of roads and supporting facilities, as well as relationships with adjacent land uses. In some cases, the existing classification neither reflects the current or planned role and function of a given roadway as anticipated.

Because the STP update outlines long-term directions that are consistent with the classification of roadways, the STP Update includes an updated street classification system. The street classification system has been updated to better reflect their current and planned long-term role and function, particularly given the evolving nature of the City of Coquitlam from a suburban to more urban community with rapid population growth in recent years, which is expected to continue in the coming years. Unlike design standards for roads and other municipal infrastructure, a classification system represents the typical form and function for each class, and are meant only as guidelines. The typical characteristics of each type of roadway are described in **Table A.1**, and illustrated in **Map A.1**, although there may be some variations in the actual characteristics of certain roadways.

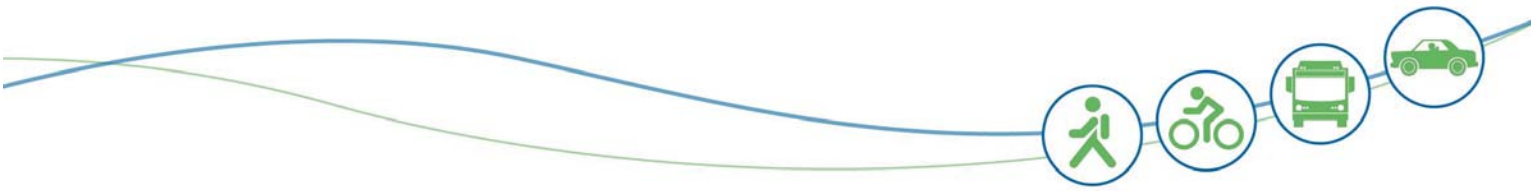


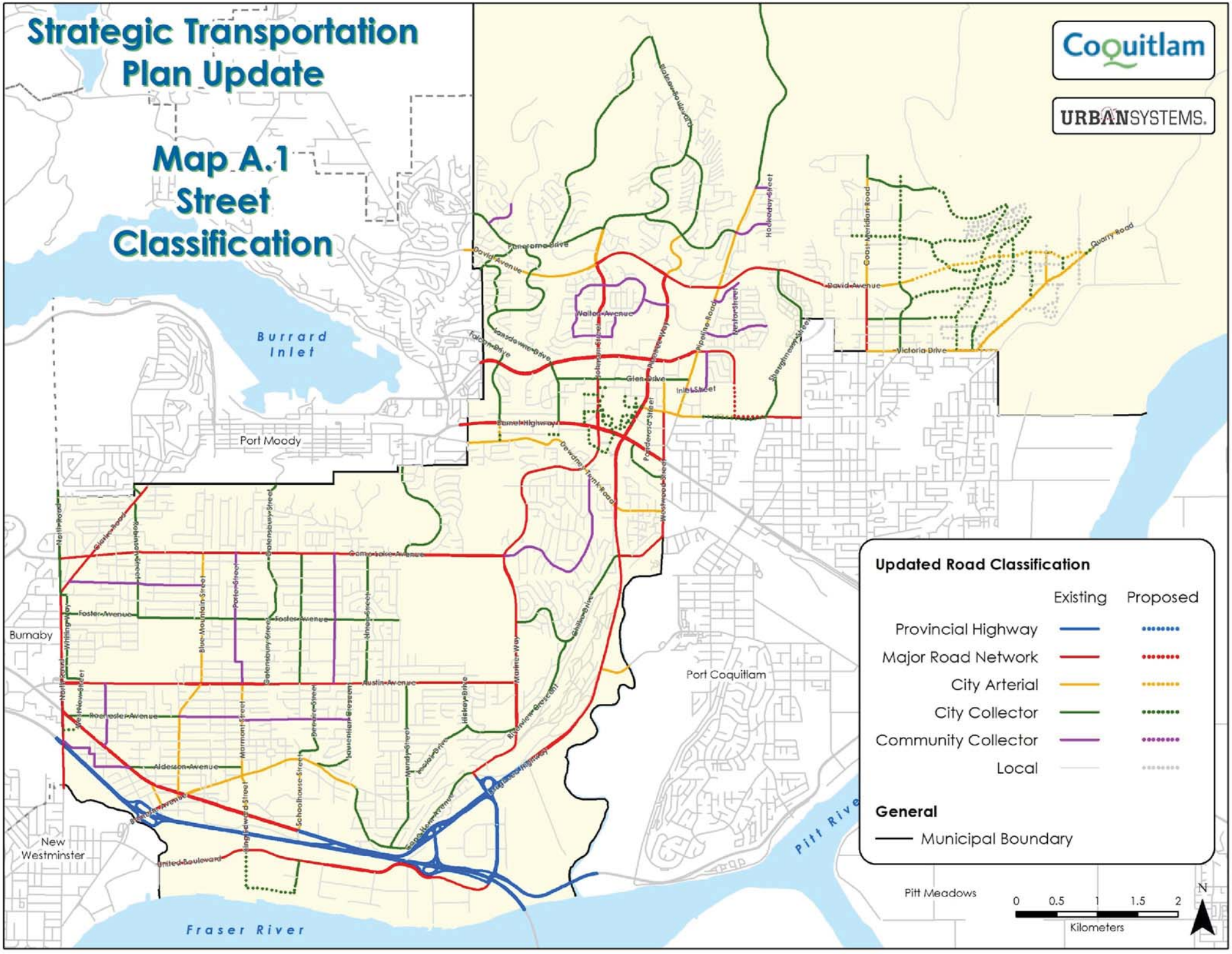
Table A.1: Multi-Modal Street Classification Guidelines

	City Arterial	City Collector	Community Collector	Local – Commercial / Institutional / High Density	Local – Single Family Residential
Expected traffic demands (approx. Daily)	15,000 +	6,000 – 15,000	3,000 -6,000	< 3,000	< 1,000
Traffic and connectivity	City-wide traffic connecting to major destinations, MRN, and highways	City-wide traffic connecting to City Arterials	Local traffic connecting to City Collectors or Arterials	Local street traffic connecting to individual properties and collectors	Local street traffic connecting to individual properties and collectors
Transportation Function	Person mobility	Person mobility / land access	Person mobility / land access	Land access	Land access
Typical form	2-4 lanes plus turn lanes at intersections	2 lanes plus turn lanes at key intersections	2 lanes	2 lanes	2 lanes
Typical intersection spacing	400 m	200 m	60 m	60 m	60 m
Transit services	Frequent	Regular	Regular or shuttles	n/a	n/a
Bicycle facilities	Bicycle lanes, separated bicycle lanes, or off-street pathway	Bicycle lanes or marked wide curb lane	Marked wide curb lanes or local bikeway*	Local bikeway*	Local bikeway*
Pedestrian facilities	Sidewalk and/or pathway both sides with boulevard	Sidewalk both sides with boulevard	Sidewalk both sides	Sidewalk both sides	Sidewalk on one side
On-Street Parking	Not desirable	Permitted	Permitted	Permitted	Permitted
Traffic Calming	No	No	Yes	Yes	Yes

* on designated bicycle routes

Strategic Transportation Plan Update

Map A.1 Street Classification



Updated Road Classification

	Existing	Proposed
Provincial Highway		
Major Road Network		
City Arterial		
City Collector		
Community Collector		
Local		

General

Municipal Boundary

0 0.5 1 1.5 2 Kilometers

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APPENDIX C

Summary of Parking Management Strategies

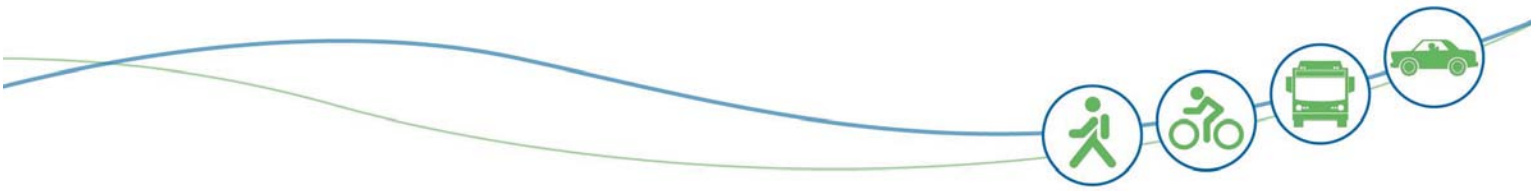
As previously described in the Parking Management Strategy, there are a range of parking management strategies that can be considered either on a City-wide basis, in the City Centre or around rapid transit stations, or in Neighbourhood Centres. As shown below, parking management strategies can either involve private development policies, public parking systems, or parking support strategies. This section describes each of these strategies in further detail.

Figure A-2: Parking Management Strategy

	City-wide	City Centre / Rapid Transit Station Areas	Neighbourhood Centres
Private Development Policies			
Parking Maximums	✓	✓	✓
Flexible Standards	✓	✓	✓
Off-Street Bicycle Parking	✓	✓	✓
Electric Vehicles	✓	✓	✓
Shared Parking		✓	✓
Minimize Principal Use Facility		✓	✓
Preferential Parking		✓	✓
Unbundle Parking		✓	
Public Parking Systems			
On-street time limits		✓	✓
Parking Pricing		✓	
Public Off-street parking		✓	
Cash-in-lieu		✓	
Park-and-ride	✓		
On-Street Bicycle Parking	✓	✓	✓
Parking Support Strategies			
Financial Incentives	✓		
Alter Tax Exemptions	✓		
Enforcement		✓	✓
User Information		✓	✓
Overflow Parking Areas		✓	✓

a. Private Development Parking Policies

- **Parking maximums.** Parking "maximums" can be developed to limit the amount of parking that developers may build in order to ensure that an overly abundant supply of parking is not provided. These maximums could be used in coordination with minimum requirements described above, or they could be stand alone policies. Parking maximums can be applied to both new and existing developments. New developments would adhere to the zoning maximum as set out in the bylaw unless the



proponent demonstrates that more parking is required through a parking study and then would request a variance to the bylaw. Similarly, a parking maximum would also apply to development expansions, but would be measured against the entire facility, including the existing development, in order to limit the effect of any oversupply of existing parking.

- **Reduced parking minimums or flexible requirements.** "Minimum" parking requirements are commonly used to regulate the amount of supply that must be provided in private developments. Similar to many other municipalities, the City of Coquitlam has established minimum parking requirements in its Zoning Bylaw based on the type or use of buildings. Municipalities may also permit reductions to these minimums, sometimes referred to as "flexible requirements", based on the location features of a site relative to other modes of travel, or in return for agreements to support local or on-site initiatives for transit, carpooling, vanpooling, cycling, cash-in-lieu for parking and a cash-out program. In order to ensure that the supply of parking best reflects the parking demands, it is recommended that the City review its parking minimums and consider overall reductions in minimum parking standards, as well incorporate provisions for flexible parking requirements, particularly within the City Centre and within a 400-metre of greater radius of planned Evergreen Line stations.

- **Park-and-ride programs & facilities.** Park & Ride consists of parking facilities at transit stations, bus stops and highway onramps, particularly at the urban fringe, to facilitate transit and rideshare use. Parking is generally free or significantly less expensive than in urban centers.

- **Bicycle parking standards.** In addition to motor vehicle parking, it is also important to establish requirements for bicycle parking, as noted in the Bicycle Plan. The City of Coquitlam does not currently require private developments to provide bicycle parking. The Parking Management Strategy recommends incorporating requirements for the quantity of both short-term and long-term bicycle parking as well as other end of trip facilities such as showers and clothing lockers. The

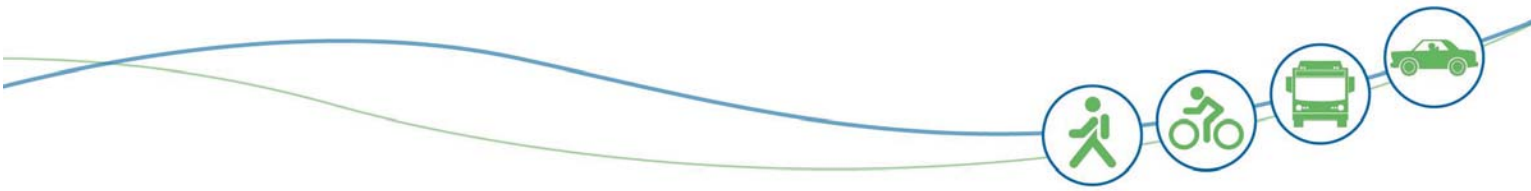
City should develop bicycle parking design guidelines to ensure that bicycle parking is safe, attractive, and convenient.

- **Electric vehicles (EV) and other new technologies.** Provisions for electric vehicles should be made mandatory for all new developments throughout the City. As the technology develops, the City will need to evaluate the specific needs and periodically review and amend the associated regulatory framework. This can include updating parking requirements in the Zoning Bylaw and other related policy documents. This approach, coupled with on-going education and outreach programs, will lend support to travel mode choice thus contributing to GHG emission reductions and overall reductions in motor vehicle travel.

- **Shared parking** means that parking spaces are shared by more than one user, which allows parking facilities to be used more efficiently. Shared parking takes advantage of the fact that most parking spaces are only used part of the time, and many parking facilities have a significant portion of unused spaces. Parking can be shared among different buildings and facilities in an area to take advantage of different peak periods. For example, an office complex can efficiently share parking facilities with a restaurant or theatres, since offices require maximum parking during weekdays, while restaurants and theatres require maximum parking during evenings and weekends. Achieving efficiencies in mixed use strategies would likely require intensification on a variety of commercial uses.

- **Minimizing principal use facilities** refers to limiting the number of new facilities which are constructed for the sole purpose of providing parking and also limiting the use of land for temporary parking facilities. This provides municipalities with a means of containing the total supply of parking in an area. Otherwise, efforts to manage the parking supply through reduced parking requirements and management of publicly-operated facilities could be offset by an increase in privately-owned parking facilities.

- **Preferential parking areas.** To encourage ridesharing and to support the features of other parking management strategies, a portion



of the parking supply would be allocated for vehicles involved in carpooling, vanpooling, or car sharing. The allocated spaces are reserved specifically for ridesharing participants and are more conveniently located than those set aside for SOV trips. The goal of this strategy is to provide an incentive for single occupant drivers to switch to carpooling or vanpooling or to encourage car sharing programs. Preferential parking areas would typically be intended for commercial developments, offices, and institutional uses, for example.

- **Unbundle parking.** Unpriced parking is often "bundled" with building costs, which means that a certain number of spaces are automatically included with building purchases or leases. Unbundling Parking means that parking is sold or rented separately. For example, rather than renting an apartment for $1,000 per month with two parking spaces at no extra cost, each apartment can be rented for $850 per month, plus $75 per month for each parking space. Occupants only pay for the parking spaces the actually need. This is more efficient and fair, since occupants save money when they reduce parking demand, are not forced to pay for parking they do not need, and can adjust their parking supply as their needs change.

  For this to function efficiently, building owners must be able to lease or sell excess parking spaces (such as parking brokerage services described below), and local officials should regulate nearby on-street parking to avoid spillover problems that could result if residents use on-street parking to avoid paying rents for parking spaces. Unbundled parking is applicable to new developments and could potentially be achieved in conjunction with reduced parking standards.

b. Public Parking Systems

- **On-street time limits.** The strategy of on-street time limits would be to regulate the use of on-street parking with time restrictions, typically through signage identifying the duration of permitted parking. On-street time limits are most often used in commercial zones to encourage a relatively high degree of parking turnover of shoppers, while discouraging the practice of long-term commuter parking. They are also

used in residential areas where long-term commuter parking is a problem. In this case, residents are exempt from the parking time limits through the use of parking permits. Resident-parking only zones can similarly be created to reduce the degree of "spillover" near a downtown or activity centre.

- **Parking pricing.** The City currently has limited parking pricing in the City Centre in a number on on-street and off-street facilities, including the Evergreen Cultural Centre and Town Centre Park, City Centre Aquatic Complex, Pinetree Community Centre, and 3045 Lincoln. The City Centre Parking Management Plan should examine the following features of parking pricing strategy in the City Centre:
  - Define a comprehensive coverage of on-street pay parking;
  - Review parking duration and pay parking rates for on- and off-street facilities within the 400-metre radius of the Evergreen Line stations;
  - Update the pay parking rates to cover operation, maintenance, replacement and enforcement costs;
  - Review existing arrangement amongst Douglas College, School District 43 and the City for pay parking in the City Centre;

- **Public off-street parking supply.** The City owns and operates a number of public off-street facilities in the City Centre, including the Evergreen Cultural Centre and Town Centre Park, City Centre Aquatic Centre Complex, City Hall and Public Safety Building, Pinetree Community Centre, Town Centre Fire Hall, and 3045 Lincoln. The City Centre Parking Management Plan should review the City's role in the provision of parking and the opportunity of using City-owned lands for parking supply options. The Plan should also generate and assess different administrative options for the management of City-owned parking facilities by deploying external (contractor) and internal resources.

- **Cash-in-lieu.** Parking can be shared by relying on public parking facilities rather than having each building provide private off-street parking, since each public space can serve many users and destinations. Private developers can be allowed or required to pay cash in-lieu fees to fund public parking facilities as an alternative to minimum requirements

for private off-street parking. Cash-in-lieu fees can also be used to fund other infrastructure that supports walking, cycling, public transit or other alternative forms of transportation.

c. Other Parking Support Strategies

- **Financial Incentives** can be provided to offer financial incentives to use alternate modes of transportation and reduce the use of parking facilities. Financial incentives can include employers funding employees' fees for transit and rideshare if they choose those modes instead of single occupant vehicles.

- **Alter tax exemptions.** Under this strategy, one of two options could be pursued: 1) The current tax-exempt status of employer-paid parking, where the vehicle is used for work, would be extended to those individuals who choose the cash-out option and switch to non-SOV modes; or 2) the current tax exempt status of employer paid parking, whereby the vehicle is used for work, would be removed. The parking space subsidy would become a taxable benefit that an employee received to be claimed as income. Both options place sustainable modes, such as transit, ridesharing, walking and cycling on a level playing field with the subsidies of the single occupant vehicle. By altering the current tax exemption that favours and encourages SOV travel, commuters would be given the choice to cash out their parking subsidies and direct them toward more other commuting options without penalty. This strategy would require changes in federal legislation.

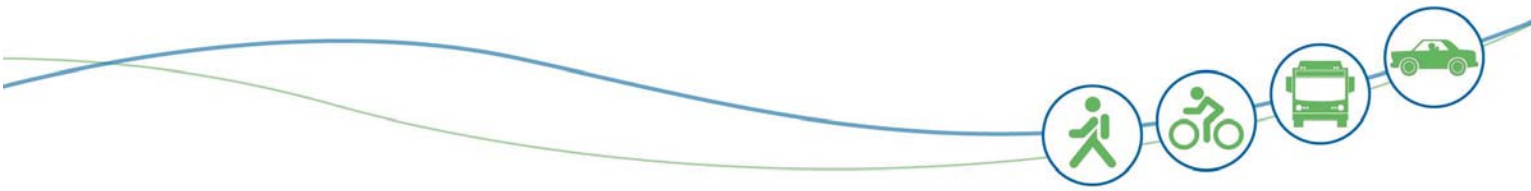
- **Cash out employer parking subsidies.** Many employers provide employees that drive with a significant commuter allowance in the form of a parking subsidy. Employers may provide free parking to employees in the facilities that they own or lease on behalf of the employee from a third party. Under the Parking Management Strategy, employees that currently receive a parking space which is paid for by the employer would have the option of continuing to receive the subsidized parking or taking the cash equivalent. The rationale for the cash out is that the decision to drive alone would be altered by those

preferring to pocket the cash and use another non-SOV mode. The Parking Strategy recommends that this policy be adopted by the City and would apply to all municipal employees. This step would demonstrate commitment toward reducing vehicle travel and could be further implemented by other employers in Coquitlam.

- **Enforcement programs.** The key to many of the strategies noted above – notably the on-street time limits – is a consistent and effective enforcement program. Enforcement involves not only issuing tickets to violations, but also ensuring emphasis on payment of fines. In the end, a balanced enforcement program is critical to the success of the parking management strategy. A casual and intermittent enforcement program would encourage illegal parking, while an overly strict program would result in merchant displeasure and public protest. Enforcement could be done by the City either directly or indirectly through contracts with third parties.

- **User information and marketing.** Many parking problems result, in part, from inadequate user information and Marketing. Motorists need convenient and accurate information on parking availability and price, including what parking facilities exist near a destination, whether spaces are available in a particular facility at a particular time, the price they will need to pay, and whether there are less expensive alternatives nearby. The City could produce a Transportation Access Guide that provides concise information on how to access a particular destination by various modes, including parking availability and price. Parking information can include maps, signs, brochures and various types of information technology systems to provide information to motorists on parking facility location, availability (whether a parking lot is full), service options, and price. This can help improve user convenience and security and increase the functional supply of parking.

- **Overflow parking plans.** Excessive parking is often provided to meet infrequent peak demand that occurs during Special Events or other limited time periods. Parking requirements can be reduced by developing an overflow parking plan. This can include:
  - Shared Parking arrangements during peak periods.



- Use of remote parking facilities with shuttle services.
- Promotion and pricing to encourage peak-period motorists to use remote parking.
- Promotion of sustainable modes such as public transit and ridesharing to major events.
- Encourage employees to use remote parking sites or sustainable modes during peak periods.
- Special parking regulation to favour priority vehicles (emergency, service, HOV, disabled, etc.)
- Improved walkability between destinations and nearby parking facilities.

- **Address Spillover Problems** – Generous and free parking is often justified in order to avoid "spillover" parking problems in nearby areas. Spillover problems can be addressed directly with management, pricing and enforcement strategies. On-street parking can be limited to residents, which can be enforced by issuing permits to residents, or simply in response to complaints. Residential neighbourhoods can be designated "Parking Benefit Districts," where on-street parking is priced (residents can be exempt), with revenues used for neighbourhood enhancement or to reduce property taxes.